



Mn/DOT Name: 1 DHB

NGS Name: 1 DHB

County: CLAY, MN (Sheet 1)

NGS ACRN: [DI4112](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096323/  
 USGS Quad: FELTON SW

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	18	142 N	47 W	470719.48	964123.36		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1965	2013	GOOD	Horz=NO Vert=NO	YES		FLUSH	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	SURVEY DISK	USGS

**Description:** (2006) **Stamping:** 1 DHB 1965

5.5 MILES SOUTHEAST OF PERLEY, 2.0 MILES SOUTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND COUNTY ROAD 39 IN PERLEY, THEN 5.2 MILES EAST ALONG 210TH AVENUE NORTHWEST, THEN 2.0 MILES SOUTH ON 50TH STREET NORTH, 74.0 FEET SOUTH OF 190TH AVENUE NORTH, 48.0 FEET EAST OF 50TH STREET NORTH, 0.7 FOOT NORTH OF A FENCE POST, 1.3 FEET EAST OF A WITNESS POST.

**Station Notes**

A RIVET WAS DRILLED INTO THE CENTER OF THE MARK AND IS NOW WHERE YOU SET UP ON IT. 01-31-2006.  
 THE MARK WAS FOUND LOOSE IN THE GROUND. DO NOT USE FOR GEODETIC WORK. 7/22/13.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order/(Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			
887.380	.033	3				1965	USGS-VERT			

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order/(Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>		
888.433	.262		801.695	.197	2011	2013	RTRN2013	GPS - RTRN	
			801.652	.029	2011	2012	GPS2800	HORIZONTAL ADJUSTMENT	
			801.750	.066	2007	2007	GPS2320-B	HORIZONTAL ADJUSTMENT	
888.351	.131		801.783	.066	1996	2007	GPS2320	HORIZONTAL ADJUSTMENT	
888.351	.131		801.783	.066	1996	2006	HNRMN	GPS - STATIC	
			801.918	.066	1996	2001	DIST 4	GPS - STATIC	

Geoid Separations(ft): GEOID18 = -86.729 12B = -86.739 09 = -86.617 03 = -86.594

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
47 07 19.48240	96 41 23.36493	502556.273	279486.174	.131	3	2013	RTRN2013	GPS - RTRN	
47 07 19.48202	96 41 23.36243	502556.446	279486.135	.013		2012	GPS2800	ADJUSTMENT	

  

<u>NAD83(2007)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
47 07 19.48197	96 41 23.36319	502556.394	279486.130	.033	C	2007	GPS2320-B	ADJUSTMENT	

  

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
47 07 19.48153	96 41 23.36317	502556.395	279486.086	.033	C	2007	GPS2320	ADJUSTMENT	
47 07 19.48153	96 41 23.36317	502556.395	279486.086	.033	C	2006	HNRMN	GPS - STATIC	
47 07 19.48103	96 41 23.36322	502556.390	279486.036	.033	C	2001	DIST 4	GPS - STATIC	



**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2017338.749	1111294.856	722219.000	17143465.075	.131	3	GPS - RTRN	2013	RTRN2013
2017338.921	1111294.813	722219.171	17143465.029	.013		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2017338.868	1111294.809	722219.118	17143465.026	.033	C	ADJUSTMENT	2007	GPS2320-B

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2017338.868	1111294.765	722219.117	17143464.981	.033	C	ADJUSTMENT	2007	GPS2320
2017338.868	1111294.765	722219.117	17143464.981	.033	C	GPS - STATIC	2006	HNRMN
2017338.863	1111294.714	722219.111	17143464.931	.033	C	GPS - STATIC	2001	DIST 4

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<b>Location:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1_DHB-DI4112-3S-22JUL2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1_DHB-DI4112-3S-22JUL2013.jpg</a>	S	Jul 22, 2013
<b>Monument:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1_DHB-DI4112-2-22JUL2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1_DHB-DI4112-2-22JUL2013.jpg</a>		Jul 22, 2013
<b>Disk:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1_DHB-DI4112-1-22JUL2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1_DHB-DI4112-1-22JUL2013.jpg</a>		Jul 22, 2013

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1 DWE

NGS Name: 1 DWE

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 47096233/  
 USGS Quad: ULEN SW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	14	141 N	46 W	470114.00	962837.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1963	1963	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

**Description:** (1963)                      **Stamping:** 1 DWE 1963

4.8 MILES NORTHEAST OF AVERILL, 2.0 MILES NORTHEAST ON 130TH STREET NORTH FROM THE JUNCTION OF 120TH STREET NORTH AND COUNTY ROAD 93, THEN 5.0 MILES EAST-NORTH ON 100TH AVENUE NORTH, 19.0 FEET NORTH AND 348.0 FEET EAST OF THE GRAVEL CROSSROADS, 4.0 FEET WEST OF A LARGE COTTONWOOD TREE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
930.894	.033	3							VERTICAL CONTROL SURVEY	1964	USGS-VERT	

Geoid Separations(ft): GEOID18 = -87.214    12B = -87.231    09 = -87.093    03 = -87.067

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1 RWM

NGS Name: 1 RWM

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	30	140 N	47 W	465510.00	963908.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	1999	GOOD	Horz=? Vert=YES	YES			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

**Description:** (1964)                      **Stamping:** 1 RWM 1964

3.8 MILES NORTHEAST OF DILWORTH, 1.9 MILES EAST TRUNK HIGHWAY 10 EAST FROM THE JUNCTION OF TRUNK 10 AND 4TH STREET NORTHEAST, THEN TAKE THE TRUNK HIGHWAY 366 EXIT, THEN 3.1 MILES NORTH ON COUNTY ROAD 11 (70TH STREET NORTH), 147.0 FEET SOUTH AND 93.0 FEET WEST OF THE CROSSROADS, 3.0 FEET SOUTH AND 21.0 FEET EAST OF THE SOUTHEAST CORNER OF THE MOLDEN TOWN HALL, 4.0 FEET SOUTH OF A FLAGPOLE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>		
915.950	.033	3							VERTICAL CONTROL SURVEY	1964	USGS-VERT	

**Geoid Separations(ft): GEOID18 = -87.011    12B = -87.024    09 = -86.850    03 = -86.834**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 10 1

NGS Name: 10 1

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0323](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	3	139 N	48 W	465229.00	964408.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1968	1968	GOOD	Horz=NO Vert=NO	NO	9 - 1963		SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STRUCTURE (MASSIVE)	SURVEY DISK	MNDT

Description: (1968)

Stamping:

IN MOORHEAD, IN THE NORTHEAST CORNER OF RAILROAD BRIDGE NUMBER 9-1963 OVER A DRAINAGE DITCH ROAD 9, 463.0 FEET NORTH ALONG 8TH STREET SOUTH FROM THE JUNCTION OF 8TH STREET SOUTH AND MAIN AVENUE IN MOORHEAD, THEN 1.1 MILES EAST ALONG TRUNK HIGHWAY 75/TRUNK HIGHWAY 10 (CENTER AVENUE), THEN 0.4 MILE EAST ALONG TRUNK HIGHWAY 10 EAST, THEN 285.0 FEET SOUTH ALONG 28TH STREET NORTH, THEN 154.0 FEET EAST ALONG TRUNK HIGHWAY 10 FRONTAGE ROAD, NEAR THE CORNERS OF SECTIONS 3-4-10-9 ABOUT 1.5 MILES EAST OF THE NORTHERN PACIFIC RAILROAD STATION AT MOORHEAD.

Station Notes

THE SET DATE IS UNKNOWN. THE MARK IS A CHISELED X. THE SURVEY MARK IS ON RAILROAD PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
911.078	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
910.133	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD

Geoid Separations(ft): GEOID18 = -87.041 12B = -87.034 09 = -86.906 03 = -86.854

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 10 RWM

NGS Name: 10 RWM

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM1805](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096424/  
 USGS Quad: COMSTOCK

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SW	24	138 N	48 W	464447.84	964139.87		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	2013	DESTROYED	Horz=NO Vert=NO	YES		FLUSH	STEEL SPIKE IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	USGS

**Description:** (2009) **Stamping:** 10 RWM 1964

7.8 MILES SOUTHEAST OF MOORHEAD, 7.0 MILES SOUTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND INTERSTATE HIGHWAY 94 IN MOORHEAD, TO TRUNK HIGHWAY 75 MILEPOINT 241.35, THEN 3.5 MILES EAST ON COUNTY ROAD 65 (100 AVENUE SOUTH), 47.0 FEET NORTH OF COUNTY ROAD 65 (100TH AVENUE SOUTH), 50.0 FEET EAST OF COUNTY ROAD 66 (50TH STREET SOUTH), 6.0 FEET SOUTHEAST OF A POWER POLE, 1.8 FEET SOUTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>		
918.354	.033	3				VERTICAL CONTROL SURVEY	1964	USGS-VERT	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>		
919.585			832.410	.009	2011	HORIZONTAL ADJUSTMENT	2014	GPS2750	
			832.410	.009	2011	GPS - STATIC	2014	HBARN	
			832.410	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
919.585	.131		832.426	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2690	
919.552	.131		832.426	.066	2007	GPS - STATIC	2010	HBARN	
919.499	.131		832.495	.066	1996	GPS - STATIC	2010	HBARN	
919.585	.131		832.495	.066	1996	GPS - STATIC	2010	HCOMS	
919.585	.131		832.426	.066	2007	GPS - STATIC	2010	HCOMS	
919.490	.262		832.475	.197	1996	GPS - RTRN	2009	RTRN2009	
			832.620	.066	1996	GPS - STATIC	2001	DIST 4	

Geoid Separations(ft): GEOID18 = -87.178 12B = -87.165 09 = -87.109 03 = -87.011

**Lat/Lon and County Coordinates (Feet)**

<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	
46 44 47.83982	96 41 39.87227	501424.419	142540.137	.007		ADJUSTMENT	2014	GPS2750
46 44 47.83983	96 41 39.87227	501424.419	142540.138	.007	C	GPS - STATIC	2014	HBARN
46 44 47.83982	96 41 39.87227	501424.419	142540.137	.007		ADJUSTMENT	2012	GPS2800

<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	
46 44 47.84000	96 41 39.87347	501424.335	142540.156	.033	C	ADJUSTMENT	2011	GPS2690
46 44 47.84000	96 41 39.87347	501424.335	142540.156	.033	C	GPS - STATIC	2010	HBARN
46 44 47.84000	96 41 39.87347	501424.335	142540.156	.033	C	GPS - STATIC	2010	HCOMS

<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	
46 44 47.83958	96 41 39.87326	501424.350	142540.113	.033	C	GPS - STATIC	2010	HBARN
46 44 47.83958	96 41 39.87326	501424.350	142540.113	.033	C	GPS - STATIC	2010	HCOMS
46 44 47.84018	96 41 39.87362	501424.325	142540.174	.131	3	GPS - RTRN	2009	RTRN2009
46 44 47.83954	96 41 39.87336	501424.342	142540.109	.033	C	GPS - STATIC	2001	DIST 4

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15			Project Info			
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2011972.249	974458.475	714621.751	17006653.180	.007		ADJUSTMENT	2014	GPS2750
2011972.249	974458.476	714621.751	17006653.181	.007	C	GPS - STATIC	2014	HBARN
2011972.249	974458.475	714621.751	17006653.180	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15			Project Info			
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2011972.166	974458.496	714621.668	17006653.202	.033	C	ADJUSTMENT	2011	GPS2690
2011972.166	974458.496	714621.668	17006653.202	.033	C	GPS - STATIC	2010	HBARN
2011972.166	974458.496	714621.668	17006653.202	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15			Project Info			
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2011972.180	974458.453	714621.681	17006653.159	.033	C	GPS - STATIC	2010	HBARN
2011972.180	974458.453	714621.681	17006653.159	.033	C	GPS - STATIC	2010	HCOMS
2011972.156	974458.514	714621.659	17006653.221	.131	3	GPS - RTRN	2009	RTRN2009
2011972.173	974458.449	714621.673	17006653.155	.033	C	GPS - STATIC	2001	DIST 4

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/10_RWM-DM1805-3N-30JUN2010.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/10_RWM-DM1805-3N-30JUN2010.jpg</a>	N	Jun 30, 2010
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/10_RWM-DM1805-2-30JUN2010.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/10_RWM-DM1805-2-30JUN2010.jpg</a>		Jun 30, 2010
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/10_RWM-DM1805-1-30JUN2010.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/10_RWM-DM1805-1-30JUN2010.jpg</a>		Jun 30, 2010

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 11 RWM

NGS Name: 11 RWM

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM1806](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096424/  
 USGS Quad: COMSTOCK

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	36	137 N	48 W	463750.16	964139.43		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	2015	GOOD	Horz=YES Vert=YES	YES		PROJECTS 6 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	USGS

**Description:** (2009)                      **Stamping:** 11 RWM 1964

3.2 MILES SOUTHEAST OF COMSTOCK, 2.0 MILES SOUTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND COUNTY ROAD 2 (THE JUNCTION IS 0.5 MILE WEST OF COMSTOCK), TO TRUNK HIGHWAY 75 MILEPOINT 233.25, THEN 3.0 MILES EAST ON 180TH AVENUE SOUTH, 70.0 FEET NORTH OF 180TH AVENUE SOUTH, 46.9 FEET EAST OF COUNTY ROAD 52 (50TH STREET SOUTH), 18.8 FEET WEST OF CABLE BOX T 204 3, 1.0 FOOT WEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
928.305	.033	3				VERTICAL CONTROL SURVEY		1964	USGS-VERT

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
929.460			842.741	.009	2011	HORIZONTAL ADJUSTMENT		2015	GPS3084
929.519	.131		842.810	.066	1996	GPS - STATIC		2015	HCLAY
929.460			842.741	.009	2011	HORIZONTAL ADJUSTMENT		2015	GPS3080
929.460			842.744	.009	2011	GPS - STATIC		2015	HCLAY
929.431	.131		842.810	.066	1996	GPS - STATIC		2015	HWILK
929.460			842.735	.009	2011	GPS - STATIC		2015	HWILK
			842.741	.009	2011	HORIZONTAL ADJUSTMENT		2012	GPS2800
929.460	.131		842.751	.066	2007	HORIZONTAL ADJUSTMENT		2011	GPS2690
929.460	.131		842.810	.066	1996	GPS - STATIC		2010	HCOMS
929.460	.131		842.751	.066	2007	GPS - STATIC		2010	HCOMS
929.349	.262		842.758	.197	1996	GPS - RTRN		2009	RTRN2009
929.191	.262		842.600	.197	1996	GPS - RTRN		2008	RTRN2008
			842.990	.066	1996	GPS - STATIC		2001	DIST 4

**Geoid Separations(ft): GEOID18 = -86.709    12B = -86.703    09 = -86.647    03 = -86.591**

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 37 50.16349	96 41 39.42695	501458.504	100223.773	.007		ADJUSTMENT	2015	GPS3084
46 37 50.16349	96 41 39.42695	501458.504	100223.773	.007		ADJUSTMENT	2015	GPS3080
46 37 50.16348	96 41 39.42700	501458.500	100223.772	.007	C	GPS - STATIC	2015	HCLAY
46 37 50.16353	96 41 39.42706	501458.496	100223.777	.007	C	GPS - STATIC	2015	HWILK
46 37 50.16349	96 41 39.42695	501458.504	100223.773	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 37 50.16357	96 41 39.42809	501458.424	100223.781	.033	C	ADJUSTMENT	2011	GPS2690
46 37 50.16357	96 41 39.42809	501458.424	100223.781	.033	C	GPS - STATIC	2010	HCOMS

NAD83(1996)

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 37 50.16313	96 41 39.42787	501458.440	100223.737	.033	C	GPS - STATIC	2015	HCLAY
46 37 50.16313	96 41 39.42787	501458.440	100223.737	.033	C	GPS - STATIC	2015	HWILK
46 37 50.16313	96 41 39.42787	501458.440	100223.737	.033	C	GPS - STATIC	2010	HCOMS
46 37 50.16342	96 41 39.42891	501458.367	100223.766	.131	3	GPS - RTRN	2009	RTRN2009
46 37 50.16354	96 41 39.42689	501458.508	100223.778	.131	3	GPS - RTRN	2008	RTRN2008
46 37 50.16345	96 41 39.42723	501458.484	100223.769	.033	C	GPS - STATIC	2001	DIST 4

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2010697.691	932165.703	712665.785	16964359.343	.007		ADJUSTMENT	2015	GPS3084
2010697.691	932165.703	712665.785	16964359.343	.007		ADJUSTMENT	2015	GPS3080
2010697.688	932165.702	712665.782	16964359.342	.007	C	GPS - STATIC	2015	HCLAY
2010697.684	932165.707	712665.778	16964359.347	.007	C	GPS - STATIC	2015	HWILK
2010697.691	932165.703	712665.785	16964359.343	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2010697.612	932165.713	712665.706	16964359.355	.033	C	ADJUSTMENT	2011	GPS2690
2010697.612	932165.713	712665.706	16964359.355	.033	C	GPS - STATIC	2010	HCOMS

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2010697.626	932165.668	712665.720	16964359.309	.033	C	GPS - STATIC	2015	HCLAY
2010697.626	932165.668	712665.720	16964359.309	.033	C	GPS - STATIC	2015	HWILK
2010697.626	932165.668	712665.720	16964359.309	.033	C	GPS - STATIC	2010	HCOMS
2010697.554	932165.700	712665.648	16964359.342	.131	3	GPS - RTRN	2009	RTRN2009
2010697.695	932165.708	712665.790	16964359.348	.131	3	GPS - RTRN	2008	RTRN2008
2010697.672	932165.699	712665.766	16964359.340	.033	C	GPS - STATIC	2001	DIST 4

Station Photos

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/11_RWM-DM1806-3N-22SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/11_RWM-DM1806-3N-22SEP2009.jpg</a>	N	Sep 22, 2009
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/11_RWM-DM1806-2-22SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/11_RWM-DM1806-2-22SEP2009.jpg</a>		Sep 22, 2009
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/11_RWM-DM1806-1-22SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/11_RWM-DM1806-1-22SEP2009.jpg</a>		Sep 22, 2009

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 129 RGW  
 County: CLAY, MN (Sheet 1)

NGS Name: 129 RGW

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 47096332/  
 USGS Quad: GEORGETOWN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	9	141 N	48 W	470207.00	964511.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1962	1999	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

**Description:** (1962)                      **Stamping:** 129 RGW 1962

3.0 MILES NORTH OF KRAGNES, 3.0 MILES NORTH ALONG COUNTY ROAD 96 (20TH STREET NORTH) FROM THE JUNCTION OF COUNTY ROAD 96 AND TRUNK HIGHWAY 75, THEN 52.0 FEET EAST ON 130TH AVENUE NORTH, 62.0 FEET NORTH AND 8.0 FEET WEST OF A TEE-ROAD SOUTH, 1.0 FOOT SOUTHEAST OF A TELEPHONE POLE, 7.5 FEET WEST OF A NORTH-SOUTH FENCE, 10.0 FEET NORTH OF AN EAST-WEST FENCE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
887.967	.033	3				VERTICAL CONTROL SURVEY	1965	USGS-VERT	

**Geoid Separations(ft): GEOID18 = -86.407    12B = -86.407    09 = -86.289    03 = -86.273**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 13 RWM

NGS Name: 13 RWM

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096421/  
 USGS Quad: BAKER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	35	137 N	47 W	463751.00	963419.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	2013	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	SEE DESCRIPTION	USGS

**Description:** (1964)                      **Stamping:** 13 RWM 1964

7.3 MILES SOUTHWEST OF BARNESVILLE, 6.0 MILES WEST ALONG COUNTY ROAD 2/ 160TH AVENUE SOUTH FROM THE JUNCTION OF COUNTY ROAD 2 AND TRUNK HIGHWAY 9 IN BARNESVILLE, THEN 2.0 MILES SOUTH ALONG 120TH STREET SOUTH, THEN 1.2 MILES WEST ALONG COUNTY ROAD 50/ COUNTY ROAD 192/ 180TH AVENUE, 40.0 FEET NORTH AND 27.0 FEET EAST OF A TEE-JUNCTION SOUTH, 28.0 FEET EAST OF A FIELD ROAD NORTH, 4.0 FEET EAST OF A TELEPHONE POLE.

**Station Notes**

FOUND CONCRETE REMNANTS 6-18-13.  
 REPLACED BY STATION ATHEP.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
940.963	.033	3					VERTICAL CONTROL SURVEY	1964	USGS-VERT	

Geoid Separations(ft): GEOID18 = -86.831    12B = -86.821    09 = -86.762    03 = -86.696

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 130 RGW  
 County: CLAY, MN (Sheet 1)

NGS Name: 130 RGW

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 47096332/  
 USGS Quad: GEORGETOWN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	33	142 N	48 W	470442.00	964516.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1962	2002	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

**Description:** (2002)                      **Stamping:** 130 RGW 1962

1.8 MILES EAST OF GEORGETOWN, 1.8 MILES EAST ALONG COUNTY ROAD 34 (160TH AVENUE NORTHWEST) FROM THE JUNCTION OF COUNTY ROAD 34 AND TRUNK HIGHWAY 75 IN GEORGETOWN, 57.0 FEET SOUTH AND 289.0 FEET EAST OF A TEE-ROAD SOUTH, 400.0 FEET WEST OF A TEE-ROAD NORTH, 3.0 FEET NORTH OF A POWER POLE, 1.0 FOOT NORTH OF AN EAST-WEST FENCE.

**Station Notes**

THE GEODETIC UNIT FOUND THE CONCRETE CRACKED AND THE DISK LOOSE, SO THEY REMOVED THE DISK AND TURNED IT IN TO THE GEODETIC OFFICE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
888.066	.033	3					VERTICAL CONTROL SURVEY	1965	USGS-VERT	

Geoid Separations(ft): GEOID18 = -86.404    12B = -86.427    09 = -86.299    03 = -86.263

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 131 RGW  
 County: CLAY, MN (Sheet 1)

NGS Name: 131 RGW

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 47096332/  
 USGS Quad: GEORGETOWN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	10	142 N	48 W	470722.00	964512.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1962	1962	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

**Description:** (1962)                      **Stamping:** 131 RGW 1962

3.5 MILES NORTHEAST OF GEORGETOWN, 1.9 MILES NORTH ON TRUNK HIGHWAY 75 NORTH FROM THE JUNCTION OF TRUNK HIGHWAY 75 NORTH AND COUNTY ROAD 34 IN GEORGETOWN, THEN 2.0 MILES EAST ON 180TH AVENUE NORTH, THEN 1.0 MILE NORTH ON 20TH STREET NORTH, 244.0 FEET NORTH AND 32.0 FEET EAST OF A CROSSROADS, 1.0 FOOT NORTHWEST OF A TELEPHONE POLE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>		
880.697	.033	3							VERTICAL CONTROL SURVEY	1965	USGS-VERT	

**Geoid Separations(ft): GEOID18 = -86.535    12B = -86.535    09 = -86.434    03 = -86.420**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 139 RGW  
 County: CLAY, MN (Sheet 1)

NGS Name: 139 RGW

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 47096332/  
 USGS Quad: GEORGETOWN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	18	142 N	48 W	470716.00	964859.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1962	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

**Description:** (1962)                      **Stamping:** 139 RGW 1962

3.05 MILES NORTHWEST OF GEORGETOWN, 1.9 MILES NORTH ALONG TRUNK HIGHWAY 75 NORTH FROM THE JUNCTION OF TRUNK HIGHWAY 75 NORTH AND COUNTY ROAD 34 IN GEORGETOWN, THEN 0.5 MILE WEST ON 180TH AVENUE NORTH, THEN 1.1 MILES NORTHWEST ON COUNTY ROAD 100 (15TH STREET NORTHWEST), 78.0 FEET SOUTH AND 85.0 FEET WEST OF COUNTY ROAD 1 AND A CROSSROAD, 3.0 FEET NORTHWEST OF A POWER POLE.

**Station Notes**

FOUND THE CONCRETE BROKEN OFF.  
 THE DISK WAS TURNED IN TO THE OFFICE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
879.129	.033	3							VERTICAL CONTROL SURVEY	1963	USGS-VERT	

Geoid Separations(ft): GEOID18 = -86.306    12B = -86.309    09 = -86.224    03 = -86.214

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1397

NGS Name: 1397

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096131/  
 USGS Quad: BIG SLOUGH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	4	137 N	44 W	464212.00	961523.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1912	1973	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	SEE DESCRIPTION	USGS

Description: (1973)

Stamping:

12.75 MILES SOUTHEAST OF HAWLEY, 2.8 MILES EAST ALONG TRUNK HIGHWAY 10 EAST FROM THE JUNCTION OF TRUNK HIGHWAY 10 EAST AND 8TH STREET IN HAWLEY, THEN 12.4 MILES SOUTH ON TRUNK HIGHWAY 32 SOUTH, THEN 1.0 MILE WEST ON 130TH AVENUE SOUTH, THEN 128.0 FEET NORTH ON 260TH STREET SOUTH.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1395.099	.033	3				VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -87.201 12B = -87.165 09 = -87.073 03 = -87.024

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1401 1

NGS Name: 1401 1

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0289](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	4	139 N	46 W	465239.00	963016.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1969	2014	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	SEE DESCRIPTION	MNDT

**Description:** (1969)

**Stamping:**

3.0 MILES EAST OF GLYNDON, IN THE NORTHEAST CORNER OF THE NORTH HEADWALL OF A BOX CULVERT UNDER THE INTERSECTION OF TRUNK HIGHWAY 10/STATE STREET NORTHEAST AND TRUNK HIGHWAY 9 IN RIVERTON TOWNSHIP, 0.4 MILE EAST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND ANDREWS AVENUE SOUTH, 3.7 MILES EAST ALONG TRUNK HIGHWAY 10 IN GLYNDON, THEN MAKE A U-TURN AT COUNTY ROAD 44, 40.0 FEET EAST OF TRUNK HIGHWAY 9, 35.0 FEET NORTH OF TRUNK HIGHWAY 10, WESTBOUND CORNER OF THE FARGO-MOORHEAD RACE TRACK.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
940.818	.016	2/0					VERTICAL ADJUSTMENT	1991	00000025	

Geoid Separations(ft): GEOID18 = -87.687 12B = -87.700 09 = -87.552 03 = -87.493

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1401 2

NGS Name: 1401 2

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0048](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096144/  
 USGS Quad: HAWLEY NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	10	139 N	46 W	465233.60	962827.36	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1969	2014	GOOD	Horz=NO Vert=NO	YES		PROJECTS 36 IN.	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ROCK (0 TO 1 METERS)	SEE DESCRIPTION	MNDT

Description: (2014)

Stamping:

4.6 MILES EAST OF GLYNDON, 4.8 MILES EAST ALONG TRUNK HIGHWAY 10 EAST/ STATE STREET NORTHEAST FROM THE JUNCTION OF TRUNK HIGHWAY 10 EAST AND ANDREWS AVENUE SOUTH, AT TRUNK HIGHWAY 10 MILEPOST 14.25, 0.5 MILE NORTH OF BUFFALO STATE PARK, 167.0 FEET SOUTH OF EASTBOUND TRUNK HIGHWAY 10, 53.0 FEET EAST OF 155TH STREET SOUTH (ENTRANCE TO BUFFALO STATE PARK).

Station Notes

THE SET DATE IS UNKNOWN. THE MARK IS THE NORTHWEST CORNER OF A BRONZE PLAQUE BOLTED ON TOP OF A GRANITE BOULDER. THE MARK MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO SURFACE MOTION AND IT HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
980.779	.016	2/0					VERTICAL ADJUSTMENT	1991	00000025	

  

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
979.686	.016	2/0					UNKNOWN/APPROXIMATE	1992	UNCHECKD	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
980.677	.262			892.921	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.746 12B = -87.756 09 = -87.615 03 = -87.559

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 52 33.51157	96 28 27.21868			556491.809	189801.272	.131	3	GPS - RTRN	2014	RTRN2014

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2068470.444	1019989.135			771880.835	17051289.620	.131	3	GPS - RTRN	2014	RTRN2014

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_2-RP0048-3E-27MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_2-RP0048-3E-27MAY2014.jpg</a>	E	May 27, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_2-RP0048-2-27MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_2-RP0048-2-27MAY2014.jpg</a>		May 27, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_2-RP0048-1-27MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_2-RP0048-1-27MAY2014.jpg</a>		May 27, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1401 A

NGS Name: 1401 A

County: CLAY, MN (Sheet 1)

NGS ACRN: [DF8007](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SW	1	139 N	48 W	465236.26	964136.02	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1950	2022	GOOD	Horz=YES Vert=YES	YES		PROJECTS 4 IN.	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	BENCH MARK DISK	MNDT

Description: (2014)                      Stamping: 1401 A 1950

IN DILWORTH, 2.45 MILES EAST ALONG TRUNK HIGHWAY 10 FROM THE EAST JUNCTION OF TRUNK HIGHWAY 10 AND TRUNK HIGHWAY 75 IN MOORHEAD, AT TRUNK HIGHWAY 10 MILEPOINT 3.95, 74.0 FEET NORTH OF WESTBOUND TRUNK HIGHWAY 10, 109.0 FEET EAST OF NORTHEAST 7TH STREET, 24.0 FEET EAST-SOUTHEAST OF A FIRE HYDRANT, 7.5 FEET NORTH-NORTHWEST OF A TELEPHONE CABLE PEDESTAL, 0.8 FOOT SOUTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
909.014	.016	2/1				VERTICAL ADJUSTMENT	2024	0000941-3
909.007	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA
908.975	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941
909.230	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699
909.112	.016	2/1				VERTICAL ADJUSTMENT	2011	00000685
909.224	.016	2/1				VERTICAL CONTROL SURVEY	2010	VCOMS
909.142	.016	2/1				VERTICAL ADJUSTMENT	2004	00000425-2
909.116	.016	2/1				VERTICAL CONTROL SURVEY	2002	VMORE
909.148	.016	2/1				VERTICAL CONTROL SURVEY	2002	VMOOR

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
908.272	.033	3				VERTICAL CONTROL SURVEY	1965	CS1401

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
909.290	.262		822.154	.197	2011	GPS - RTRN	2022	RTRN2022
909.201	.262		822.062	.197	2011	GPS - OPUS	2021	GPSBM
909.171	.262		822.032	.197	2011	GPS - RTRN	2021	RTRN2021
909.188	.262		822.055	.197	2011	GPS - RTRN	2014	RTRN2014
			822.085	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
909.217	.131		822.134	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2690
909.217	.131		822.144	.066	1996	GPS - STATIC	2010	HCOMS
909.217	.131		822.134	.066	2007	GPS - STATIC	2010	HCOMS
			822.288	.066	1996	GPS - STATIC	2001	DIST 4

Geoid Separations(ft): GEOID18 = -87.139 12B = -87.136 09 = -86.998 03 = -86.952

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 52 36.25540	96 41 36.01957	501688.711	189998.135	.131	3	GPS - RTRN	2022	RTRN2022
46 52 36.25572	96 41 36.01795	501688.823	189998.168	.131	3	GPS - OPUS	2021	GPSBM
46 52 36.25508	96 41 36.01744	501688.858	189998.103	.131	3	GPS - RTRN	2021	RTRN2021
46 52 36.25557	96 41 36.01858	501688.779	189998.152	.131	3	GPS - RTRN	2014	RTRN2014
46 52 36.25546	96 41 36.01810	501688.813	189998.141	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 52 36.25569	96 41 36.01922	501688.735	189998.164	.033	C	ADJUSTMENT	2011	GPS2690
46 52 36.25569	96 41 36.01922	501688.735	189998.164	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 52 36.25520	96 41 36.01907	501688.745	189998.115	.033	C	GPS - STATIC	2010	HCOMS
46 52 36.25438	96 41 36.01840	501688.793	189998.032	.033	C	GPS - STATIC	2001	DIST 4

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2013704.050	1021881.399	717122.211	17054071.224	.131	3	GPS - RTRN	2022	RTRN2022
2013704.164	1021881.428	717122.325	17054071.252	.131	3	GPS - OPUS	2021	GPSBM
2013704.197	1021881.362	717122.357	17054071.185	.131	3	GPS - RTRN	2021	RTRN2021
2013704.119	1021881.415	717122.280	17054071.239	.131	3	GPS - RTRN	2014	RTRN2014
2013704.152	1021881.402	717122.313	17054071.226	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2013704.075	1021881.428	717122.236	17054071.253	.033	C	ADJUSTMENT	2011	GPS2690
2013704.075	1021881.428	717122.236	17054071.253	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2013704.084	1021881.378	717122.245	17054071.203	.033	C	GPS - STATIC	2010	HCOMS
2013704.128	1021881.294	717122.287	17054071.118	.033	C	GPS - STATIC	2001	DIST 4

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_A-DF8007-3N-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_A-DF8007-3N-14JUN2022.jpg</a>	N	Jun 14, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_A-DF8007-2-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_A-DF8007-2-14JUN2022.jpg</a>		Jun 14, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_A-DF8007-1-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_A-DF8007-1-14JUN2022.jpg</a>		Jun 14, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1401 A 1

NGS Name: 1401 A 1

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0037](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096141/  
 USGS Quad: HAWLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	10	139 N	45 W	465234.00	962152.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1965	2014	DESTROYED	Horz=NO Vert=NO	NO		PROJECTS 2 IN.	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	SURVEY DISK	MNDT

Description: (1969)                      Stamping: 1401-AI 1965

2.0 MILES WEST OF HAWLEY, IN HAWLEY TOWNSHIP, 0.1 MILE WEST-SOUTHWEST ALONG COUNTY ROAD 116 (MAIN STREET) FROM THE JUNCTION OF COUNTY ROAD 166 (MAIN STREET) AND 6TH STREET IN HAWLEY, THEN 0.2 MILE SOUTH-SOUTHEAST ALONG 8TH STREET, THEN 2.2 MILES WEST ALONG TRUNK HIGHWAY 10 WEST, THEN 240.0 FEET SOUTH ALONG 210TH STREET NORTH, 98.0 FEET SOUTH OF TRUNK HIGHWAY 10 EASTBOUND STATION 1041 + 00, 400.0 FEET EAST OF A COUNTY ROAD (GRAVEL), 1.0 FOOT NORTH OF A STEEL WITNESS POST.

**Station Notes**

SET IN A PRE-CAST CONCRETE MONUMENT.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1174.391	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025	

**Geoid Separations(ft): GEOID18 = -87.834    12B = -87.815    09 = -87.703    03 = -87.674**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1401 AA

NGS Name: 1401 AA

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0300](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	12	139 N	47 W	465237.00	963350.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1965	2015	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	SURVEY DISK	MNDT

**Description:** (1969)                      **Stamping:** 1401-AA 1965

0.3 MILE EAST OF GLYNDON, IN THE SOUTHEAST CORNER OF THE SOUTH HEADWALL OF AN EASTBOUND TRUNK HIGHWAY 10 DOUBLE BOX CULVERT AT A SMALL CREEK, 0.3 MILE NORTH ALONG PARKE AVENUE SOUTH FROM THE JUNCTION OF PARKE AVENUE SOUTH AND 4TH STREET SOUTHEAST IN GLYNDON, THEN 0.6 MILE EAST ALONG TRUNK HIGHWAY 10 (STATE STREET NORTHEAST), AT TRUNK HIGHWAY 10 STATION 539+79.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
920.034	.016	2/0					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
919.086	.016	2					VERTICAL CONTROL SURVEY	1972	Q460964	
919.086	.016	2					VERTICAL CONTROL SURVEY	1972	L22167-A	
919.086	.016	2					VERTICAL CONTROL SURVEY	1971	L22167-A	

**Geoid Separations(ft): GEOID18 = -87.533    12B = -87.539    09 = -87.392    03 = -87.349**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1401 AB  
County: CLAY, MN (Sheet 1)

NGS Name: 1401 AB

NGS ACRN: [RP0297](#) [Get Map](#)  
NGS Quad / Sta Num : 46096411/  
USGS Quad: GLYNDON NORTH

				Reference	Reference	Vert	Horz
1/4	Sec	Twp	Rng	Latitude	Longitude	Order	Order
NE	12	139 N	47 W	465236.47	963254.35	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1965	2022	GOOD	Horz=YES Vert=YES	YES		RECESSED 5 IN.	STEEL ROD IMBED IN MON

Monument Type	Disk Type	Mon. Agency
CONCRETE POST (PREFABRICATED)	BENCH MARK DISK	MNDT

Description: (1982)                      **Stamping:** 1401-AB 1965

1.2 MILES EAST OF GLYNDON, 1.45 MILES EAST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 19/COUNTY ROAD 117 IN GLYNDON, AT TRUNK HIGHWAY MILEPOINT 11.2, 98.0 FEET SOUTH OF EASTBOUND TRUNK HIGHWAY 10, 300.0 FEET SOUTHWEST OF STATION GLYNDON, 1.0 FOOT NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

Orthometric Height			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj		Year	Reference	
924.598	.016	2/1				VERTICAL ADJUSTMENT	2024	00000941-3	
924.598	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA	
924.598	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941	
924.778	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025	

**NGVD29**

Orthometric Height			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj		Year	Reference	
923.715	.007	1/2				UNKNOWN/APPROXIMATE	1992	UNCHECKD	
923.715	.016	2				VERTICAL CONTROL SURVEY	1972	Q460964	
923.715	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A	
923.715	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

Orthometric Height			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj		Year	Reference	
924.877	.262		837.298	.197	2011	GPS - RTRN	2022	RTRN2022	
924.732	.262		837.151	.197	2011	GPS - RTRN	2015	RTRN2015	

Geoid Separations(ft): GEOID18 = -87.579    12B = -87.582    09 = -87.437    03 = -87.392

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County				Determination Method		Project Info	
Latitude	Longitude	X	Y	Acc	Order		Year	Reference	
46 52 36.46654	96 32 54.35373	537931.643	190056.054	.131	3	GPS - RTRN	2022	RTRN2022	
46 52 36.46701	96 32 54.35389	537931.632	190056.102	.131	3	GPS - RTRN	2015	RTRN2015	

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Determination Method		Project Info	
X	Y	X	Y	Acc	Order		Year	Reference	
2049928.560	1020818.145	753345.310	17052419.581	.131	3	GPS - RTRN	2022	RTRN2022	
2049928.550	1020818.193	753345.301	17052419.630	.131	3	GPS - RTRN	2015	RTRN2015	

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AB-RP0297-3S-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AB-RP0297-3S-05JUL2022.jpg</a>	S	Jul 5, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AB-RP0297-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AB-RP0297-2-05JUL2022.jpg</a>		Jul 5, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AB-RP0297-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AB-RP0297-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1401 AC

NGS Name: 1401 AC

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0293](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	7	139 N	46 W	465236.00	963136.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1965	2014	DESTROYED	Horz=NO Vert=NO	NO		PROJECTS 3 IN.	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	SURVEY DISK	MNDT

**Description:** (1969)                      **Stamping:** 1401-AC 1965

2.0 MILES EAST OF GLYNDON, 0.3 MILE NORTH ALONG PARKE AVENUE SOUTH FROM THE JUNCTION OF PARKE AVENUE SOUTH AND 4TH STREET SOUTHEAST IN GLYNDON, THEN 2.5 MILES EAST ALONG TRUNK HIGHWAY 10 (STATE STREET NORTHEAST), THEN 187.0 FEET SOUTH ALONG 130TH STREET SOUTH/TALLY HO ROAD, 98.0 FEET SOUTH OF EASTBOUND TRUNK HIGHWAY 10, AT TRUNK HIGHWAY 10 STATION 630+00, 40.0 FEET WEST OF A POWER POLE, 350.0 FEET WEST OF A ROAD TO TALLY-HO KENNELS, 1.0 FOOT NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
930.582	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
929.516	.016	2				VERTICAL CONTROL SURVEY	1972	Q460964	
929.516	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A	
929.516	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A	

**Geoid Separations(ft): GEOID18 = -87.634    12B = -87.647    09 = -87.497    03 = -87.444**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1401 AD  
County: CLAY, MN (Sheet 1)

NGS Name: 1401 AD

NGS ACRN: [RP0052](#) [Get Map](#)  
NGS Quad / Sta Num : 46096144/  
USGS Quad: HAWLEY NW

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SE	4	139 N	46 W	465237.12	962937.25	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1965	2014	DESTROYED	Horz=NO Vert=NO	YES	14003	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	BENCH MARK DISK	MNDT

**Description:** (1997)                      **Stamping:** 1401 AD 1965

3.5 MILES EAST OF GLYNDON, IN THE SOUTHEAST CORNER OF THE BRIDGE ABUTMENT OF EASTBOUND TRUNK HIGHWAY 10 BRIDGE NUMBER 14003 OVER THE NORTH FORK OF THE BUFFALO RIVER, 0.3 MILE NORTH ALONG PARKE AVENUE SOUTH FROM THE JUNCTION OF PARKE AVENUE SOUTH AND 4TH STREET SOUTHEAST IN GLYNDON, THEN 4.1 MILES EAST ALONG TRUNK HIGHWAY 10/ STATE STREET NORTHEAST, AT TRUNK HIGHWAY 10 MILEPOINT 13.4, 25.5 FEET SOUTH OF EASTBOUND TRUNK HIGHWAY 10.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order</u>	<u>(/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
953.181	.016	2/1					VERTICAL ADJUSTMENT	2004	00000464		
953.181	.016	2/1					VERTICAL CONTROL SURVEY	2001	VHAWL		
953.161	.016	2					VERTICAL ADJUSTMENT	1991	00000025		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order</u>	<u>(/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
953.167	.262			865.444	.197	2011	GPS - RTRN	2014	RTRN2014		

Geoid Separations(ft): GEOID18 = -87.710 12B = -87.723 09 = -87.579 03 = -87.516

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Geodetic Position</u>			<u>Clay County</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>			
46 52 37.11659	96 29 37.24683	551625.544	190153.132	.131	3	GPS - RTRN	2014	RTRN2014			

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>MN State Plane - Central Zone</u>			<u>UTM - Zone 15</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>			
2063617.799	1020491.406	767034.544	17051870.737	.131	3	GPS - RTRN	2014	RTRN2014			

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AD-RP0052-3W-27MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AD-RP0052-3W-27MAY2014.jpg</a>	W	May 27, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AD-RP0052-2-27MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AD-RP0052-2-27MAY2014.jpg</a>		May 27, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AD-RP0052-1-27MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AD-RP0052-1-27MAY2014.jpg</a>		May 27, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1401 AE  
County: CLAY, MN (Sheet 1)

NGS Name: 1401 AE

NGS ACRN: [RP0050](#) [Get Map](#)  
NGS Quad / Sta Num : 46096144/  
USGS Quad: HAWLEY NW

1/4	Sec	Twp	Rng	Reference	Reference	Vert	Horz
				Latitude	Longitude	Order	Order
NW	10	139 N	46 W	465234.95	962857.06	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1965	2022	GOOD	Horz=NO Vert=YES	YES		PROJECTS 25 IN.	STEEL ROD IMBED IN MON

Monument Type	Disk Type	Mon. Agency
CONCRETE POST (PREFABRICATED)	BENCH MARK DISK	MNDT

Description: (2014)                      **Stamping:** 1401-AE 1965

4.3 MILES EAST OF GLYNDON, 0.3 MILE NORTH ALONG PARKE AVENUE SOUTH FROM THE JUNCTION OF PARKE AVENUE SOUTH AND 4TH STREET SOUTHEAST IN GLYNDON, THEN 4.6 MILES EAST ALONG TRUNK HIGHWAY 10 (STATE STREET NORTHEAST), AT TRUNK HIGHWAY 10 MILEPOINT 13.85, 99.0 FEET SOUTH OF EASTBOUND TRUNK HIGHWAY 10, 400.0 FEET EAST OF DRIVEWAY NUMBERS 15007 AND 15009, 0.9 FOOT NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

Orthometric Height			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj		Year	Reference	
957.124	.016	2/1				VERTICAL ADJUSTMENT	2024	0000941-3	
957.124	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA	
957.058	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941	
956.661	.016	2/1				VERTICAL ADJUSTMENT	2004	00000464	
956.661	.016	2/1				VERTICAL CONTROL SURVEY	2001	VHAWL	
956.071	.016	2				VERTICAL ADJUSTMENT	1991	00000025	

**NGVD29**

Orthometric Height			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj		Year	Reference	
954.992	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD	
954.992	.016	2				VERTICAL CONTROL SURVEY	1972	Q460961	
954.992	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A	
954.992	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

Orthometric Height			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj		Year	Reference	
957.226	.262		869.483	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.733    12B = -87.746    09 = -87.602    03 = -87.542

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County		Determination Method			Project Info	
Latitude	Longitude	X	Y	Acc	Order		Year	Reference
46 52 34.94608	96 28 57.06226	554417.981	189940.758	.131	3	GPS - RTRN	2014	RTRN2014

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15		Determination Method			Project Info	
X	Y	X	Y	Acc	Order		Year	Reference
2066402.097	1020192.728	769815.032	17051526.814	.131	3	GPS - RTRN	2014	RTRN2014

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AE-RP0050-3S-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AE-RP0050-3S-05JUL2022.jpg</a>	S	Jul 5, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AE-RP0050-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AE-RP0050-2-05JUL2022.jpg</a>		Jul 5, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AE-RP0050-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AE-RP0050-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1401 AF  
County: CLAY, MN (Sheet 1)

NGS Name: 1401 AF

NGS ACRN: [RP0047](#) [Get Map](#)  
NGS Quad / Sta Num : 46096144/  
USGS Quad: HAWLEY NW

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	12	139 N	46 W	465232.24	962625.73	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1965	2014	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	SURVEY DISK	MNDT

**Description:** (2001)                      **Stamping:** 1401 AF 1965

6.6 MILES EAST OF GLYNDON, 6.6 MILES EAST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF PARKE AVENUE AND TRUNK HIGHWAY 10 IN GLYNDON, AT TRUNK HIGHWAY 10 MILEPOINT 15.8, 98.0 FEET SOUTH OF EASTBOUND TRUNK HIGHWAY 10, 300.0 FEET SOUTHEAST OF THE SOUTHEAST CORNER OF A GAME REFUGE, 119.0 FEET EAST OF A POWER POLE, 2.0 FEET NORTH OF A SOUTH RIGHT-OF-WAY FENCE, 0.8 FOOT NORTH OF A WITNESS POST.

**Station Notes**

THE DISK WAS TURNED IN TO THE OFFICE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1036.022	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941		
1036.179	.016	2/1				VERTICAL ADJUSTMENT	2004	00000464		
1036.179	.016	2/1				VERTICAL CONTROL SURVEY	2001	VHAWL		
1036.179	.016	2/1				VERTICAL ADJUSTMENT	1991	00000025		

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1035.054	.016	2				VERTICAL CONTROL SURVEY	1972	Q460961		
1035.054	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A		
1035.054	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1035.598	.262		947.807	.197	2011	GPS - RTRN	2014	RTRN2014		
			948.614	.066	1996	GPS - STATIC	2001	DIST 4		

Geoid Separations(ft): GEOID18 = -87.795    12B = -87.792    09 = -87.664    03 = -87.618

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>			<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 52 32.24338	96 26 25.73559		564932.442	189698.871	.131	3	GPS - RTRN	2014	RTRN2014	

<u>NAD83(1996)</u>			<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 52 32.24268	96 26 25.73697		564932.348	189698.800	.033	C	GPS - STATIC	2001	DIST 4	

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>			<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
2076903.163	1019625.534		780310.658	17050789.232	.131	3	GPS - RTRN	2014	RTRN2014	

<u>NAD83(1996)</u>			<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
2076903.065	1019625.465		780310.559	17050789.166	.033	C	GPS - STATIC	2001	DIST 4	



Mn/DOT Name: 1401 AG

NGS Name: 1401 AG

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0045](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096144/  
 USGS Quad: HAWLEY NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	8	139 N	45 W	465232.15	962424.84	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1965	2023	GOOD	Horz=YES Vert=YES	YES		FLUSH	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	BENCH MARK DISK	MNDT

Description: (2013)                      Stamping: 1401-AG 1965

4.2 MILES WEST OF HAWLEY, 4.0 MILES WEST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 31 IN HAWLEY, AT TRUNK HIGHWAY MILEPOINT 17.4, 98.0 FEET SOUTH OF EASTBOUND TRUNK HIGHWAY 10, AT TRUNK HIGHWAY 10 STATION 933+00, 90.0 FEET EAST OF COUNTY ROAD 23/190TH STREET SOUTH, 7.8 FEET EAST-NORTHEAST OF A RIGHT-OF-WAY POST, 1.0 FOOT NORTH OF A WITNESS POST.

Station Pair:    ZACH - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
1096.432	.016	2/1				2024	00000941-3					
1096.432	.016	2/1				2023	VMOFA					
1096.432	.016	2/1				2019	00000941					
1096.537	.016	2/1				2004	00000464					
1096.537	.016	2/1				2001	VHAWL					
1096.346	.016	2				1991	00000025					

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
1095.185	.016	2/0				1992	UNCHECKD					
1095.185	.016	2				1972	Q460961					
1095.185	.016	2				1972	L22167-A					
1095.185	.016	2				1971	L22167-A					

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
1096.432			1008.755	.017	2011	2024	GPS3719					
1096.432	.131		1008.896	.066	1996	2024	HMOFA1					
1096.432			1008.755	.017	2011	2024	HMOFA1					
1096.592	.262		1008.768	.197	2011	2022	RTRN2022					
1096.537			1008.755	.021	2011	2015	GPS3084					
1096.537	.131		1008.896	.066	1996	2015	HCLAY					
1096.537			1008.755	.021	2011	2015	HCLAY					
1096.487	.262		1008.676	.197	2011	2014	RTRN2014					
			1008.735	.066	1996	2001	DIST 4					

Geoid Separations(ft): GEOID18 = -87.821    12B = -87.812    09 = -87.693    03 = -87.654

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 52 32.15323	96 24 24.83540	573332.241	189719.304	.010		ADJUSTMENT	2024	GPS3719
46 52 32.15323	96 24 24.83540	573332.241	189719.304	.010	C	GPS - STATIC	2024	HMOFA1
46 52 32.15290	96 24 24.83582	573332.212	189719.270	.131	3	GPS - RTRN	2022	RTRN2022
46 52 32.15323	96 24 24.83540	573332.241	189719.304	.013		ADJUSTMENT	2015	GPS3084
46 52 32.15323	96 24 24.83540	573332.241	189719.304	.013	C	GPS - STATIC	2015	HCLAY
46 52 32.15370	96 24 24.83546	573332.237	189719.351	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(1996)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 52 32.15276	96 24 24.83620	573332.186	189719.256	.033	C	GPS - STATIC	2024	HMOFA1
46 52 32.15276	96 24 24.83620	573332.186	189719.256	.033	C	GPS - STATIC	2015	HCLAY
46 52 32.15308	96 24 24.83575	573332.216	189719.289	.033	C	GPS - STATIC	2001	DIST 4

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2085298.861	1019385.928	788705.319	17050413.530	.010		ADJUSTMENT	2024	GPS3719
2085298.861	1019385.928	788705.319	17050413.530	.010	C	GPS - STATIC	2024	HMOFA1
2085298.831	1019385.896	788705.288	17050413.498	.131	3	GPS - RTRN	2022	RTRN2022
2085298.861	1019385.928	788705.319	17050413.530	.013		ADJUSTMENT	2015	GPS3084
2085298.861	1019385.928	788705.319	17050413.530	.013	C	GPS - STATIC	2015	HCLAY
2085298.858	1019385.976	788705.317	17050413.578	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2085298.804	1019385.882	788705.261	17050413.485	.033	C	GPS - STATIC	2024	HMOFA1
2085298.804	1019385.882	788705.261	17050413.485	.033	C	GPS - STATIC	2015	HCLAY
2085298.836	1019385.914	788705.294	17050413.516	.033	C	GPS - STATIC	2001	DIST 4

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AG-RP0045-3S-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AG-RP0045-3S-05JUL2022.jpg</a>	S	Jul 5, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AG-RP0045-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AG-RP0045-2-05JUL2022.jpg</a>		Jul 5, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AG-RP0045-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AG-RP0045-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1401 AH  
County: CLAY, MN (Sheet 1)

NGS Name: 1401 AH

NGS ACRN: [RP0038](#) [Get Map](#)  
NGS Quad / Sta Num : 46096144/  
USGS Quad: HAWLEY NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	9	139 N	45 W	465233.34	962305.56	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1965	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 12 IN.	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	BENCH MARK DISK	MNDT

Description: (2000)                      Stamping: 1401 AH 1965

3.0 MILES WEST OF HAWLEY, 2.95 MILES WEST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 31 IN HAWLEY, AT TRUNK HIGHWAY 10 MILEPOINT 18.5, 295.0 FEET EAST OF 200TH STREET SOUTH, 97.0 FEET SOUTH OF EASTBOUND TRUNK HIGHWAY 10, AT TRUNK HIGHWAY 10 STATION 988+00, 300.0 FEET EAST OF 200TH STREET SOUTH, 1.0 FOOT NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
1127.862	.016	2/1				VERTICAL ADJUSTMENT		2024	0000941-3
1127.862	.016	2/1				VERTICAL CONTROL SURVEY		2023	VMOFA
1127.862	.016	2/1				VERTICAL ADJUSTMENT		2019	00000941
1127.987	.016	2/1				VERTICAL ADJUSTMENT		2004	00000464
1127.987	.016	2/1				VERTICAL CONTROL SURVEY		2001	VHAWL
1127.987	.016	2/1				VERTICAL ADJUSTMENT		1991	00000025

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
1126.809	.016	2/0				UNKNOWN/APPROXIMATE		1992	UNCHECKD
1126.809	.016	2				VERTICAL CONTROL SURVEY		1972	Q460961
1126.809	.016	2				VERTICAL CONTROL SURVEY		1972	L22167-A
1126.812	.016	2				VERTICAL CONTROL SURVEY		1971	L22167-A

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
1127.862			1040.195	.025	2011	HORIZONTAL ADJUSTMENT		2024	GPS3719
1127.862	.131		1040.329	.066	1996	GPS - STATIC		2024	HMOFA1
1127.862			1040.195	.025	2011	GPS - STATIC		2024	HMOFA1
1128.003	.262		1040.172	.197	2011	GPS - RTRN		2022	RTRN2022
1127.941	.262		1040.123	.197	2011	GPS - RTRN		2014	RTRN2014

Geoid Separations(ft): GEOID18 = -87.831    12B = -87.818    09 = -87.700    03 = -87.667

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
46 52 33.34459	96 23 05.56134	578839.470	189861.345	.013		ADJUSTMENT		2024	GPS3719
46 52 33.34459	96 23 05.56134	578839.470	189861.345	.013	C	GPS - STATIC		2024	HMOFA1
46 52 33.34424	96 23 05.56196	578839.427	189861.310	.131	3	GPS - RTRN		2022	RTRN2022
46 52 33.34486	96 23 05.56172	578839.444	189861.373	.131	3	GPS - RTRN		2014	RTRN2014

**NAD83(1996)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
46 52 33.34426	96 23 05.56187	578839.434	189861.312	.033	C	GPS - STATIC		2024	HMOFA1

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2090807.377	1019357.390	794215.166	17050295.762	.013		ADJUSTMENT	2024	GPS3719
2090807.377	1019357.390	794215.166	17050295.762	.013	C	GPS - STATIC	2024	HMOFA1
2090807.333	1019357.356	794215.121	17050295.728	.131	3	GPS - RTRN	2022	RTRN2022
2090807.352	1019357.418	794215.140	17050295.790	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2090807.340	1019357.357	794215.127	17050295.730	.033	C	GPS - STATIC	2024	HMOFA1

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AH-RP0038-3S-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AH-RP0038-3S-05JUL2022.jpg</a>	S	Jul 5, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AH-RP0038-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AH-RP0038-2-05JUL2022.jpg</a>		Jul 5, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AH-RP0038-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AH-RP0038-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1401 AI

NGS Name: 1401 AI

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096141/  
 USGS Quad: HAWLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	10	139 N	45 W	465234.00	962148.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1965	1999	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

**Description:** (2000)                      **Stamping:** 1401 AI 1965

2.0 MILES WEST OF HAWLEY, 0.1 MILE WEST-SOUTHWEST ALONG COUNTY ROAD 116 (MAIN STREET) FROM THE JUNCTION OF COUNTY ROAD 116 (MAIN STREET) AND 6TH STREET IN HAWLEY, THEN 0.2 MILE SOUTH-SOUTHEAST ALONG 8TH STREET, THEN 3.2 MILES WEST ALONG TRUNK HIGHWAY 10 WEST, THEN 472.0 FEET EAST ALONG 210TH STREET NORTH, 98.0 FEET SOUTH OF EASTBOUND TRUNK HIGHWAY 10, AT TRUNK HIGHWAY 10 STATION 1041+00, 400.0 FEET EAST OF 210 STREET SOUTH, 1.0 FOOT NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1173.196	.016	2				VERTICAL CONTROL SURVEY	1972	Q460961	
1173.196	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A	
1173.196	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A	

**Geoid Separations(ft): GEOID18 = -87.834    12B = -87.815    09 = -87.707    03 = -87.674**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1401 AJ  
County: CLAY, MN (Sheet 1)

NGS Name: 1401 AJ

NGS ACRN: [RP0030](#) [Get Map](#)  
NGS Quad / Sta Num : 46096141/  
USGS Quad: HAWLEY

				Reference	Reference	Vert	Horz
1/4	Sec	Twp	Rng	Latitude	Longitude	Order	Order
NE	12	139 N	45 W	465238.40	961845.90	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1965	2014	GOOD	Horz=NO Vert=NO	YES	9026	FLUSH	NO MAG MATERIAL

Monument Type	Disk Type	Mon. Agency
BRIDGE ABUTMENT	BENCH MARK DISK	MNDT

Description: (2000)                      Stamping: 1401-AJ 1965

AT THE SOUTHEAST EDGE OF HAWLEY, IN A BRIDGE ABUTMENT IN THE SOUTHEAST CORNER OF EASTBOUND TRUNK HIGHWAY 10 BRIDGE NUMBER 9026 OVER THE BUFFALO RIVER, 0.55 MILE EAST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 31 IN HAWLEY, AT TRUNK HIGHWAY 10 MILEPOINT 21.95, 23.8 FEET SOUTH OF EASTBOUND TRUNK HIGHWAY 10.

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88				Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj		Year	Reference		
1143.108	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941		
1143.242	.016	2/1				VERTICAL ADJUSTMENT	2004	00000464		
1143.242	.016	2/1				VERTICAL CONTROL SURVEY	2004	VAWLE		
1143.242	.016	2/1				VERTICAL CONTROL SURVEY	2001	VHAWL		
1143.242	.016	2/1				VERTICAL ADJUSTMENT	1991	00000025		

NGVD29				Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj		Year	Reference		
1142.025	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD		
1142.025	.016	2				VERTICAL CONTROL SURVEY	1972	Q460961		
1142.025	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A		
1142.025	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88				Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj		Year	Reference		
1143.131	.262		1055.319	.197	2011	GPS - RTRN	2014	RTRN2014		

Geoid Separations(ft): GEOID18 = -87.831 12B = -87.812 09 = -87.703 03 = -87.661

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)			Clay County				Project Info		
Latitude	Longitude		X	Y	Acc	Order	Determination Method	Year	Reference
46 52 37.36481	96 18 40.41447		597258.909	190351.253	.131	3	GPS - RTRN	2014	RTRN2014

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone		X	Y	Acc	Order	Determination Method	Year	Reference
2109231.541	1019276.666	812643.593	17049916.717	.131	3	GPS - RTRN	2014	RTRN2014

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AJ-RP0030-3W-12JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AJ-RP0030-3W-12JUN2014.jpg</a>	W	Jun 12, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AJ-RP0030-2-12JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AJ-RP0030-2-12JUN2014.jpg</a>		Jun 12, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AJ-RP0030-1-12JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AJ-RP0030-1-12JUN2014.jpg</a>		Jun 12, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1401 AJ 1  
 County: CLAY, MN (Sheet 1)

NGS Name: 1401 AJ 1

NGS ACRN: [RP0031](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096141/  
 USGS Quad: HAWLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	12	139 N	45 W	465236.60	961855.50	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1969	2000	GOOD	Horz=NO Vert=NO	NO	9025	FLUSH	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE ABUTMENT	BENCH MARK DISK	MNDT

**Description:** (2000)                      **Stamping:** 1401 AJ 1 1969

IN HAWLEY, IN THE SOUTHEAST CORNER OF RAILROAD BRIDGE NUMBER 9025 OVER TRUNK HIGHWAY 10, 0.1 MILE WEST-SOUTHWEST ALONG COUNTY ROAD 116 (MAIN STREET) FROM THE JUNCTION OF COUNTY ROAD 116 (MAIN STREET) AND 6TH STREET IN HAWLEY, THEN 0.2 MILE SOUTH-SOUTHEAST ALONG 8TH STREET, THEN 0.1 MILE EAST ALONG TRUNK HIGHWAY 10 EAST, AT TRUNK HIGHWAY 10 STATION 1162+11.3, 0.2 MILE SOUTH OF A RAILROAD STATION.

**Station Notes**

THE SURVEY MARK IS ON RAILROAD PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1157.179	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941	
1157.321	.016	2/1				VERTICAL ADJUSTMENT	2004	00000464	
1157.321	.016	2/1				VERTICAL CONTROL SURVEY	2001	VHAWL	
1157.321	.016	2/1				VERTICAL ADJUSTMENT	1991	00000025	

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1156.107	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD	
1156.107	.016	2				VERTICAL CONTROL SURVEY	1972	Q460961	
1156.107	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A	
1156.107	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A	

Geoid Separations(ft): GEOID18 = -87.831    12B = -87.812    09 = -87.703    03 = -87.661

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1401 AJ 2  
County: CLAY, MN (Sheet 1)

NGS Name: 1401 AJ 2

NGS ACRN: [RP0029](#) [Get Map](#)  
NGS Quad / Sta Num : 46096141/  
USGS Quad: HAWLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	12	139 N	45 W	465236.40	961850.20	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1969	2014	GOOD	Horz=NO Vert=NO	YES	9031	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE ABUTMENT	BENCH MARK DISK	MNDT

Description: (2000)                      Stamping: 1401 AJ 2 1969

AT THE SOUTHEAST EDGE OF HAWLEY, IN A BRIDGE ABUTMENT IN THE SOUTHEAST CORNER OF WESTBOUND TRUNK HIGHWAY 10 BRIDGE NUMBER 9031 OVER THE BUFFALO RIVER, 0.55 MILE EAST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 31 IN HAWLEY, AT TRUNK HIGHWAY 10 MILEPOINT 21.95, 23.8 FEET NORTH OF WESTBOUND TRUNK HIGHWAY 10.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1143.164	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941		
1143.295	.016	2/1				VERTICAL ADJUSTMENT	2004	00000464		
1143.295	.016	2/1				VERTICAL CONTROL SURVEY	2004	VAWLE		
1143.295	.016	2/1				VERTICAL CONTROL SURVEY	2001	VHAWL		
1143.295	.016	2/1				VERTICAL ADJUSTMENT	1991	00000025		

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1142.078	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD		
1142.078	.016	2				VERTICAL CONTROL SURVEY	1972	Q460961		
1142.078	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A		
1142.078	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1143.157	.262		1055.342	.197	2011	GPS - RTRN	2014	RTRN2014		

Geoid Separations(ft): GEOID18 = -87.831 12B = -87.812 09 = -87.703 03 = -87.661

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>			<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>									
46 52 38.61813	96 18 40.45617		597255.383	190478.221	.131	3	GPS - RTRN	2014	RTRN2014	

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>X</u>	<u>Y</u>								
2109231.950	1019403.672	812646.057	17050043.751	.131	3	GPS - RTRN	2014	RTRN2014	

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AJ_2-RP0029-3W-12JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AJ_2-RP0029-3W-12JUN2014.jpg</a>	W	Jun 12, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AJ_2-RP0029-2-12JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AJ_2-RP0029-2-12JUN2014.jpg</a>		Jun 12, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AJ_2-RP0029-1-12JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AJ_2-RP0029-1-12JUN2014.jpg</a>		Jun 12, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1401 AK

NGS Name: 1401 AK

County: CLAY, MN (Sheet 1)

NGS ACRN: [DF8004](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	4	139 N	48 W	465235.73	964434.19	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1994	2023	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 50 FT)	SURVEY DISK	MNDT

Description: (1994)                      Stamping: 1401 AK 1994

IN MOORHEAD, 0.05 MILE EAST ALONG TRUNK HIGHWAY 10 FROM THE EAST JUNCTION OF TRUNK HIGHWAY 10 AND TRUNK HIGHWAY 75 IN MOORHEAD, AT TRUNK HIGHWAY 10 MILEPOINT 1.55, 98.5 FEET NORTH OF WESTBOUND TRUNK HIGHWAY 10, 160.5 FEET EAST-SOUTHEAST OF NORTHBOUND TRUNK HIGHWAY 75, 30.0 FEET WEST-SOUTHWEST OF A SIGN BASE, 27.3 FEET EAST-SOUTHEAST OF A FENCE CORNER, 20.9 FEET EAST-SOUTHEAST OF A RIGHT-OF-WAY POST, A 14.2 FEET SOUTH-SOUTHWEST OF A METAL SIGN POLE, 1.0 FOOT WEST OF A WITNESS POST.

Station Pair:    BONNIE - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
905.198	.016	2/1				2024	00000941-3	VERTICAL ADJUSTMENT				
905.198	.016	2/1				2024	00000941-3	VERTICAL ADJUSTMENT				
905.195	.016	2/1				2023	VMOFA	VERTICAL CONTROL SURVEY				
905.215	.016	2/1				2019	00000941	VERTICAL ADJUSTMENT				
905.497	.016	2/1				2011	00000699	VERTICAL ADJUSTMENT				
905.497	.016	2/1				2010	00000660	VERTICAL ADJUSTMENT				
905.497	.016	2/1				2010	VCOMS	VERTICAL CONTROL SURVEY				
905.497	.016	2/1				2004	00000425-2	VERTICAL ADJUSTMENT				
905.507	.016	2/1				2004	VHEAD	VERTICAL CONTROL SURVEY				
905.507	.016	2/1				2002	VMOOR	VERTICAL CONTROL SURVEY				

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
905.195			818.492	.011	2011	2024	GPS3674	HORIZONTAL ADJUSTMENT				
905.195			818.492	.011	2011	2023	HMOFA3	GPS - STATIC				
905.195	.131		818.538	.066	1996	2023	HMOFA3	GPS - STATIC				
905.398	.262		818.387	.197	2011	2022	RTRN2022	GPS - RTRN				
905.477	.262		818.476	.197	2011	2014	RTRN2014	GPS - RTRN				
905.336	.262		818.460	.197	2007	2012	RTRN2012	GPS - RTRN				
			818.492	.010	2011	2012	GPS2800	HORIZONTAL ADJUSTMENT				
905.510	.131		818.456	.066	2007	2011	GPS2690	HORIZONTAL ADJUSTMENT				
905.510	.131		818.568	.066	1996	2010	HCOMS	GPS - STATIC				
905.510	.131		818.456	.066	2007	2010	HCOMS	GPS - STATIC				
905.333	.262		818.506	.197	1996	2009	RTRN2009	GPS - RTRN				
			818.699	.066	1996	2001	DIST 4	GPS - STATIC				

Geoid Separations(ft): GEOID18 = -87.011    12B = -87.001    09 = -86.876    03 = -86.824

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 52 35.73452	96 44 34.19226	489310.051	189948.213	.010		ADJUSTMENT	2024	GPS3674
46 52 35.73452	96 44 34.19226	489310.051	189948.213	.010	C	GPS - STATIC	2023	HMOFA3
46 52 35.73405	96 44 34.19212	489310.061	189948.165	.131	3	GPS - RTRN	2022	RTRN2022
46 52 35.73427	96 44 34.19244	489310.039	189948.187	.131	3	GPS - RTRN	2014	RTRN2014
46 52 35.73452	96 44 34.19226	489310.051	189948.213	.010		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 52 35.73511	96 44 34.19294	489310.004	189948.273	.131	3	GPS - RTRN	2012	RTRN2012
46 52 35.73473	96 44 34.19304	489309.997	189948.234	.033	C	ADJUSTMENT	2011	GPS2690
46 52 35.73473	96 44 34.19304	489309.997	189948.234	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 52 35.73434	96 44 34.19255	489310.031	189948.195	.033	C	GPS - STATIC	2023	HMOFA3
46 52 35.73461	96 44 34.19345	489309.969	189948.222	.033	C	GPS - STATIC	2010	HCOMS
46 52 35.73585	96 44 34.19403	489309.929	189948.348	.131	3	GPS - RTRN	2009	RTRN2009
46 52 35.73414	96 44 34.19343	489309.970	189948.173	.033	C	GPS - STATIC	2001	DIST 4

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2001330.741	1022214.291	704748.270	17054605.273	.010		ADJUSTMENT	2024	GPS3674
2001330.741	1022214.291	704748.270	17054605.273	.010	C	GPS - STATIC	2023	HMOFA3
2001330.749	1022214.243	704748.278	17054605.224	.131	3	GPS - RTRN	2022	RTRN2022
2001330.728	1022214.266	704748.256	17054605.248	.131	3	GPS - RTRN	2014	RTRN2014
2001330.741	1022214.291	704748.270	17054605.273	.010		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2001330.695	1022214.352	704748.226	17054605.335	.131	3	GPS - RTRN	2012	RTRN2012
2001330.687	1022214.314	704748.217	17054605.296	.033	C	ADJUSTMENT	2011	GPS2690
2001330.687	1022214.314	704748.217	17054605.296	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2001330.720	1022214.273	704748.249	17054605.255	.033	C	GPS - STATIC	2023	HMOFA3
2001330.658	1022214.303	704748.188	17054605.286	.033	C	GPS - STATIC	2010	HCOMS
2001330.622	1022214.430	704748.153	17054605.413	.131	3	GPS - RTRN	2009	RTRN2009
2001330.658	1022214.255	704748.187	17054605.238	.033	C	GPS - STATIC	2001	DIST 4

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AK-DF8004-3N-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AK-DF8004-3N-14JUN2022.jpg</a>	N	Jun 14, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AK-DF8004-2-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AK-DF8004-2-14JUN2022.jpg</a>		Jun 14, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AK-DF8004-1-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AK-DF8004-1-14JUN2022.jpg</a>		Jun 14, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1401 AL

NGS Name: 1401 AL

County: CLAY, MN (Sheet 1)

NGS ACRN: [DF8005](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	3	139 N	48 W	465235.00	964347.00	2	2

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1994	2009	DESTROYED	Horz=NO Vert=NO	NO			MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 45 FT)	SURVEY DISK	MNDT

Description: (1994)                      Stamping: 1401 AL 1994

1.0 MILE EAST OF MOORHEAD, 0.6 MILE EAST ALONG TRUNK HIGHWAY 10 FROM THE EAST JUNCTION OF TRUNK HIGHWAY 10 AND TRUNK HIGHWAY 75 IN MOORHEAD, AT TRUNK HIGHWAY 10 MILEPOINT 2.15, AT THE NORTHWEST CORNER OF THE JUNCTION OF TRUNK HIGHWAY 10 AND 32ND STREET, 70.0 FEET NORTH OF WESTBOUND TRUNK HIGHWAY 10, 93.8 FEET WEST-NORTHWEST OF A STOP LIGHT POLE, 86.5 FEET NORTHEAST OF A STREET LIGHT POLE, 82.0 FEET SOUTHWEST OF CABLE MARKER NUMBER T-F3102, 6.0 FEET SOUTH-SOUTHWEST OF A BIKE PATH, 6.0 FEET NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
908.341	.016	2/1					VERTICAL ADJUSTMENT	2004	0000425-2	
908.351	.016	2/1					VERTICAL CONTROL SURVEY	2002	VMOOR	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
				821.534	.066	1996	GPS - STATIC	2001	DIST 4	

Geoid Separations(ft): GEOID18 = -87.047    12B = -87.041    09 = -86.913    03 = -86.863

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(1996)</u>				<u>Clay County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 52 36.32303	96 43 49.66458			492403.664	190006.395	.033	2	GPS - STATIC	2001	DIST 4

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(1996)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2004424.430	1022176.783			707842.890	17054517.483	.033	2	GPS - STATIC	2001	DIST 4



Mn/DOT Name: 1401 AL RESET

NGS Name: 1401 AL RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM1807](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	3	139 N	48 W	465236.32	964349.66	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2009	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 45 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

**Description:** (2009)                      **Stamping:** 1401 AL RESET 2009

IN MOORHEAD, 0.6 MILE EAST ALONG TRUNK HIGHWAY 10 FROM THE EAST JUNCTION OF TRUNK HIGHWAY 10 AND TRUNK HIGHWAY 75 NORTH IN MOORHEAD, AT TRUNK HIGHWAY 10 MILEPOINT 2.15, 70.0 FEET NORTH OF WESTBOUND TRUNK HIGHWAY 10, 146.0 FEET WEST OF 32ND STREET, 93.8 FEET WEST-NORTHWEST OF A STOP LIGHT POLE, 86.5 FEET NORTHEAST OF A STREET LIGHT POLE, 82.0 FEET SOUTHWEST OF CABLE BOX TF3102, 6.0 FEET SOUTHWEST OF A BIKE PATH, 22.0 FEET NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
907.751	.016	2/1				VERTICAL ADJUSTMENT	2024	00000941-3	
907.748	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA	
907.787	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941	
908.079	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699	
908.072	.016	2/1				VERTICAL CONTROL SURVEY	2010	VCOMS	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
907.748			821.022	.010	2011	HORIZONTAL ADJUSTMENT	2024	GPS3674	
907.748			821.022	.010	2011	GPS - STATIC	2023	HMOFA3	
907.748	.131		821.130	.066	1996	GPS - STATIC	2023	HMOFA3	
907.948	.262		820.904	.197	2011	GPS - RTRN	2022	RTRN2022	
907.948	.262		820.910	.197	2011	GPS - RTRN	2014	RTRN2014	
907.862	.262		820.953	.197	2007	GPS - RTRN	2012	RTRN2012	
			821.022	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
908.069	.131		821.009	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2690	
908.069	.131		821.130	.066	1996	GPS - STATIC	2010	HCOMS	
908.069	.131		821.009	.066	2007	GPS - STATIC	2010	HCOMS	
907.944	.262		821.088	.197	1996	GPS - RTRN	2009	RTRN2009	

Geoid Separations(ft): GEOID18 = -87.044    12B = -87.037    09 = -86.909    03 = -86.860

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 52 36.32347	96 43 49.66301	492403.773	190006.439	.007		ADJUSTMENT	2024	GPS3674
46 52 36.32347	96 43 49.66301	492403.773	190006.439	.007	C	GPS - STATIC	2023	HMOFA3
46 52 36.32253	96 43 49.66369	492403.726	190006.344	.131	3	GPS - RTRN	2022	RTRN2022
46 52 36.32314	96 43 49.66356	492403.735	190006.406	.131	3	GPS - RTRN	2014	RTRN2014
46 52 36.32347	96 43 49.66301	492403.773	190006.439	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 52 36.32327	96 43 49.66457	492403.665	190006.419	.131	3	GPS - RTRN	2012	RTRN2012
46 52 36.32363	96 43 49.66396	492403.707	190006.456	.033	C	ADJUSTMENT	2011	GPS2690
46 52 36.32363	96 43 49.66396	492403.707	190006.456	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 52 36.32337	96 43 49.66413	492403.695	190006.429	.033	C	GPS - STATIC	2023	HMOFA3
46 52 36.32337	96 43 49.66413	492403.695	190006.429	.033	C	GPS - STATIC	2010	HCOMS
46 52 36.32382	96 43 49.66592	492403.571	190006.475	.131	3	GPS - RTRN	2009	RTRN2009

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2004424.540	1022176.824	707843.001	17054517.522	.007		ADJUSTMENT	2024	GPS3674
2004424.540	1022176.824	707843.001	17054517.522	.007	C	GPS - STATIC	2023	HMOFA3
2004424.490	1022176.731	707842.949	17054517.430	.131	3	GPS - RTRN	2022	RTRN2022
2004424.501	1022176.792	707842.961	17054517.491	.131	3	GPS - RTRN	2014	RTRN2014
2004424.540	1022176.824	707843.001	17054517.522	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2004424.431	1022176.807	707842.892	17054517.507	.131	3	GPS - RTRN	2012	RTRN2012
2004424.475	1022176.842	707842.936	17054517.542	.033	C	ADJUSTMENT	2011	GPS2690
2004424.475	1022176.842	707842.936	17054517.542	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2004424.462	1022176.817	707842.923	17054517.516	.033	C	GPS - STATIC	2023	HMOFA3
2004424.462	1022176.817	707842.923	17054517.516	.033	C	GPS - STATIC	2010	HCOMS
2004424.339	1022176.866	707842.801	17054517.567	.131	3	GPS - RTRN	2009	RTRN2009

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AL_RESET-DM1807-3N-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AL_RESET-DM1807-3N-14JUN2022.jpg</a>	N	Jun 14, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AL_RESET-DM1807-2-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AL_RESET-DM1807-2-14JUN2022.jpg</a>		Jun 14, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AL_RESET-DM1807-1-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AL_RESET-DM1807-1-14JUN2022.jpg</a>		Jun 14, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1401 AM  
County: CLAY, MN (Sheet 1)

NGS Name: 1401 AM

NGS ACRN: [DF8006](#) [Get Map](#)  
NGS Quad / Sta Num : 46096414/  
USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	2	139 N	48 W	465236.11	964151.35	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1994	2023	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 50 FT)	SURVEY DISK	MNDT

Description: (1994)                      Stamping: 1401 AM 1994

IN DILWORTH, 2.25 MILES EAST ALONG TRUNK HIGHWAY 10 FROM THE EAST JUNCTION OF TRUNK HIGHWAY 10 AND TRUNK HIGHWAY 75 IN MOORHEAD, AT TRUNK HIGHWAY 10 MILEPOINT 3.75, AT THE NORTHEAST CORNER OF THE JUNCTION OF NORTHEAST 4TH STREET AND TRUNK HIGHWAY 10, 61.0 FEET NORTH OF TRUNK HIGHWAY 10 (CENTER STREET), 35.0 FEET EAST OF NORTHEAST 4TH STREET, 60.0 FEET NORTHWEST OF A LIGHT POLE, 28.7 FEET SOUTH-SOUTHEAST OF A FENCE CORNER, 4.0 FEET NORTH OF SIDEWALK EDGE.

Station Notes  
NO WITNESS POST IN A MOWED AREA.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
906.931	.016	2/1				2024	00000941-3	VERTICAL ADJUSTMENT				
906.924	.016	2/1				2023	VMOFA	VERTICAL CONTROL SURVEY				
906.924	.016	2/1				2019	00000941	VERTICAL ADJUSTMENT				
907.209	.016	2/1				2011	00000699	VERTICAL ADJUSTMENT				
907.173	.016	2/1				2011	00000685	VERTICAL ADJUSTMENT				
907.200	.016	2/1				2010	VCOMS	VERTICAL CONTROL SURVEY				
907.249	.016	2/1				2004	00000425-2	VERTICAL ADJUSTMENT				
907.177	.016	2/1				2002	VMORE	VERTICAL CONTROL SURVEY				
907.255	.016	2/1				2002	VMOOR	VERTICAL CONTROL SURVEY				

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
906.924			820.094	.011	2011	2024	GPS3674	HORIZONTAL ADJUSTMENT				
906.924			820.094	.011	2011	2023	HMOFA3	GPS - STATIC				
906.924	.131		820.189	.066	1996	2023	HMOFA3	GPS - STATIC				
907.173	.262		820.048	.197	2011	2022	RTRN2022	GPS - RTRN				
907.255	.262		820.133	.197	2011	2014	RTRN2014	GPS - RTRN				
			820.094	.010	2011	2012	GPS2800	HORIZONTAL ADJUSTMENT				
907.249	.131		820.198	.066	2007	2011	GPS2690	HORIZONTAL ADJUSTMENT				
907.249	.131		820.189	.066	1996	2010	HCOMS	GPS - STATIC				
907.249	.131		820.198	.066	2007	2010	HCOMS	GPS - STATIC				
			820.356	.066	1996	2001	DIST 4	GPS - STATIC				

Geoid Separations(ft): GEOID18 = -87.129    12B = -87.123    09 = -86.988    03 = -86.942

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 52 36.10859	96 41 51.34781	500623.774	189983.199	.010		ADJUSTMENT	2024	GPS3674
46 52 36.10859	96 41 51.34781	500623.774	189983.199	.010	C	GPS - STATIC	2023	HMOFA3
46 52 36.10833	96 41 51.34909	500623.685	189983.173	.131	3	GPS - RTRN	2022	RTRN2022
46 52 36.10854	96 41 51.34791	500623.767	189983.194	.131	3	GPS - RTRN	2014	RTRN2014
46 52 36.10859	96 41 51.34781	500623.774	189983.199	.010		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 52 36.10864	96 41 51.34881	500623.705	189983.204	.033	C	ADJUSTMENT	2011	GPS2690
46 52 36.10864	96 41 51.34881	500623.705	189983.204	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 52 36.10816	96 41 51.34863	500623.717	189983.156	.033	C	GPS - STATIC	2023	HMOFA3
46 52 36.10816	96 41 51.34863	500623.717	189983.156	.033	C	GPS - STATIC	2010	HCOMS
46 52 36.10854	96 41 51.34864	500623.717	189983.193	.033	C	GPS - STATIC	2001	DIST 4

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2012639.245	1021899.406	716057.191	17054106.533	.010		ADJUSTMENT	2024	GPS3674
2012639.245	1021899.406	716057.191	17054106.533	.010	C	GPS - STATIC	2023	HMOFA3
2012639.155	1021899.382	716057.101	17054106.511	.131	3	GPS - RTRN	2022	RTRN2022
2012639.238	1021899.401	716057.184	17054106.528	.131	3	GPS - RTRN	2014	RTRN2014
2012639.245	1021899.406	716057.191	17054106.533	.010		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2012639.176	1021899.413	716057.122	17054106.541	.033	C	ADJUSTMENT	2011	GPS2690
2012639.176	1021899.413	716057.122	17054106.541	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2012639.187	1021899.364	716057.132	17054106.492	.033	C	GPS - STATIC	2023	HMOFA3
2012639.187	1021899.364	716057.132	17054106.492	.033	C	GPS - STATIC	2010	HCOMS
2012639.187	1021899.402	716057.133	17054106.530	.033	C	GPS - STATIC	2001	DIST 4

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AM-DF8006-3N-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AM-DF8006-3N-14JUN2022.jpg</a>	N	Jun 14, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AM-DF8006-2-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AM-DF8006-2-14JUN2022.jpg</a>		Jun 14, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AM-DF8006-1-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AM-DF8006-1-14JUN2022.jpg</a>		Jun 14, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1401 AN

NGS Name: 1401 AN

County: CLAY, MN (Sheet 1)

NGS ACRN: [DF8008](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	6	139 N	47 W	465236.00	964018.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1994	2014	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE)	SURVEY DISK	MNDT

Description: (2000)                      Stamping: 1401 AN 1994

1.3 MILES EAST OF DILWORTH, 0.9 MILE WEST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 11 (THE JUNCTION IS 2.0 MILES WEST OF DILWORTH), AT TRUNK HIGHWAY 10 MILEPOINT 4.9, 70.0 FEET NORTH OF WESTBOUND TRUNK HIGHWAY 10, 178.0 FEET EAST OF A TEE-ROAD NORTH, 88.0 FEET WEST OF A FIELD ENTRANCE, 16.2 FEET EAST OF A POLE, 14.0 FEET EAST OF A WITNESS POST.

**Station Notes**

THE MARK IS A MINNESOTA DEPARTMENT OF TRANSPORTATION ALUMINUM DISK ON A 50.0 FEET LONG DRIVEN ROD.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
913.748	.016	2/1					VERTICAL ADJUSTMENT	2004	00000425-2	
913.748	.016	2/1					VERTICAL CONTROL SURVEY	2002	VMOOR	

**Geoid Separations(ft):** GEOID18 = -87.195    12B = -87.191    09 = -87.047    03 = -87.004

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1401 AP

NGS Name: 1401 AP

County: CLAY, MN (Sheet 1)

NGS ACRN: [DF8014](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	34	140 N	48 W	465353.00	964255.00	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1994	2009	DESTROYED	Horz=NO Vert=NO	NO			MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 50 FT)	SURVEY DISK	MNDT

Description: (1994)                      Stamping: 1401 AP 1994

1.5 MILES NORTHWEST OF DILWORTH, 1.5 MILES NORTH ALONG COUNTY ROAD 9 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 9 IN DILWORTH, 61.5 FEET WEST OF COUNTY ROAD 9, 46.0 FEET NORTH OF A FIELD ENTRANCE, 34.7 FEET NORTHWEST OF THE NORTH END OF A 24.0 INCH DIAMETER CULVERT, 6.8 FEET WEST-SOUTHWEST OF A POLE, 2.9 FEET NORTH OF A WITNESS POST.

Station Notes

FOUND THE CAP LOOSE, SEE THE RESET.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>				<u>Year</u>	<u>Reference</u>		
905.438	.016	2/1						VERTICAL ADJUSTMENT		2004	00000425-2		
905.461	.016	2/1						VERTICAL CONTROL SURVEY		2002	V1407		
905.461	.016	2/1						VERTICAL CONTROL SURVEY		2002	VMOOR		

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>				<u>Year</u>	<u>Reference</u>		
				818.693	.066	1996		GPS - STATIC		2001	DIST 4		

Geoid Separations(ft): GEOID18 = -86.958    12B = -86.952    09 = -86.811    03 = -86.781

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>				<u>Geodetic Position</u>			<u>Clay County</u>			<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>					<u>Year</u>	<u>Reference</u>			
46 53 53.41253	96 42 55.33578	496179.710	197815.795	.033	C	GPS - STATIC				2001	DIST 4			

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>				<u>MN State Plane - Central Zone</u>			<u>UTM - Zone 15</u>			<u>Determination Method</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>					<u>Year</u>	<u>Reference</u>			
2008439.867	1029865.082	711985.247	17062144.273	.033	C	GPS - STATIC				2001	DIST 4			



Mn/DOT Name: 1401 AP RESET

NGS Name: 1401 AP RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM1808](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	34	140 N	48 W	465353.41	964255.34	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2009	2023	GOOD	Horz=YES Vert=YES	NO		RECESSED 12 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 50 FT)	SURVEY DISK	MNDT

Description: (2009)                      Stamping: 1401 AP RESET 2009

1.5 MILES NORTHWEST OF DILWORTH, 1.5 MILES NORTH ALONG COUNTY ROAD 9 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 9 IN DILWORTH, 61.5 FEET WEST OF COUNTY ROAD 9, 46.0 FEET NORTH OF A FIELD ENTRANCE, 34.7 FEET NORTHWEST OF THE NORTH END OF A 24.0 INCH DIAMETER CULVERT, 6.8 FEET SOUTH OF A POLE, 2.9 FEET NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>						
904.903	.016	2/1				2024	00000941-3						
904.903	.016	2/1				2023	VMOFA						
904.903	.016	2/1				2019	00000941						
905.198	.016	2/1				2011	00000699						
905.195	.016	2/1				2010	VCOMS						

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>						
904.903			818.217	.010	2011	2024	GPS3674						
904.903			818.217	.010	2011	2023	HMOFA3						
904.903	.131		818.325	.066	1996	2023	HMOFA3						
905.074	.262		818.115	.197	2011	2022	RTRN2022						
			818.217	.009	2011	2012	GPS2800						
905.182	.131		818.220	.066	2007	2011	GPS2690						
905.182	.131		818.325	.066	1996	2010	HCOMS						
905.182	.131		818.220	.066	2007	2010	HCOMS						

Geoid Separations(ft): GEOID18 = -86.958    12B = -86.952    09 = -86.811    03 = -86.781

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>					
46 53 53.41256	96 42 55.33504	496179.762	197815.797	.007		2024	GPS3674					
46 53 53.41256	96 42 55.33504	496179.762	197815.797	.007	C	2023	HMOFA3					
46 53 53.41357	96 42 55.33485	496179.776	197815.899	.131	3	2022	RTRN2022					
46 53 53.41256	96 42 55.33504	496179.762	197815.797	.010		2012	GPS2800					

<u>NAD83(2007)</u>		<u>Geodetic Position</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>					
46 53 53.41274	96 42 55.33601	496179.695	197815.815	.033	C	2011	GPS2690					
46 53 53.41274	96 42 55.33601	496179.695	197815.815	.033	C	2010	HCOMS					

<u>NAD83(1996)</u>		<u>Geodetic Position</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>					
46 53 53.41241	96 42 55.33613	496179.687	197815.782	.033	C	2023	HMOFA3					
46 53 53.41241	96 42 55.33613	496179.687	197815.782	.033	C	2010	HCOMS					

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2008439.918	1029865.084	711985.298	17062144.273	.007		ADJUSTMENT	2024	GPS3674
2008439.918	1029865.084	711985.298	17062144.273	.007	C	GPS - STATIC	2023	HMOFA3
2008439.935	1029865.186	711985.317	17062144.375	.131	3	GPS - RTRN	2022	RTRN2022
2008439.918	1029865.084	711985.298	17062144.273	.010		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2008439.852	1029865.104	711985.232	17062144.295	.033	C	ADJUSTMENT	2011	GPS2690
2008439.852	1029865.104	711985.232	17062144.295	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2008439.842	1029865.071	711985.222	17062144.262	.033	C	GPS - STATIC	2023	HMOFA3
2008439.842	1029865.071	711985.222	17062144.262	.033	C	GPS - STATIC	2010	HCOMS

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AP_RESET-DM1808-3W-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AP_RESET-DM1808-3W-14JUN2022.jpg</a>	W	Jun 14, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AP_RESET-DM1808-2-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AP_RESET-DM1808-2-14JUN2022.jpg</a>		Jun 14, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AP_RESET-DM1808-1-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AP_RESET-DM1808-1-14JUN2022.jpg</a>		Jun 14, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1401 AQ  
County: CLAY, MN (Sheet 1)

NGS Name: 1401 AQ

NGS ACRN: [DM4268](#) [Get Map](#)  
NGS Quad / Sta Num : 46096414/  
USGS Quad: DILWORTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SE	1	139 N	48 W	465236.29	964022.61	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2000	2014	DESTROYED	Horz=NO Vert=NO	YES		RECESSED 3 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	SURVEY DISK	MNDT

Description: (2000)                      Stamping: 1401 AQ 2000

1.4 MILES EAST OF DILWORTH, 1.0 MILE WEST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND TRUNK HIGHWAY 336 IN WATTS, AT TRUNK HIGHWAY 10 MILEPOINT 4.9, 61.3 FEET SOUTH OF TRUNK HIGHWAY 10, 71.2 FEET WEST OF 60TH STREET, 44.2 FEET WEST OF A POWER POLE.

Station Notes

THE DISK WAS TURNED IN TO THE OFFICE.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
911.734	.016	2/1				2011	00000699	VERTICAL ADJUSTMENT				
911.616	.016	2/1				2011	00000685	VERTICAL ADJUSTMENT				
911.724	.016	2/1				2010	VCOMS	VERTICAL CONTROL SURVEY				
911.619	.016	2/1				2002	VMORE	VERTICAL CONTROL SURVEY				

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
			824.719	.066	1996	2001	DIST 4	GPS - STATIC				

Geoid Separations(ft): GEOID18 = -87.191    12B = -87.188    09 = -87.044    03 = -87.001

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>			<u>Geodetic Position</u>			<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>Order (/Class)</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>
46 52 36.29594	96 40 22.61448		506788.563	190003.337	.033	C	2001	DIST 4	GPS - STATIC			

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>			<u>MN State Plane - Central Zone</u>			<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>Order (/Class)</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>
2018801.222	1021728.876		722219.299	17053835.856	.033	C	2001	DIST 4	GPS - STATIC			

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AQ-DM4268-3SE-02DEC2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AQ-DM4268-3SE-02DEC2009.jpg</a>	SE	Dec 2, 2009
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AQ-DM4268-2-02DEC2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AQ-DM4268-2-02DEC2009.jpg</a>		Dec 2, 2009
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AQ-DM4268-1-02DEC2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AQ-DM4268-1-02DEC2009.jpg</a>		Dec 2, 2009

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1401 AQ 1  
County: CLAY, MN (Sheet 1)

NGS Name: 1401 AQ 1

NGS ACRN: [DG7107](#) [Get Map](#)  
NGS Quad / Sta Num : 46096114/  
USGS Quad: DALE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	1	139 N	44 W	465238.70	961030.14	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2000	2022	DESTROYED	Horz=NO Vert=NO	YES		RECESSED 3 IN.	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 30 FT)	SURVEY DISK	MNDT

Description: (2013)                      Stamping: 1401 AQ 1 2000

3.75 MILES WEST OF LAKE PARK, 3.75 MILES WEST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 7 IN LAKE PARK, AT TRUNK HIGHWAY 10 MILEPOINT 28.45, 63.0 FEET NORTH OF WESTBOUND TRUNK HIGHWAY 10, 72.0 FEET WEST OF 300TH STREET NORTH, 27.8 FEET SOUTHWEST OF A POWER POLE, 1.5 FEET SOUTH OF A WITNESS POST.

**Station Notes**

THE DISK WAS TURNED IN TO THE OFFICE.

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88				Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj		Year	Reference		
1352.651	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941		
1352.743	.016	2/1				VERTICAL ADJUSTMENT	2006	00000425-10		
1352.743	.016	2/1				VERTICAL CONTROL SURVEY	2005	VSTAK		
1352.743	.016	2/1				VERTICAL ADJUSTMENT	2004	00000464		
1352.743	.016	2/1				VERTICAL CONTROL SURVEY	2001	VHAWL		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88				Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj		Year	Reference		
			1263.705	.066	1996	GPS - STATIC	2001	DIST 4		

Geoid Separations(ft): GEOID18 = -87.729 12B = -87.716 09 = -87.605 03 = -87.542

**Lat/Lon and County Coordinates (Feet)**

NAD83(1996)		Clay County				Determination Method		Project Info	
Latitude	Longitude	X	Y	Acc	Order		Year	Reference	
46 52 38.70453	96 10 30.14955	631319.121	190685.229	.033	C	GPS - STATIC	2001	DIST 4	

**State Plane and UTM Coordinates (Feet)**

NAD83(1996)		UTM - Zone 15				Determination Method		Project Info	
MN State Plane - Central Zone X	Y	X	Y	Acc	Order		Year	Reference	
2143282.566	1018555.384	846691.569	17048644.432	.033	C	GPS - STATIC	2001	DIST 4	

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AQ_1-DG7107-3N-14APR2005.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AQ_1-DG7107-3N-14APR2005.jpg</a>	N	Apr 14, 2005
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AQ_1-DG7107-2-14APR2005.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AQ_1-DG7107-2-14APR2005.jpg</a>		Apr 14, 2005
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AQ_1-DG7107-1-14APR2005.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AQ_1-DG7107-1-14APR2005.jpg</a>		Apr 14, 2005

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1401 AQ 1 RESET

NGS Name: 1401 AQ 1 RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [DR9698](#) [Get Map](#)  
NGS Quad / Sta Num : 46096114/  
USGS Quad: DALE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	1	139 N	44 W	465238.71	961030.15	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2022	2023	GOOD	Horz=YES Vert=YES	NO		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 30 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

**Description:** (2022)                      **Stamping:** 1401 AQ 1 RESET 2022

3.75 MILES WEST OF LAKE PARK, 3.75 MILES WEST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 7 IN LAKE PARK, AT TRUNK HIGHWAY 10 MILEPOINT 28.45, 63.0 FEET NORTH OF WESTBOUND TRUNK HIGHWAY 10, 72.0 FEET WEST OF 300TH STREET NORTH, 27.8 FEET SOUTHWEST OF A POWER POLE, 1.5 FEET SOUTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1352.422	.016	2/1					VERTICAL ADJUSTMENT	2024	00000941-3
1352.422	.016	2/1					VERTICAL CONTROL SURVEY	2023	VMOFA

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1352.422				1264.820	.024	2011	HORIZONTAL ADJUSTMENT	2024	GPS3719
1352.422	.131			1264.952	.066	1996	GPS - STATIC	2024	HMOFA1
1352.422				1264.820	.024	2011	GPS - STATIC	2024	HMOFA1
1352.491	.262			1264.761	.197	2011	GPS - RTRN	2022	RTRN2022

Geoid Separations(ft): GEOID18 = -87.729 03 = -87.542

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>			<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 52 38.70506	96 10 30.14933		631319.135	190685.283	.013		ADJUSTMENT	2024	GPS3719
46 52 38.70506	96 10 30.14933		631319.135	190685.283	.013	C	GPS - STATIC	2024	HMOFA1
46 52 38.70525	96 10 30.14901		631319.157	190685.303	.131	3	GPS - RTRN	2022	RTRN2022

<u>NAD83(1996)</u>			<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 52 38.70478	96 10 30.14984		631319.100	190685.254	.033	C	GPS - STATIC	2024	HMOFA1

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2143282.583	1018555.437	846691.586	17048644.485	.013		ADJUSTMENT	2024	GPS3719
2143282.583	1018555.437	846691.586	17048644.485	.013	C	GPS - STATIC	2024	HMOFA1
2143282.605	1018555.456	846691.610	17048644.503	.131	3	GPS - RTRN	2022	RTRN2022

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2143282.547	1018555.409	846691.550	17048644.458	.033	C	GPS - STATIC	2024	HMOFA1

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AQ_1_RESET-DR9698-3N-16JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AQ_1_RESET-DR9698-3N-16JUN2022.jpg</a>	N	Jun 16, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AQ_1_RESET-DR9698-2-16JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AQ_1_RESET-DR9698-2-16JUN2022.jpg</a>		Jun 16, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AQ_1_RESET-DR9698-1-16JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AQ_1_RESET-DR9698-1-16JUN2022.jpg</a>		Jun 16, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1401 AQ 2  
 County: CLAY, MN (Sheet 1)

NGS Name: 1401 AQ 2

NGS ACRN: [DI0254](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096113/  
 USGS Quad: LAKE PARK SW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	13	139 N	44 W	465142.00	961112.60	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2005	2022	DESTROYED	Horz=NO Vert=NO	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 20 FT)	SURVEY DISK	MNDT

Description: (2005)                      Stamping: 1401 AQ 2

4.0 MILES WEST OF LAKE PARK, 4.0 MILES WEST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 7 IN LAKE PARK, TO TRUNK HIGHWAY 10 MILEPOINT 28.25, THEN 1.25 MILES SOUTH ON COUNTY ROAD 118, 52.6 FEET WEST OF COUNTY ROAD 118 (297TH STREET SOUTH), 23.3 FEET NORTH OF A FIELD ENTRANCE, 1.1 FEET SOUTH OF A WITNESS POST.

Station Notes

THE DISK WAS TURNED IN TO THE OFFICE.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1353.541	.016	2/1					VERTICAL ADJUSTMENT	2006	00000425-10	
1353.541	.016	2/1					VERTICAL CONTROL SURVEY	2005	VSTAK	

Geoid Separations(ft): GEOID18 = -87.661    12B = -87.647    09 = -87.536    03 = -87.480

\* No Horizontal Positions in the Database \*

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AQ_2-DI0254-3W-26APR2005.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AQ_2-DI0254-3W-26APR2005.jpg</a>	W	Apr 26, 2005
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AQ_2-DI0254-2-26APR2005.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AQ_2-DI0254-2-26APR2005.jpg</a>		Apr 26, 2005
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AQ_2-DI0254-1-26APR2005.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AQ_2-DI0254-1-26APR2005.jpg</a>		Apr 26, 2005

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1401 AQ 2 RESET

NGS Name: 1401 AQ 2 RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [DR9699](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096113/  
 USGS Quad: LAKE PARK SW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	13	139 N	44 W	465141.99	961112.61	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2022	2022	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 20 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2022)                      Stamping: 1401 AQ 2 RESET

4.0 MILES WEST OF LAKE PARK, 4.0 MILES WEST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 7 IN LAKE PARK TO TRUNK HIGHWAY 10 MILEPOINT 28.25, THEN 1.25 MILES SOUTH ON COUNTY ROAD 118, 52.6 FEET WEST OF COUNTY ROAD 118 (297TH STREET SOUTH), 23.3 FEET NORTH OF DRIVEWAY NUMBER 1301, 0.5 FOOT EAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1352.294	.016	2/1					VERTICAL ADJUSTMENT	2024	0000941-3
1352.294	.016	2/1					VERTICAL CONTROL SURVEY	2023	VMOFA

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1352.409	.262			1264.748	.197	2011	GPS - RTRN	2022	RTRN2022

No Geoid Separations Available

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 51 41.99323	96 11 12.61095			628406.697	184919.919	.131	3	GPS - RTRN	2022	RTRN2022

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2140193.205	1012883.646			843509.840	17043021.343	.131	3	GPS - RTRN	2022	RTRN2022

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AQ_2_RESET-DR9699-3W-16JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AQ_2_RESET-DR9699-3W-16JUN2022.jpg</a>	W	Jun 16, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AQ_2_RESET-DR9699-2-16JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AQ_2_RESET-DR9699-2-16JUN2022.jpg</a>		Jun 16, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AQ_2_RESET-DR9699-1-16JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AQ_2_RESET-DR9699-1-16JUN2022.jpg</a>		Jun 16, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1401 AQ RESET

NGS Name: 1401 AQ RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ2039](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	1	139 N	48 W	465236.30	964022.61	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 10 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 50 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

**Description:** (2014)                      **Stamping:** 1401 AQ RESET 2014

1.4 MILES EAST OF DILWORTH, 1.0 MILE WEST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND TRUNK HIGHWAY 336 (THE JUNCTION IS 2.5 MILES EAST OF DILWORTH), AT TRUNK HIGHWAY 10 MILEPOINT 4.9, 61.3 FEET NORTH OF WESTBOUND TRUNK HIGHWAY 10, 71.2 FEET WEST OF 60TH STREET, 44.2 FEET WEST OF A POWER POLE, 8.6 FEET SOUTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
911.274	.016	2/1					VERTICAL ADJUSTMENT	2024	0000941-3	
911.274	.016	2/1					VERTICAL CONTROL SURVEY	2023	VMOFA	
911.274	.016	2/1					VERTICAL ADJUSTMENT	2019	0000941	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
911.274				824.342	.023	2011	HORIZONTAL ADJUSTMENT	2024	GPS3674	
911.274				824.342	.023	2011	GPS - STATIC	2023	HMOFA3	
911.274	.131			824.437	.066	1996	GPS - STATIC	2023	HMOFA3	
911.475	.262			824.286	.197	2011	GPS - RTRN	2022	RTRN2022	
911.484	.262			824.293	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.188    12B = -87.188    09 = -87.044    03 = -87.001

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 52 36.29624	96 40 22.61288	506788.673	190003.368	.010		ADJUSTMENT	2024	GPS3674	
46 52 36.29624	96 40 22.61288	506788.673	190003.368	.010	C	GPS - STATIC	2023	HMOFA3	
46 52 36.29641	96 40 22.61449	506788.561	190003.385	.131	3	GPS - RTRN	2022	RTRN2022	
46 52 36.29645	96 40 22.61352	506788.628	190003.389	.131	3	GPS - RTRN	2014	RTRN2014	

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 52 36.29612	96 40 22.61370	506788.616	190003.356	.033	C	GPS - STATIC	2023	HMOFA3	

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
						ADJUSTMENT	2024	GPS3674	
2018801.334	1021728.903	722219.412	17053835.881	.010		ADJUSTMENT	2024	GPS3674	
2018801.334	1021728.903	722219.412	17053835.881	.010	C	GPS - STATIC	2023	HMOFA3	
2018801.223	1021728.923	722219.301	17053835.904	.131	3	GPS - RTRN	2022	RTRN2022	
2018801.290	1021728.925	722219.369	17053835.905	.131	3	GPS - RTRN	2014	RTRN2014	

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
2018801.276	1021728.892	722219.354	17053835.872	.033	C	GPS - STATIC	2023	HMOFA3	



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AQ_RESET-DQ2039-3N-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AQ_RESET-DQ2039-3N-14JUN2022.jpg</a>	N	Jun 14, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AQ_RESET-DQ2039-2-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AQ_RESET-DQ2039-2-14JUN2022.jpg</a>		Jun 14, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AQ_RESET-DQ2039-1-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AQ_RESET-DQ2039-1-14JUN2022.jpg</a>		Jun 14, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1401 AR

NGS Name: 1401 AR

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM4269](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	6	139 N	47 W	465247.13	963909.49	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2000	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 165 FT)	SURVEY DISK	MNDT

Description: (2014)                      Stamping: 1401 AR 2000

2.4 MILES EAST-NORTHEAST OF DILWORTH, 0.2 MILE NORTH ALONG COUNTY ROAD 11 FROM THE JUNCTION OF COUNTY ROAD 11, TRUNK HIGHWAY 10, AND TRUNK HIGHWAY 336 IN WATTS, THEN 0.15 MILE WEST AND SOUTH ON 70TH STREET NORTH (DEAD END ROAD), 65.0 FEET WEST OF 70TH STREET NORTH, 25.0 FEET NORTH OF AN ENTRANCE, 9.3 FEET WEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>							<u>Project Info</u>	
<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			
919.532	.016	2/1				VERTICAL ADJUSTMENT	2024	0000941-3
919.532	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA
919.532	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941
919.706	.016	2/1				VERTICAL ADJUSTMENT	2011	00000685
919.709	.016	2/1				VERTICAL CONTROL SURVEY	2002	VMORE

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>							<u>Project Info</u>	
<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			
919.532			832.525	.017	2011	HORIZONTAL ADJUSTMENT	2024	GPS3715
919.532			832.525	.017	2011	GPS - STATIC	2024	HMOFA2
919.532	.131		832.659	.066	1996	GPS - STATIC	2024	HMOFA2
919.532			832.525	.018	2011	HORIZONTAL ADJUSTMENT	2024	GPS3674
919.532			832.525	.018	2011	GPS - STATIC	2023	HMOFA3
919.532	.131		832.659	.066	1996	GPS - STATIC	2023	HMOFA3
919.837	.262		832.610	.197	2011	GPS - RTRN	2022	RTRN2022
919.706			832.525	.023	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084
919.706	.131		832.659	.066	1996	GPS - STATIC	2015	HCLAY
919.706			832.525	.023	2011	GPS - STATIC	2015	HCLAY
919.723	.262		832.492	.197	2011	GPS - RTRN	2014	RTRN2014
			832.754	.066	1996	GPS - STATIC	2001	DIST 4

Geoid Separations(ft): GEOID18 = -87.228    12B = -87.234    09 = -87.080    03 = -87.044

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 52 47.12826	96 39 09.48475	511868.620	191103.245	.010		ADJUSTMENT	2024	GPS3715
46 52 47.12826	96 39 09.48475	511868.620	191103.245	.010	C	GPS - STATIC	2024	HMOFA2
46 52 47.12826	96 39 09.48475	511868.620	191103.245	.010		ADJUSTMENT	2024	GPS3674
46 52 47.12826	96 39 09.48475	511868.620	191103.245	.010	C	GPS - STATIC	2023	HMOFA3
46 52 47.12816	96 39 09.48575	511868.551	191103.235	.131	3	GPS - RTRN	2022	RTRN2022
46 52 47.12826	96 39 09.48475	511868.620	191103.245	.013		ADJUSTMENT	2015	GPS3084
46 52 47.12826	96 39 09.48475	511868.620	191103.245	.013	C	GPS - STATIC	2015	HCLAY
46 52 47.12798	96 39 09.48533	511868.580	191103.217	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(1996)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 52 47.12786	96 39 09.48562	511868.560	191103.205	.033	C	GPS - STATIC	2024	HMOFA2
46 52 47.12786	96 39 09.48562	511868.560	191103.205	.033	C	GPS - STATIC	2023	HMOFA3
46 52 47.12786	96 39 09.48562	511868.560	191103.205	.033	C	GPS - STATIC	2015	HCLAY
46 52 47.12769	96 39 09.48592	511868.540	191103.187	.033	C	GPS - STATIC	2001	DIST 4

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2023912.471	1022671.048	727348.191	17054695.468	.010		ADJUSTMENT	2024	GPS3715
2023912.471	1022671.048	727348.191	17054695.468	.010	C	GPS - STATIC	2024	HMOFA2
2023912.471	1022671.048	727348.191	17054695.468	.010		ADJUSTMENT	2024	GPS3674
2023912.471	1022671.048	727348.191	17054695.468	.010	C	GPS - STATIC	2023	HMOFA3
2023912.401	1022671.040	727348.121	17054695.461	.131	3	GPS - RTRN	2022	RTRN2022
2023912.471	1022671.048	727348.191	17054695.468	.013		ADJUSTMENT	2015	GPS3084
2023912.471	1022671.048	727348.191	17054695.468	.013	C	GPS - STATIC	2015	HCLAY
2023912.430	1022671.021	727348.150	17054695.442	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2023912.409	1022671.009	727348.129	17054695.431	.033	C	GPS - STATIC	2024	HMOFA2
2023912.409	1022671.009	727348.129	17054695.431	.033	C	GPS - STATIC	2023	HMOFA3
2023912.409	1022671.009	727348.129	17054695.431	.033	C	GPS - STATIC	2015	HCLAY
2023912.388	1022670.993	727348.107	17054695.414	.033	C	GPS - STATIC	2001	DIST 4

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AR-DM4269-3W-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AR-DM4269-3W-05JUL2022.jpg</a>	W	Jul 5, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AR-DM4269-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AR-DM4269-2-05JUL2022.jpg</a>		Jul 5, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AR-DM4269-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AR-DM4269-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1401 AR 1  
County: CLAY, MN (Sheet 1)

NGS Name: 1401 AR 1

NGS ACRN: [DG7108](#) [Get Map](#)  
NGS Quad / Sta Num : 46096114/  
USGS Quad: DALE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	11	139 N	44 W	465237.67	961147.82	2	B

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2000	2022	GOOD	Horz=NO Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 30 FT)	SURVEY DISK	MNDT

Description: (2013)                      Stamping: 1401 AR 1 2000

4.75 MILES WEST OF LAKE PARK, 4.75 MILES WEST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 7 IN LAKE PARK, AT TRUNK HIGHWAY 10 MILEPOINT 27.45, 62.5 FEET SOUTH OF EASTBOUND TRUNK HIGHWAY 10, 117.0 FEET WEST-SOUTHWEST OF A POWER POLE, 2.0 FEET NORTH OF A WITNESS POST.

Station Notes

DUE TO TREE COVER, THIS SURVEY MARK HAS BEEN ABANDONED FOR MNDOT GEODETIC HORIZONTAL SURVEYS.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1321.392	.016	2/1				VERTICAL ADJUSTMENT	2024	00000941-3
1321.392	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA
1321.392	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941
1321.490	.016	2/1				VERTICAL ADJUSTMENT	2006	00000425-10
1321.490	.016	2/1				VERTICAL CONTROL SURVEY	2005	VSTAK
1321.490	.016	2/1				VERTICAL ADJUSTMENT	2004	00000464
1321.490	.016	2/1				VERTICAL CONTROL SURVEY	2001	VHAWL

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1321.379	.262		1233.626	.197	2011	GPS - RTRN	2022	RTRN2022
1321.490			1233.751	.011	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084
1321.490	.131		1233.859	.066	1996	GPS - STATIC	2015	HCLAY
1321.490			1233.744	.011	2011	GPS - STATIC	2015	HCLAY
			1233.751	.012	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			1233.856	.013	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
1321.421	.098		1233.859	.049	1996	GPS - STATIC	2005	GPS2036
1321.454	.098		1233.908	.049	1996	GPS - STATIC	2004	GPS1954

Geoid Separations(ft): GEOID18 = -87.749 12B = -87.739 09 = -87.628 03 = -87.562

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 52 37.67367	96 11 47.82084	625923.623	190545.440	.131	3	GPS - RTRN	2022	RTRN2022
46 52 37.67271	96 11 47.81923	625923.735	190545.343	.010		ADJUSTMENT	2015	GPS3084
46 52 37.67281	96 11 47.81918	625923.739	190545.353	.010	C	GPS - STATIC	2015	HCLAY
46 52 37.67271	96 11 47.81923	625923.735	190545.343	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 52 37.67259	96 11 47.82010	625923.675	190545.331	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 52 37.67240	96 11 47.82005	625923.678	190545.311	.033	C	GPS - STATIC	2015	HCLAY
46 52 37.67240	96 11 47.82005	625923.678	190545.311	.016	B	GPS - STATIC	2005	GPS2036
46 52 37.67217	96 11 47.82004	625923.679	190545.288	.016	B	GPS - STATIC	2004	GPS1954

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2137885.854	1018582.843	841294.077	17048759.153	.131	3	GPS - RTRN	2022	RTRN2022
2137885.963	1018582.743	841294.185	17048759.051	.010		ADJUSTMENT	2015	GPS3084
2137885.967	1018582.753	841294.188	17048759.062	.010	C	GPS - STATIC	2015	HCLAY
2137885.963	1018582.743	841294.185	17048759.051	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2137885.903	1018582.733	841294.124	17048759.042	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2137885.906	1018582.713	841294.126	17048759.022	.033	C	GPS - STATIC	2015	HCLAY
2137885.906	1018582.713	841294.126	17048759.022	.016	B	GPS - STATIC	2005	GPS2036
2137885.906	1018582.690	841294.126	17048758.999	.016	B	GPS - STATIC	2004	GPS1954

Station Photos

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AR_1-DG7108-3S-13JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AR_1-DG7108-3S-13JUN2022.jpg</a>	S	Jun 13, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AR_1-DG7108-2-13JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AR_1-DG7108-2-13JUN2022.jpg</a>		Jun 13, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AR_1-DG7108-1-13JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AR_1-DG7108-1-13JUN2022.jpg</a>		Jun 13, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1401 AS

NGS Name: 1401 AS

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM4270](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	5	139 N	47 W	465235.67	963757.62	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1993	2014	GOOD	Horz=NO Vert=NO	YES	14001	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE RAILING	VERTICAL CONTROL DISK	MNDT

**Description:** (2014)                      **Stamping:** 1401 AS 2000

3.4 MILES EAST OF DILWORTH, IN A BRIDGE RAILING IN THE SOUTHEAST CORNER OF EASTBOUND TRUNK HIGHWAY 10 BRIDGE NUMBER 14001 OVER THE BUFFALO RIVER, 0.85 MILE EAST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND TRUNK HIGHWAY 336 IN WATTS, AT TRUNK HIGHWAY 10 MILEPOINT 6.8, 20.0 FEET SOUTH OF EASTBOUND TRUNK HIGHWAY 10. STATION 1401 AS WAS SET IN THE BRIDGE WHEN IT WAS REMODELED IN 1993 AND STAMPED WHEN FIRST USED IN 2000.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
922.616	.016	2/1					VERTICAL ADJUSTMENT	2011	00000685	
922.616	.016	2/1					VERTICAL CONTROL SURVEY	2002	VMORE	

Geoid Separations(ft): GEOID18 = -87.303    12B = -87.310    09 = -87.155    03 = -87.116

\* No Horizontal Positions in the Database \*

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AS-DM4270-3W-28MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AS-DM4270-3W-28MAY2014.jpg</a>	W	May 28, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AS-DM4270-2-28MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AS-DM4270-2-28MAY2014.jpg</a>		May 28, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AS-DM4270-1-28MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AS-DM4270-1-28MAY2014.jpg</a>		May 28, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1401 AT

NGS Name: 1401 AT

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM4271](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	5	139 N	47 W	465236.54	963758.51	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1984	2014	GOOD	Horz=NO Vert=NO	YES	5854	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE RAILING	VERTICAL CONTROL DISK	MNDT

**Description:** (2000)                      **Stamping:** 1401 AT 2000

3.4 MILES EAST OF DILWORTH, IN A BRIDGE RAILING IN THE SOUTHEAST CORNER OF WESTBOUND TRUNK HIGHWAY 10 BRIDGE NUMBER 5854 OVER THE BUFFALO RIVER, 0.85 MILE EAST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND TRUNK HIGHWAY 336 IN WATTS, AT TRUNK HIGHWAY 10 MILEPOINT 6.8, 18.0 FEET SOUTH OF WESTBOUND TRUNK HIGHWAY 10. STATION 1401 AT WAS SET IN THE BRIDGE WHEN IT WAS REMODELED IN 1984 AND STAMPED WHEN FIRST USED IN 2000.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
922.246	.016	2/1					VERTICAL ADJUSTMENT	2011	00000685	
922.246	.016	2/1					VERTICAL CONTROL SURVEY	2002	VMORE	

Geoid Separations(ft): GEOID18 = -87.300 12B = -87.310 09 = -87.152 03 = -87.116

\* No Horizontal Positions in the Database \*

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AT-DM4271-3W-28MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AT-DM4271-3W-28MAY2014.jpg</a>	W	May 28, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AT-DM4271-2-28MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AT-DM4271-2-28MAY2014.jpg</a>		May 28, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AT-DM4271-1-28MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AT-DM4271-1-28MAY2014.jpg</a>		May 28, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1401 AU

NGS Name: 1401 AU

County: CLAY, MN (Sheet 1)

NGS ACRN: [DG7142](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096144/  
 USGS Quad: HAWLEY NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	3	139 N	46 W	465235.69	962746.77	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2001	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 1 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 14 FT)	SURVEY DISK	MNDT

Description: (2014)                      Stamping: 1401 AU 2001

5.5 MILES EAST OF GLYNDON, 2.0 MILES EAST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND TRUNK HIGHWAY 9 (THE JUNCTION IS 3.5 MILES EAST OF GLYNDON), AT TRUNK HIGHWAY 10 MILEPOINT 14.75, 76.0 FEET NORTH OF WESTBOUND TRUNK HIGHWAY 10, 119.0 FEET EAST OF A TELEPHONE PEDESTAL, 35.5 FEET WEST OF 160TH STREET NORTH, 2.7 FEET SOUTH-SOUTHWEST OF A FENCE CORNER POST, 1.7 FEET SOUTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
995.057	.016	2/1				VERTICAL ADJUSTMENT	2024	00000941-3		
995.057	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA		
995.057	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941		
995.224	.016	2/1				VERTICAL ADJUSTMENT	2004	00000464		
995.228	.016	2/1				VERTICAL CONTROL SURVEY	2001	VHAWL		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
995.057			907.531	.018	2011	HORIZONTAL ADJUSTMENT	2024	GPS3719		
995.057	.131		907.672	.066	1996	GPS - STATIC	2024	HMOFA1		
995.057			907.531	.018	2011	GPS - STATIC	2024	HMOFA1		
995.251	.262		907.488	.197	2011	GPS - RTRN	2022	RTRN2022		
995.224			907.531	.025	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084		
995.224	.131		907.672	.066	1996	GPS - STATIC	2015	HCLAY		
995.224			907.531	.025	2011	GPS - STATIC	2015	HCLAY		
995.293	.262		907.521	.197	2011	GPS - RTRN	2014	RTRN2014		

Geoid Separations(ft): GEOID18 = -87.766 12B = -87.769 09 = -87.634 03 = -87.582

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 52 35.68933	96 27 46.77167			559301.256	190030.199	.010		ADJUSTMENT	2024	GPS3719
46 52 35.68933	96 27 46.77167			559301.256	190030.199	.010	C	GPS - STATIC	2024	HMOFA1
46 52 35.68935	96 27 46.77183			559301.245	190030.201	.131	3	GPS - RTRN	2022	RTRN2022
46 52 35.68933	96 27 46.77167			559301.256	190030.199	.016		ADJUSTMENT	2015	GPS3084
46 52 35.68933	96 27 46.77167			559301.256	190030.199	.016	C	GPS - STATIC	2015	HCLAY
46 52 35.68959	96 27 46.77238			559301.207	190030.226	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 52 35.68887	96 27 46.77250			559301.198	190030.152	.033	C	GPS - STATIC	2024	HMOFA1
46 52 35.68887	96 27 46.77250			559301.198	190030.152	.033	C	GPS - STATIC	2015	HCLAY

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2071285.398	1020130.978	774699.103	17051385.891	.010		ADJUSTMENT	2024	GPS3719
2071285.398	1020130.978	774699.103	17051385.891	.010	C	GPS - STATIC	2024	HMOFA1
2071285.387	1020130.980	774699.093	17051385.893	.131	3	GPS - RTRN	2022	RTRN2022
2071285.398	1020130.978	774699.103	17051385.891	.016		ADJUSTMENT	2015	GPS3084
2071285.398	1020130.978	774699.103	17051385.891	.016	C	GPS - STATIC	2015	HCLAY
2071285.350	1020131.005	774699.056	17051385.919	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2071285.339	1020130.933	774699.044	17051385.847	.033	C	GPS - STATIC	2024	HMOFA1
2071285.339	1020130.933	774699.044	17051385.847	.033	C	GPS - STATIC	2015	HCLAY

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<b>Location:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AU-DG7142-3S-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AU-DG7142-3S-05JUL2022.jpg</a>	S	Jul 5, 2022
<b>Monument:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AU-DG7142-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AU-DG7142-2-05JUL2022.jpg</a>		Jul 5, 2022
<b>Disk:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AU-DG7142-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AU-DG7142-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1401 AV

NGS Name: 1401 AV

County: CLAY, MN (Sheet 1)

NGS ACRN: [DG7144](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096141/  
 USGS Quad: HAWLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	4	139 N	45 W	465237.42	962154.51	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2001	2014	DESTROYED	Horz=NO Vert=NO	NO		RECESSED 1 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	SURVEY DISK	MNDT

**Description:** (2001)                      **Stamping:** 1401 AV 2001

2.3 MILES WEST OF HAWLEY, 2.05 MILES WEST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 33 IN HAWLEY, AT TRUNK HIGHWAY 10 MILEPOINT 19.45, 110.0 FEET NORTH OF WESTBOUND TRUNK HIGHWAY 10, 46.3 FEET WEST OF 200TH STREET, 1.2 FEET SOUTH OF A POWER POLE, 20.0 FEET NORTH OF A FIELD ENTRANCE.

**Station Notes**

THE DISK WAS TURNED IN TO THE OFFICE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1172.714	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
1172.836	.016	2/1					VERTICAL ADJUSTMENT	2004	00000464	
1172.836	.016	2/1					VERTICAL CONTROL SURVEY	2001	VHAWL	

Geoid Separations(ft): GEOID18 = -87.834    12B = -87.818    09 = -87.707    03 = -87.674

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1401 AV RESET

NGS Name: 1401 AV RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ2025](#) [Get Map](#)  
 NGS Quad / Sta Num : 4609614/  
 USGS Quad: HAWLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	4	139 N	45 W	465237.42	962154.51	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2022	GOOD	Horz=YES Vert=YES	YES		RECESSED 5 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 24 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

**Description:** (2014)                      **Stamping:** 1401 AV RESET 2014

2.3 MILES WEST OF HAWLEY, 2.05 MILES WEST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 33/COUNTY ROAD 31 IN HAWLEY, AT TRUNK HIGHWAY 10 MILEPOINT 19.45, 110.0 FEET NORTH OF WESTBOUND TRUNK HIGHWAY 10, 46.3 FEET WEST OF 200TH STREET, 1.2 FEET SOUTH OF A POWER POLE, 20.0 FEET NORTH OF A FIELD ENTRANCE, 0.8 FOOT SOUTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1172.511	.016	2/1					VERTICAL ADJUSTMENT	2024	0000941-3	
1172.511	.016	2/1					VERTICAL CONTROL SURVEY	2023	VMOFA	
1172.511	.016	2/1					VERTICAL ADJUSTMENT	2019	0000941	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1172.691	.262			1084.857	.197	2011	GPS - RTRN	2022	RTRN2022	

Geoid Separations(ft): GEOID18 = -87.834    12B = -87.818    09 = -87.707    03 = -87.674

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>				<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	
<u>Latitude</u>	<u>Longitude</u>								
46 52 37.43349	96 21 54.46325			583777.345	190296.071	.131	3	GPS - RTRN	2022 RTRN2022

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	
<u>X</u>	<u>Y</u>								
2095755.919	1019638.984			799169.827	17050497.306	.131	3	GPS - RTRN	2022 RTRN2022

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AV_RESET-DQ2025-3N-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AV_RESET-DQ2025-3N-14JUN2022.jpg</a>	N	Jun 14, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AV_RESET-DQ2025-2-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AV_RESET-DQ2025-2-14JUN2022.jpg</a>		Jun 14, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AV_RESET-DQ2025-1-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AV_RESET-DQ2025-1-14JUN2022.jpg</a>		Jun 14, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1401 AW  
 County: CLAY, MN (Sheet 1)

NGS Name: 1401 AW

NGS ACRN: [DG7141](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096144/  
 USGS Quad: HAWLEY NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	4	139 N	46 W	465238.10	962937.44	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1997	2014	GOOD	Horz=NO Vert=NO	YES	14007	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE RAILING	VERTICAL CONTROL DISK	MNDT

**Description:** (2014)                      **Stamping:** 1401 AW 1997

4.0 MILES EAST OF GLYNDON, IN A BRIDGE RAILING IN THE SOUTHEAST CORNER OF WESTBOUND TRUNK HIGHWAY 10 BRIDGE NUMBER 14007 OVER THE BUFFALO RIVER, 0.50 MILE EAST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND TRUNK HIGHWAY 9 (THE JUNCTION 3.5 MILES EAST OF GLYNDON), AT TRUNK HIGHWAY 10 MILEPOINT 13.4, 19.0 FEET SOUTH OF WESTBOUND TRUNK HIGHWAY 10, 1.5 FEET WEST OF THE EAST END OF A BRIDGE RAILING.

**Station Notes**

IF THE COORDINATES AND/OR ELEVATIONS ARE ESTABLISHED OR PUBLISHED ON THIS GEODETIC CONTROL DISK, THEY SHOULD BE USED WITH CAUTION. THE GEODETIC CONTROL DISK IS LOCATED ON AN INTEGRAL ABUTMENT AND/OR A JOINTLESS BRIDGE AND IS SUBJECT TO MOVEMENT BEYOND GEODETIC TOLERANCES.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
956.419	.016	2/1					VERTICAL ADJUSTMENT	2004	00000464	
956.422	.016	2/1					VERTICAL CONTROL SURVEY	2001	VHAWL	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
956.363	.262			868.640	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.710 12B = -87.723 09 = -87.579 03 = -87.516

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>			<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 52 38.01217	96 29 37.15284		551631.835	190243.887	.131	3	GPS - RTRN	2014	RTRN2014	

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>			<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
			767045.112	17051961.133	.131	3	GPS - RTRN	2014	RTRN2014	

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AW-DG7141-3W-27MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AW-DG7141-3W-27MAY2014.jpg</a>	W	May 27, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AW-DG7141-2-27MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AW-DG7141-2-27MAY2014.jpg</a>		May 27, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AW-DG7141-1-27MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AW-DG7141-1-27MAY2014.jpg</a>		May 27, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1401 AX  
County: CLAY, MN (Sheet 1)

NGS Name: 1401 AX

NGS ACRN: [DQ2032](#) [Get Map](#)  
NGS Quad / Sta Num : 46096411/  
USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	6	139 N	46 W	465238.68	963246.34	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 1 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 84 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: 1401 AX 2014

1.6 MILES EAST OF GLYNDON, 1.6 MILES EAST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 117 AND COUNTY ROAD 19 IN GLYNDON, AT TRUNK HIGHWAY 10 MILEPOINT 10.35, 25.0 FEET NORTH OF WESTBOUND TRUNK HIGHWAY 10 FOG LINE, 1.5 FEET SOUTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
925.274	.016	2/1				VERTICAL ADJUSTMENT	2024	0000941-3		
925.274	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA		
925.274	.016	2/1				VERTICAL ADJUSTMENT	2019	0000941		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
925.274			837.935	.023	2011	HORIZONTAL ADJUSTMENT	2024	GPS3719		
925.274	.131		838.056	.066	1996	GPS - STATIC	2024	HMOFA1		
925.274			837.935	.023	2011	GPS - STATIC	2024	HMOFA1		
925.644	.262		838.059	.197	2011	GPS - RTRN	2022	RTRN2022		
925.444	.262		837.856	.197	2011	GPS - RTRN	2014	RTRN2014		

Geoid Separations(ft): GEOID18 = -87.582 12B = -87.588 09 = -87.444 03 = -87.395

**Lat/Lon and County Coordinates (Feet)**

<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
46 52 38.67750	96 32 46.33545	538488.277	190281.146	.010		ADJUSTMENT	2024	GPS3719
46 52 38.67750	96 32 46.33545	538488.277	190281.146	.010	C	GPS - STATIC	2024	HMOFA1
46 52 38.67759	96 32 46.33592	538488.244	190281.155	.131	3	GPS - RTRN	2022	RTRN2022
46 52 38.67748	96 32 46.33551	538488.273	190281.144	.131	3	GPS - RTRN	2014	RTRN2014

<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
46 52 38.67728	96 32 46.33592	538488.245	190281.123	.033	C	GPS - STATIC	2024	HMOFA1

**State Plane and UTM Coordinates (Feet)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
2050491.847	1021025.887	753912.193	17052618.270	.010		ADJUSTMENT	2024	GPS3719
2050491.847	1021025.887	753912.193	17052618.270	.010	C	GPS - STATIC	2024	HMOFA1
2050491.815	1021025.897	753912.160	17052618.281	.131	3	GPS - RTRN	2022	RTRN2022
2050491.843	1021025.885	753912.189	17052618.269	.131	3	GPS - RTRN	2014	RTRN2014

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
2050491.814	1021025.865	753912.159	17052618.250	.033	C	GPS - STATIC	2024	HMOFA1



**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AX-DQ2032-3N-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AX-DQ2032-3N-05JUL2022.jpg</a>	N	Jul 5, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AX-DQ2032-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AX-DQ2032-2-05JUL2022.jpg</a>		Jul 5, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AX-DQ2032-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AX-DQ2032-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1401 AY  
County: CLAY, MN (Sheet 1)

NGS Name: 1401 AY

NGS ACRN: [DQ2035](#) [Get Map](#)  
NGS Quad / Sta Num : 46096411/  
USGS Quad: GLYNDON NORTH

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	10	139 N	47 W	465236.23	963539.77	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 4 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 54 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

**Description:** (2014)                      **Stamping:** 1404 AY 2014

0.6 MILE WEST OF GLYNDON, 0.7 MILE WEST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 117 AND COUNTY ROAD 19 IN GLYNDON, AT TRUNK HIGHWAY 10 MILEPOINT 8.6, 84.2 FEET SOUTH OF EASTBOUND TRUNK HIGHWAY 10. 47.9 FEET EAST OF A FIELD ENTRANCE, 5.0 FEET WEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88				Orthometric Height			Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Determination Method	Year	Reference						
919.634	.016	2/1	VERTICAL ADJUSTMENT	2024	0000941-3						
919.634	.016	2/1	VERTICAL CONTROL SURVEY	2023	VMOFA						
919.634	.016	2/1	VERTICAL ADJUSTMENT	2019	00000941						

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88				Orthometric Height			Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Determination Method	Year	Reference						
919.634			HORIZONTAL ADJUSTMENT	2024	GPS3715						
919.634			GPS - STATIC	2024	HMOFA2						
919.634	.131		GPS - STATIC	2024	HMOFA2						
919.778	.262		GPS - RTRN	2022	RTRN2022						
919.811	.262		GPS - RTRN	2014	RTRN2014						

Geoid Separations(ft): GEOID18 = -87.431 12B = -87.434 09 = -87.290 03 = -87.250

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Geodetic Position				Clay County		Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference		
46 52 36.22744	96 35 39.76980	526439.332	190013.003	.013		ADJUSTMENT	2024	GPS3715		
46 52 36.22744	96 35 39.76980	526439.332	190013.003	.013	C	GPS - STATIC	2024	HMOFA2		
46 52 36.22709	96 35 39.77010	526439.311	190012.967	.131	3	GPS - RTRN	2022	RTRN2022		
46 52 36.22744	96 35 39.76974	526439.336	190013.003	.131	3	GPS - RTRN	2014	RTRN2014		

NAD83(1996)		Geodetic Position				Clay County		Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference		
46 52 36.22728	96 35 39.77060	526439.276	190012.987	.033	C	GPS - STATIC	2024	HMOFA2		

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		MN State Plane - Central Zone				UTM - Zone 15			Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference		
2038441.336	1021130.686	741858.423	17052918.606	.013		ADJUSTMENT	2024	GPS3715		
2038441.336	1021130.686	741858.423	17052918.606	.013	C	GPS - STATIC	2024	HMOFA2		
2038441.314	1021130.651	741858.400	17052918.572	.131	3	GPS - RTRN	2022	RTRN2022		
2038441.339	1021130.686	741858.427	17052918.606	.131	3	GPS - RTRN	2014	RTRN2014		

NAD83(1996)		MN State Plane - Central Zone				UTM - Zone 15			Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference		
2038441.279	1021130.671	741858.367	17052918.592	.033	C	GPS - STATIC	2024	HMOFA2		



**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AY-DQ2035-3S-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AY-DQ2035-3S-05JUL2022.jpg</a>	S	Jul 5, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AY-DQ2035-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AY-DQ2035-2-05JUL2022.jpg</a>		Jul 5, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AY-DQ2035-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AY-DQ2035-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1401 AZ

NGS Name: 1401 AZ

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ2036](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	9	139 N	47 W	465235.72	963651.90	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 59 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: 1401 AZ 2014

1.6 MILES WEST OF GLYNDON, 1.6 MILES WEST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 117 AND COUNTY ROAD 19 IN GLYNDON, AT TRUNK HIGHWAY 10 MILEPOINT 7.6, 82.4 FEET SOUTH OF EASTBOUND TRUNK HIGHWAY 10. 41.8 FEET EAST OF A FIELD ENTRANCE, 21.8 FEET NORTHEAST OF A RIGHT-OF-WAY POST, 5.0 FEET WEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
912.544	.016	2/1					VERTICAL ADJUSTMENT	2024	0000941-3	
912.544	.016	2/1					VERTICAL CONTROL SURVEY	2023	VMOFA	
912.544	.016	2/1					VERTICAL ADJUSTMENT	2019	0000941	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
912.544				825.418	.022	2011	HORIZONTAL ADJUSTMENT	2024	GPS3715	
912.544				825.418	.022	2011	GPS - STATIC	2024	HMOFA2	
912.544	.131			825.523	.066	1996	GPS - STATIC	2024	HMOFA2	
912.698	.262			825.336	.197	2011	GPS - RTRN	2022	RTRN2022	
912.715	.262			825.353	.197	2011	GPS - OPUS	2021	GPSBM	
912.577	.262			825.215	.197	2011	GPS - RTRN	2021	RTRN2021	
912.715	.262			825.346	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.362    12B = -87.369    09 = -87.218    03 = -87.178

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 52 35.72044	96 36 51.89734			521428.293	189955.532	.013		ADJUSTMENT	2024	GPS3715
46 52 35.72044	96 36 51.89734			521428.293	189955.532	.013	C	GPS - STATIC	2024	HMOFA2
46 52 35.72061	96 36 51.89714			521428.307	189955.550	.131	3	GPS - RTRN	2022	RTRN2022
46 52 35.72094	96 36 51.89731			521428.295	189955.583	.131	3	GPS - OPUS	2021	GPSBM
46 52 35.72094	96 36 51.89819			521428.234	189955.583	.131	3	GPS - RTRN	2021	RTRN2021
46 52 35.72098	96 36 51.89756			521428.278	189955.587	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>				<u>Clay County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 52 35.72028	96 36 51.89814			521428.237	189955.516	.033	C	GPS - STATIC	2024	HMOFA2

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2033431.315	1021228.269	736847.837	17053097.531	.013		ADJUSTMENT	2024	GPS3715
2033431.315	1021228.269	736847.837	17053097.531	.013	C	GPS - STATIC	2024	HMOFA2
2033431.329	1021228.285	736847.851	17053097.547	.131	3	GPS - RTRN	2022	RTRN2022
2033431.318	1021228.319	736847.841	17053097.581	.131	3	GPS - OPUS	2021	GPSBM
2033431.257	1021228.321	736847.780	17053097.584	.131	3	GPS - RTRN	2021	RTRN2021
2033431.301	1021228.324	736847.824	17053097.586	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2033431.259	1021228.254	736847.781	17053097.517	.033	C	GPS - STATIC	2024	HMOFA2

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AZ-DQ2036-3S-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AZ-DQ2036-3S-05JUL2022.jpg</a>	S	Jul 5, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AZ-DQ2036-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AZ-DQ2036-2-05JUL2022.jpg</a>		Jul 5, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AZ-DQ2036-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_AZ-DQ2036-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1401 B

NGS Name: 1401 B

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	6	139 N	47 W	465236.00	963945.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1950	2022	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

Description: (1994)                      Stamping: 1401 B

1.5 MILES EAST OF THE EAST EDGE OF DILWORTH, 1.9 MILES EAST ALONG TRUNK HIGHWAY 10 EAST (CENTER AVENUE EAST) FROM THE JUNCTION OF TRUNK HIGHWAY 10 EAST (CENTER AVENUE EAST) AND 4TH STREET SOUTHEAST IN DILWORTH, THEN 0.4 MILE EAST-SOUTHEAST ALONG TRUNK HIGHWAY 336, THEN 0.2 MILE NORTH ALONG COUNTY ROAD 11 (70TH STREET SOUTH), THEN 0.6 MILE WEST-SOUTHWEST ALONG TRUNK HIGHWAY 10 WEST (CENTER AVENUE EAST), 65.0 FEET NORTH OF TRUNK HIGHWAY 10, AT TRUNK HIGHWAY 10 STATION 292+45.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
911.012	.033	3				VERTICAL CONTROL SURVEY	1951	CS1401	

**Geoid Separations(ft): GEOID18 = -87.218    12B = -87.218    09 = -87.070    03 = -87.027**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1401 BA  
County: CLAY, MN (Sheet 1)

NGS Name: 1401 BA

NGS ACRN: [DQ2024](#) [Get Map](#)  
NGS Quad / Sta Num : 46096141/  
USGS Quad: HAWLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	9	139 N	45 W	465234.63	962154.38	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 32 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: 1401 BA 2014

2.0 MILES WEST OF HAWLEY, 2.0 MILES WEST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 31 IN HAWLEY, AT TRUNK HIGHWAY 10 MILEPOINT 19.45, 77.8 FEET SOUTH OF EASTBOUND TRUNK HIGHWAY 10, 40.0 FEET WEST OF 210TH STREET SOUTH, 12.3 FEET NORTH OF A RIGHT-OF-WAY POST, 1.5 FEET NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1170.713	.016	2/1					VERTICAL ADJUSTMENT	2024	00000941-3	
1170.713	.016	2/1					VERTICAL CONTROL SURVEY	2023	VMOFA	
1170.713	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1170.713				1083.062	.024	2011	HORIZONTAL ADJUSTMENT	2024	GPS3719	
1170.713	.131			1083.187	.066	1996	GPS - STATIC	2024	HMOFA1	
1170.713				1083.062	.024	2011	GPS - STATIC	2024	HMOFA1	
1170.877	.262			1083.042	.197	2011	GPS - RTRN	2022	RTRN2022	
1170.834	.262			1083.000	.197	2011	GPS - OPUS	2021	GPSBM	
1170.890	.262			1083.056	.197	2011	GPS - OPUS	2021	GPSBM	
1170.808	.262			1082.974	.197	2011	GPS - RTRN	2021	RTRN2021	
1170.723	.262			1082.908	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.834    12B = -87.815    09 = -87.707    03 = -87.674

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>								
46 52 34.63196	96 21 54.37945	583784.378	190012.254	.013		ADJUSTMENT	2024	GPS3719	
46 52 34.63196	96 21 54.37945	583784.378	190012.254	.013	C	GPS - STATIC	2024	HMOFA1	
46 52 34.63214	96 21 54.37945	583784.378	190012.272	.131	3	GPS - RTRN	2022	RTRN2022	
46 52 34.63154	96 21 54.37958	583784.369	190012.211	.131	3	GPS - OPUS	2021	GPSBM	
46 52 34.63151	96 21 54.37962	583784.366	190012.208	.131	3	GPS - OPUS	2021	GPSBM	
46 52 34.63222	96 21 54.38003	583784.337	190012.279	.131	3	GPS - RTRN	2021	RTRN2021	
46 52 34.63258	96 21 54.37945	583784.378	190012.316	.131	3	GPS - RTRN	2014	RTRN2014	

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>								
46 52 34.63169	96 21 54.37992	583784.345	190012.226	.033	C	GPS - STATIC	2024	HMOFA1	

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2095754.160	1019355.110	799163.471	17050213.372	.013		ADJUSTMENT	2024	GPS3719
2095754.160	1019355.110	799163.471	17050213.372	.013	C	GPS - STATIC	2024	HMOFA1
2095754.161	1019355.128	799163.472	17050213.390	.131	3	GPS - RTRN	2022	RTRN2022
2095754.150	1019355.067	799163.460	17050213.330	.131	3	GPS - OPUS	2021	GPSBM
2095754.147	1019355.064	799163.457	17050213.327	.131	3	GPS - OPUS	2021	GPSBM
2095754.120	1019355.137	799163.432	17050213.400	.131	3	GPS - RTRN	2021	RTRN2021
2095754.162	1019355.172	799163.473	17050213.435	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2095754.127	1019355.083	799163.437	17050213.346	.033	C	GPS - STATIC	2024	HMOFA1

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<b>Location:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_BA-DQ2024-3S-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_BA-DQ2024-3S-14JUN2022.jpg</a>	S	Jun 14, 2022
<b>Monument:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_BA-DQ2024-2-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_BA-DQ2024-2-14JUN2022.jpg</a>		Jun 14, 2022
<b>Disk:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_BA-DQ2024-1-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_BA-DQ2024-1-14JUN2022.jpg</a>		Jun 14, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1401 BB  
 County: CLAY, MN (Sheet 1)

NGS Name: 1401 BB

NGS ACRN: [DQ2029](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096144/  
 USGS Quad: HAWLEY NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	9	139 N	46 W	465235.35	962904.98	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 1 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 13 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: 1401 BB 2014

4.5 MILES EAST OF GLYNDON, 1.0 MILE EAST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND TRUNK HIGHWAY 9 (THE JUNCTION IS 3.5 MILES EAST OF GLYNDON), AT TRUNK HIGHWAY 10 MILEPOINT 13.80, 170.6 FEET WEST OF 150TH STREET NORTH EXTENDED, 68.3 FEET SOUTH OF EASTBOUND TRUNK HIGHWAY 10, 1.5 FEET NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
951.094	.016	2/1				VERTICAL ADJUSTMENT	2024	00000941-3		
951.094	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA		
951.094	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
951.094			863.568	.024	2011	HORIZONTAL ADJUSTMENT	2024	GPS3719		
951.094	.131		863.699	.066	1996	GPS - STATIC	2024	HMOFA1		
951.094			863.568	.024	2011	GPS - STATIC	2024	HMOFA1		
951.324	.262		863.594	.197	2011	GPS - RTRN	2022	RTRN2022		
951.281	.262		863.551	.197	2011	GPS - OPUS	2021	GPSBM		
951.189	.262		863.460	.197	2011	GPS - OPUS	2021	GPSBM		
951.291	.262		863.558	.197	2011	GPS - RTRN	2021	RTRN2021		
951.287	.262		863.548	.197	2011	GPS - RTRN	2014	RTRN2014		

Geoid Separations(ft): GEOID18 = -87.729 12B = -87.739 09 = -87.598 03 = -87.536

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 52 35.35312	96 29 04.97992	553867.782	189980.482	.013		ADJUSTMENT	2024	GPS3719	
46 52 35.35312	96 29 04.97992	553867.782	189980.482	.013	C	GPS - STATIC	2024	HMOFA1	
46 52 35.35290	96 29 04.98052	553867.740	189980.460	.131	3	GPS - RTRN	2022	RTRN2022	
46 52 35.35273	96 29 04.98026	553867.758	189980.443	.131	3	GPS - OPUS	2021	GPSBM	
46 52 35.35313	96 29 04.98037	553867.750	189980.483	.131	3	GPS - OPUS	2021	GPSBM	
46 52 35.35266	96 29 04.98166	553867.661	189980.435	.131	3	GPS - RTRN	2021	RTRN2021	
46 52 35.35345	96 29 04.97954	553867.808	189980.516	.131	3	GPS - RTRN	2014	RTRN2014	

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 52 35.35280	96 29 04.98045	553867.745	189980.450	.033	C	GPS - STATIC	2024	HMOFA1	

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2065853.436	1020249.458	769267.088	17051592.458	.013		ADJUSTMENT	2024	GPS3719
2065853.436	1020249.458	769267.088	17051592.458	.013	C	GPS - STATIC	2024	HMOFA1
2065853.394	1020249.437	769267.045	17051592.438	.131	3	GPS - RTRN	2022	RTRN2022
2065853.411	1020249.419	769267.063	17051592.420	.131	3	GPS - OPUS	2021	GPSBM
2065853.404	1020249.460	769267.057	17051592.461	.131	3	GPS - OPUS	2021	GPSBM
2065853.313	1020249.415	769266.965	17051592.417	.131	3	GPS - RTRN	2021	RTRN2021
2065853.463	1020249.491	769267.116	17051592.491	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2065853.398	1020249.427	769267.050	17051592.428	.033	C	GPS - STATIC	2024	HMOFA1

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<b>Location:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_BB-DQ2029-3S-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_BB-DQ2029-3S-05JUL2022.jpg</a>	S	Jul 5, 2022
<b>Monument:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_BB-DQ2029-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_BB-DQ2029-2-05JUL2022.jpg</a>		Jul 5, 2022
<b>Disk:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_BB-DQ2029-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_BB-DQ2029-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1401 BC  
County: CLAY, MN (Sheet 1)

NGS Name: 1401 BC

NGS ACRN: [DR9702](#) [Get Map](#)  
NGS Quad / Sta Num : 46096114/  
USGS Quad: DALE

1/4	Sec	Twp	Rng	Reference	Reference	Vert	Horz
SW	3	139 N	44 W	Latitude	Longitude	Order	Order
				465237.55	961339.75	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2022	2023	GOOD	Horz=YES Vert=YES	NO		RECESSED 1 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 16 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2022)                      **Stamping:** 1401 BC 2022

4.4 MILES EAST OF HAWLEY, 1.45 MILES EAST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND TRUNK HIGHWAY 32 (THE JUNCTION IS 3.0 MILES EAST OF HAWLEY), AT TRUNK HIGHWAY 10 MILEPOINT 25.95, 54.2 FEET SOUTH OF EASTBOUND TRUNK HIGHWAY 10, 45.0 FEET EAST OF A FIELD ENTRANCE, 12.2 FEET NORTH-NORTHWEST OF A POWER POLE, 5.0 FEET NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj		Year	Reference	
1316.211	.016	2/1				VERTICAL ADJUSTMENT	2024	00000941-3	
1316.208	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj		Year	Reference	
1316.208			1228.521	.023	2011	HORIZONTAL ADJUSTMENT	2024	GPS3719	
1316.208	.131		1228.652	.066	1996	GPS - STATIC	2024	HMOFA1	
1316.208			1228.521	.023	2011	GPS - STATIC	2024	HMOFA1	

Geoid Separations(ft): GEOID18 = -87.772    03 = -87.588

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Clay County				Determination Method		Project Info	
Latitude	Longitude	X	Y	Acc	Order		Year	Reference	
46 52 37.55298	96 13 39.74959	618147.469	190484.885	.013		ADJUSTMENT	2024	GPS3719	
46 52 37.55298	96 13 39.74959	618147.469	190484.885	.013	C	GPS - STATIC	2024	HMOFA1	

NAD83(1996)		Clay County				Determination Method		Project Info	
Latitude	Longitude	X	Y	Acc	Order		Year	Reference	
46 52 37.55267	96 13 39.75013	618147.432	190484.853	.033	C	GPS - STATIC	2024	HMOFA1	

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		UTM - Zone 15				Determination Method		Project Info	
MN State Plane - Central Zone		X	Y	Acc	Order		Year	Reference	
2130112.300	1018763.229	833521.583	17049065.294	.013		ADJUSTMENT	2024	GPS3719	
2130112.300	1018763.229	833521.583	17049065.294	.013	C	GPS - STATIC	2024	HMOFA1	

NAD83(1996)		UTM - Zone 15				Determination Method		Project Info	
MN State Plane - Central Zone		X	Y	Acc	Order		Year	Reference	
2130112.262	1018763.198	833521.545	17049065.264	.033	C	GPS - STATIC	2024	HMOFA1	

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_BC-DR9702-3S-27JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_BC-DR9702-3S-27JUL2022.jpg</a>	S	Jul 27, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_BC-DR9702-2-27JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_BC-DR9702-2-27JUL2022.jpg</a>		Jul 27, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_BC-DR9702-1-27JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_BC-DR9702-1-27JUL2022.jpg</a>		Jul 27, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1401 BD

NGS Name: 1401 BD

County: CLAY, MN (Sheet 1)

NGS ACRN: [DR9701](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096114/  
 USGS Quad: DALE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	11	139 N	44 W	465235.71	961229.98	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2022	2023	GOOD	Horz=YES Vert=YES	NO		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 18 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

**Description:** (2022)                      **Stamping:** 1401 BD 2022

5.5 MILES EAST OF HAWLEY, 2.4 MILES EAST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND TRUNK HIGHWAY 32 (THE JUNCTION IS 3.0 MILES EAST OF HAWLEY), AT TRUNK HIGHWAY 10 MILEPOINT 26.85, 68.1 FEET SOUTH OF EASTBOUND TRUNK HIGHWAY 10, 8.4 FEET NORTH OF A RIGHT-OF-WAY AND WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1328.652	.016	2/1					VERTICAL ADJUSTMENT	2024	00000941-3	
1328.652	.016	2/1					VERTICAL CONTROL SURVEY	2023	VMOFA	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1328.652				1240.998	.024	2011	HORIZONTAL ADJUSTMENT	2024	GPS3719	
1328.652	.131			1241.129	.066	1996	GPS - STATIC	2024	HMOFA1	
1328.652				1240.998	.024	2011	GPS - STATIC	2024	HMOFA1	

Geoid Separations(ft): GEOID18 = -87.756    03 = -87.572

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 52 35.71418	96 12 29.98040			622995.840	190328.346	.013		ADJUSTMENT	2024	GPS3719
46 52 35.71418	96 12 29.98040			622995.840	190328.346	.013	C	GPS - STATIC	2024	HMOFA1

  

<u>NAD83(1996)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 52 35.71387	96 12 29.98093			622995.803	190328.314	.033	C	GPS - STATIC	2024	HMOFA1

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2134953.032	1018456.580			838358.526	17048680.285	.013		ADJUSTMENT	2024	GPS3719
2134953.032	1018456.580			838358.526	17048680.285	.013	C	GPS - STATIC	2024	HMOFA1

  

<u>NAD83(1996)</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2134952.995	1018456.550			838358.488	17048680.255	.033	C	GPS - STATIC	2024	HMOFA1

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<b>Location:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_BD-DR9701-3S-27JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_BD-DR9701-3S-27JUL2022.jpg</a>	S	Jul 27, 2022
<b>Monument:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_BD-DR9701-2-27JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_BD-DR9701-2-27JUL2022.jpg</a>		Jul 27, 2022
<b>Disk:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_BD-DR9701-1-27JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_BD-DR9701-1-27JUL2022.jpg</a>		Jul 27, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1401 BE  
County: CLAY, MN (Sheet 1)

NGS Name: 1401 BE

NGS ACRN: [DR9700](#) [Get Map](#)  
NGS Quad / Sta Num : 46096114/  
USGS Quad: DALE

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SW	1	139 N	44 W	465239.13	961116.97	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2022	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 21 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2022)                      Stamping: 1401 BE 2022

6.4 MILES EAST OF HAWLEY, 3.3 MILES EAST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND TRUNK HIGHWAY 32 (THE JUNCTION IS 3.0 MILES EAST OF HAWLEY), AT TRUNK HIGHWAY 10 MILEPOINT 27.80, 57.6 FEET NORTH OF WESTBOUND TRUNK HIGHWAY 10, 16.6 FEET SOUTH OF A RIGHT-OF-WAY AND A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1341.369	.016	2/1				VERTICAL ADJUSTMENT	2024	0000941-3		
1341.369	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1341.369			1253.731	.024	2011	HORIZONTAL ADJUSTMENT	2024	GPS3719		
1341.369	.131		1253.862	.066	1996	GPS - STATIC	2024	HMOFA1		
1341.369			1253.731	.024	2011	GPS - STATIC	2024	HMOFA1		
1341.559	.262		1253.816	.197	2011	GPS - RTRN	2022	RTRN2022		

Geoid Separations(ft): GEOID18 = -87.743 03 = -87.556

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 52 39.12696	96 11 16.97486	628065.680	190706.542	.013		ADJUSTMENT	2024	GPS3719	
46 52 39.12696	96 11 16.97486	628065.680	190706.542	.013	C	GPS - STATIC	2024	HMOFA1	
46 52 39.12658	96 11 16.97460	628065.699	190706.504	.131	3	GPS - RTRN	2022	RTRN2022	

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 52 39.12665	96 11 16.97539	628065.643	190706.511	.033	C	GPS - STATIC	2024	HMOFA1	

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
2140031.667	1018677.487	843441.913	17048819.122	.013		ADJUSTMENT	2024	GPS3719	
2140031.667	1018677.487	843441.913	17048819.122	.013	C	GPS - STATIC	2024	HMOFA1	
2140031.684	1018677.448	843441.929	17048819.083	.131	3	GPS - RTRN	2022	RTRN2022	

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
2140031.629	1018677.456	843441.875	17048819.093	.033	C	GPS - STATIC	2024	HMOFA1	

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_BE-DR9700-3N-27JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_BE-DR9700-3N-27JUL2022.jpg</a>	N	Jul 27, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_BE-DR9700-2-27JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_BE-DR9700-2-27JUL2022.jpg</a>		Jul 27, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_BE-DR9700-1-27JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_BE-DR9700-1-27JUL2022.jpg</a>		Jul 27, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1401 C

NGS Name: 1401 C

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0335](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	8	139 N	47 W	465236.00	963801.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1969	2001	DESTROYED	Horz=NO Vert=NO	NO	5854		SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE FOOTING - SMALL	SURVEY DISK	MNDT

**Description:** (2000)                      **Stamping:** 1401-C 1969

2.5 MILES WEST OF GLYNDON, IN THE TOP OF THE SOUTH CURB ON A BRIDGE NUMBER, 1.0 MILE EAST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 11 IN GLYNDON, 3.0 FEET WEST OF THE SOUTHEAST CORNER OF WESTBOUND TRUNK HIGHWAY 10 BRIDGE NUMBER 5854 OVER THE SOUTH FORK OF THE BUFFALO RIVER.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
919.992	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
919.053	.016	2					VERTICAL CONTROL SURVEY	1972	Q460964	
919.053	.016	2					VERTICAL CONTROL SURVEY	1972	L22167-A	
919.053	.016	2					VERTICAL CONTROL SURVEY	1971	L22167-A	

**Geoid Separations(ft): GEOID18 = -87.300 12B = -87.306 09 = -87.152 03 = -87.113**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1401 D

NGS Name: 1401 D

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	9	139 N	47 W	465237.00	963655.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1950	2015	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	SURVEY DISK	MNDT

Description: (1950)                      Stamping: 1401 D

3.7 MILES EAST OF THE EAST LIMITS OF DILWORTH, IN THE SOUTH HEADWALL OF A TRUNK HIGHWAY 10 BOX CULVERT, 4.0 MILES EAST ALONG TRUNK HIGHWAY 10 (CENTER AVENUE EAST) EAST FROM THE JUNCTION OF TRUNK HIGHWAY 10 EAST (CENTER AVENUE EAST) AND 4TH STREET SOUTHEAST IN DILWORTH, THEN 0.1 MILE WEST ALONG TRUNK HIGHWAY 10 WEST (CENTER AVENUE EAST), AT TRUNK HIGHWAY 10 STATION 411+58.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
914.388	.033	3					VERTICAL CONTROL SURVEY	1951	CS1401	

**Geoid Separations(ft): GEOID18 = -87.359    12B = -87.365    09 = -87.211    03 = -87.175**

*\* No Horizontal Positions in the Database \**



Mn/DOT Name: 1401 E

NGS Name: 1401 E

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	10	139 N	47 W	465237.00	963521.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1950	2015	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	SURVEY DISK	MNDT

Description: (1950)                      Stamping: 1401 E

AT THE WEST EDGE OF GLYNDON, IN THE SOUTH HEADWALL OF A TRUNK HIGHWAY 10 CULVERT, 0.3 MILE NORTH ALONG PARKE AVENUE SOUTH FROM THE JUNCTION OF PARKE AVENUE SOUTH AND 4TH STREET SOUTHEAST IN GLYNDON, THEN 0.4 MILE WEST TRUNK HIGHWAY 10 (STATE STREET NORTHEAST), THEN 96.0 FEET SOUTH ALONG 100TH STREET SOUTH, AT TRUNK HIGHWAY 10 STATION 476+57.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
919.755	.033	3				VERTICAL CONTROL SURVEY	1951 CS1401					

**Geoid Separations(ft): GEOID18 = -87.451    12B = -87.454    09 = -87.310    03 = -87.270**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1401 F

NGS Name: 1401 F

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0299](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	1	139 N	47 W	465238.00	963350.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1969	2015	DESTROYED	Horz=NO Vert=NO	YES	3713		SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	UNKNOWN	MNDT

**Description:** (1982)                      **Stamping:** 1401-F 1969

0.3 MILE EAST OF GLYNDON, IN THE TOP OF THE SOUTHEAST ABUTMENT OF WESTBOUND TRUNK HIGHWAY 10 BRIDGE NUMBER 3713 OVER A SMALL CREEK, 0.3 MILE NORTH ALONG PARKE AVENUE SOUTH FROM THE JUNCTION OF PARKE AVENUE SOUTH AND 4TH STREET SOUTHEAST IN GLYNDON, THEN 1.2 MILES EAST ALONG TRUNK HIGHWAY 10 (STATE STREET NORTHEAST), THEN 0.4 MILE WEST ALONG TRUNK HIGHWAY 10 (STATE STREET NORTHEAST), AT TRUNK HIGHWAY 10 STATION 539+93.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
922.078	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
921.140	.016	2					VERTICAL CONTROL SURVEY	1972	Q460964	
921.140	.016	2					VERTICAL CONTROL SURVEY	1972	L22167-A	
921.140	.016	2					VERTICAL CONTROL SURVEY	1971	L22167-A	

**Geoid Separations(ft): GEOID18 = -87.533    12B = -87.536    09 = -87.392    03 = -87.349**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1401 G

NGS Name: 1401 G

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096144/  
 USGS Quad: HAWLEY NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	9	139 N	46 W	465237.00	962939.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1950	2014	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	SURVEY DISK	MNDT

Description: (1950)                      Stamping: 1401 G

4.2 MILES EAST OF A RAILROAD IN DILWORTH, IN A CULVERT HEADWALL IN THE SOUTH END OF A TRUNK HIGHWAY 10 CULVERT, 4.0 MILES EAST OF GLYNDON, 0.3 MILE NORTH ALONG PARKE AVENUE SOUTH FROM THE JUNCTION OF PARKE AVENUE SOUTH AND 4TH STREET SOUTHEAST IN GLYNDON, THEN 4.1 MILES EAST ALONG TRUNK HIGHWAY 10 (STATE STREET NORTHEAST), AT TRUNK HIGHWAY 10 STATION 713+35.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
946.835	.033	3					VERTICAL CONTROL SURVEY	1951	CS1401	

**Geoid Separations(ft): GEOID18 = -87.710    12B = -87.723    09 = -87.575    03 = -87.516**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1401 H

NGS Name: 1401 H

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0051](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096144/  
 USGS Quad: HAWLEY NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	4	139 N	46 W	465238.00	962936.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1969	2014	DESTROYED	Horz=NO Vert=NO	NO	3712		SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	SURVEY DISK	MNDT

**Description:** (1969)                      **Stamping:** 1401-H 1969

3.5 MILES EAST OF GLYNDON, IN THE SOUTHEAST ABUTMENT OF WESTBOUND TRUNK HIGHWAY 10 BRIDGE NUMBER 3712 OVER THE NORTH FORK OF THE BUFFALO RIVER, 4.0 MILES EAST OF GLYNDON, 0.3 MILE NORTH ALONG PARKE AVENUE SOUTH FROM THE JUNCTION OF PARKE AVENUE SOUTH AND 4TH STREET SOUTHEAST IN GLYNDON, THEN 4.2 MILES EAST ALONG TRUNK HIGHWAY 10 (STATE STREET NORTHEAST), THEN 371.0 FEET WEST ALONG TRUNK HIGHWAY 10 (STATE STREET NORTHEAST), AT TRUNK HIGHWAY 10 STATION 715+85.

**Station Notes**

BRIDGE 3712 WAS REBUILT IN THE SUMMER OF 1997; BENCHMARK 1401 H WAS TRANSFERRED TO BENCHMARK 1401 AD BY A DISTRICT 4 SURVEY CREW ON 6-19-97. THREE WIRE LEVELING WAS USED IN THIS TRANSFER.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
953.817	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025	

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
952.741	.016	2				VERTICAL CONTROL SURVEY	1972	Q460961	
952.741	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A	
952.741	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A	

**Geoid Separations(ft): GEOID18 = -87.713    12B = -87.723    09 = -87.579    03 = -87.516**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1401 I

NGS Name: 1401 I

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096144/  
 USGS Quad: HAWLEY NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	11	139 N	46 W	465234.00	962744.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1950	2014	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

Description: (1950)                      Stamping: 1401 I

5.7 MILES EAST OF A RAILROAD IN GLYNDON, 4.0 MILES EAST OF GLYNDON, 0.3 MILE NORTH ALONG PARKE AVENUE SOUTH FROM THE JUNCTION OF PARKE AVENUE SOUTH AND 4TH STREET SOUTHEAST IN GLYNDON, THEN 5.6 MILES EAST ALONG TRUNK HIGHWAY 10 (STATE STREET NORTHEAST), 73.0 FEET SOUTH OF TRUNK HIGHWAY 10, AT TRUNK HIGHWAY 10 STATION 793+15.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>		
995.018	.033	3							VERTICAL CONTROL SURVEY	1950	CS1401	

**Geoid Separations(ft): GEOID18 = -87.766    12B = -87.772    09 = -87.634    03 = -87.582**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1401 J

NGS Name: 1401 J

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096144/  
 USGS Quad: HAWLEY NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	6	139 N	45 W	465234.00	962513.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1950	1986	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

Description: (2004)                      Stamping: 1401 J

1.2 MILES NORTHWEST OF MUSKODA, 1.0 MILE NORTH ALONG COUNTY HIGHWAY 23 (190TH STREET SOUTH) FROM THE JUNCTION OF COUNTY HIGHWAY 23 (190TH STREET SOUTH) AND 12TH AVENUE SOUTH IN MUSKODA, THEN 0.6 MILE WEST ALONG TRUNK HIGHWAY 10 WEST, 78.0 FEET LEFT OF WESTBOUND TRUNK HIGHWAY 10, AT TRUNK HIGHWAY 10 STATION 898+59.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>		
1090.815	.033	3							VERTICAL CONTROL SURVEY	1965	CS1401	

**Geoid Separations(ft): GEOID18 = -87.812    12B = -87.805    09 = -87.684    03 = -87.641**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1401 J RESET

NGS Name: 1401 J RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [DG7143](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096144/  
 USGS Quad: HAWLEY NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	1	139 N	46 W	465234.44	962522.09	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1986	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 4 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 20 FT)	VERTICAL CONTROL DISK	MNDT

Description: (2000)                      Stamping: 1401-J RESET 1986

4.75 MILES WEST OF HAWLEY, 4.75 MILES WEST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 31 IN HAWLEY, AT TRUNK HIGHWAY 10 MILEPOINT 16.7, 75.0 FEET NORTH OF WESTBOUND TRUNK HIGHWAY 10, 0.3 FOOT WEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1088.410	.016	2/1				VERTICAL ADJUSTMENT	2024	00000941-3		
1088.410	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA		
1088.410	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941		
1088.485	.016	2/1				VERTICAL ADJUSTMENT	2004	00000464		
1088.489	.016	2/1				VERTICAL CONTROL SURVEY	2001	VHAWL		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1088.410			1000.753	.024	2011	HORIZONTAL ADJUSTMENT	2024	GPS3719		
1088.410	.131		1000.913	.066	1996	GPS - STATIC	2024	HMOFA1		
1088.410			1000.753	.024	2011	GPS - STATIC	2024	HMOFA1		
1088.577	.262		1000.766	.197	2011	GPS - RTRN	2022	RTRN2022		
1088.531	.262		1000.730	.197	2011	GPS - RTRN	2014	RTRN2014		
			1000.913	.066	1996	GPS - STATIC	2001	DIST 4		

Geoid Separations(ft): GEOID18 = -87.812    12B = -87.802    09 = -87.680    03 = -87.641

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>			<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>									
46 52 34.44044	96 25 22.08825		569353.673	189936.588	.013		ADJUSTMENT	2024	GPS3719	
46 52 34.44044	96 25 22.08825		569353.673	189936.588	.013	C	GPS - STATIC	2024	HMOFA1	
46 52 34.44030	96 25 22.08783		569353.702	189936.574	.131	3	GPS - RTRN	2022	RTRN2022	
46 52 34.44061	96 25 22.08804		569353.688	189936.605	.131	3	GPS - RTRN	2014	RTRN2014	

<u>NAD83(1996)</u>			<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>									
46 52 34.43996	96 25 22.08885		569353.632	189936.539	.033	C	GPS - STATIC	2024	HMOFA1	
46 52 34.43996	96 25 22.08885		569353.632	189936.539	.033	C	GPS - STATIC	2001	DIST 4	

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2081329.263	1019726.255	784739.906	17050818.277	.013		ADJUSTMENT	2024	GPS3719
2081329.263	1019726.255	784739.906	17050818.277	.013	C	GPS - STATIC	2024	HMOFA1
2081329.292	1019726.240	784739.935	17050818.261	.131	3	GPS - RTRN	2022	RTRN2022
2081329.278	1019726.272	784739.921	17050818.294	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2081329.220	1019726.208	784739.862	17050818.230	.033	C	GPS - STATIC	2024	HMOFA1
2081329.220	1019726.208	784739.862	17050818.230	.033	C	GPS - STATIC	2001	DIST 4

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_J_RESET-DG7143-3N-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_J_RESET-DG7143-3N-05JUL2022.jpg</a>	N	Jul 5, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_J_RESET-DG7143-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_J_RESET-DG7143-2-05JUL2022.jpg</a>		Jul 5, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_J_RESET-DG7143-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_J_RESET-DG7143-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1401 K  
 County: CLAY, MN (Sheet 1)

NGS Name: 1401 K

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096144/  
 USGS Quad: HAWLEY NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	4	139 N	45 W	465236.00	962308.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1950	2014	DESTROYED	Horz=NO Vert=NO	YES			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

Description: (1950)                      Stamping: 1401 K

1.4 MILES NORTHEAST OF MUSKODA, 1.0 MILE NORTH ALONG COUNTY ROAD 23 (190TH STREET SOUTH) FROM THE JUNCTION OF COUNTY ROAD 23 (190TH STREET SOUTH) AND 12TH AVENUE SOUTH IN MUSKODA, THEN 1.3 MILES EAST ALONG TRUNK HIGHWAY 10 EAST, THEN 0.3 MILE WEST ALONG TRUNK HIGHWAY 10 WEST, 72.0 FEET NORTH OF TRUNK HIGHWAY 10, AT TRUNK HIGHWAY 10 STATION 985+23.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1126.031	.033	3					VERTICAL CONTROL SURVEY	1951	CS1401	

**Geoid Separations(ft): GEOID18 = -87.834    12B = -87.818    09 = -87.703    03 = -87.670**

\* No Horizontal Positions in the Database \*

<u>Type</u>	<u>Station Photos</u>		<u>Dir</u>	<u>Date</u>
	<u>File Name</u>			
Location:				
Monument:				
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_K-1-16JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_K-1-16JUN2014.jpg</a>			Jun 16, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1401 L

NGS Name: 1401 L

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0032](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096141/  
 USGS Quad: HAWLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	10	139 N	45 W	465236.42	962038.21	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1965	2022	GOOD	Horz=NO Vert=YES	YES		FLUSH	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	BENCH MARK DISK	MNDT

Description: (2001)                      Stamping: 1401 L 1969

1.0 MILE WEST OF HAWLEY, 1.0 MILE WEST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 31 IN HAWLEY, AT TRUNK HIGHWAY 10 MILEPOINT 20.40, 75.0 FEET SOUTH OF EASTBOUND TRUNK HIGHWAY 10, AT TRUNK HIGHWAY 10 STATION 1090+50, 50.0 FEET WEST OF 220TH STREET SOUTH, 15.2 FEET EAST OF A POWER POLE WITH 6 GUY WIRES, 0.5 FOOT NORTH OF A WITNESS POST.

Station Notes

DUE TO TREE COVER, THIS SURVEY MARK HAS BEEN ABANDONED FOR MNDOT GEODETIC HORIZONTAL SURVEYS.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1198.124	.016	2/1				VERTICAL ADJUSTMENT	2024	0000941-3	
1198.124	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA	
1198.124	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941	
1198.246	.016	2/1				VERTICAL ADJUSTMENT	2004	00000464	
1198.246	.016	2/1				VERTICAL CONTROL SURVEY	2001	VHAWL	
1198.246	.016	2/1				VERTICAL ADJUSTMENT	1991	00000025	

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1197.038	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD	
1197.038	.016	2				VERTICAL CONTROL SURVEY	1972	Q460961	
1197.038	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A	
1197.038	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1198.272	.262		1110.437	.197	2011	GPS - RTRN	2022	RTRN2022	
1198.137	.262		1110.323	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.834    12B = -87.812    09 = -87.707    03 = -87.670

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 52 36.41559	96 20 38.20778	589075.658	190216.256	.131	3	GPS - RTRN	2022	RTRN2022	
46 52 36.41497	96 20 38.20703	589075.711	190216.193	.131	3	GPS - RTRN	2014	RTRN2014	

State Plane and UTM Coordinates (Feet)

NAD83(2011)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
2101048.759	1019395.157	804460.335	17050167.704	.131	3	GPS - RTRN	2022	RTRN2022	
2101048.809	1019395.093	804460.384	17050167.639	.131	3	GPS - RTRN	2014	RTRN2014	



**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_L-RP0032-3S-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_L-RP0032-3S-14JUN2022.jpg</a>	S	Jun 14, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_L-RP0032-2-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_L-RP0032-2-14JUN2022.jpg</a>		Jun 14, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_L-RP0032-1-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_L-RP0032-1-14JUN2022.jpg</a>		Jun 14, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1401 M  
County: CLAY, MN (Sheet 1)

NGS Name: 1401 M

NGS ACRN: [DF8003](#) [Get Map](#)  
NGS Quad / Sta Num : 46096442/  
USGS Quad: FARGO SOUTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	9	139 N	48 W	465229.10	964516.30	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1994	2009	GOOD	Horz=NO Vert=NO	YES	9477	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE ABUTMENT	BENCH MARK DISK	MNDT

**Description:** (2004)                      **Stamping:** 1401 M 1994

IN MOORHEAD, IN AN ABUTMENT AT THE SOUTHWEST CORNER OF RAILROAD BRIDGE NUMBER 9477 OVER TRUNK HIGHWAY 10, 0.45 MILE WEST ALONG TRUNK HIGHWAY 10 FROM THE EAST JUNCTION OF TRUNK HIGHWAY 10 AND TRUNK HIGHWAY 75 IN MOORHEAD, AT TRUNK HIGHWAY 10 MILEPOINT 1.0, 40.0 FEET NORTH OF TRUNK HIGHWAY 10, 10.8 FEET SOUTHWEST OF THE SOUTHWEST RAIL OF THE RAILROAD TRACKS, 2.4 FEET SOUTHEAST OF RAILROAD MILEPOINT 21.5, 2.0 FEET SOUTHWEST OF THE SOUTHWEST CORNER OF A BRIDGE, 33.8 FEET SOUTHWEST OF A WITNESS POST.

**Station Notes**

THE SURVEY MARK IS ON RAILROAD PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
907.059	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941
907.347	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699
907.347	.016	2/1				VERTICAL ADJUSTMENT	2010	00000660
907.347	.016	2/1				VERTICAL CONTROL SURVEY	2010	VCOMS
907.347	.016	2/1				VERTICAL ADJUSTMENT	2004	00000425-2
907.357	.016	2/1				VERTICAL CONTROL SURVEY	2004	VHEAD
907.357	.016	2/1				VERTICAL CONTROL SURVEY	2002	VMOOR

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
906.977	.262		820.176	.197	1996	GPS - RTRN	2009	RTRN2009

Geoid Separations(ft): GEOID18 = -86.985 12B = -86.975 09 = -86.857 03 = -86.801

**Lat/Lon and County Coordinates (Feet)**

**NAD83(1996)**

<u>Geodetic Position</u>		<u>Clay County</u>			<u>Project Info</u>			
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 52 29.62837	96 45 15.73885	486423.147	189331.342	.131	3	GPS - RTRN	2009	RTRN2009

**State Plane and UTM Coordinates (Feet)**

**NAD83(1996)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>			<u>Project Info</u>			
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1998426.371	1021687.027	701833.868	17054124.932	.131	3	GPS - RTRN	2009	RTRN2009

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_M-DF8003-3SE-17SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_M-DF8003-3SE-17SEP2009.jpg</a>	SE	Sep 17, 2009
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_M-DF8003-2-17SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_M-DF8003-2-17SEP2009.jpg</a>		Sep 17, 2009
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_M-DF8003-1-17SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_M-DF8003-1-17SEP2009.jpg</a>		Sep 17, 2009

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1401 O

NGS Name: 1401 O

County: CLAY, MN (Sheet 1)

NGS ACRN: [DG7113](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096141/  
 USGS Quad: HAWLEY

		<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	7	465237.56	961741.82	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1956	2023	GOOD	Horz=YES Vert=YES	YES		PROJECTS 2 IN.	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	BENCH MARK DISK	MNDT

Description: (2013)                      Stamping: 1401-O 1956

1.0 MILE EAST OF HAWLEY, 1.35 MILES EAST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 31 IN HAWLEY, AT TRUNK HIGHWAY 10 MILEPOINT 22.8, 69.0 FEET SOUTH OF EASTBOUND TRUNK HIGHWAY 10, 58.0 FEET WEST OF 243 STREET SOUTH, 1.4 FEET EAST OF THE EAST SIDE OF A TELEPHONE BOX, 0.4 FOOT WEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
1201.412	.016	2/1				VERTICAL ADJUSTMENT		2024	0000941-3
1201.412	.016	2/1				VERTICAL CONTROL SURVEY		2023	VMOFA
1201.412	.016	2/1				VERTICAL ADJUSTMENT		2019	00000941
1201.543	.016	2/1				VERTICAL ADJUSTMENT		2004	00000464
1201.543	.016	2/1				VERTICAL CONTROL SURVEY		2001	VHAWL

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
1200.211	.033	3				VERTICAL CONTROL SURVEY		1957	CS1401

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
1201.412			1113.689	.018	2011	HORIZONTAL ADJUSTMENT		2024	GPS3719
1201.412	.131		1113.895	.066	1996	GPS - STATIC		2024	HMOFA1
1201.412			1113.689	.018	2011	GPS - STATIC		2024	HMOFA1
1201.533	.262		1113.708	.197	2011	GPS - RTRN		2022	RTRN2022
1201.543			1113.689	.023	2011	HORIZONTAL ADJUSTMENT		2015	GPS3084
1201.543	.131		1113.895	.066	1996	GPS - STATIC		2015	HCLAY
1201.543			1113.689	.023	2011	GPS - STATIC		2015	HCLAY
1201.399	.262		1113.594	.197	2011	GPS - RTRN		2014	RTRN2014
			1113.895	.066	1996	GPS - STATIC		2001	DIST 4

Geoid Separations(ft): GEOID18 = -87.825    12B = -87.805    09 = -87.693    03 = -87.647

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 52 37.56107	96 17 41.82068	601329.608	190391.721	.010		ADJUSTMENT	2024	GPS3719
46 52 37.56107	96 17 41.82068	601329.608	190391.721	.010	C	GPS - STATIC	2024	HMOFA1
46 52 37.56164	96 17 41.82128	601329.566	190391.778	.131	3	GPS - RTRN	2022	RTRN2022
46 52 37.56107	96 17 41.82068	601329.608	190391.721	.016		ADJUSTMENT	2015	GPS3084
46 52 37.56107	96 17 41.82068	601329.608	190391.721	.016	C	GPS - STATIC	2015	HCLAY
46 52 37.56171	96 17 41.82093	601329.590	190391.786	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 52 37.56086	96 17 41.82130	601329.565	190391.700	.033	C	GPS - STATIC	2024	HMOFA1
46 52 37.56086	96 17 41.82130	601329.565	190391.700	.033	C	GPS - STATIC	2015	HCLAY
46 52 37.56086	96 17 41.82130	601329.565	190391.699	.033	C	GPS - STATIC	2001	DIST 4

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2113301.175	1019191.042	816712.984	17049765.203	.010		ADJUSTMENT	2024	GPS3719
2113301.175	1019191.042	816712.984	17049765.203	.010	C	GPS - STATIC	2024	HMOFA1
2113301.135	1019191.101	816712.945	17049765.263	.131	3	GPS - RTRN	2022	RTRN2022
2113301.175	1019191.042	816712.984	17049765.203	.016		ADJUSTMENT	2015	GPS3084
2113301.175	1019191.042	816712.984	17049765.203	.016	C	GPS - STATIC	2015	HCLAY
2113301.160	1019191.108	816712.969	17049765.269	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2113301.132	1019191.022	816712.940	17049765.184	.033	C	GPS - STATIC	2024	HMOFA1
2113301.132	1019191.022	816712.940	17049765.184	.033	C	GPS - STATIC	2015	HCLAY
2113301.132	1019191.022	816712.940	17049765.184	.033	C	GPS - STATIC	2001	DIST 4

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<b>Location:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_O-DG7113-3S-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_O-DG7113-3S-14JUN2022.jpg</a>	S	Jun 14, 2022
<b>Monument:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_O-DG7113-2-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_O-DG7113-2-14JUN2022.jpg</a>		Jun 14, 2022
<b>Disk:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_O-DG7113-1-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_O-DG7113-1-14JUN2022.jpg</a>		Jun 14, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1401 P

NGS Name: 1401 P

County: CLAY, MN (Sheet 1)

NGS ACRN: [DG7112](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096141/  
 USGS Quad: HAWLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	8	139 N	44 W	465237.61	961647.84	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1956	2023	GOOD	Horz=YES Vert=YES	YES		PROJECTS 1 IN.	STEEL ROD IMBED IN MON

Monument Type	Disk Type	Mon. Agency
CONCRETE POST (PREFABRICATED)	BENCH MARK DISK	MNDT

Description: (2000)                      **Stamping:** 1401 P 1956

1.7 MILES EAST OF HAWLEY, 2.0 MILES EAST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 31 IN OF HAWLEY, AT TRUNK HIGHWAY 10 MILEPOINT 23.45, 69.5 FEET SOUTH OF EASTBOUND TRUNK HIGHWAY 10, 53.0 FEET EAST OF 250TH STREET SOUTH, 3.6 FEET EAST OF A CABLE MARKER, 0.4 FOOT NORTHWEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj		Year	Reference	
1237.704	.016	2/1				VERTICAL ADJUSTMENT	2024	0000941-3	
1237.704	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA	
1237.704	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941	
1237.832	.016	2/1				VERTICAL ADJUSTMENT	2004	00000464	
1237.832	.016	2/1				VERTICAL CONTROL SURVEY	2001	VHAWL	

  

NGVD29			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj		Year	Reference	
1236.579	.033	3				VERTICAL CONTROL SURVEY	1957	CS1401	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj		Year	Reference	
1237.704			1150.053	.024	2011	HORIZONTAL ADJUSTMENT	2024	GPS3719	
1237.704	.131		1150.185	.066	1996	GPS - STATIC	2024	HMOFA1	
1237.704			1150.053	.024	2011	GPS - STATIC	2024	HMOFA1	
1237.783	.262		1149.968	.197	2011	GPS - RTRN	2022	RTRN2022	
1237.734	.262		1149.939	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.815    12B = -87.795    09 = -87.687    03 = -87.634

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Clay County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 52 37.60958	96 16 47.84435	605079.581	190416.344	.013		ADJUSTMENT	2024	GPS3719
46 52 37.60958	96 16 47.84435	605079.581	190416.344	.013	C	GPS - STATIC	2024	HMOFA1
46 52 37.60988	96 16 47.84433	605079.582	190416.374	.131	3	GPS - RTRN	2022	RTRN2022
46 52 37.60998	96 16 47.84452	605079.569	190416.385	.131	3	GPS - RTRN	2014	RTRN2014

  

NAD83(1996)		Clay County			Project Info			
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 52 37.60926	96 16 47.84488	605079.544	190416.311	.033	C	GPS - STATIC	2024	HMOFA1

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2117049.771	1019099.509	820461.125	17049612.983	.013		ADJUSTMENT	2024	GPS3719
2117049.771	1019099.509	820461.125	17049612.983	.013	C	GPS - STATIC	2024	HMOFA1
2117049.774	1019099.539	820461.127	17049613.013	.131	3	GPS - RTRN	2022	RTRN2022
2117049.761	1019099.550	820461.115	17049613.024	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2117049.734	1019099.478	820461.086	17049612.952	.033	C	GPS - STATIC	2024	HMOFA1

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_P-DG7112-3S-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_P-DG7112-3S-14JUN2022.jpg</a>	S	Jun 14, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_P-DG7112-2-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_P-DG7112-2-14JUN2022.jpg</a>		Jun 14, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_P-DG7112-1-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_P-DG7112-1-14JUN2022.jpg</a>		Jun 14, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1401 Q  
County: CLAY, MN (Sheet 1)

NGS Name: 1401 Q

NGS ACRN: [DG7110](#) [Get Map](#)  
NGS Quad / Sta Num : 46096114/  
USGS Quad: DALE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	9	139 N	44 W	465237.08	961440.94	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1956	2022	GOOD	Horz=YES Vert=YES	YES		PROJECTS 4 IN.	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	BENCH MARK DISK	MNDT

**Description:** (2019)                      **Stamping:** 1401 Q 1956

3.5 MILES EAST OF HAWLEY, 0.7 MILE EAST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND TRUNK HIGHWAY 32 (THE JUNCTION IS 3.0 MILES EAST OF HAWLEY), AT TRUNK HIGHWAY 10 MILEPOINT 25.15, NEAR A RADIO TOWER, 81.7 FEET SOUTH OF EASTBOUND TRUNK HIGHWAY 10, 67.0 FEET WEST OF ENTRANCE NUMBER 26713 (ROAD TO A RADIO TOWER), 113.0 FEET NORTH AND 11.0 FEET EAST OF THE NORTHWEST CORNER OF A RADIO TOWER, 121.7 FEET NORTH-NORTHEAST OF WINNIPEG RM 2, 53.17 FEET EAST OF STATION WINNIPEG, 43.1 FEET WEST OF WINNIPEG RM 1, 1.5 FEET EAST OF A WITNESS POST.

**Station Notes**

STATION 1401 Q (PID: DG7110) IS THE SAME AS STATION BENCHMARK NEAR WINNIPEG (PID: RP0893).

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1317.839	.016	2/1				VERTICAL ADJUSTMENT	2024	0000941-3	
1317.839	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA	
1317.839	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941	
1317.957	.016	2/1				VERTICAL ADJUSTMENT	2004	00000464	
1317.957	.016	2/1				VERTICAL CONTROL SURVEY	2001	VHAWL	

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1316.680	.033	3				VERTICAL CONTROL SURVEY	1957	CS1401	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1317.917	.262		1230.132	.197	2011	GPS - RTRN	2022	RTRN2022	
1317.832	.262		1230.060	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.785    12B = -87.769    09 = -87.664    03 = -87.602

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

<u>Geodetic Position</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 52 37.07917	96 14 40.93823	613896.676	190411.763	.131	3	GPS - RTRN	2022	RTRN2022
46 52 37.07925	96 14 40.93933	613896.600	190411.771	.131	3	GPS - RTRN	2014	RTRN2014

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>					<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2125861.681	1018821.827	829270.850	17049192.661	.131	3	GPS - RTRN	2022	RTRN2022
2125861.605	1018821.837	829270.774	17049192.673	.131	3	GPS - RTRN	2014	RTRN2014

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_Q-DG7110-3S-13JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_Q-DG7110-3S-13JUN2022.jpg</a>	S	Jun 13, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_Q-DG7110-2-13JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_Q-DG7110-2-13JUN2022.jpg</a>		Jun 13, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_Q-DG7110-1-13JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_Q-DG7110-1-13JUN2022.jpg</a>		Jun 13, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1401 R

NGS Name: 1401 R

County: CLAY, MN (Sheet 1)

NGS ACRN: [DG7109](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096114/  
 USGS Quad: DALE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	11	139 N	44 W	465237.30	961302.60	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1956	2014	DESTROYED	Horz=NO Vert=NO	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	BENCH MARK DISK	MNDT

**Description:** (2000)                      **Stamping:** 1401 R 1956

4.8 MILES EAST OF HAWLEY, 4.8 MILES EAST ON TRUNK HIGHWAY 10 EAST FROM THE JUNCTION OF TRUNK HIGHWAY 10 EAST AND 8TH STREET IN HAWLEY, AT TRUNK HIGHWAY MILEPOINT 26.45, 65.0 FEET SOUTH OF EASTBOUND TRUNK HIGHWAY 10, 57.5 FEET WEST OF COUNTY ROAD 37 (280TH STREET SOUTH), AT TRUNK HIGHWAY 10 STATION 1414+13, 2.3 FEET SOUTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1297.911	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
1298.016	.016	2/1					VERTICAL ADJUSTMENT	2004	00000464	
1298.016	.016	2/1					VERTICAL CONTROL SURVEY	2001	VHAWL	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1296.789	.033	3					VERTICAL CONTROL SURVEY	1957	CS1401	

Geoid Separations(ft): GEOID18 = -87.766    12B = -87.752    09 = -87.641    03 = -87.582

\* No Horizontal Positions in the Database \*

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_R-DG7109-3S-14APR2005.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_R-DG7109-3S-14APR2005.jpg</a>	S	Apr 14, 2005
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_R-DG7109-2-14APR2005.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_R-DG7109-2-14APR2005.jpg</a>		Apr 14, 2005
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_R-DG7109-1-14APR2005.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_R-DG7109-1-14APR2005.jpg</a>		Apr 14, 2005

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1401 S

NGS Name: 1401 S

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096114/  
 USGS Quad: DALE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	11	139 N	44 W	465238.00	961146.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1956	2022	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

Description: (1956)                      Stamping: 1401 S

5.8 MILES EAST OF HAWLEY, 5.8 MILES EAST ALONG TRUNK HIGHWAY 10 EAST FROM THE JUNCTION OF TRUNK HIGHWAY 10 EAST AND 8TH STREET IN HAWLEY, 63.0 FEET SOUTH OF EASTBOUND TRUNK HIGHWAY 10, AT TRUNK HIGHWAY 10 STATION 1466+13.

**Station Notes**

THE CONCRETE HAS BROKEN OFF.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
1321.100	.033	3				1957	CS1401	VERTICAL CONTROL SURVEY				

**Geoid Separations(ft): GEOID18 = -87.749    12B = -87.739    09 = -87.628    03 = -87.562**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1401 U

NGS Name: 1401 U

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0329](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	7	139 N	47 W	465233.00	964004.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1965	2009	DESTROYED	Horz=NO Vert=NO	NO		RECESSED 5 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	MNDT

**Description:** (1994)                      **Stamping:** 1401 U 1965

1.4 MILES EAST OF DILWORTH, 0.9 MILE WEST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 11 (THE JUNCTION IS 2.0 MILES EAST OF DILWORTH), AT TRUNK HIGHWAY 10 MILEPOINT 4.9, 98.0 FEET SOUTH OF EASTBOUND TRUNK HIGHWAY 10, ON LINE WITH AN EAST-WEST POWER LINE, 3.2 FEET EAST OF A FIBER OPTICS PEDESTAL, 1.0 FOOT NORTH OF A WITNESS POST.

**Station Notes**

THE SURVEY MARK WAS FOUND LOOSE.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
911.852	.016	2/1				VERTICAL ADJUSTMENT	2011	00000685
911.852	.016	2/1				VERTICAL ADJUSTMENT	2004	00000425-2
911.855	.016	2/1				VERTICAL CONTROL SURVEY	2002	VMORE
911.855	.016	2/1				VERTICAL CONTROL SURVEY	2002	VMOOR
911.822	.007	1				VERTICAL ADJUSTMENT	1991	00000025

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
910.923	.016	2				VERTICAL CONTROL SURVEY	1972	Q460964
910.923	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A
910.923	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A

**Geoid Separations(ft): GEOID18 = -87.208    12B = -87.208    09 = -87.060    03 = -87.018**

**\* No Horizontal Positions in the Database \***



Mn/DOT Name: 1401 V

NGS Name: 1401 V

County: CLAY, MN (Sheet 1)

NGS ACRN: [DF8009](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	7	139 N	47 W	465235.00	963920.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1965	2014	DESTROYED	Horz=NO Vert=NO	NO			MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	BENCH MARK DISK	MNDT

**Description:** (1994)                      **Stamping:** 1401 V 1965

2.0 MILES EAST OF DILWORTH, 4.3 MILES EAST ALONG TRUNK HIGHWAY 10 FROM THE EAST JUNCTION OF TRUNK HIGHWAY 10 AND TRUNK HIGHWAY 75 IN MOORHEAD, AT TRUNK HIGHWAY 10 MILEPOINT 5.85, 98.0 FEET SOUTH OF EASTBOUND TRUNK HIGHWAY 10, 61.7 FEET NORTH-NORTHWEST OF THE NORTHEAST CORNER OF A METAL BUILDING, 48.0 FEET EAST OF A FIBER OPTIC PEDESTAL, 6.6 FEET SOUTHEAST OF A POWER POLE NUMBER 212 WITH AN ATTACHED BRACE, 0.7 FOOT NORTH OF A WITNESS POST.

**Station Notes**

NEW CONSTRUCTION IN THE AREA (10-01-2009) THE CONCRETE MONUMENT IS CHIPPED BUT STABLE.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
920.179	.016	2/1				VERTICAL ADJUSTMENT	2004	00000425-2	
920.179	.016	2/1				VERTICAL CONTROL SURVEY	2002	VMOOR	

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
911.012	.033	3				VERTICAL CONTROL SURVEY	1965	CS1401	

Geoid Separations(ft): GEOID18 = -87.234 12B = -87.237 09 = -87.090 03 = -87.047

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1401 W

NGS Name: 1401 W

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0334](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	8	139 N	47 W	465235.00	963800.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1965	2015	DESTROYED	Horz=NO Vert=NO	NO	14001		SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	SURVEY DISK	MNDT

**Description:** (2000)                      **Stamping:** 1401-W 1965

2.5 MILES WEST OF GLYNDON, IN THE SOUTHEAST CORNER OF EASTBOUND TRUNK HIGHWAY 10 BRIDGE NUMBER 14001 OVER THE SOUTH FORK OF THE BUFFALO RIVER, 1.0 MILE EAST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 11 IN GLYNDON.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
920.533	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
919.618	.016	2					VERTICAL CONTROL SURVEY	1972	Q460964	
919.618	.016	2					VERTICAL CONTROL SURVEY	1972	L22167-A	
919.618	.016	2					VERTICAL CONTROL SURVEY	1971	L22167-A	

**Geoid Separations(ft): GEOID18 = -87.300 12B = -87.310 09 = -87.152 03 = -87.116**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1401 X

NGS Name: 1401 X

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0338](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	9	139 N	47 W	465235.53	963654.61	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1965	2022	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	BENCH MARK DISK	MNDT

Description: (1982) Stamping: 1401-X 1965

1.7 MILES WEST OF GLYNDON, 1.7 MILES WEST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 19 IN GLYNDON, AT TRUNK HIGHWAY MILEPOINT 7.6, 98.0 FEET SOUTH OF EASTBOUND TRUNK HIGHWAY 10, 1.0 FOOT NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
912.784	.016	2/1				VERTICAL ADJUSTMENT	2024	00000941-3
912.784	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA
912.784	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941
912.905	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
911.954	.007	1/2				UNKNOWN/APPROXIMATE	1992	UNCHECKD
911.954	.016	2				VERTICAL CONTROL SURVEY	1972	Q460964
911.954	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A
911.954	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
912.853	.262		825.490	.197	2011	GPS - RTRN	2022	RTRN2022
912.905	.262		825.543	.197	2011	GPS - RTRN	2021	RTRN2021
912.902	.262		825.536	.197	2011	GPS - RTRN	2015	RTRN2015

Geoid Separations(ft): GEOID18 = -87.359 12B = -87.365 09 = -87.214 03 = -87.178

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>					<u>Year</u>	<u>Reference</u>	
46 52 35.53485	96 36 54.60603	521240.125	189936.525	.131	3	GPS - RTRN		2022	RTRN2022	
46 52 35.53509	96 36 54.60745	521240.027	189936.549	.131	3	GPS - RTRN		2021	RTRN2021	
46 52 35.53457	96 36 54.60627	521240.109	189936.496	.131	3	GPS - RTRN		2015	RTRN2015	

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>					<u>Year</u>	<u>Reference</u>	
2033242.664	1021215.092	736658.890	17053087.410	.131	3	GPS - RTRN		2022	RTRN2022	
2033242.566	1021215.120	736658.793	17053087.439	.131	3	GPS - RTRN		2021	RTRN2021	
2033242.646	1021215.065	736658.872	17053087.383	.131	3	GPS - RTRN		2015	RTRN2015	

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_X-RP0338-3S-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_X-RP0338-3S-05JUL2022.jpg</a>	S	Jul 5, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_X-RP0338-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_X-RP0338-2-05JUL2022.jpg</a>		Jul 5, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_X-RP0338-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_X-RP0338-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1401 Y

NGS Name: 1401 Y

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0339](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	9	139 N	47 W	465235.00	963636.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1965	2015	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	SURVEY DISK	MNDT

**Description:** (1982)                      **Stamping:** 1401-Y 1965

1.2 MILES WEST OF GLYNDON, 1.2 MILES WEST ALONG TRUNK HIGHWAY 10 WEST (STATE STREET SOUTHWEST) FROM THE JUNCTION OF TRUNK HIGHWAY 10 WEST AND PLEASANT VIEW AVENUE, THEN 253.0 FEET SOUTH ON COUNTY ROAD 68 (90TH STREET SOUTH), 300.0 FEET EAST OF THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 68, 60.0 FEET WEST OF A POWER POLE, 98.0 FEET SOUTH OF EASTBOUND TRUNK HIGHWAY 10, AT TRUNK HIGHWAY 10 STATION 427+00, 1.0 FOOT NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>		
916.701	.007	1/2							VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>		
915.730	.016	2							VERTICAL CONTROL SURVEY	1972	Q460964	
915.730	.016	2							VERTICAL CONTROL SURVEY	1972	L22167-A	
915.727	.016	2							VERTICAL CONTROL SURVEY	1971	L22167-A	

Geoid Separations(ft): GEOID18 = -87.378    12B = -87.385    09 = -87.234    03 = -87.195

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1401 Z

NGS Name: 1401 Z

County: CLAY, MN (Sheet 1)

NGS ACRN: [DR9703](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	10	139 N	47 W	465237.00	963521.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1965	2022	GOOD	Horz=NO Vert=YES	YES		PROJECTS 5 IN.	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	BENCH MARK DISK	MNDT

Description: (2015)                      Stamping: 1401 Z 1965

0.3 MILE WEST OF GLYNDON, 0.3 MILE WEST ALONG TRUNK HIGHWAY 10 WEST (STATE STREET SOUTHWEST) FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND PLEASANT VIEW AVENUE, THEN 98.0 FEET SOUTH ON 100TH STREET SOUTH, AT TRUNK HIGHWAY 10 STATION 476+00, 26.8 FEET EAST-SOUTHEAST OF STATION S 376, 112.0 FEET RIGHT OF EASTBOUND TRUNK HIGHWAY 10, BETWEEN TWO ROUND GRAIN BINS.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
921.629	.016	2/1					VERTICAL ADJUSTMENT	2024	00000941-3	
921.629	.016	2/1					VERTICAL CONTROL SURVEY	2023	VMOFA	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
920.126	.033	3					VERTICAL CONTROL SURVEY	1965	CS1401	

Geoid Separations(ft): GEOID18 = -87.451 12B = -87.454 09 = -87.310 03 = -87.270

\* No Horizontal Positions in the Database \*

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_Z-DR9703-3S-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_Z-DR9703-3S-05JUL2022.jpg</a>	S	Jul 5, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_Z-DR9703-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_Z-DR9703-2-05JUL2022.jpg</a>		Jul 5, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_Z-DR9703-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1401_Z-DR9703-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1402

NGS Name: 1402

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096142/  
 USGS Quad: HAWLEY SE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	17	139 N	44 W	465055.00	961536.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1952	2014	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

Description: (1963)                      Stamping: 1402 1952

3.44 MILES SOUTHEAST OF HAWLEY, 2.8 MILES EAST ALONG TRUNK HIGHWAY 10 EAST FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND 8TH STREET, THEN 2.0 MILES SOUTH ON TRUNK HIGHWAY 32 SOUTH (260TH STREET SOUTH), THEN 52.0 FEET EAST ON 28TH AVENUE SOUTH, 42.0 FEET NORTH AND 74.0 FEET WEST OF A CROSSROADS, 3.0 FEET EAST OF A FENCE CORNER.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1315.716	.033	3					VERTICAL CONTROL SURVEY	1965	USGS-VERT	

Geoid Separations(ft): GEOID18 = -87.674    12B = -87.661    09 = -87.549    03 = -87.490

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1402 A

NGS Name: 1402 A

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096124/  
 USGS Quad: ROLLAG

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	33	138 N	44 W	464330.00	961415.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1952	2014	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

Description: (1952)                      Stamping: 1402 A 1952

1.0 MILE SOUTH OF ROLLAG, 1.2 MILES SOUTH ALONG TRUNK HIGHWAY 32 SOUTH (270TH STREET SOUTH) FROM THE JUNCTION OF TRUNK HIGHWAY 32 SOUTH AND 103RD AVENUE SOUTH IN ROLLAG, 69.0 FEET WEST OF TRUNK HIGHWAY 32, AT TRUNK HIGHWAY 32 STATION 568+86.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1296.402	.033	3				VERTICAL CONTROL SURVEY	1952	CS1402	

**Geoid Separations(ft): GEOID18 = -87.231    12B = -87.208    09 = -87.093    03 = -87.034**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1402 B

NGS Name: 1402 B

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ1996](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096142/  
 USGS Quad: HAWLEY SE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	29	139 N	44 W	464910.65	961540.29	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1952	2024	GOOD	Horz=YES Vert=YES	YES		PROJECTS 3 IN.	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	BENCH MARK DISK	MNDT

Description: (1963)                      Stamping: 1402 B 1952

4.96 MILES SOUTHEAST OF HAWLEY, 4.0 MILES SOUTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND TRUNK HIGHWAY 10 (THE JUNCTION IS 3.0 MILES EAST OF HAWLEY), AT TRUNK HIGHWAY MILEPOINT 11.5, 75.0 FEET WEST OF TRUNK HIGHWAY 32, 33.0 FEET NORTH OF 50TH AVENUE SOUTH, 0.5 FOOT EAST OF A WITNESS POST.

Station Pair:    GOAR - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1305.519	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	

  

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1304.407	.033	3					VERTICAL CONTROL SURVEY	1965	USGS-VERT	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1305.519				1218.085	.010	2011	HORIZONTAL ADJUSTMENT	2024	GPS3762	
1305.519	.131			1218.206	.066	1996	GPS - STATIC	2024	HTH32	
1305.519				1218.085	.010	2011	GPS - STATIC	2024	HTH32	
1305.660	.262			1218.098	.197	2011	GPS - RTRN	2023	RTRN2023	
1305.588	.262			1218.026	.197	2011	GPS - OPUS	2021	GPSBM	
1305.575	.262			1218.013	.197	2011	GPS - OPUS	2021	GPSBM	
1305.644	.262			1218.082	.197	2011	GPS - RTRN	2021	RTRN2021	
1305.529	.262			1217.983	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.562    12B = -87.546    09 = -87.434    03 = -87.388

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>								
46 49 10.64682	96 15 40.29406	609889.789	169473.289	.007		ADJUSTMENT	2024	GPS3762	
46 49 10.64682	96 15 40.29406	609889.789	169473.289	.007	C	GPS - STATIC	2024	HTH32	
46 49 10.64623	96 15 40.29350	609889.828	169473.230	.131	3	GPS - RTRN	2023	RTRN2023	
46 49 10.64633	96 15 40.29433	609889.770	169473.239	.131	3	GPS - OPUS	2021	GPSBM	
46 49 10.64672	96 15 40.29455	609889.755	169473.279	.131	3	GPS - OPUS	2021	GPSBM	
46 49 10.64766	96 15 40.29399	609889.793	169473.374	.131	3	GPS - RTRN	2021	RTRN2021	
46 49 10.64684	96 15 40.29419	609889.780	169473.291	.131	3	GPS - RTRN	2014	RTRN2014	

  

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>								
46 49 10.64667	96 15 40.29428	609889.774	169473.274	.033	C	GPS - STATIC	2024	HTH32	



**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2121208.587	998019.542	824280.405	17028460.085	.007		ADJUSTMENT	2024	GPS3762
2121208.587	998019.542	824280.405	17028460.085	.007	C	GPS - STATIC	2024	HTH32
2121208.624	998019.482	824280.441	17028460.024	.131	3	GPS - RTRN	2023	RTRN2023
2121208.567	998019.493	824280.384	17028460.036	.131	3	GPS - OPUS	2021	GPSBM
2121208.553	998019.533	824280.370	17028460.077	.131	3	GPS - OPUS	2021	GPSBM
2121208.594	998019.627	824280.413	17028460.170	.131	3	GPS - RTRN	2021	RTRN2021
2121208.578	998019.545	824280.396	17028460.088	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2121208.571	998019.528	824280.389	17028460.071	.033	C	GPS - STATIC	2024	HTH32

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<b>Location:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_B-DQ1996-3W-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_B-DQ1996-3W-18OCT2023.jpg</a>	W	Oct 18, 2023
<b>Monument:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_B-DQ1996-2-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_B-DQ1996-2-18OCT2023.jpg</a>		Oct 18, 2023
<b>Disk:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_B-DQ1996-1-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_B-DQ1996-1-18OCT2023.jpg</a>		Oct 18, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1402 D

NGS Name: 1402 D

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP7330](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096142/  
 USGS Quad: HAWLEY SE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	21	138 N	44 W	464538.74	961513.06	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1952	2024	GOOD	Horz=YES Vert=YES	YES		PROJECTS 3 IN.	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	BENCH MARK DISK	MNDT

Description: (2013)                      Stamping: 1402-D 1952

1.6 MILES NORTHWEST OF ROLLAG, 1.4 MILES NORTH ON TRUNK HIGHWAY 32 NORTH (270TH STREET SOUTH) FROM THE JUNCTION OF TRUNK HIGHWAY 32 NORTH AND 102ND AVENUE SOUTH, AT TRUNK HIGHWAY 32 MILEPOINT 7.3, 254.0 FEET SOUTHEAST OF COUNTY ROAD 10/90TH AVENUE SOUTH, 75.0 FEET NORTHWEST OF TRUNK HIGHWAY 32, 5.0 FEET SOUTHEAST OF A POWER POLE, 0.5 FOOT EAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1287.780	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941		

  

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1286.763	.033	3				VERTICAL CONTROL SURVEY	1974	USGS-VERT		
1286.717	.033	3				VERTICAL CONTROL SURVEY	1965	USGS-VERT		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1287.780			1200.513	.010	2011	HORIZONTAL ADJUSTMENT	2024	GPS3762		
1287.780	.131		1200.657	.066	1996	GPS - STATIC	2024	HTH32		
1287.780			1200.513	.010	2011	GPS - STATIC	2024	HTH32		
1287.917	.262		1200.562	.197	2011	GPS - RTRN	2023	RTRN2023		
1287.868			1200.513	.027	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084		
1287.862	.131		1200.657	.066	1996	GPS - STATIC	2015	HCLAY		
1287.868			1200.513	.027	2011	GPS - STATIC	2015	HCLAY		
1287.661	.262		1200.329	.197	2011	GPS - RTRN	2014	RTRN2014		
			1200.696	.066	1996	GPS - STATIC	2001	DIST 4		

Geoid Separations(ft): GEOID18 = -87.359    12B = -87.329    09 = -87.224    03 = -87.178

**Lat/Lon and County Coordinates (Feet)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 45 38.74096	96 15 13.06055	611905.763	148014.632	.007		ADJUSTMENT	2024	GPS3762
46 45 38.74096	96 15 13.06055	611905.763	148014.632	.007	C	GPS - STATIC	2024	HTH32
46 45 38.74128	96 15 13.06007	611905.796	148014.665	.131	3	GPS - RTRN	2023	RTRN2023
46 45 38.74096	96 15 13.06055	611905.763	148014.632	.016		ADJUSTMENT	2015	GPS3084
46 45 38.74096	96 15 13.06055	611905.763	148014.632	.016	C	GPS - STATIC	2015	HCLAY
46 45 38.74100	96 15 13.06090	611905.739	148014.636	.131	3	GPS - RTRN	2014	RTRN2014

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 45 38.74050	96 15 13.06132	611905.710	148014.586	.033	C	GPS - STATIC	2024	HTH32
46 45 38.74050	96 15 13.06132	611905.710	148014.586	.033	C	GPS - STATIC	2015	HCLAY
46 45 38.74034	96 15 13.06087	611905.741	148014.569	.033	C	GPS - STATIC	2001	DIST 4



State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2122558.882	976511.018	825284.366	17006923.854	.007		ADJUSTMENT	2024	GPS3762
2122558.882	976511.018	825284.366	17006923.854	.007	C	GPS - STATIC	2024	HTH32
2122558.916	976511.050	825284.401	17006923.885	.131	3	GPS - RTRN	2023	RTRN2023
2122558.882	976511.018	825284.366	17006923.854	.016		ADJUSTMENT	2015	GPS3084
2122558.882	976511.018	825284.366	17006923.854	.016	C	GPS - STATIC	2015	HCLAY
2122558.857	976511.023	825284.342	17006923.859	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2122558.827	976510.973	825284.311	17006923.809	.033	C	GPS - STATIC	2024	HTH32
2122558.827	976510.973	825284.311	17006923.809	.033	C	GPS - STATIC	2015	HCLAY
2122558.858	976510.956	825284.342	17006923.792	.033	C	GPS - STATIC	2001	DIST 4

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<b>Location:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_D-DP7330-3NW-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_D-DP7330-3NW-18OCT2023.jpg</a>	NW	Oct 18, 2023
<b>Monument:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_D-DP7330-2-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_D-DP7330-2-18OCT2023.jpg</a>		Oct 18, 2023
<b>Disk:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_D-DP7330-1-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_D-DP7330-1-18OCT2023.jpg</a>		Oct 18, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1402 E

NGS Name: 1402 E

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ1985](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096124/  
 USGS Quad: ROLLAG

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	21	137 N	44 W	464024.70	961412.57	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2013	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 1 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 10 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

**Description:** (2013)                      **Stamping:** 1402 E 2013

9.5 EAST-NORTHEAST OF BARNESVILLE, 8.75 MILES EAST ALONG TRUNK HIGHWAY 34 FROM THE JUNCTION OF TRUNK HIGHWAY 34 AND TRUNK HIGHWAY 9 IN BARNESVILLE, THEN 1.0 MILE NORTH ALONG TRUNK HIGHWAY 32, AT TRUNK HIGHWAY 32 MILEPOST 1.0, 76.7 FEET WEST OF TRUNK HIGHWAY 32, 49.1 FEET SOUTH OF 150TH AVENUE SOUTH, 15.8 FEET EAST OF A FIELD ENTRANCE, 3.0 FEET SOUTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>						
1357.172	.016	2/1				2019	00000941						

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>						
1357.172			1270.057	.021	2011	2024	GPS3671						
1357.172	.131		1270.168	.066	1996	2023	HTH9						
1357.172			1270.057	.021	2011	2023	HTH9						
1357.271	.262		1270.043	.197	2011	2022	RTRN2022						
1357.153	.262		1269.965	.197	2011	2014	RTRN2014						
1357.186	.262		1269.997	.197	2011	2013	RTRN2013						

Geoid Separations(ft): GEOID18 = -87.228    12B = -87.188    09 = -87.096    03 = -87.037

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>					
46 40 24.70080	96 14 12.56956	616304.684	116222.293	.013		2024	GPS3671					
46 40 24.70080	96 14 12.56956	616304.684	116222.293	.013	C	2023	HTH9					
46 40 24.70028	96 14 12.56905	616304.719	116222.240	.131	3	2022	RTRN2022					
46 40 24.70046	96 14 12.56892	616304.729	116222.259	.131	3	2014	RTRN2014					
46 40 24.70169	96 14 12.56836	616304.767	116222.383	.131	3	2013	RTRN2013					

<u>NAD83(1996)</u>		<u>Geodetic Position</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>					
46 40 24.70056	96 14 12.56999	616304.654	116222.268	.033	C	2023	HTH9					

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>					
2125970.880	944601.411	828184.582	16974950.399	.013		2024	GPS3671					
2125970.880	944601.411	828184.582	16974950.399	.013	C	2023	HTH9					
2125970.914	944601.358	828184.616	16974950.345	.131	3	2022	RTRN2022					
2125970.923	944601.376	828184.625	16974950.362	.131	3	2014	RTRN2014					
2125970.966	944601.499	828184.670	16974950.485	.131	3	2013	RTRN2013					

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>					
2125970.849	944601.388	828184.551	16974950.376	.033	C	2023	HTH9					



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_E-DQ1985-3W-13SEP2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_E-DQ1985-3W-13SEP2022.jpg</a>	W	Sep 13, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_E-DQ1985-2-13SEP2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_E-DQ1985-2-13SEP2022.jpg</a>		Sep 13, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_E-DQ1985-1-13SEP2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_E-DQ1985-1-13SEP2022.jpg</a>		Sep 13, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1402 E 1

NGS Name: 1402 E 1

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ1989](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096124/  
 USGS Quad: ROLLAG

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	33	138 N	44 W	464355.58	961417.49	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1952	2023	GOOD	Horz=YES Vert=YES	YES		FLUSH	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	BENCH MARK DISK	MNDT

Description: (2014) Stamping: 1402-E 1 1952

10.2 NORTHEAST OF BARNESVILLE, 8.75 MILES EAST ALONG TRUNK HIGHWAY 34 FROM THE JUNCTION OF TRUNK HIGHWAY 34 AND TRUNK HIGHWAY 9 IN BARNESVILLE, THEN 5.0 MILES NORTH ON TRUNK HIGHWAY 32, AT TRUNK HIGHWAY 32 MILEPOINT 5.05, 95.0 FEET WEST OF TRUNK HIGHWAY 32, 67.2 FEET SOUTH OF 110TH AVENUE SOUTH, 1.3 FEET NORTH OF A WITNESS POST.

Station Pair: WHIPPLE - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
1297.271	.016	2/1				2019	00000941					

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
1297.271			1210.152	.012	2011	2024	GPS3762					
1297.271	.131		1210.276	.066	1996	2024	HTH32					
1297.271			1210.152	.012	2011	2024	HTH32					
1297.333	.262		1210.086	.197	2011	2023	RTRN2023					
1297.255	.262		1210.030	.197	2011	2014	RTRN2014					

Geoid Separations(ft): GEOID18 = -87.247 12B = -87.224 09 = -87.116 03 = -87.060

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 43 55.58201	96 14 17.49475	615835.881	137585.461	.007		ADJUSTMENT	2024	GPS3762
46 43 55.58201	96 14 17.49475	615835.881	137585.461	.007	C	GPS - STATIC	2024	HTH32
46 43 55.58121	96 14 17.49440	615835.905	137585.380	.131	3	GPS - RTRN	2023	RTRN2023
46 43 55.58238	96 14 17.49415	615835.922	137585.498	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 43 55.58187	96 14 17.49498	615835.865	137585.447	.033	C	GPS - STATIC	2024	HTH32

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2126163.752	965966.330	828720.592	16996318.232	.007		ADJUSTMENT	2024	GPS3762
2126163.752	965966.330	828720.592	16996318.232	.007	C	GPS - STATIC	2024	HTH32
2126163.774	965966.249	828720.613	16996318.150	.131	3	GPS - RTRN	2023	RTRN2023
2126163.795	965966.367	828720.635	16996318.268	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2126163.736	965966.316	828720.575	16996318.219	.033	C	GPS - STATIC	2024	HTH32



**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_E_1-DQ1989-3W-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_E_1-DQ1989-3W-18OCT2023.jpg</a>	W	Oct 18, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_E_1-DQ1989-2-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_E_1-DQ1989-2-18OCT2023.jpg</a>		Oct 18, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_E_1-DQ1989-1-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_E_1-DQ1989-1-18OCT2023.jpg</a>		Oct 18, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1402 F

NGS Name: 1402 F

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP7331](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096124/  
 USGS Quad: ROLLAG

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	33	138 N	44 W	464309.32	961415.10	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2013	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 1 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 17 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2013)                      Stamping: 1402 F 2013

1.5 MILES SOUTH OF ROLLAG, 1.6 MILES SOUTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND 103RD AVENUE SOUTH IN ROLLAG, AT TRUNK HIGHWAY 32 MILEPOINT 4.15, 49.4 FEET WEST OF TRUNK HIGHWAY 32, 0.1 MILE NORTH OF COUNTY ROAD 126 AND COUNTY ROAD 6, 16.3 FEET SOUTH OF A FIELD ENTRANCE, 3.0 FEET NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1358.304	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1358.304				1271.211	.011	2011	HORIZONTAL ADJUSTMENT	2024	GPS3762	
1358.304	.131			1271.352	.066	1996	GPS - STATIC	2024	HTH32	
1358.304				1271.211	.011	2011	GPS - STATIC	2024	HTH32	
1358.331	.262			1271.113	.197	2011	GPS - RTRN	2023	RTRN2023	
1358.429				1271.211	.024	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084	
1358.403	.131			1271.352	.066	1996	GPS - STATIC	2015	HCLAY	
1358.429				1271.211	.024	2011	GPS - STATIC	2015	HCLAY	
1358.334	.262			1271.142	.197	2011	GPS - RTRN	2014	RTRN2014	
1358.409	.262			1271.218	.197	2011	GPS - RTRN	2013	RTRN2013	

Geoid Separations(ft): GEOID18 = -87.218    12B = -87.195    09 = -87.077    03 = -87.021

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 43 09.31731	96 14 15.09912	616030.311	132899.168	.007		ADJUSTMENT	2024	GPS3762	
46 43 09.31731	96 14 15.09912	616030.311	132899.168	.007	C	GPS - STATIC	2024	HTH32	
46 43 09.31659	96 14 15.09979	616030.265	132899.095	.131	3	GPS - RTRN	2023	RTRN2023	
46 43 09.31731	96 14 15.09912	616030.311	132899.168	.016		ADJUSTMENT	2015	GPS3084	
46 43 09.31731	96 14 15.09912	616030.311	132899.168	.016	C	GPS - STATIC	2015	HCLAY	
46 43 09.31727	96 14 15.09916	616030.309	132899.164	.131	3	GPS - RTRN	2014	RTRN2014	
46 43 09.31764	96 14 15.09889	616030.327	132899.201	.131	3	GPS - RTRN	2013	RTRN2013	

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 43 09.31688	96 14 15.09989	616030.258	132899.124	.033	C	GPS - STATIC	2024	HTH32	
46 43 09.31688	96 14 15.09989	616030.258	132899.124	.033	C	GPS - STATIC	2015	HCLAY	



**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2126212.970	961276.805	828694.446	16991626.612	.007		ADJUSTMENT	2024	GPS3762
2126212.970	961276.805	828694.446	16991626.612	.007	C	GPS - STATIC	2024	HTH32
2126212.922	961276.733	828694.396	16991626.541	.131	3	GPS - RTRN	2023	RTRN2023
2126212.970	961276.805	828694.446	16991626.612	.016		ADJUSTMENT	2015	GPS3084
2126212.970	961276.805	828694.446	16991626.612	.016	C	GPS - STATIC	2015	HCLAY
2126212.967	961276.801	828694.443	16991626.608	.131	3	GPS - RTRN	2014	RTRN2014
2126212.987	961276.838	828694.463	16991626.645	.131	3	GPS - RTRN	2013	RTRN2013

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2126212.916	961276.763	828694.391	16991626.571	.033	C	GPS - STATIC	2024	HTH32
2126212.916	961276.763	828694.391	16991626.571	.033	C	GPS - STATIC	2015	HCLAY

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_F-DP7331-3W-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_F-DP7331-3W-18OCT2023.jpg</a>	W	Oct 18, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_F-DP7331-2-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_F-DP7331-2-18OCT2023.jpg</a>		Oct 18, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_F-DP7331-1-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_F-DP7331-1-18OCT2023.jpg</a>		Oct 18, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1402 G

NGS Name: 1402 G

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP7332](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096142/  
 USGS Quad: HAWLEY SE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	32	139 N	44 W	464818.52	961542.07	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2013	2024	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 24 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2013) Stamping: 1402 G 2013

4.5 MILES SOUTHEAST OF HAWLEY, 4.95 MILES SOUTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND TRUNK HIGHWAY 10 (THE JUNCTION IS 3.0 MILES EAST OF HAWLEY), AT TRUNK HIGHWAY 32 MILEPOINT 10.55, 91.1 FEET WEST OF TRUNK HIGHWAY 32, 42.7 FEET NORTH OF COUNTY ROAD 119 (60TH AVENUE SOUTH), 1.5 FEET EAST OF A RIGHT-OF-WAY POST, 1.5 FEET EAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1301.559	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1301.559				1214.174	.010	2011	HORIZONTAL ADJUSTMENT	2024	GPS3762	
1301.559	.131			1214.295	.066	1996	GPS - STATIC	2024	HTH32	
1301.559				1214.174	.010	2011	GPS - STATIC	2024	HTH32	
1301.644	.262			1214.128	.197	2011	GPS - RTRN	2023	RTRN2023	
1301.697				1214.174	.022	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084	
1301.684	.131			1214.318	.066	1996	GPS - STATIC	2015	HCLAY	
1301.697				1214.174	.022	2011	GPS - STATIC	2015	HCLAY	
1301.572	.262			1214.072	.197	2011	GPS - RTRN	2014	RTRN2014	
1301.638	.262			1214.141	.197	2011	GPS - RTRN	2013	RTRN2013	

Geoid Separations(ft): GEOID18 = -87.513 12B = -87.497 09 = -87.385 03 = -87.339

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 48 18.52371	96 15 42.07039	609795.703	164191.705	.007		ADJUSTMENT	2024	GPS3762	
46 48 18.52371	96 15 42.07039	609795.703	164191.705	.007	C	GPS - STATIC	2024	HTH32	
46 48 18.52299	96 15 42.07002	609795.729	164191.633	.131	3	GPS - RTRN	2023	RTRN2023	
46 48 18.52371	96 15 42.07039	609795.703	164191.705	.016		ADJUSTMENT	2015	GPS3084	
46 48 18.52371	96 15 42.07039	609795.703	164191.705	.016	C	GPS - STATIC	2015	HCLAY	
46 48 18.52435	96 15 42.07015	609795.719	164191.770	.131	3	GPS - RTRN	2014	RTRN2014	
46 48 18.52430	96 15 42.06992	609795.735	164191.765	.131	3	GPS - RTRN	2013	RTRN2013	

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 48 18.52364	96 15 42.07030	609795.709	164191.698	.033	C	GPS - STATIC	2024	HTH32	
46 48 18.52324	96 15 42.07115	609795.650	164191.658	.033	C	GPS - STATIC	2015	HCLAY	



**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2120950.994	992743.946	823937.620	17023187.199	.007		ADJUSTMENT	2024	GPS3762
2120950.994	992743.946	823937.620	17023187.199	.007	C	GPS - STATIC	2024	HTH32
2120951.018	992743.873	823937.642	17023187.125	.131	3	GPS - RTRN	2023	RTRN2023
2120950.994	992743.946	823937.620	17023187.199	.016		ADJUSTMENT	2015	GPS3084
2120950.994	992743.946	823937.620	17023187.199	.016	C	GPS - STATIC	2015	HCLAY
2120951.013	992744.011	823937.639	17023187.263	.131	3	GPS - RTRN	2014	RTRN2014
2120951.028	992744.005	823937.655	17023187.257	.131	3	GPS - RTRN	2013	RTRN2013

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2120951.000	992743.939	823937.626	17023187.192	.033	C	GPS - STATIC	2024	HTH32
2120950.940	992743.900	823937.565	17023187.154	.033	C	GPS - STATIC	2015	HCLAY

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_G-DP7332-3W-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_G-DP7332-3W-18OCT2023.jpg</a>	W	Oct 18, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_G-DP7332-2-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_G-DP7332-2-18OCT2023.jpg</a>		Oct 18, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_G-DP7332-1-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_G-DP7332-1-18OCT2023.jpg</a>		Oct 18, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1402 H

NGS Name: 1402 H

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ1999](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096142/  
 USGS Quad: HAWLEY SE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	16	139 N	44 W	465141.00	961534.75	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 12 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: 1402 H 2014

2.9 MILES EAST-SOUTHEAST OF HAWLEY, 1.1 MILES SOUTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND TRUNK HIGHWAY 10 (THE JUNCTION IS 3.0 MILES EAST OF HAWLEY), AT TRUNK HIGHWAY 32 MILEPOINT 14.45, 47.5 FEET EAST OF TRUNK HIGHWAY 32, 27.0 FEET NORTH OF A FIELD ENTRANCE, 1.5 FEET WEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1265.322	.016	2/1					VERTICAL ADJUSTMENT	2024	0000941-3
1265.322	.016	2/1					VERTICAL CONTROL SURVEY	2023	VMOFA
1265.322	.016	2/1					VERTICAL ADJUSTMENT	2019	0000941

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1265.322				1177.675	.024	2011	HORIZONTAL ADJUSTMENT	2024	GPS3719
1265.322	.131			1177.806	.066	1996	GPS - STATIC	2024	HMOFA1
1265.322				1177.675	.024	2011	GPS - STATIC	2024	HMOFA1
1265.555	.262			1177.826	.197	2011	GPS - RTRN	2022	RTRN2022
1265.349	.262			1177.635	.197	2011	GPS - RTRN	2014	RTRN2014

Geoid Separations(ft): GEOID18 = -87.726 12B = -87.713 09 = -87.605 03 = -87.542

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 51 41.00347	96 15 34.74857			610190.068	184709.025	.013		ADJUSTMENT	2024	GPS3719
46 51 41.00347	96 15 34.74857			610190.068	184709.025	.013	C	GPS - STATIC	2024	HMOFA1
46 51 41.00399	96 15 34.74799			610190.108	184709.078	.131	3	GPS - RTRN	2022	RTRN2022
46 51 41.00400	96 15 34.74857			610190.067	184709.079	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>				<u>Clay County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 51 41.00314	96 15 34.74910			610190.031	184708.991	.033	C	GPS - STATIC	2024	HMOFA1

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2121980.559	1013237.173			825298.408	17043669.329	.013		ADJUSTMENT	2024	GPS3719
2121980.559	1013237.173			825298.408	17043669.329	.013	C	GPS - STATIC	2024	HMOFA1
2121980.601	1013237.225			825298.450	17043669.380	.131	3	GPS - RTRN	2022	RTRN2022
2121980.560	1013237.227			825298.410	17043669.382	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2121980.521	1013237.141			825298.370	17043669.297	.033	C	GPS - STATIC	2024	HMOFA1



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_H-DQ1999-3E-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_H-DQ1999-3E-14JUN2022.jpg</a>	E	Jun 14, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_H-DQ1999-2-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_H-DQ1999-2-14JUN2022.jpg</a>		Jun 14, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_H-DQ1999-1-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_H-DQ1999-1-14JUN2022.jpg</a>		Jun 14, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1402 J

NGS Name: 1402 J

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ1998](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096142/  
 USGS Quad: HAWLEY SE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	17	139 N	44 W	465055.65	961537.74	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 19 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014) Stamping: 1402 J 2014

3.2 MILES SOUTHEAST OF HAWLEY, 1.95 MILES SOUTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND TRUNK HIGHWAY 10 (THE JUNCTION IS 3.0 MILES EAST OF HAWLEY), AT TRUNK HIGHWAY 32 MILEPOINT 13.5, 74.0 FEET WEST OF TRUNK HIGHWAY 32, 88.0 FEET NORTH OF 28TH AVENUE SOUTH, 1.5 FEET EAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>	
1313.121	.016	2/1				VERTICAL ADJUSTMENT		2019	00000941	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>	
1313.121			1225.605	.023	2011	HORIZONTAL ADJUSTMENT		2024	GPS3719	
1313.121	.131		1225.739	.066	1996	GPS - STATIC		2024	HMOFA1	
1313.121			1225.605	.023	2011	GPS - STATIC		2024	HMOFA1	
1313.259	.262		1225.585	.197	2011	GPS - RTRN		2022	RTRN2022	
1313.131	.262		1225.457	.197	2011	GPS - OPUS		2021	GPSBM	
1313.245	.262		1225.572	.197	2011	GPS - OPUS		2021	GPSBM	
1313.213	.262		1225.539	.197	2011	GPS - RTRN		2021	RTRN2021	
1313.147	.262		1225.486	.197	2011	GPS - RTRN		2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.674 12B = -87.661 09 = -87.552 03 = -87.493

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>							
46 50 55.64906	96 15 37.74031	610007.876	180112.708	.010		ADJUSTMENT	2024	GPS3719
46 50 55.64906	96 15 37.74031	610007.876	180112.708	.010	C	GPS - STATIC	2024	HMOFA1
46 50 55.64895	96 15 37.74003	610007.895	180112.697	.131	3	GPS - RTRN	2022	RTRN2022
46 50 55.64890	96 15 37.74024	610007.881	180112.692	.131	3	GPS - OPUS	2021	GPSBM
46 50 55.64872	96 15 37.74064	610007.853	180112.673	.131	3	GPS - OPUS	2021	GPSBM
46 50 55.64915	96 15 37.74015	610007.887	180112.717	.131	3	GPS - RTRN	2021	RTRN2021
46 50 55.64920	96 15 37.74062	610007.854	180112.722	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>							
46 50 55.64874	96 15 37.74085	610007.838	180112.675	.033	C	GPS - STATIC	2024	HMOFA1

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2121656.113	1008649.145	824899.716	17039085.328	.010		ADJUSTMENT	2024	GPS3719
2121656.113	1008649.145	824899.716	17039085.328	.010	C	GPS - STATIC	2024	HMOFA1
2121656.132	1008649.134	824899.735	17039085.315	.131	3	GPS - RTRN	2022	RTRN2022
2121656.117	1008649.129	824899.720	17039085.311	.131	3	GPS - OPUS	2021	GPSBM
2121656.089	1008649.111	824899.691	17039085.294	.131	3	GPS - OPUS	2021	GPSBM
2121656.124	1008649.154	824899.727	17039085.336	.131	3	GPS - RTRN	2021	RTRN2021
2121656.092	1008649.160	824899.695	17039085.343	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2121656.074	1008649.114	824899.677	17039085.297	.033	C	GPS - STATIC	2024	HMOFA1

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<b>Location:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_J-DQ1998-3W-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_J-DQ1998-3W-14JUN2022.jpg</a>	W	Jun 14, 2022
<b>Monument:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_J-DQ1998-2-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_J-DQ1998-2-14JUN2022.jpg</a>		Jun 14, 2022
<b>Disk:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_J-DQ1998-1-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_J-DQ1998-1-14JUN2022.jpg</a>		Jun 14, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1402 K  
 County: CLAY, MN (Sheet 1)

NGS Name: 1402 K

NGS ACRN: [DQ1994](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096142/  
 USGS Quad: HAWLEY SE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	4	138 N	44 W	464727.66	961536.62	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2024	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 19 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: 1402 K 2014

6.3 MILES SOUTHEAST OF HAWLEY, 5.95 MILES SOUTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND TRUNK HIGHWAY 10 (THE JUNCTION IS 3.0 MILES EAST OF HAWLEY), AT TRUNK HIGHWAY 32 MILEPOINT 9.5, 80.5 FEET EAST OF TRUNK HIGHWAY 32, 83.5 FEET NORTH OF 70TH AVENUE SOUTH, 40.0 FEET WEST OF A RIGHT-OF-WAY POST, 1.5 FEET WEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1309.945	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1309.945				1222.612	.010	2011	HORIZONTAL ADJUSTMENT	2024	GPS3762	
1309.945	.131			1222.737	.066	1996	GPS - STATIC	2024	HTH32	
1309.945				1222.612	.010	2011	GPS - STATIC	2024	HTH32	
1310.050	.262			1222.583	.197	2011	GPS - RTRN	2023	RTRN2023	
1309.997	.262			1222.553	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.467 12B = -87.444 09 = -87.336 03 = -87.293

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 47 27.66444	96 15 36.61643	610203.957	159040.991	.007		ADJUSTMENT	2024	GPS3762	
46 47 27.66444	96 15 36.61643	610203.957	159040.991	.007	C	GPS - STATIC	2024	HTH32	
46 47 27.66414	96 15 36.61707	610203.912	159040.960	.131	3	GPS - RTRN	2023	RTRN2023	
46 47 27.66423	96 15 36.61729	610203.897	159040.969	.131	3	GPS - RTRN	2014	RTRN2014	

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 47 27.66429	96 15 36.61666	610203.941	159040.976	.033	C	GPS - STATIC	2024	HTH32	

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			
		2121199.508	987583.598	824102.990	17018021.416	.007		ADJUSTMENT	2024	GPS3762
		2121199.508	987583.598	824102.990	17018021.416	.007	C	GPS - STATIC	2024	HTH32
		2121199.462	987583.568	824102.944	17018021.387	.131	3	GPS - RTRN	2023	RTRN2023
		2121199.447	987583.578	824102.930	17018021.397	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			
		2121199.491	987583.583	824102.974	17018021.402	.033	C	GPS - STATIC	2024	HTH32



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_K-DQ1994-3E-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_K-DQ1994-3E-18OCT2023.jpg</a>	E	Oct 18, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_K-DQ1994-2-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_K-DQ1994-2-18OCT2023.jpg</a>		Oct 18, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_K-DQ1994-1-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_K-DQ1994-1-18OCT2023.jpg</a>		Oct 18, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1402 L

NGS Name: 1402 L

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ1991](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096113/  
 USGS Quad: LAKE PARK SW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	22	138 N	44 W	464501.51	961418.89	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2024	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 19 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014) Stamping: 1402 L 2014

10.7 MILES NORTHEAST OF BARNESVILLE, 8.75 MILES EAST ALONG TRUNK HIGHWAY 34 FROM THE JUNCTION OF TRUNK HIGHWAY 34 AND TRUNK HIGHWAY 9 IN BARNESVILLE, THEN 6.3 MILES NORTH ON TRUNK HIGHWAY 32, AT TRUNK HIGHWAY 32 MILEPOINT 6.3, 71.8 FEET EAST-NORTHEAST OF TRUNK HIGHWAY 32, 46.0 FEET NORTH-NORTHWEST OF AN ENTRANCE, 2.7 FEET WEST-SOUTHWEST OF A RIGHT-OF-WAY POST, 2.7 FEET WEST-SOUTHWEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>	
1296.142	.016	2/1				VERTICAL ADJUSTMENT		2019	00000941	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>	
1296.142			1208.944	.010	2011	HORIZONTAL ADJUSTMENT		2024	GPS3762	
1296.142	.131		1209.063	.066	1996	GPS - STATIC		2024	HTH32	
1296.142			1208.944	.010	2011	GPS - STATIC		2024	HTH32	
1296.283	.262		1208.977	.197	2011	GPS - RTRN		2023	RTRN2023	
1296.139	.262		1208.862	.197	2011	GPS - RTRN		2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.306 12B = -87.277 09 = -87.172 03 = -87.123

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
46 45 01.50667	96 14 18.89357	615699.263	144264.014	.007		ADJUSTMENT		2024	GPS3762
46 45 01.50667	96 14 18.89357	615699.263	144264.014	.007	C	GPS - STATIC		2024	HTH32
46 45 01.50724	96 14 18.89317	615699.290	144264.072	.131	3	GPS - RTRN		2023	RTRN2023
46 45 01.50691	96 14 18.89367	615699.256	144264.039	.131	3	GPS - RTRN		2014	RTRN2014

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
46 45 01.50648	96 14 18.89382	615699.246	144263.995	.033	C	GPS - STATIC		2024	HTH32

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
2126234.006	972645.153	828898.288	17002997.768	.007		ADJUSTMENT		2024	GPS3762
2126234.006	972645.153	828898.288	17002997.768	.007	C	GPS - STATIC		2024	HTH32
2126234.035	972645.211	828898.319	17002997.824	.131	3	GPS - RTRN		2023	RTRN2023
2126233.999	972645.178	828898.282	17002997.792	.131	3	GPS - RTRN		2014	RTRN2014

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
2126233.988	972645.135	828898.270	17002997.749	.033	C	GPS - STATIC		2024	HTH32



**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_L-DQ1991-3E-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_L-DQ1991-3E-18OCT2023.jpg</a>	E	Oct 18, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_L-DQ1991-2-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_L-DQ1991-2-18OCT2023.jpg</a>		Oct 18, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_L-DQ1991-1-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_L-DQ1991-1-18OCT2023.jpg</a>		Oct 18, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1402 M  
County: CLAY, MN (Sheet 1)

NGS Name: 1402 M

NGS ACRN: [DQ1988](#) [Get Map](#)  
NGS Quad / Sta Num : 46096124/  
USGS Quad: ROLLAG

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	3	137 N	44 W	464215.07	961409.54	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 19 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: 1402 M 2014

9.2 MILES EAST-NORTHEAST OF BARNESVILLE, 8.75 MILES EAST ALONG TRUNK HIGHWAY 34 FROM THE JUNCTION OF TRUNK HIGHWAY 34 AND TRUNK HIGHWAY 9 IN BARNESVILLE, THEN 3.1 MILES NORTH ON TRUNK HIGHWAY 32, AT TRUNK HIGHWAY 32 MILEPOINT 3.1, 57.4 FEET EAST OF TRUNK HIGHWAY 32, 24.4 FEET SOUTH OF 130TH AVENUE SOUTH EXTENDED, 24.4 FEET SOUTH OF A FIELD ENTRANCE, 1.5 FEET WEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1427.412	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1427.412				1340.306	.013	2011	HORIZONTAL ADJUSTMENT	2024	GPS3762
1427.412	.131			1340.430	.066	1996	GPS - STATIC	2024	HTH32
1427.412				1340.306	.013	2011	GPS - STATIC	2024	HTH32
1427.497	.262			1340.296	.197	2011	GPS - RTRN	2023	RTRN2023
1427.441	.262			1340.243	.197	2011	GPS - OPUS	2021	GPSBM
1427.392	.262			1340.194	.197	2011	GPS - OPUS	2021	GPSBM
1427.461	.262			1340.263	.197	2011	GPS - RTRN	2021	RTRN2021
1427.310	.262			1340.148	.197	2011	GPS - RTRN	2014	RTRN2014

Geoid Separations(ft): GEOID18 = -87.198    12B = -87.165    09 = -87.070    03 = -87.021

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>							
46 42 15.06589	96 14 09.53901	616450.133	127405.020	.007		ADJUSTMENT	2024	GPS3762
46 42 15.06589	96 14 09.53901	616450.133	127405.020	.007	C	GPS - STATIC	2024	HTH32
46 42 15.06542	96 14 09.53998	616450.066	127404.972	.131	3	GPS - RTRN	2023	RTRN2023
46 42 15.06532	96 14 09.53952	616450.098	127404.962	.131	3	GPS - OPUS	2021	GPSBM
46 42 15.06571	96 14 09.53905	616450.131	127405.002	.131	3	GPS - OPUS	2021	GPSBM
46 42 15.06466	96 14 09.53934	616450.111	127404.895	.131	3	GPS - RTRN	2021	RTRN2021
46 42 15.06594	96 14 09.53916	616450.123	127405.025	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>							
46 42 15.06574	96 14 09.53926	616450.116	127405.005	.033	C	GPS - STATIC	2024	HTH32



**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2126462.440	955772.937	828855.570	16986117.197	.007		ADJUSTMENT	2024	GPS3762
2126462.440	955772.937	828855.570	16986117.197	.007	C	GPS - STATIC	2024	HTH32
2126462.371	955772.891	828855.501	16986117.152	.131	3	GPS - RTRN	2023	RTRN2023
2126462.403	955772.880	828855.533	16986117.141	.131	3	GPS - OPUS	2021	GPSBM
2126462.437	955772.919	828855.567	16986117.179	.131	3	GPS - OPUS	2021	GPSBM
2126462.414	955772.813	828855.542	16986117.073	.131	3	GPS - RTRN	2021	RTRN2021
2126462.429	955772.942	828855.560	16986117.202	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2126462.422	955772.922	828855.552	16986117.183	.033	C	GPS - STATIC	2024	HTH32

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<b>Location:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_M-DQ1988-3E-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_M-DQ1988-3E-18OCT2023.jpg</a>	E	Oct 18, 2023
<b>Monument:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_M-DQ1988-2-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_M-DQ1988-2-18OCT2023.jpg</a>		Oct 18, 2023
<b>Disk:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_M-DQ1988-1-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1402_M-DQ1988-1-18OCT2023.jpg</a>		Oct 18, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1403

NGS Name: 1403

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096141/  
 USGS Quad: HAWLEY

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	4	139 N	44 W	465320.15	961532.03		3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1947	2015	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE ABUTMENT	BENCH MARK DISK	USGS

Description: Stamping: 1403 1947

2.4 MILES EAST HAWLEY, IN THE SOUTHEAST ABUTMENT OF A TRUNK HIGHWAY 32 BRIDGE OVER THE BUFFALO RIVER, 1.9 MILES EAST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND RODEO DRIVE IN HAWLEY, THEN 0.7 MILE NORTH ON TRUNK HIGHWAY 32.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			
1163.738	.033	3				1964	USGS-VERT			

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			
1164.830	.262		1077.002	.197	2011	2014	RTRN2014			

Geoid Separations(ft): GEOID18 = -87.844 12B = -87.828 09 = -87.720 03 = -87.664

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>									
46 53 20.14719	96 15 32.02674			610322.778	194755.022	.131	3	2014	RTRN2014	

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	
<u>X</u>	<u>Y</u>									
2122424.363	1023273.307			825904.684	17053700.901	.131	3	2014	RTRN2014	



Mn/DOT Name: 1403 AA

NGS Name: 1403 AA

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096141/  
 USGS Quad: HAWLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	20	140 N	44 W	465606.00	961536.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1953	2013	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

Description: (1984)                      Stamping: 1403 AA 1947

2.9 MILES SOUTH OF HITTERDAL, 3.0 MILES SOUTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND COUNTY ROAD 26. IN HITTERDAL, AT TRUNK HIGHWAY 32 MILEPOINT 19.55, 73.0 FEET WEST OF TRUNK HIGHWAY 32, 50.0 FEET SOUTH OF AN EAST-WEST TOWNSHIP ROAD, 0.8 FOOT EAST OF A WITNESS POST.

**Station Notes**

FOUND THE WITNESS POST, BROKEN CONCRETE, NO DISK.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1231.464	.033	3					VERTICAL CONTROL SURVEY	1984	CS1403	

**Geoid Separations(ft): GEOID18 = -87.933    12B = -87.916    09 = -87.812    03 = -87.749**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1403 AB  
County: CLAY, MN (Sheet 1)

NGS Name: 1403 AB

NGS ACRN: [DQ2004](#) [Get Map](#)  
NGS Quad / Sta Num : 46096141/  
USGS Quad: HAWLEY

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	33	140 N	44 W	465423.81	961530.84	2	C

  

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 19 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014) Stamping: 1403 AB 2014

4.8 MILES SOUTH OF HITTERDAL, 4.8 MILES SOUTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND COUNTY ROAD 26 IN HITTERDAL, AT TRUNK HIGHWAY 32 MILEPOINT 17.5, 35.4 FEET EAST OF TRUNK HIGHWAY 32, 15.7 FEET EAST OF THE END OF A GUARDRAIL, 1.5 FEET WEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
1228.374	.016	2/1				VERTICAL ADJUSTMENT		2019	00000941

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
1228.374			1140.598	.011	2011	HORIZONTAL ADJUSTMENT		2024	GPS3719
1228.374	.131		1140.723	.066	1996	GPS - STATIC		2024	HMOFA1
1228.374			1140.598	.011	2011	GPS - STATIC		2024	HMOFA1
1228.374	.131		1140.723	.066	1996	GPS - STATIC		2023	HHITT
1228.374			1140.598	.011	2011	GPS - STATIC		2023	HHITT
1228.374			1140.598	.011	2011	HORIZONTAL ADJUSTMENT		2023	GPS3626
1228.475	.262		1140.575	.197	2011	GPS - RTRN		2022	RTRN2022
1228.462	.262		1140.562	.197	2011	GPS - OPUS		2021	GPSBM
1228.374	.262		1140.473	.197	2011	GPS - OPUS		2021	GPSBM
1228.442	.262		1140.539	.197	2011	GPS - RTRN		2021	RTRN2021
1228.393	.262		1140.510	.197	2011	GPS - RTRN		2014	RTRN2014

Geoid Separations(ft): GEOID18 = -87.900 12B = -87.884 09 = -87.779 03 = -87.720

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
46 54 23.80833	96 15 30.84262	610368.743	201205.459	.007		ADJUSTMENT		2024	GPS3719
46 54 23.80833	96 15 30.84262	610368.743	201205.459	.007	C	GPS - STATIC		2024	HMOFA1
46 54 23.80833	96 15 30.84262	610368.743	201205.459	.010	C	GPS - STATIC		2023	HHITT
46 54 23.80833	96 15 30.84262	610368.743	201205.459	.010		ADJUSTMENT		2023	GPS3626
46 54 23.80902	96 15 30.84272	610368.735	201205.529	.131	3	GPS - RTRN		2022	RTRN2022
46 54 23.80766	96 15 30.84304	610368.714	201205.391	.131	3	GPS - OPUS		2021	GPSBM
46 54 23.80828	96 15 30.84340	610368.688	201205.454	.131	3	GPS - OPUS		2021	GPSBM
46 54 23.80779	96 15 30.84374	610368.665	201205.404	.131	3	GPS - RTRN		2021	RTRN2021
46 54 23.80883	96 15 30.84337	610368.690	201205.509	.131	3	GPS - RTRN		2014	RTRN2014

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
46 54 23.80816	96 15 30.84301	610368.715	201205.441	.033	C	GPS - STATIC		2024	HMOFA1
46 54 23.80816	96 15 30.84301	610368.715	201205.441	.033	C	GPS - STATIC		2023	HHITT

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2122670.116	1029718.651	826254.864	17060143.916	.007		ADJUSTMENT	2024	GPS3719
2122670.116	1029718.651	826254.864	17060143.916	.007	C	GPS - STATIC	2024	HMOFA1
2122670.116	1029718.651	826254.864	17060143.916	.010	C	GPS - STATIC	2023	HHITT
2122670.116	1029718.651	826254.864	17060143.916	.010		ADJUSTMENT	2023	GPS3626
2122670.111	1029718.721	826254.860	17060143.986	.131	3	GPS - RTRN	2022	RTRN2022
2122670.085	1029718.584	826254.832	17060143.849	.131	3	GPS - OPUS	2021	GPSBM
2122670.062	1029718.648	826254.810	17060143.913	.131	3	GPS - OPUS	2021	GPSBM
2122670.037	1029718.599	826254.784	17060143.865	.131	3	GPS - RTRN	2021	RTRN2021
2122670.065	1029718.703	826254.814	17060143.969	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2122670.088	1029718.635	826254.836	17060143.900	.033	C	GPS - STATIC	2024	HMOFA1
2122670.088	1029718.635	826254.836	17060143.900	.033	C	GPS - STATIC	2023	HHITT

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_AB-DQ2004-3E-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_AB-DQ2004-3E-14JUN2022.jpg</a>	E	Jun 14, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_AB-DQ2004-2-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_AB-DQ2004-2-14JUN2022.jpg</a>		Jun 14, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_AB-DQ2004-1-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_AB-DQ2004-1-14JUN2022.jpg</a>		Jun 14, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1403 AC

NGS Name: 1403 AC

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ2002](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096141/  
 USGS Quad: HAWLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	5	139 N	44 W	465327.25	961532.95	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 44 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: 1403 AC 2014

5.9 MILES SOUTH OF HITTERDAL, 5.9 MILES SOUTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND COUNTY ROAD 26 IN HITTERDAL, AT TRUNK HIGHWAY 32 MILEPOINT 16.4, 64.6 FEET WEST OF TRUNK HIGHWAY 32, 23.0 FEET SOUTH OF A FIELD ENTRANCE, 1.5 FEET EAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1157.212	.016	2/1				VERTICAL ADJUSTMENT	2024	00000941-3		
1157.212	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA		
1157.212	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1157.212			1069.489	.011	2011	HORIZONTAL ADJUSTMENT	2024	GPS3719		
1157.212	.131		1069.617	.066	1996	GPS - STATIC	2024	HMOFA1		
1157.212			1069.489	.011	2011	GPS - STATIC	2024	HMOFA1		
1157.212	.131		1069.617	.066	1996	GPS - STATIC	2023	HHITT		
1157.212			1069.489	.011	2011	GPS - STATIC	2023	HHITT		
1157.212			1069.489	.011	2011	HORIZONTAL ADJUSTMENT	2023	GPS3626		
1157.330	.262		1069.476	.197	2011	GPS - RTRN	2022	RTRN2022		
1157.225	.262		1069.388	.197	2011	GPS - RTRN	2014	RTRN2014		

Geoid Separations(ft): GEOID18 = -87.854    12B = -87.838    09 = -87.729    03 = -87.670

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 53 27.25492	96 15 32.95205	610254.461	195474.795	.007		ADJUSTMENT	2024	GPS3719	
46 53 27.25492	96 15 32.95205	610254.461	195474.795	.007	C	GPS - STATIC	2024	HMOFA1	
46 53 27.25492	96 15 32.95205	610254.461	195474.795	.007	C	GPS - STATIC	2023	HHITT	
46 53 27.25492	96 15 32.95205	610254.461	195474.795	.007		ADJUSTMENT	2023	GPS3626	
46 53 27.25466	96 15 32.95199	610254.465	195474.769	.131	3	GPS - RTRN	2022	RTRN2022	
46 53 27.25555	96 15 32.95222	610254.449	195474.859	.131	3	GPS - RTRN	2014	RTRN2014	

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 53 27.25477	96 15 32.95244	610254.434	195474.780	.033	C	GPS - STATIC	2024	HMOFA1	
46 53 27.25477	96 15 32.95244	610254.434	195474.780	.033	C	GPS - STATIC	2023	HHITT	



**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2122378.381	1023994.787	825870.368	17054423.311	.007		ADJUSTMENT	2024	GPS3719
2122378.381	1023994.787	825870.368	17054423.311	.007	C	GPS - STATIC	2024	HMOFA1
2122378.381	1023994.787	825870.368	17054423.311	.007	C	GPS - STATIC	2023	HHITT
2122378.381	1023994.787	825870.368	17054423.311	.007		ADJUSTMENT	2023	GPS3626
2122378.385	1023994.760	825870.372	17054423.285	.131	3	GPS - RTRN	2022	RTRN2022
2122378.371	1023994.851	825870.359	17054423.376	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2122378.354	1023994.772	825870.341	17054423.297	.033	C	GPS - STATIC	2024	HMOFA1
2122378.354	1023994.772	825870.341	17054423.297	.033	C	GPS - STATIC	2023	HHITT

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<b>Location:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_AC-DQ2002-3W-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_AC-DQ2002-3W-14JUN2022.jpg</a>	W	Jun 14, 2022
<b>Monument:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_AC-DQ2002-2-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_AC-DQ2002-2-14JUN2022.jpg</a>		Jun 14, 2022
<b>Disk:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_AC-DQ2002-1-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_AC-DQ2002-1-14JUN2022.jpg</a>		Jun 14, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1403 AD  
 County: CLAY, MN (Sheet 1)

NGS Name: 1403 AD

NGS ACRN: [DQ2006](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096141/  
 USGS Quad: HAWLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	17	140 N	44 W	465607.79	961535.70	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 24 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: 1403 AD 2014

2.8 MILES SOUTH OF HITTERDAL, 2.85 MILES SOUTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND COUNTY ROAD 26 IN HITTERDAL, AT TRUNK HIGHWAY 32 MILEPOINT 19.55, 133.2 FEET WEST OF TRUNK HIGHWAY 32, 46.8 FEET NORTH OF 57TH AVENUE NORTH, 13.0 FEET WEST OF AN ENTRANCE, 10.0 FEET EAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1234.279	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1234.279	.131		1146.592	.066	1996	GPS - STATIC	2023	HHITT
1234.279			1146.471	.012	2011	GPS - STATIC	2023	HHITT
1234.279			1146.471	.012	2011	HORIZONTAL ADJUSTMENT	2023	GPS3626
1234.427	.262		1146.497	.197	2011	GPS - RTRN	2022	RTRN2022
1234.295	.262		1146.379	.197	2011	GPS - RTRN	2014	RTRN2014

Geoid Separations(ft): GEOID18 = -87.930 12B = -87.916 09 = -87.812 03 = -87.749

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Clay County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 56 07.78993	96 15 35.70040	609972.328	211738.742	.010	C	GPS - STATIC	2023	HHITT
46 56 07.78993	96 15 35.70040	609972.328	211738.742	.010		ADJUSTMENT	2023	GPS3626
46 56 07.78995	96 15 35.70092	609972.292	211738.744	.131	3	GPS - RTRN	2022	RTRN2022
46 56 07.79024	96 15 35.70044	609972.325	211738.773	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(1996)		Clay County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 56 07.78974	96 15 35.70081	609972.299	211738.723	.033	C	GPS - STATIC	2023	HHITT

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone		X	Y	Acc	Order	Determination Method	Year	Reference
2122600.236	1040258.266	826355.794	17070687.311	.010	C	GPS - STATIC	2023	HHITT
2122600.236	1040258.266	826355.794	17070687.311	.010		ADJUSTMENT	2023	GPS3626
2122600.200	1040258.269	826355.758	17070687.314	.131	3	GPS - RTRN	2022	RTRN2022
2122600.234	1040258.297	826355.792	17070687.342	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(1996)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone		X	Y	Acc	Order	Determination Method	Year	Reference
2122600.207	1040258.248	826355.765	17070687.293	.033	C	GPS - STATIC	2023	HHITT



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_AD-DQ2006-3N-04JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_AD-DQ2006-3N-04JUN2014.jpg</a>	N	Jun 4, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_AD-DQ2006-2-04JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_AD-DQ2006-2-04JUN2014.jpg</a>		Jun 4, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_AD-DQ2006-1-04JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_AD-DQ2006-1-04JUN2014.jpg</a>		Jun 4, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1403 B

NGS Name: 1403 B

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096141/  
 USGS Quad: HAWLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	4	139 N	44 W	465239.00	961531.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1984	1998	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 18 FT)	SURVEY DISK	MNDT

Description: (2004)                      Stamping: 1403 B 1984

3.0 MILES EAST OF HAWLEY, AT THE JUNCTION OF TRUNK HIGHWAY 32 AND TRUNK HIGHWAY 10 (THE JUNCTION IS 3.0 MILES EAST OF HAWLEY), AT TRUNK HIGHWAY 32 MILEPOINT 15.55, 335.0 FEET NORTH OF WESTBOUND TRUNK HIGHWAY 10, 70.0 FEET EAST OF TRUNK HIGHWAY 32, 8.0 FEET WEST OF THE TOP OF A BACK SLOPE, 1.0 FOOT NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1276.083	.033	3				VERTICAL CONTROL SURVEY	1984	CS1403	

**Geoid Separations(ft): GEOID18 = -87.798    12B = -87.782    09 = -87.674    03 = -87.615**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1403 B RESET

NGS Name: 1403 B RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [DG7111](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096141/  
 USGS Quad: HAWLEY

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
				<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	4	139 N	44 W	465240.99	961531.53	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1988	2024	GOOD	Horz=YES Vert=YES	YES		RECESSED 5 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 18 FT)	VERTICAL CONTROL DISK	MNDT

Description: (2013)                      Stamping: 1403 B 1984 RESET 1988

3.0 MILES EAST OF HAWLEY, AT THE JUNCTION OF TRUNK HIGHWAY 32 AND TRUNK HIGHWAY 10 (THE JUNCTION IS 3.0 MILES EAST OF HAWLEY), AT TRUNK HIGHWAY 32 MILEPOINT 15.55, 250.0 FEET NORTH OF WESTBOUND TRUNK HIGHWAY 10, 126.8 FEET EAST OF TRUNK HIGHWAY 32, 0.8 FOOT NORTHWEST OF A WITNESS POST.

Station Pair:    WILKEN - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
1276.677	.016	2/1				2024	00000941-3	VERTICAL ADJUSTMENT		2024	00000941-3	
1276.677	.016	2/1				2023	VMOFA	VERTICAL CONTROL SURVEY		2023	VMOFA	
1276.677	.016	2/1				2019	00000941	VERTICAL ADJUSTMENT		2019	00000941	
1276.795	.016	2/1				2004	00000464	VERTICAL ADJUSTMENT		2004	00000464	
1276.799	.016	2/1				2001	VHAWL	VERTICAL CONTROL SURVEY		2001	VHAWL	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
1276.677			1188.971	.009	2011	2024	GPS3762	HORIZONTAL ADJUSTMENT		2024	GPS3762	
1276.677	.131		1189.115	.066	1996	2024	HTH32	GPS - STATIC		2024	HTH32	
1276.677			1188.971	.009	2011	2024	HTH32	GPS - STATIC		2024	HTH32	
1276.677			1188.971	.017	2011	2024	GPS3719	HORIZONTAL ADJUSTMENT		2024	GPS3719	
1276.677	.131		1189.115	.066	1996	2024	HMOFA1	GPS - STATIC		2024	HMOFA1	
1276.677			1188.971	.017	2011	2024	HMOFA1	GPS - STATIC		2024	HMOFA1	
1276.802	.262		1189.000	.197	2011	2022	RTRN2022	GPS - RTRN		2022	RTRN2022	
1276.795			1188.971	.024	2011	2015	GPS3084	HORIZONTAL ADJUSTMENT		2015	GPS3084	
1276.795	.131		1189.115	.066	1996	2015	HCLAY	GPS - STATIC		2015	HCLAY	
1276.795			1188.971	.024	2011	2015	HCLAY	GPS - STATIC		2015	HCLAY	
1276.690	.262		1188.905	.197	2011	2014	RTRN2014	GPS - RTRN		2014	RTRN2014	

**Geoid Separations(ft): GEOID18 = -87.802    12B = -87.785    09 = -87.677    03 = -87.618**

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 52 40.99108	96 15 31.52688	610379.800	190788.035	.007		ADJUSTMENT	2024	GPS3762
46 52 40.99108	96 15 31.52688	610379.800	190788.035	.007	C	GPS - STATIC	2024	HTH32
46 52 40.99108	96 15 31.52688	610379.800	190788.035	.010		ADJUSTMENT	2024	GPS3719
46 52 40.99108	96 15 31.52688	610379.800	190788.035	.010	C	GPS - STATIC	2024	HMOFA1
46 52 40.99014	96 15 31.52678	610379.807	190787.940	.131	3	GPS - RTRN	2022	RTRN2022
46 52 40.99108	96 15 31.52688	610379.800	190788.035	.016		ADJUSTMENT	2015	GPS3084
46 52 40.99108	96 15 31.52688	610379.800	190788.035	.016	C	GPS - STATIC	2015	HCLAY
46 52 40.99072	96 15 31.52751	610379.756	190787.998	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 52 40.99062	96 15 31.52765	610379.747	190787.988	.033	C	GPS - STATIC	2024	HTH32
46 52 40.99062	96 15 31.52765	610379.747	190787.988	.033	C	GPS - STATIC	2024	HMOFA1
46 52 40.99062	96 15 31.52765	610379.747	190787.988	.033	C	GPS - STATIC	2015	HCLAY

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2122358.474	1019306.821	825774.589	17049734.454	.007		ADJUSTMENT	2024	GPS3762
2122358.474	1019306.821	825774.589	17049734.454	.007	C	GPS - STATIC	2024	HTH32
2122358.474	1019306.821	825774.589	17049734.454	.010		ADJUSTMENT	2024	GPS3719
2122358.474	1019306.821	825774.589	17049734.454	.010	C	GPS - STATIC	2024	HMOFA1
2122358.479	1019306.725	825774.592	17049734.358	.131	3	GPS - RTRN	2022	RTRN2022
2122358.474	1019306.821	825774.589	17049734.454	.016		ADJUSTMENT	2015	GPS3084
2122358.474	1019306.821	825774.589	17049734.454	.016	C	GPS - STATIC	2015	HCLAY
2122358.429	1019306.785	825774.544	17049734.419	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2122358.420	1019306.775	825774.533	17049734.409	.033	C	GPS - STATIC	2024	HTH32
2122358.420	1019306.775	825774.533	17049734.409	.033	C	GPS - STATIC	2024	HMOFA1
2122358.420	1019306.775	825774.533	17049734.409	.033	C	GPS - STATIC	2015	HCLAY

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_B_RESET-DG7111-3E-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_B_RESET-DG7111-3E-14JUN2022.jpg</a>	E	Jun 14, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_B_RESET-DG7111-2-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_B_RESET-DG7111-2-14JUN2022.jpg</a>		Jun 14, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_B_RESET-DG7111-1-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_B_RESET-DG7111-1-14JUN2022.jpg</a>		Jun 14, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1403 BB  
County: CLAY, MN (Sheet 1)

NGS Name: 1403 BB

NGS ACRN: [DQ2001](#) [Get Map](#)  
NGS Quad / Sta Num : 46096141/  
USGS Quad: HAWLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	4	139 N	44 W	465320.15	961532.03	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1984	2022	GOOD	Horz=NO Vert=NO	YES	6656	FLUSH	NO MAG MATERIAL

Monument Type	Disk Type	Mon. Agency
BRIDGE ABUTMENT	BENCH MARK DISK	MNDT

Description: (1996)                      **Stamping:** 1403 BB 1947

3.0 MILES EAST-NORTHEAST OF HAWLEY, IN THE SOUTHEAST CORNER OF TRUNK HIGHWAY 32 BRIDGE NUMBER 6656 OVER THE BUFFALO RIVER, 0.8 MILE NORTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND TRUNK HIGHWAY 10 (THE JUNCTION IS 3.0 MILES EAST OF HAWLEY), AT TRUNK HIGHWAY 32 MILEPOINT 16.3, 18.0 FEET EAST OF TRUNK HIGHWAY 32.

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1164.804	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941

NGVD29				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1163.666	.033	3				VERTICAL CONTROL SURVEY	1984	CS1403

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1164.765	.262		1076.937	.197	2011	GPS - RTRN	2015	RTRN2015
1164.827	.262		1076.999	.197	2011	GPS - RTRN	2014	RTRN2014

Geoid Separations(ft): GEOID18 = -87.844    12B = -87.828    09 = -87.720    03 = -87.664

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 53 20.14709	96 15 32.02696	610322.763	194755.011	.131	3	GPS - RTRN	2015	RTRN2015
46 53 20.14714	96 15 32.02671	610322.780	194755.016	.131	3	GPS - RTRN	2014	RTRN2014

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone		X	Y	Acc	Order	Determination Method	Year	Reference
2122424.348	1023273.297	825904.668	17053700.892	.131	3	GPS - RTRN	2015	RTRN2015
2122424.365	1023273.302	825904.686	17053700.896	.131	3	GPS - RTRN	2014	RTRN2014

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_BB-DQ2001-3N-04MAR2015.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_BB-DQ2001-3N-04MAR2015.jpg</a>	N	Mar 4, 2015
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_BB-DQ2001-2-20MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_BB-DQ2001-2-20MAY2014.jpg</a>		May 20, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_BB-DQ2001-1-04MAR2015.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_BB-DQ2001-1-04MAR2015.jpg</a>		Mar 4, 2015

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1403 C

NGS Name: 1403 C

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096141/  
 USGS Quad: HAWLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	16	140 N	44 W	465700.00	961531.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1984	2014	GOOD	Horz=NO Vert=NO	YES		PROJECTS 1 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 18 FT)	VERTICAL CONTROL DISK	MNDT

Description: (2013)                      Stamping: 1403 C 1984

1.9 MILES SOUTH OF HITTERDAL, 2.0 MILES SOUTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND COUNTY ROAD 26 IN HITTERDAL, AT TRUNK HIGHWAY 32 MILEPOINT 20.6, 482.0 FEET NORTH OF RAILROAD MILEPOST 4, 170.0 FEET EAST OF TRUNK HIGHWAY 32, 78.0 FEET EAST OF THE EAST RAIL OF THE RAILROAD TRACKS, 27.8 FEET EAST OF THE SOUTH FACE OF A WILDLIFE SIGNPOST, NEAR THE NORTHWEST CORNER OF WILDLIFE AREA, 0.8 FOOT NORTH OF A WITNESS POST.

**Station Notes**

THE SURVEY MARK IS ON RAILROAD PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1241.172	.033	3				VERTICAL CONTROL SURVEY	1984	CS1403		

**Geoid Separations(ft):** GEOID18 = -87.926    12B = -87.923    09 = -87.808    03 = -87.743

\* No Horizontal Positions in the Database \*

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_C-3E-01AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_C-3E-01AUG2013.jpg</a>	E	Aug 1, 2013
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_C-2-01AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_C-2-01AUG2013.jpg</a>		Aug 1, 2013
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_C-1-01AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_C-1-01AUG2013.jpg</a>		Aug 1, 2013

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1403 D

NGS Name: 1403 D

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096141/  
 USGS Quad: HAWLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	33	141 N	44 W	465917.66	961528.12		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1984	2014	GOOD	Horz=NO Vert=NO	NO		FLUSH	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 18 FT)	SURVEY DISK	MNDT

Description: (1984)                      Stamping: 1403 D 1984

0.6 MILE NORTH OF HITTERDAL, 0.75 MILE NORTH OF THE JUNCTION OF TRUNK HIGHWAY 32 AND COUNTY ROAD 26 IN HITTERDAL, 99.0 FEET EAST OF TRUNK HIGHWAY 32, AT TRUNK HIGHWAY 32 MILEPOINT 23.25, IN LINE WITH THE SOUTH SHOULDER OF A TOWNSHIP ROAD WEST EXTENDED, 49.0 FEET WEST OF THE WEST RAIL OF A RAILROAD, 1.0 FOOT NORTH OF A WITNESS POST.

**Station Notes**

THE SURVEY MARK IS ON RAILROAD PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

**Leveling-Derived Orthometric Heights (Feet)**

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1239.581	.033	3				VERTICAL CONTROL SURVEY	1984	CS1403

**Geoid Separations(ft): GEOID18 = -87.884    12B = -87.884    09 = -87.769    03 = -87.707**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1403 E

NGS Name: 1403 E

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 47096232/  
 USGS Quad: ULEN

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	27	141 N	44 W	470022.57	961525.17		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1984	2014	GOOD	Horz=NO Vert=NO	NO		FLUSH	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 18 FT)	SURVEY DISK	MNDT

**Description:** (1984)                      **Stamping:** 1403 E 1984

1.9 MILES NORTH OF HITTERDAL, 2.0 MILES NORTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND COUNTY ROAD 26 IN HITTERDAL, AT TRUNK HIGHWAY 32 MILEPOINT 23.9, 210.0 FEET EAST OF TRUNK HIGHWAY 32, 62.0 FEET EAST OF THE EAST RAIL OF A RAILROAD, 10.0 FEET EAST AND 3.0 FEET SOUTH OF A FENCE CORNER, 17.0 FEET SOUTH OF RAILROAD MILEPOST 8, 1.0 FOOT NORTH OF A WITNESS POST.

**Station Notes**

THE SURVEY MARK IS ON RAILROAD PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1232.675	.033	3				VERTICAL CONTROL SURVEY	1984	CS1403	

**Geoid Separations(ft): GEOID18 = -87.844    12B = -87.844    09 = -87.726    03 = -87.674**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1403 E 1

NGS Name: 1403 E 1

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 47096232/  
 USGS Quad: ULEN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	33	138 N	44 W	470022.58	961525.17		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1984	2014	GOOD	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE)	SURVEY DISK	MNDT

**Description:** **Stamping:** 1403 E 1984

1.9 MILES NORTH OF HITTERDAL, 2.0 MILES NORTH OF THE JUNCTION ALONG TRUNK HIGHWAY 32 FROM TRUNK HIGHWAY 32 AND COUNTY ROAD 26 IN HITTERDAL, AT TRUNK HIGHWAY 32 MILEPOINT 23.9, 210.0 FEET EAST OF TRUNK HIGHWAY 32, 62.0 FEET EAST OF THE EAST RAIL OF A RAILROAD, 10.0 FEET EAST AND 3.0 FEET SOUTH OF A FENCE CORNER, 17.0 FEET SOUTH OF RAILROAD MILEPOST 8, 1.0 FOOT NORTH OF A WITNESS POST.

**Station Notes**

THE SURVEY MARK IS ON RAILROAD PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.844 12B = -87.844 09 = -87.726 03 = -87.674



Mn/DOT Name: 1403 F

NGS Name: 1403 F

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP7333](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096232/  
 USGS Quad: ULEN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	21	141 N	44 W	470103.70	961529.52	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1984	2022	DESTROYED	Horz=NO Vert=NO	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 18 FT)	VERTICAL CONTROL DISK	MNDT

Description: (1984)                      Stamping: 1403 F 1984

2.8 MILES NORTH OF HITTERDAL, 2.8 MILES NORTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND COUNTY ROAD 26 IN HITTERDAL, AT TRUNK HIGHWAY 32 MILEPOINT 25.3, 74.0 FEET WEST OF TRUNK HIGHWAY 32, 210.0 FEET SOUTH OF DRIVEWAY NUMBER 11839, AT THE TOP OF A BACK SLOPE, ON A SMALL KNOLL, 1.0 FOOT EAST OF A WITNESS POST.

Station Pair: DEEP - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
1222.662	.016	2/1				2019	00000941					

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
1221.431	.033	3				1984	CS1403					

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
1222.829			1134.988	.020	2011	2015	GPS3084					
1222.799	.131		1135.132	.066	1996	2015	HCLAY					
1222.829			1134.988	.020	2011	2015	HCLAY					
1222.730	.262		1134.919	.197	2011	2014	RTRN2014					
			1135.106	.066	1996	2001	DIST 4					

Geoid Separations(ft): GEOID18 = -87.808    12B = -87.812    09 = -87.697    03 = -87.647

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
47 01 03.70129	96 15 29.52204	610232.088	241722.506	.013		ADJUSTMENT	2015	GPS3084	
47 01 03.70129	96 15 29.52204	610232.088	241722.506	.013	C	GPS - STATIC	2015	HCLAY	
47 01 03.70174	96 15 29.52237	610232.065	241722.551	.131	3	GPS - RTRN	2014	RTRN2014	

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
47 01 03.70077	96 15 29.52285	610232.032	241722.453	.033	C	GPS - STATIC	2015	HCLAY	
47 01 03.70073	96 15 29.52278	610232.037	241722.450	.033	C	GPS - STATIC	2001	DIST 4	

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
2123788.882	1070217.357	828031.424	17100634.234	.013		ADJUSTMENT	2015	GPS3084	
2123788.882	1070217.357	828031.424	17100634.234	.013	C	GPS - STATIC	2015	HCLAY	
2123788.860	1070217.403	828031.403	17100634.281	.131	3	GPS - RTRN	2014	RTRN2014	

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
2123788.824	1070217.305	828031.365	17100634.184	.033	C	GPS - STATIC	2015	HCLAY	
2123788.829	1070217.301	828031.370	17100634.179	.033	C	GPS - STATIC	2001	DIST 4	



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_F-DP7333-3W-12AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_F-DP7333-3W-12AUG2013.jpg</a>	W	Aug 12, 2013
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_F-DP7333-2-21MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_F-DP7333-2-21MAY2014.jpg</a>		May 21, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_F-DP7333-1-21MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_F-DP7333-1-21MAY2014.jpg</a>		May 21, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1403 G

NGS Name: 1403 G

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ2014](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096232/  
 USGS Quad: ULEN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	9	141 N	44 W	470221.57	961531.72	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1984	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 4 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 18 FT)	VERTICAL CONTROL DISK	MNDT

Description: (1984)                      Stamping: 1403 G 1984

2.7 MILES SOUTH OF ULEN, 2.7 MILES SOUTH OF THE JUNCTION ALONG TRUNK HIGHWAY 32 FROM TRUNK HIGHWAY 32 AND COUNTY ROAD 34 IN ULEN, AT TRUNK HIGHWAY 32 MILEPOINT 26.75, 70.0 FEET WEST OF TRUNK HIGHWAY 32, 525.0 FEET SOUTH OF A FIELD ENTRANCE WEST, 7.0 FEET EAST OF A POWER POLE, 1.4 FEET EAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1208.620	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1207.366	.033	3					VERTICAL CONTROL SURVEY	1984	CS1403	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1208.620	.131			1121.143	.066	1996	GPS - STATIC	2023	HHITT	
1208.620				1121.018	.013	2011	GPS - STATIC	2023	HHITT	
1208.620				1121.018	.013	2011	HORIZONTAL ADJUSTMENT	2023	GPS3626	
1208.757	.262			1121.021	.197	2011	GPS - RTRN	2022	RTRN2022	
1208.764	.262			1121.028	.197	2011	GPS - OPUS	2021	GPSBM	
1208.702	.262			1120.966	.197	2011	GPS - OPUS	2021	GPSBM	
1208.652	.262			1120.913	.197	2011	GPS - RTRN	2021	RTRN2021	
1208.603	.262			1120.870	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.736 12B = -87.733 09 = -87.624 03 = -87.595

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
47 02 21.57177	96 15 31.71680	610035.553	249611.455	.010	C	GPS - STATIC	2023	HHITT	
47 02 21.57177	96 15 31.71680	610035.553	249611.455	.010		ADJUSTMENT	2023	GPS3626	
47 02 21.57172	96 15 31.71761	610035.496	249611.450	.131	3	GPS - RTRN	2022	RTRN2022	
47 02 21.57180	96 15 31.71730	610035.518	249611.458	.131	3	GPS - OPUS	2021	GPSBM	
47 02 21.57227	96 15 31.71701	610035.537	249611.506	.131	3	GPS - OPUS	2021	GPSBM	
47 02 21.57190	96 15 31.71669	610035.560	249611.468	.131	3	GPS - RTRN	2021	RTRN2021	
47 02 21.57177	96 15 31.71726	610035.520	249611.455	.131	3	GPS - RTRN	2014	RTRN2014	

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
47 02 21.57160	96 15 31.71720	610035.525	249611.438	.033	C	GPS - STATIC	2023	HHITT	



**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2123836.928	1078108.105	828207.945	17108525.980	.010	C	GPS - STATIC	2023	HHITT
2123836.928	1078108.105	828207.945	17108525.980	.010		ADJUSTMENT	2023	GPS3626
2123836.872	1078108.101	828207.889	17108525.977	.131	3	GPS - RTRN	2022	RTRN2022
2123836.894	1078108.109	828207.911	17108525.984	.131	3	GPS - OPUS	2021	GPSBM
2123836.915	1078108.155	828207.933	17108526.031	.131	3	GPS - OPUS	2021	GPSBM
2123836.937	1078108.118	828207.953	17108525.993	.131	3	GPS - RTRN	2021	RTRN2021
2123836.897	1078108.105	828207.913	17108525.981	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2123836.901	1078108.088	828207.917	17108525.964	.033	C	GPS - STATIC	2023	HHITT

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_G-DQ2014-3W-14JUL2021.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_G-DQ2014-3W-14JUL2021.jpg</a>	W	Jul 14, 2021
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_G-DQ2014-2-14JUL2021.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_G-DQ2014-2-14JUL2021.jpg</a>		Jul 14, 2021
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_G-DQ2014-1-14JUL2021.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_G-DQ2014-1-14JUL2021.jpg</a>		Jul 14, 2021

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1403 H

NGS Name: 1403 H

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ2015](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096232/  
 USGS Quad: ULEN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	4	141 N	44 W	470300.00	961531.47	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1984	2023	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 18 FT)	VERTICAL CONTROL DISK	MNDT

Description: (1984) Stamping: 1403 H 1984

2.0 MILES SOUTH OF ULEN, 2.0 MILES SOUTH OF THE JUNCTION ALONG TRUNK HIGHWAY 32 FROM THE TRUNK HIGHWAY 32 AND COUNTY ROAD 34 IN ULEN, AT TRUNK HIGHWAY 32 MILEPOINT 27.5, 68.0 FEET WEST OF TRUNK HIGHWAY 32, 68.0 FEET NORTH OF COUNTY ROAD 112 WEST/140TH AVENUE NORTH, 7.0 FEET EAST OF A POWER POLE, 1.0 FOOT EAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1186.868	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1185.598	.033	3					VERTICAL CONTROL SURVEY	1984	CS1403	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1186.868	.131			1099.430	.066	1996	GPS - STATIC	2023	HHITT	
1186.868				1099.306	.012	2011	GPS - STATIC	2023	HHITT	
1186.868				1099.306	.012	2011	HORIZONTAL ADJUSTMENT	2023	GPS3626	
1187.038	.262			1099.342	.197	2011	GPS - RTRN	2022	RTRN2022	
1186.953	.262			1099.253	.197	2011	GPS - OPUS	2021	GPSBM	
1187.038	.262			1099.338	.197	2011	GPS - OPUS	2021	GPSBM	
1186.930	.262			1099.230	.197	2011	GPS - RTRN	2021	RTRN2021	
1186.838	.262			1099.145	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.700 12B = -87.693 09 = -87.582 03 = -87.562

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
47 03 00.00474	96 15 31.47445	610030.390	253505.574	.010	C	GPS - STATIC	2023	HHITT	
47 03 00.00474	96 15 31.47445	610030.390	253505.574	.010		ADJUSTMENT	2023	GPS3626	
47 03 00.00515	96 15 31.47520	610030.337	253505.616	.131	3	GPS - RTRN	2022	RTRN2022	
47 03 00.00450	96 15 31.47484	610030.363	253505.550	.131	3	GPS - OPUS	2021	GPSBM	
47 03 00.00472	96 15 31.47491	610030.358	253505.572	.131	3	GPS - OPUS	2021	GPSBM	
47 03 00.00557	96 15 31.47532	610030.329	253505.658	.131	3	GPS - RTRN	2021	RTRN2021	
47 03 00.00518	96 15 31.47429	610030.400	253505.619	.131	3	GPS - RTRN	2014	RTRN2014	

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
47 03 00.00458	96 15 31.47484	610030.363	253505.558	.033	C	GPS - STATIC	2023	HHITT	

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2123952.452	1082000.279	828386.903	17112417.134	.010	C	GPS - STATIC	2023	HHITT
2123952.452	1082000.279	828386.903	17112417.134	.010		ADJUSTMENT	2023	GPS3626
2123952.401	1082000.321	828386.852	17112417.178	.131	3	GPS - RTRN	2022	RTRN2022
2123952.424	1082000.255	828386.875	17112417.111	.131	3	GPS - OPUS	2021	GPSBM
2123952.420	1082000.277	828386.871	17112417.134	.131	3	GPS - OPUS	2021	GPSBM
2123952.394	1082000.364	828386.846	17112417.221	.131	3	GPS - RTRN	2021	RTRN2021
2123952.464	1082000.323	828386.915	17112417.178	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2123952.424	1082000.263	828386.875	17112417.119	.033	C	GPS - STATIC	2023	HHITT

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_H-DQ2015-3W-14JUL2021.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_H-DQ2015-3W-14JUL2021.jpg</a>	W	Jul 14, 2021
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_H-DQ2015-2-14JUL2021.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_H-DQ2015-2-14JUL2021.jpg</a>		Jul 14, 2021
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_H-DQ2015-1-14JUL2021.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_H-DQ2015-1-14JUL2021.jpg</a>		Jul 14, 2021

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1403 J

NGS Name: 1403 J

County: CLAY, MN (Sheet 1)

NGS ACRN: [DG8463](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096232/  
 USGS Quad: ULEN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	3	141 N	44 W	470340.80	961528.97		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1984	2013	GOOD	Horz=NO Vert=NO	YES		PROJECTS 2 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 11 FT)	VERTICAL CONTROL DISK	MNDT

Description: (1984)                      Stamping: 1403 J 1984

1.2 MILES SOUTH OF ULEN, 1.2 MILES SOUTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND COUNTY ROAD 34 IN ULEN, AT TRUNK HIGHWAY 32 MILEPOINT 28.5, 121.0 FEET EAST OF TRUNK HIGHWAY 32, 28.0 FEET EAST OF THE EAST RAIL OF A RAILROAD, 91.0 FEET NORTH OF A FIELD ENTRANCE EAST, 1075.0 FEET SOUTH OF AN EAST-WEST TOWNSHIP ROAD, 1.0 FOOT WEST OF A WITNESS POST.

Station Notes

THE SURVEY MARK IS ON RAILROAD PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>							<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
			<u>Height</u>	<u>Acc</u>	<u>Adj</u>			
1168.361	.033	3				VERTICAL CONTROL SURVEY	1984	CS1403

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>							<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
			<u>Height</u>	<u>Acc</u>	<u>Adj</u>			
			1082.084	.007	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			1082.189	.008	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
1169.748	.131		1082.242	.066	1996	HORIZONTAL ADJUSTMENT	2004	GPS2048
1169.748	.131		1082.242	.066	1996	GPS - STATIC	2004	HSYRE
			1082.242	.066	1996	GPS - STATIC	2001	DIST 4

Geoid Separations(ft): GEOID18 = -87.654 12B = -87.647 09 = -87.539 03 = -87.520

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>							<u>Project Info</u>		
<u>Geodetic Position</u>		<u>Clay County</u>			<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>						
47 03 40.80034	96 15 28.97012	610180.478	257639.967	.007		ADJUSTMENT	2012	GPS2800	

  

<u>NAD83(2007)</u>							<u>Project Info</u>		
<u>Geodetic Position</u>		<u>Clay County</u>			<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>						
47 03 40.80021	96 15 28.97095	610180.421	257639.953	.007		ADJUSTMENT	2007	GPS2300	

  

<u>NAD83(1996)</u>							<u>Project Info</u>		
<u>Geodetic Position</u>		<u>Clay County</u>			<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>						
47 03 40.79943	96 15 28.97048	610180.454	257639.874	.033	C	ADJUSTMENT	2004	GPS2048	
47 03 40.79943	96 15 28.97046	610180.455	257639.874	.033	C	GPS - STATIC	2004	HSYRE	
47 03 40.79943	96 15 28.97046	610180.456	257639.875	.033	C	GPS - STATIC	2001	DIST 4	

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2124230.594	1086127.794	828732.378	17116541.018	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2124230.536	1086127.782	828732.320	17116541.008	.007		ADJUSTMENT	2007	GPS2300

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2124230.567	1086127.702	828732.349	17116540.927	.033	C	ADJUSTMENT	2004	GPS2048
2124230.568	1086127.702	828732.351	17116540.927	.033	C	GPS - STATIC	2004	HSYRE
2124230.568	1086127.702	828732.351	17116540.927	.033	C	GPS - STATIC	2001	DIST 4

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_J-DG8463-3E-20JUL2004.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_J-DG8463-3E-20JUL2004.jpg</a>	E	Jul 20, 2004
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_J-DG8463-2-20JUL2004.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_J-DG8463-2-20JUL2004.jpg</a>		Jul 20, 2004
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_J-DG8463-1-20JUL2004.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_J-DG8463-1-20JUL2004.jpg</a>		Jul 20, 2004

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1403 K

NGS Name: 1403 K

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 47096232/  
 USGS Quad: ULEN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	33	142 N	44 W	470412.00	961536.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1984	2014	DESTROYED	Horz=NO Vert=NO	NO		PROJECTS 2 IN.	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 14 FT)	SURVEY DISK	MNDT

Description: (1984)                      Stamping: 1403 K 1984

0.4 MILE SOUTH OF ULEN, 0.4 MILE SOUTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND COUNTY ROAD 34 IN ULEN, AT TRUNK HIGHWAY 32 MILEPOINT 29.1, 73.0 FEET WEST OF TRUNK HIGHWAY 32, 55.0 FEET NORTH OF A NORTH ELEVATOR ENTRANCE, 5.0 FEET EAST OF THE SOUTHEAST CORNER OF A FENCE AT A SUB-STATION, 1.0 FOOT NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1155.575	.033	3				VERTICAL CONTROL SURVEY	1984	CS1403	

**Geoid Separations(ft):** GEOID18 = -87.615    12B = -87.615    09 = -87.500    03 = -87.487

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1403 K RESET  
 County: CLAY, MN (Sheet 1)

NGS Name: 1403 K RESET

NGS ACRN: [DQ2017](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096232/  
 USGS Quad: ULEN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	33	142 N	44 W	470422.95	961532.66	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 14 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: 1403 K RESET 2014

0.4 MILE SOUTH OF ULEN, 0.4 MILE SOUTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND COUNTY ROAD 34 IN ULEN, AT TRUNK HIGHWAY 32 MILEPOINT 29.1, 73.0 FEET WEST OF TRUNK HIGHWAY 32, 55.0 FEET NORTH OF A NORTH ELEVATOR ENTRANCE, 1.0 FOOT EAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1156.333	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1156.333	.131			1068.997	.066	1996	GPS - STATIC	2023	HHITT	
1156.333				1068.876	.013	2011	GPS - STATIC	2023	HHITT	
1156.333				1068.876	.013	2011	HORIZONTAL ADJUSTMENT	2023	GPS3626	
1156.513	.262			1068.909	.197	2011	GPS - RTRN	2022	RTRN2022	
1156.454	.262			1068.850	.197	2011	GPS - OPUS	2021	GPSBM	
1156.497	.262			1068.892	.197	2011	GPS - OPUS	2021	GPSBM	
1156.533	.262			1068.928	.197	2011	GPS - RTRN	2021	RTRN2021	
1156.382	.262			1068.777	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.605    12B = -87.605    09 = -87.490    03 = -87.477

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
47 04 22.95336	96 15 32.65906	609901.004	261909.482	.010	C	GPS - STATIC	2023	HHITT	
47 04 22.95336	96 15 32.65906	609901.004	261909.482	.010		ADJUSTMENT	2023	GPS3626	
47 04 22.95322	96 15 32.65955	609900.970	261909.468	.131	3	GPS - RTRN	2022	RTRN2022	
47 04 22.95336	96 15 32.65924	609900.991	261909.482	.131	3	GPS - OPUS	2021	GPSBM	
47 04 22.95314	96 15 32.65931	609900.987	261909.460	.131	3	GPS - OPUS	2021	GPSBM	
47 04 22.95323	96 15 32.65776	609901.094	261909.470	.131	3	GPS - RTRN	2021	RTRN2021	
47 04 22.95395	96 15 32.65902	609901.006	261909.542	.131	3	GPS - RTRN	2014	RTRN2014	

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
47 04 22.95319	96 15 32.65945	609900.977	261909.465	.033	C	GPS - STATIC	2023	HHITT	

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2124083.596	1090403.684	828655.072	17120820.228	.010	C	GPS - STATIC	2023	HHITT
2124083.596	1090403.684	828655.072	17120820.228	.010		ADJUSTMENT	2023	GPS3626
2124083.562	1090403.671	828655.038	17120820.215	.131	3	GPS - RTRN	2022	RTRN2022
2124083.583	1090403.684	828655.060	17120820.228	.131	3	GPS - OPUS	2021	GPSBM
2124083.578	1090403.662	828655.054	17120820.206	.131	3	GPS - OPUS	2021	GPSBM
2124083.686	1090403.669	828655.162	17120820.211	.131	3	GPS - RTRN	2021	RTRN2021
2124083.600	1090403.744	828655.078	17120820.288	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2124083.568	1090403.667	828655.045	17120820.212	.033	C	GPS - STATIC	2023	HHITT

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<b>Location:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_K_RESET-DQ2017-3W-14JUL2021.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_K_RESET-DQ2017-3W-14JUL2021.jpg</a>	W	Jul 14, 2021
<b>Monument:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_K_RESET-DQ2017-2-14JUL2021.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_K_RESET-DQ2017-2-14JUL2021.jpg</a>		Jul 14, 2021
<b>Disk:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_K_RESET-DQ2017-1-14JUL2021.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_K_RESET-DQ2017-1-14JUL2021.jpg</a>		Jul 14, 2021

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1403 L

NGS Name: 1403 L

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP2110](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096232/  
 USGS Quad: ULEN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	27	142 N	44 W	470506.00	961536.00	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1947	2014	GOOD	Horz=NO Vert=NO	YES	6502	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE ABUTMENT	BENCH MARK DISK	MNDT

Description: (2014) Stamping: 1403 L 1947

0.5 MILE NORTH OF ULEN, IN A BRIDGE ABUTMENT IN THE SOUTHEAST CORNER OF TRUNK HIGHWAY 32 BRIDGE NUMBER 6502 OVER THE SOUTH BRANCH OF THE WILD RICE RIVER, 0.5 MILE NORTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND COUNTY ROAD 34 IN ULEN, AT TRUNK HIGHWAY 32 MILEPOINT 29.95, 19.0 FEET EAST OF TRUNK HIGHWAY 32.

Station Notes

THE SURVEY MARK HAS BEEN DEEMED UNSAFE DUE TO FALL RISK AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1134.709	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
1134.834	.016	2/1					VERTICAL CONTROL SURVEY	2004	VSYRE	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1133.446	.033	3					VERTICAL CONTROL SURVEY	1984	CS1403	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1134.765	.262			1047.206	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.556 12B = -87.559 09 = -87.444 03 = -87.434

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
47 05 08.91522	96 15 29.36220	610102.918	266567.649	.131	3	GPS - RTRN	2014	RTRN2014	

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>X</u>	<u>Y</u>								
2124429.781	1095053.109	829077.185	17125464.993	.131	3	GPS - RTRN	2014	RTRN2014	

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_L-DP2110-3N-30JUN2004.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_L-DP2110-3N-30JUN2004.jpg</a>	N	Jun 30, 2004
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_L-DP2110-2-30JUN2004.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_L-DP2110-2-30JUN2004.jpg</a>		Jun 30, 2004
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_L-DP2110-1-30JUN2004.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_L-DP2110-1-30JUN2004.jpg</a>		Jun 30, 2004

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1403 L 1

NGS Name: 1403 L 1

County: CLAY, MN (Sheet 1)

NGS ACRN: <a href="#">DG8464</a>	<a href="#">Get Map</a>
NGS Quad / Sta Num : 47096223/	
USGS Quad: TILDE LAKE	

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SE	25	142 N	44 W	470442.47	961158.83	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2004	2004	GOOD	Horz=YES Vert=YES	YES		RECESSED 1 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 20 FT)	SURVEY DISK	MNDT

Description: (2004)                      Stamping: 1403 L 1 2004

3.0 MILES EAST OF ULEN, 2.85 MILES EAST ALONG COUNTY ROAD 34 FROM THE JUNCTION OF COUNTY ROAD 34 AND TRUNK HIGHWAY 32 IN ULEN, 67.3 FEET NORTH OF COUNTY ROAD 34, 28.5 FEET WEST OF A FIELD ENTRANCE, 16.7 FEET EAST OF A POWER POLE, 1.3 FEET SOUTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
1167.944	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941		
1168.069	.016	2/1				VERTICAL CONTROL SURVEY	2004	VSYRE		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
			1080.359	.008	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800		
			1080.464	.008	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300		
1168.075	.131		1080.510	.066	1996	HORIZONTAL ADJUSTMENT	2004	GPS2048		
1168.075	.131		1080.510	.066	1996	GPS - STATIC	2004	HSYRE		

Geoid Separations(ft): GEOID18 = -87.710 12B = -87.716 09 = -87.602 03 = -87.559

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>			<u>Geodetic Position</u>			<u>Clay County</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
47 04 42.46889	96 11 58.83402		624689.655	263975.827	.007		ADJUSTMENT	2012	GPS2800	

  

<u>NAD83(2007)</u>			<u>Geodetic Position</u>			<u>Clay County</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
47 04 42.46876	96 11 58.83486		624689.597	263975.814	.007		ADJUSTMENT	2007	GPS2300	

  

<u>NAD83(1996)</u>			<u>Geodetic Position</u>			<u>Clay County</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
47 04 42.46801	96 11 58.83476		624689.604	263975.738	.033	C	ADJUSTMENT	2004	GPS2048	
47 04 42.46801	96 11 58.83476		624689.604	263975.738	.033	C	GPS - STATIC	2004	HSYRE	

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>				
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2138928.376	1092010.492	843529.025	17122185.287	.007				ADJUSTMENT	2012	GPS2800

  

<u>NAD83(2007)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>				
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
2138928.317	1092010.481	843528.966	17122185.276	.007				ADJUSTMENT	2007	GPS2300

  

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2138928.323	1092010.405	843528.970	17122185.200	.033	C	ADJUSTMENT	2004	GPS2048
2138928.323	1092010.405	843528.970	17122185.200	.033	C	GPS - STATIC	2004	HSYRE



**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_L_1-DG8464-3N-14JUL2004.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_L_1-DG8464-3N-14JUL2004.jpg</a>	N	Jul 14, 2004
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_L_1-DG8464-2-14JUL2004.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_L_1-DG8464-2-14JUL2004.jpg</a>		Jul 14, 2004
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_L_1-DG8464-1-14JUL2004.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_L_1-DG8464-1-14JUL2004.jpg</a>		Jul 14, 2004

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1403 M

NGS Name: 1403 M

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 47096232/  
 USGS Quad: ULEN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	16	142 N	44 W	470624.00	961536.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1949	2004	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

Description: (1949)                      Stamping: 1403 M 1984

2.0 MILES NORTH OF ULEN, 2.0 MILES NORTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND COUNTY ROAD 34 IN ULEN, AT TRUNK HIGHWAY 32 MILEPOINT 31.4, 67.0 FEET WEST OF TRUNK HIGHWAY 32, 40.0 FEET NORTH OF COUNTY ROAD 42.

**Station Notes**

THE DISK IS HALF MISSING IN A STABLE MONUMENT. FOUND WITH THE DISK COMPLETELY MISSING.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1138.741	.033	3					VERTICAL CONTROL SURVEY	1984	CS1403	

**Geoid Separations(ft): GEOID18 = -87.490    12B = -87.490    09 = -87.382    03 = -87.372**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1403 M 1  
 County: CLAY, MN (Sheet 1)

NGS Name: 1403 M 1

NGS ACRN: [DQ2003](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096141/  
 USGS Quad: HAWLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	33	140 N	44 W	465420.65	961530.96	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1988	2015	GOOD	Horz=NO Vert=NO	YES	14006	FLUSH	NO MAG MATERIAL

Monument Type	Disk Type	Mon. Agency
BRIDGE ABUTMENT	VERTICAL CONTROL DISK	MNDT

Description: (2015)                      Stamping: 1403 M 1 1988

3.0 MILES NORTHEAST OF HAWLEY, IN A BRIDGE ABUTMENT IN THE SOUTHEAST CORNER OF TRUNK HIGHWAY 32 BRIDGE NUMBER 14006 OVER THE RAILROAD TRACKS, 1.9 MILES NORTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND TRUNK HIGHWAY 10 (THE JUNCTION IS 3.0 MILES EAST OF HAWLEY), AT TRUNK HIGHWAY 32 MILEPOINT 17.45, 23.7 FEET EAST OF TRUNK HIGHWAY 32.

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88				Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)		Height	Acc	Adj	Determination Method	Year	Reference
1228.314	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88				Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)		Height	Acc	Adj	Determination Method	Year	Reference
1228.334	.262			1140.454	.197	2011	GPS - RTRN	2015	RTRN2015
1228.334	.262			1140.450	.197	2011	GPS - RTRN	2014	RTRN2014

Geoid Separations(ft): GEOID18 = -87.897 12B = -87.880 09 = -87.775 03 = -87.716

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Clay County						Project Info	
Geodetic Position		X	Y	Acc	Order	Determination Method	Year	Reference	
Latitude	Longitude								
46 54 20.64724	96 15 30.96249	610362.221	200885.138	.131	3	GPS - RTRN	2015	RTRN2015	
46 54 20.64710	96 15 30.96186	610362.265	200885.124	.131	3	GPS - RTRN	2014	RTRN2014	

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone		X	Y	Acc	Order	Determination Method	Year	Reference
X	Y							
2122653.675	1029398.714	826233.237	17059824.164	.131	3	GPS - RTRN	2015	RTRN2015
2122653.719	1029398.699	826233.280	17059824.148	.131	3	GPS - RTRN	2014	RTRN2014

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_M_1-DQ2003-3N-20MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_M_1-DQ2003-3N-20MAY2014.jpg</a>	N	May 20, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_M_1-DQ2003-2-20MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_M_1-DQ2003-2-20MAY2014.jpg</a>		May 20, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_M_1-DQ2003-1-04MAR2015.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_M_1-DQ2003-1-04MAR2015.jpg</a>		Mar 4, 2015

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1403 N

NGS Name: 1403 N

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 47096232/  
 USGS Quad: ULEN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	9	142 N	44 W	470712.00	961536.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1953	2004	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

Description: (1984)                      Stamping: 1403 N 1984

3.0 MILES NORTH OF ULEN, 3.0 MILES NORTH OF THE JUNCTION ALONG TRUNK HIGHWAY 32 FROM TRUNK HIGHWAY 32 AND COUNTY ROAD 34 IN ULEN, AT TRUNK HIGHWAY 32 MILEPOINT 32.4, 79.0 FEET WEST OF TRUNK HIGHWAY 32, 40.0 FEET NORTH OF A TOWNSHIP ROAD WEST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1136.681	.033	3				VERTICAL CONTROL SURVEY	1984	CS1403	

**Geoid Separations(ft): GEOID18 = -87.467    12B = -87.464    09 = -87.359    03 = -87.352**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1403 P

NGS Name: 1403 P

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP2109](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096231/  
 USGS Quad: SYRE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	4	142 N	44 W	470812.00	961535.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1949	2022	NOT FOUND	Horz=NO Vert=NO	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	BENCH MARK DISK	MNDT

Description: (2004)                      Stamping: 1403 P 1949

3.0 MILES SOUTH OF SYRE, 3.0 MILES SOUTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND TRUNK HIGHWAY 113 IN SYRE, AT TRUNK HIGHWAY 32 MILEPOINT 33.5, AT TRUNK HIGHWAY 32 STATION 956+21, 90.0 FEET WEST OF TRUNK HIGHWAY 32, 44.0 FEET NORTH OF 200TH AVENUE NORTH, 9.5 FEET WEST OF A POWER POLE WITH GUY WIRES, 0.4 FOOT EAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1135.706	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
1135.841	.016	2/1					VERTICAL CONTROL SURVEY	2004	VSURE	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1134.430	.033	3					VERTICAL CONTROL SURVEY	1953	CS1403	

Geoid Separations(ft): GEOID18 = -87.451    12B = -87.444    09 = -87.349    03 = -87.336

\* No Horizontal Positions in the Database \*

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_P-DP2109-3W-30JUN2004.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_P-DP2109-3W-30JUN2004.jpg</a>	W	Jun 30, 2004
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_P-DP2109-2-30JUN2004.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_P-DP2109-2-30JUN2004.jpg</a>		Jun 30, 2004
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_P-DP2109-1-30JUN2004.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_P-DP2109-1-30JUN2004.jpg</a>		Jun 30, 2004

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1403 Q

NGS Name: 1403 Q

County: CLAY, MN (Sheet 1)

NGS ACRN: [DG8466](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096232/  
 USGS Quad: ULEN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	9	142 N	44 W	470720.71	961533.72	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2004	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 1 IN.	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 20 FT)	SURVEY DISK	MNDT

**Description:** (2004) **Stamping:** 1403 Q 2004

3.0 MILES NORTH OF ULEN, 3.0 MILES NORTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND COUNTY ROAD 34 IN ULEN, AT TRUNK HIGHWAY 32 MILEPOINT 32.50, 63.4 FEET WEST OF TRUNK HIGHWAY 32, 74.4 FEET NORTH OF 190TH AVENUE NORTH, 16.5 FEET NORTH OF AN EAST POWER POLE, 1.2 FEET EAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1138.269	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941
1138.403	.016	2/1				VERTICAL CONTROL SURVEY	2004	VSYRE

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1138.269	.131		1051.048	.066	1996	GPS - STATIC	2023	HHITT
1138.269			1050.923	.010	2011	GPS - STATIC	2023	HHITT
1138.269			1050.923	.010	2011	HORIZONTAL ADJUSTMENT	2023	GPS3626
1138.387	.262		1050.923	.197	2011	GPS - RTRN	2022	RTRN2022
1138.443	.262		1050.979	.197	2011	GPS - OPUS	2021	GPSBM
1138.387	.262		1050.923	.197	2011	GPS - RTRN	2021	RTRN2021
1138.311	.262		1050.848	.197	2011	GPS - RTRN	2014	RTRN2014
			1050.923	.010	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			1051.031	.011	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
1138.416	.131		1051.081	.066	1996	HORIZONTAL ADJUSTMENT	2004	GPS2048
1138.416	.131		1051.081	.066	1996	GPS - STATIC	2004	HSYRE

Geoid Separations(ft): GEOID18 = -87.464 12B = -87.460 09 = -87.359 03 = -87.352

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
47 07 20.70794	96 15 33.72275	609725.912	279919.311	.010	C	GPS - STATIC	2023	HHITT
47 07 20.70794	96 15 33.72275	609725.912	279919.311	.010		ADJUSTMENT	2023	GPS3626
47 07 20.70788	96 15 33.72281	609725.908	279919.304	.131	3	GPS - RTRN	2022	RTRN2022
47 07 20.70779	96 15 33.72242	609725.935	279919.295	.131	3	GPS - OPUS	2021	GPSBM
47 07 20.70835	96 15 33.72164	609725.989	279919.353	.131	3	GPS - RTRN	2021	RTRN2021
47 07 20.70883	96 15 33.72276	609725.911	279919.401	.131	3	GPS - RTRN	2014	RTRN2014
47 07 20.70794	96 15 33.72275	609725.912	279919.311	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
47 07 20.70780	96 15 33.72354	609725.858	279919.296	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
47 07 20.70782	96 15 33.72291	609725.901	279919.298	.033	C	GPS - STATIC	2023	HHITT
47 07 20.70706	96 15 33.72333	609725.873	279919.221	.033	C	ADJUSTMENT	2004	GPS2048
47 07 20.70706	96 15 33.72333	609725.873	279919.221	.033	C	GPS - STATIC	2004	HSYRE

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2124466.835	1108409.416	829332.371	17138823.444	.010	C	GPS - STATIC	2023	HHITT
2124466.835	1108409.416	829332.371	17138823.444	.010		ADJUSTMENT	2023	GPS3626
2124466.831	1108409.410	829332.366	17138823.438	.131	3	GPS - RTRN	2022	RTRN2022
2124466.857	1108409.400	829332.393	17138823.428	.131	3	GPS - OPUS	2021	GPSBM
2124466.913	1108409.455	829332.449	17138823.482	.131	3	GPS - RTRN	2021	RTRN2021
2124466.837	1108409.506	829332.373	17138823.534	.131	3	GPS - RTRN	2014	RTRN2014
2124466.835	1108409.416	829332.371	17138823.444	.010		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2124466.780	1108409.403	829332.315	17138823.432	.010		ADJUSTMENT	2007	GPS2300

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2124466.824	1108409.404	829332.359	17138823.432	.033	C	GPS - STATIC	2023	HHITT
2124466.793	1108409.328	829332.327	17138823.356	.033	C	ADJUSTMENT	2004	GPS2048
2124466.793	1108409.328	829332.327	17138823.356	.033	C	GPS - STATIC	2004	HSYRE

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_Q-DG8466-3W-14JUL2021.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_Q-DG8466-3W-14JUL2021.jpg</a>	W	Jul 14, 2021
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_Q-DG8466-2-14JUL2021.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_Q-DG8466-2-14JUL2021.jpg</a>		Jul 14, 2021
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_Q-DG8466-1-14JUL2021.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_Q-DG8466-1-14JUL2021.jpg</a>		Jul 14, 2021

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1403 R

NGS Name: 1403 R

County: CLAY, MN (Sheet 1)

NGS ACRN: [DG8467](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096232/  
 USGS Quad: ULEN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	15	142 N	44 W	470628.46	961529.88	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2004	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 1 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 25 FT)	SURVEY DISK	MNDT

Description: (2004)                      Stamping: 1403 R 2004

2.0 MILES NORTH OF ULEN, 2.0 MILES NORTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND COUNTY ROAD 34 IN ULEN, AT TRUNK HIGHWAY 32 MILEPOINT 31.50, 145.8 FEET EAST OF TRUNK HIGHWAY 32, 60.7 FEET EAST OF A SNOWMOBILE TRAIL, 54.8 FEET NORTH OF COUNTY ROAD 42 (180TH AVENUE NORTH), 1.5 FEET SOUTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1139.768	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941		
1139.903	.016	2/1				VERTICAL CONTROL SURVEY	2004	VSYRE		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1139.768	.131		1052.547	.066	1996	GPS - STATIC	2023	HHITT		
1139.768			1052.422	.007	2011	GPS - STATIC	2023	HHITT		
1139.768			1052.422	.007	2011	HORIZONTAL ADJUSTMENT	2023	GPS3626		
1139.850	.262		1052.360	.197	2011	GPS - RTRN	2022	RTRN2022		
1139.903			1052.422	.010	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084		
1139.903	.131		1052.577	.066	1996	GPS - STATIC	2015	HCLAY		
1139.903			1052.426	.010	2011	GPS - STATIC	2015	HCLAY		
1139.814	.262		1052.324	.197	2011	GPS - RTRN	2014	RTRN2014		
			1052.422	.010	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800		
			1052.527	.010	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300		
1139.893	.131		1052.577	.066	1996	HORIZONTAL ADJUSTMENT	2004	GPS2048		
1139.893	.131		1052.577	.066	1996	GPS - STATIC	2004	HSYRE		

Geoid Separations(ft): GEOID18 = -87.493    12B = -87.490    09 = -87.382    03 = -87.375

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
47 06 28.46469	96 15 29.88315	610021.350	274627.463	.007	C	GPS - STATIC	2023	HHITT
47 06 28.46469	96 15 29.88315	610021.350	274627.463	.007		ADJUSTMENT	2023	GPS3626
47 06 28.46461	96 15 29.88287	610021.370	274627.455	.131	3	GPS - RTRN	2022	RTRN2022
47 06 28.46469	96 15 29.88315	610021.350	274627.463	.010		ADJUSTMENT	2015	GPS3084
47 06 28.46464	96 15 29.88321	610021.346	274627.458	.010	C	GPS - STATIC	2015	HCLAY
47 06 28.46494	96 15 29.88235	610021.406	274627.488	.131	3	GPS - RTRN	2014	RTRN2014
47 06 28.46469	96 15 29.88315	610021.350	274627.463	.010		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

Geodetic Position		Clay County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
47 06 28.46455	96 15 29.88394	610021.296	274627.448	.010		ADJUSTMENT	2007	GPS2300

**NAD83(1996)**

Geodetic Position		Clay County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
47 06 28.46464	96 15 29.88373	610021.310	274627.458	.033	C	GPS - STATIC	2023	HHITT
47 06 28.46381	96 15 29.88371	610021.312	274627.374	.033	C	GPS - STATIC	2015	HCLAY
47 06 28.46381	96 15 29.88371	610021.312	274627.374	.033	C	ADJUSTMENT	2004	GPS2048
47 06 28.46381	96 15 29.88371	610021.312	274627.374	.033	C	GPS - STATIC	2004	HSYRE

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2124598.081	1103111.187	829377.077	17133521.996	.007	C	GPS - STATIC	2023	HHITT
2124598.081	1103111.187	829377.077	17133521.996	.007		ADJUSTMENT	2023	GPS3626
2124598.100	1103111.179	829377.096	17133521.987	.131	3	GPS - RTRN	2022	RTRN2022
2124598.081	1103111.187	829377.077	17133521.996	.010		ADJUSTMENT	2015	GPS3084
2124598.077	1103111.182	829377.073	17133521.991	.010	C	GPS - STATIC	2015	HCLAY
2124598.137	1103111.211	829377.134	17133522.019	.131	3	GPS - RTRN	2014	RTRN2014
2124598.081	1103111.187	829377.077	17133521.996	.010		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2124598.026	1103111.174	829377.022	17133521.985	.010		ADJUSTMENT	2007	GPS2300

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2124598.041	1103111.183	829377.037	17133521.993	.033	C	GPS - STATIC	2023	HHITT
2124598.040	1103111.099	829377.035	17133521.909	.033	C	GPS - STATIC	2015	HCLAY
2124598.040	1103111.099	829377.035	17133521.909	.033	C	ADJUSTMENT	2004	GPS2048
2124598.040	1103111.099	829377.035	17133521.909	.033	C	GPS - STATIC	2004	HSYRE

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_R-DG8467-3N-14JUL2004.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_R-DG8467-3N-14JUL2004.jpg</a>	N	Jul 14, 2004
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_R-DG8467-2-14JUL2004.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_R-DG8467-2-14JUL2004.jpg</a>		Jul 14, 2004
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_R-DG8467-1-14JUL2004.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_R-DG8467-1-14JUL2004.jpg</a>		Jul 14, 2004

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1403 S

NGS Name: 1403 S

County: CLAY, MN (Sheet 1)

NGS ACRN: [DG8468](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096232/  
 USGS Quad: ULEN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	21	142 N	44 W	470536.21	961530.12	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2004	2014	DESTROYED	Horz=NO Vert=NO	YES		RECESSED 1 IN.	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
UNKNOWN	SURVEY DISK	MNDT

Description: (2010)                      Stamping: 1403 S 2004

1.0 MILE NORTH OF ULEN, 1.0 MILE NORTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND COUNTY ROAD 34 IN ULEN, AT TRUNK HIGHWAY 32 MILEPOINT 30.50, 67.7 FEET EAST OF TRUNK HIGHWAY 32, 17.1 FEET WEST OF A SNOWMOBILE TRAIL, 50.2 FEET NORTH OF 170TH AVENUE NORTH, 1.0 FOOT WEST OF A WITNESS POST.

**Station Notes**

THE DISK WAS TURNED IN TO THE OFFICE.

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88			Orthometric Height			Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method		Year	Reference	
1136.435	.016	2/1				VERTICAL ADJUSTMENT		2019	00000941	
1136.563	.016	2/1				VERTICAL CONTROL SURVEY		2004	VSURE	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Orthometric Height			Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method		Year	Reference	
			1049.030	.008	2011	HORIZONTAL ADJUSTMENT		2012	GPS2800	
			1049.135	.009	2007	HORIZONTAL ADJUSTMENT		2007	GPS2300	
1136.546	.131		1049.188	.066	1996	HORIZONTAL ADJUSTMENT		2004	GPS2048	
1136.546	.131		1049.188	.066	1996	GPS - STATIC		2004	HSYRE	

Geoid Separations(ft): GEOID18 = -87.529 12B = -87.533 09 = -87.418 03 = -87.408

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Geodetic Position				Clay County		Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method		Year	Reference	
47 05 36.20774	96 15 30.11954	610034.895	269332.650	.007		ADJUSTMENT		2012	GPS2800	

  

NAD83(2007)		Geodetic Position				Clay County		Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method		Year	Reference	
47 05 36.20762	96 15 30.12036	610034.838	269332.638	.010		ADJUSTMENT		2007	GPS2300	

  

NAD83(1996)		Geodetic Position				Clay County		Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method		Year	Reference	
47 05 36.20686	96 15 30.12004	610034.861	269332.561	.033	C	ADJUSTMENT		2004	GPS2048	
47 05 36.20686	96 15 30.12004	610034.861	269332.561	.033	C	GPS - STATIC		2004	HSYRE	

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		MN State Plane - Central Zone				UTM - Zone 15		Project Info		
X	Y	X	Y	Acc	Order	Determination Method		Year	Reference	
2124447.497	1097818.751	829140.043	17128230.926	.007		ADJUSTMENT		2012	GPS2800	

  

NAD83(2007)		MN State Plane - Central Zone				UTM - Zone 15		Project Info		
X	Y	X	Y	Acc	Order	Determination Method		Year	Reference	
2124447.439	1097818.740	829139.986	17128230.916	.010		ADJUSTMENT		2007	GPS2300	

  

NAD83(1996)		MN State Plane - Central Zone				UTM - Zone 15		Project Info		
X	Y	X	Y	Acc	Order	Determination Method		Year	Reference	
2124447.460	1097818.663	829140.005	17128230.838	.033	C	ADJUSTMENT		2004	GPS2048	
2124447.460	1097818.663	829140.005	17128230.838	.033	C	GPS - STATIC		2004	HSYRE	



**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_S-DG8468-3E-14JUL2004.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_S-DG8468-3E-14JUL2004.jpg</a>	E	Jul 14, 2004
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_S-DG8468-2-14JUL2004.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_S-DG8468-2-14JUL2004.jpg</a>		Jul 14, 2004
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_S-DG8468-1-14JUL2004.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_S-DG8468-1-14JUL2004.jpg</a>		Jul 14, 2004

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1403 S RESET

NGS Name: 1403 S RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ2020](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096232/  
 USGS Quad: ULEN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	21	142 N	44 W	470536.21	961530.12	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 40 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: 1403 S RESET 2014

1.0 MILE NORTH OF ULEN, 1.0 MILE NORTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND COUNTY ROAD 34 IN ULEN, AT TRUNK HIGHWAY 32 MILEPOINT 30.50, 67.7 FEET EAST OF TRUNK HIGHWAY 32, 50.2 FEET NORTH OF 170TH AVENUE NORTH, 17.1 FEET WEST OF A TRAIL, 1.0 FOOT WEST OF A WITNESS POST.

Station Pair:    EWEST - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>
1136.235	.016	2/1							VERTICAL ADJUSTMENT		2019	00000941

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>
1136.235	.131		1048.964	.066	1996	1048.964	.066	1996	GPS - STATIC		2023	HHITT
1136.235			1048.840	.013	2011	1048.840	.013	2011	GPS - STATIC		2023	HHITT
1136.235			1048.840	.013	2011	1048.840	.013	2011	HORIZONTAL ADJUSTMENT		2023	GPS3626
1136.379	.262		1048.850	.197	2011	1048.850	.197	2011	GPS - RTRN		2022	RTRN2022
1136.333	.262		1048.800	.197	2011	1048.800	.197	2011	GPS - RTRN		2014	RTRN2014

Geoid Separations(ft): GEOID18 = -87.529    12B = -87.533    09 = -87.418    03 = -87.408

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 05 36.20814	96 15 30.11894	610034.936	269332.691	.010	C	GPS - STATIC	2023	HHITT
47 05 36.20814	96 15 30.11894	610034.936	269332.691	.010		ADJUSTMENT	2023	GPS3626
47 05 36.20740	96 15 30.11941	610034.904	269332.616	.131	3	GPS - RTRN	2022	RTRN2022
47 05 36.20763	96 15 30.12030	610034.843	269332.639	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 05 36.20798	96 15 30.11934	610034.909	269332.675	.033	C	GPS - STATIC	2023	HHITT

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>				
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2124447.539	1097818.791	829140.086	17128230.965	829140.086	17128230.965	.010	C	GPS - STATIC	2023	HHITT
2124447.539	1097818.791	829140.086	17128230.965	829140.086	17128230.965	.010		ADJUSTMENT	2023	GPS3626
2124447.505	1097818.716	829140.050	17128230.891	829140.050	17128230.891	.131	3	GPS - RTRN	2022	RTRN2022
2124447.444	1097818.741	829139.990	17128230.917	829139.990	17128230.917	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>				
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2124447.511	1097818.775	829140.058	17128230.950	829140.058	17128230.950	.033	C	GPS - STATIC	2023	HHITT



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_S_RESET-DQ2020-3E-21MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_S_RESET-DQ2020-3E-21MAY2014.jpg</a>	E	May 21, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_S_RESET-DQ2020-2-21MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_S_RESET-DQ2020-2-21MAY2014.jpg</a>		May 21, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_S_RESET-DQ2020-1-21MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_S_RESET-DQ2020-1-21MAY2014.jpg</a>		May 21, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1403 T

NGS Name: 1403 T

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP7334](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096141/  
 USGS Quad: HAWLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	20	140 N	44 W	465515.85	961535.35	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2013	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 45 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2013)                      Stamping: 1403 T 2013

4.0 MILES SOUTH OF HITTERDAL, 2.95 MILES NORTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND TRUNK HIGHWAY 10 (THE JUNCTION IS 3.0 MILES EAST OF HAWLEY), AT TRUNK HIGHWAY 32 MILEPOINT 18.55, 130.0 FEET WEST OF TRUNK HIGHWAY 32, 37.7 FEET NORTH OF 43RD AVENUE NORTH, 18.6 FEET WEST OF AN ENTRANCE TO A WATERFOWL PRODUCTION AREA, 1.5 FEET SOUTH OF A WITNESS POST.

Station Pair:    PRIEBE - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
1219.850	.016	2/1				VERTICAL ADJUSTMENT		2019	00000941

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
1219.850	.131		1132.183	.066	1996	GPS - STATIC		2023	HHITT
1219.850			1132.042	.010	2011	GPS - STATIC		2023	HHITT
1219.850			1132.042	.010	2011	HORIZONTAL ADJUSTMENT		2023	GPS3626
1219.988	.262		1132.065	.197	2011	GPS - RTRN		2022	RTRN2022
1219.971			1132.042	.022	2011	HORIZONTAL ADJUSTMENT		2015	GPS3084
1219.948	.131		1132.183	.066	1996	GPS - STATIC		2015	HCLAY
1219.971			1132.042	.022	2011	GPS - STATIC		2015	HCLAY
1219.889	.262		1131.986	.197	2011	GPS - RTRN		2014	RTRN2014
1219.886	.262		1131.979	.197	2011	GPS - RTRN		2013	RTRN2013

Geoid Separations(ft): GEOID18 = -87.923    12B = -87.903    09 = -87.802    03 = -87.743

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>								
46 55 15.85314	96 15 35.34852	610026.281	206476.756	.007	C	GPS - STATIC		2023	HHITT
46 55 15.85314	96 15 35.34852	610026.281	206476.756	.007		ADJUSTMENT		2023	GPS3626
46 55 15.85384	96 15 35.34834	610026.293	206476.827	.131	3	GPS - RTRN		2022	RTRN2022
46 55 15.85314	96 15 35.34852	610026.281	206476.756	.016		ADJUSTMENT		2015	GPS3084
46 55 15.85314	96 15 35.34852	610026.281	206476.756	.016	C	GPS - STATIC		2015	HCLAY
46 55 15.85316	96 15 35.34894	610026.251	206476.757	.131	3	GPS - RTRN		2014	RTRN2014
46 55 15.85298	96 15 35.34768	610026.339	206476.740	.131	3	GPS - RTRN		2013	RTRN2013

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>								
46 55 15.85265	96 15 35.34931	610026.226	206476.705	.033	C	GPS - STATIC		2023	HHITT
46 55 15.85265	96 15 35.34931	610026.226	206476.705	.033	C	GPS - STATIC		2015	HCLAY

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2122491.144	1034997.573	826161.382	17065427.072	.007	C	GPS - STATIC	2023	HHITT
2122491.144	1034997.573	826161.382	17065427.072	.007		ADJUSTMENT	2023	GPS3626
2122491.158	1034997.644	826161.398	17065427.142	.131	3	GPS - RTRN	2022	RTRN2022
2122491.144	1034997.573	826161.382	17065427.072	.016		ADJUSTMENT	2015	GPS3084
2122491.144	1034997.573	826161.382	17065427.072	.016	C	GPS - STATIC	2015	HCLAY
2122491.115	1034997.576	826161.353	17065427.075	.131	3	GPS - RTRN	2014	RTRN2014
2122491.202	1034997.555	826161.440	17065427.053	.131	3	GPS - RTRN	2013	RTRN2013

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2122491.088	1034997.525	826161.326	17065427.025	.033	C	GPS - STATIC	2023	HHITT
2122491.088	1034997.525	826161.326	17065427.025	.033	C	GPS - STATIC	2015	HCLAY

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<b>Location:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_T-DP7334-3N-20AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_T-DP7334-3N-20AUG2013.jpg</a>	N	Aug 20, 2013
<b>Monument:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_T-DP7334-2-20AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_T-DP7334-2-20AUG2013.jpg</a>		Aug 20, 2013
<b>Disk:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_T-DP7334-1-20AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_T-DP7334-1-20AUG2013.jpg</a>		Aug 20, 2013

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1403 U

NGS Name: 1403 U

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP7335](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096141/  
 USGS Quad: HAWLEY

		<u>Reference</u>		<u>Vert</u>	<u>Horz</u>		
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	4	140 N	44 W	465831.93	961532.33	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2013	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 15 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2013) Stamping: 1403 U 2013

IN HITTERDAL, 0.15 MILE SOUTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND COUNTY ROAD 26 IN HITTERDAL, AT TRUNK HIGHWAY 32 MILEPOINT 22.3, 47.5 FEET EAST OF TRUNK HIGHWAY 32, 0.05 MILE NORTH OF PERSHING AVENUE, 56.7 FEET NORTH OF THE WELCOME TO HITTERDAL SIGN, 1.5 FEET WEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
1251.362	.016	2/1				VERTICAL ADJUSTMENT		2019	00000941

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
1251.362	.131		1163.754	.066	1996	GPS - STATIC		2023	HHITT
1251.362			1163.613	.011	2011	GPS - STATIC		2023	HHITT
1251.362			1163.613	.011	2011	HORIZONTAL ADJUSTMENT		2023	GPS3626
1251.494	.262		1163.593	.197	2011	GPS - RTRN		2022	RTRN2022
1251.546			1163.613	.022	2011	HORIZONTAL ADJUSTMENT		2015	GPS3084
1251.494	.131		1163.754	.066	1996	GPS - STATIC		2015	HCLAY
1251.546			1163.613	.022	2011	GPS - STATIC		2015	HCLAY
1251.503	.262		1163.600	.197	2011	GPS - RTRN		2014	RTRN2014
1251.425	.262		1163.525	.197	2011	GPS - RTRN		2013	RTRN2013

Geoid Separations(ft): GEOID18 = -87.900 12B = -87.903 09 = -87.785 03 = -87.720

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>								
46 58 31.93444	96 15 32.33196	610123.939	226344.535	.007	C	GPS - STATIC		2023	HHITT
46 58 31.93444	96 15 32.33196	610123.939	226344.535	.007		ADJUSTMENT		2023	GPS3626
46 58 31.93422	96 15 32.33161	610123.963	226344.513	.131	3	GPS - RTRN		2022	RTRN2022
46 58 31.93444	96 15 32.33196	610123.939	226344.535	.016		ADJUSTMENT		2015	GPS3084
46 58 31.93444	96 15 32.33196	610123.939	226344.535	.016	C	GPS - STATIC		2015	HCLAY
46 58 31.93454	96 15 32.33192	610123.942	226344.545	.131	3	GPS - RTRN		2014	RTRN2014
46 58 31.93437	96 15 32.33278	610123.882	226344.528	.131	3	GPS - RTRN		2013	RTRN2013

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>								
46 58 31.93395	96 15 32.33276	610123.884	226344.485	.033	C	GPS - STATIC		2023	HHITT
46 58 31.93395	96 15 32.33276	610123.884	226344.485	.033	C	GPS - STATIC		2015	HCLAY



**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2123204.284	1054851.205	827196.852	17085273.999	.007	C	GPS - STATIC	2023	HHITT
2123204.284	1054851.205	827196.852	17085273.999	.007		ADJUSTMENT	2023	GPS3626
2123204.308	1054851.182	827196.876	17085273.976	.131	3	GPS - RTRN	2022	RTRN2022
2123204.284	1054851.205	827196.852	17085273.999	.016		ADJUSTMENT	2015	GPS3084
2123204.284	1054851.205	827196.852	17085273.999	.016	C	GPS - STATIC	2015	HCLAY
2123204.287	1054851.215	827196.855	17085274.009	.131	3	GPS - RTRN	2014	RTRN2014
2123204.227	1054851.199	827196.795	17085273.994	.131	3	GPS - RTRN	2013	RTRN2013

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2123204.227	1054851.156	827196.795	17085273.952	.033	C	GPS - STATIC	2023	HHITT
2123204.227	1054851.156	827196.795	17085273.952	.033	C	GPS - STATIC	2015	HCLAY

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_U-DP7335-3E-20AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_U-DP7335-3E-20AUG2013.jpg</a>	E	Aug 20, 2013
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_U-DP7335-2-20AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_U-DP7335-2-20AUG2013.jpg</a>		Aug 20, 2013
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_U-DP7335-1-20AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_U-DP7335-1-20AUG2013.jpg</a>		Aug 20, 2013

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1403 V  
County: CLAY, MN (Sheet 1)

NGS Name: 1403 V

NGS ACRN: [DQ2018](#) [Get Map](#)  
NGS Quad / Sta Num : 47096232/  
USGS Quad: ULEN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	27	142 N	44 W	470506.30	961529.03	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 4 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 12 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: 1403 V 2014

IN ULEN, 0.4 MILE NORTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND COUNTY ROAD 34 IN ULEN, AT TRUNK HIGHWAY 32 MILEPOINT 29.9, 56.3 FEET EAST OF TRUNK HIGHWAY 32, 24.0 FEET WEST OF A TRAIL, 61.0 FEET SOUTH OF AN ENTRANCE, 1.5 FEET WEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			
1136.595	.016	2/1				2019	00000941			

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			
1136.595	.131		1049.296	.066	1996	2023	HHITT			
1136.595			1049.171	.013	2011	2023	HHITT			
1136.595			1049.171	.013	2011	2023	GPS3626			
1136.799	.262		1049.240	.197	2011	2022	RTRN2022			
1136.691	.262		1049.128	.197	2011	2014	RTRN2014			

Geoid Separations(ft): GEOID18 = -87.559    12B = -87.562    09 = -87.444    03 = -87.434

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 05 06.30169	96 15 29.03339	610127.170	266302.973	.010	C	GPS - STATIC	2023	HHITT
47 05 06.30169	96 15 29.03339	610127.170	266302.973	.010		ADJUSTMENT	2023	GPS3626
47 05 06.30112	96 15 29.03288	610127.205	266302.916	.131	3	GPS - RTRN	2022	RTRN2022
47 05 06.30101	96 15 29.03356	610127.158	266302.904	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 05 06.30151	96 15 29.03379	610127.142	266302.955	.033	C	GPS - STATIC	2023	HHITT

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2124445.815	1094787.822	829088.893	17125199.389	.010	C	GPS - STATIC	2023	HHITT
2124445.815	1094787.822	829088.893	17125199.389	.010		ADJUSTMENT	2023	GPS3626
2124445.849	1094787.764	829088.926	17125199.330	.131	3	GPS - RTRN	2022	RTRN2022
2124445.802	1094787.754	829088.879	17125199.320	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2124445.788	1094787.805	829088.865	17125199.372	.033	C	GPS - STATIC	2023	HHITT



**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_V-DQ2018-3E-03JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_V-DQ2018-3E-03JUN2014.jpg</a>	E	Jun 3, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_V-DQ2018-2-03JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_V-DQ2018-2-03JUN2014.jpg</a>		Jun 3, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_V-DQ2018-1-03JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_V-DQ2018-1-03JUN2014.jpg</a>		Jun 3, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1403 W

NGS Name: 1403 W

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ2016](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096232/  
 USGS Quad: ULEN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	4	141 N	44 W	470338.49	961531.57	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 4 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 13 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: 1403 W 2014

1.25 MILES SOUTH OF ULEN, 1.25 MILES SOUTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND COUNTY ROAD 34 IN ULEN, AT TRUNK HIGHWAY 32 MILEPOINT 28.15, 60.3 FEET WEST OF TRUNK HIGHWAY 32, 1.5 FEET EAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1164.197	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1164.197	.131			1076.802	.066	1996	GPS - STATIC	2023	HHITT	
1164.197				1076.678	.013	2011	GPS - STATIC	2023	HHITT	
1164.197				1076.678	.013	2011	HORIZONTAL ADJUSTMENT	2023	GPS3626	
1164.381	.262			1076.727	.197	2011	GPS - RTRN	2022	RTRN2022	
1164.191	.262			1076.540	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.654 12B = -87.651 09 = -87.539 03 = -87.523

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
47 03 38.48908	96 15 31.56669			610002.021	257404.775	.010	C	GPS - STATIC	2023	HHITT
47 03 38.48908	96 15 31.56669			610002.021	257404.775	.010		ADJUSTMENT	2023	GPS3626
47 03 38.48961	96 15 31.56714			610001.989	257404.829	.131	3	GPS - RTRN	2022	RTRN2022
47 03 38.48987	96 15 31.56653			610002.031	257404.855	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
47 03 38.48892	96 15 31.56708			610001.994	257404.759	.033	C	GPS - STATIC	2023	HHITT

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2124044.943	1085898.259			828542.945	17116314.461	.010	C	GPS - STATIC	2023	HHITT
2124044.943	1085898.259			828542.945	17116314.461	.010		ADJUSTMENT	2023	GPS3626
2124044.913	1085898.314			828542.916	17116314.516	.131	3	GPS - RTRN	2022	RTRN2022
2124044.956	1085898.339			828542.959	17116314.540	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2124044.916	1085898.244			828542.917	17116314.446	.033	C	GPS - STATIC	2023	HHITT



**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_W-DQ2016-3W-03JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_W-DQ2016-3W-03JUN2014.jpg</a>	W	Jun 3, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_W-DQ2016-2-03JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_W-DQ2016-2-03JUN2014.jpg</a>		Jun 3, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_W-DQ2016-1-03JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_W-DQ2016-1-03JUN2014.jpg</a>		Jun 3, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1403 X  
 County: CLAY, MN (Sheet 1)

NGS Name: 1403 X

NGS ACRN: <a href="#">DQ2012</a>	<a href="#">Get Map</a>
NGS Quad / Sta Num : 47096232/	
USGS Quad: ULEN	

				Reference	Reference	Vert	Horz
1/4	Sec	Twp	Rng	Latitude	Longitude	Order	Order
NE	28	141 N	44 W	470022.05	961529.42	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 13 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: 1403 X 2014

2.0 MILES NORTH OF HITTERDAL, 2.0 MILES NORTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND COUNTY ROAD 26 IN HITTERDAL, AT TRUNK HIGHWAY 32 MILEPOINT 24.45, 60.0 FEET WEST OF TRUNK HIGHWAY 32, 38.2 FEET SOUTH OF AN ENTRANCE, 1.5 FEET EAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1223.895	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1223.895	.131		1136.320	.066	1996	GPS - STATIC	2023	HHITT
1223.895			1136.192	.012	2011	GPS - STATIC	2023	HHITT
1223.895			1136.192	.012	2011	HORIZONTAL ADJUSTMENT	2023	GPS3626
1223.994	.262		1136.149	.197	2011	GPS - RTRN	2022	RTRN2022
1223.958	.262		1136.113	.197	2011	GPS - OPUS	2021	GPSBM
1224.056	.262		1136.212	.197	2011	GPS - OPUS	2021	GPSBM
1223.895	.262		1136.054	.197	2011	GPS - RTRN	2021	RTRN2021
1223.980	.262		1136.133	.197	2011	GPS - RTRN	2014	RTRN2014

Geoid Separations(ft): GEOID18 = -87.844    12B = -87.844    09 = -87.726    03 = -87.674

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
47 00 22.05260	96 15 29.41612	610263.231	237502.730	.010	C	GPS - STATIC	2023	HHITT
47 00 22.05260	96 15 29.41612	610263.231	237502.730	.010		ADJUSTMENT	2023	GPS3626
47 00 22.05299	96 15 29.41730	610263.149	237502.769	.131	3	GPS - RTRN	2022	RTRN2022
47 00 22.05295	96 15 29.41621	610263.225	237502.765	.131	3	GPS - OPUS	2021	GPSBM
47 00 22.05248	96 15 29.41668	610263.193	237502.718	.131	3	GPS - OPUS	2021	GPSBM
47 00 22.05278	96 15 29.41679	610263.185	237502.748	.131	3	GPS - RTRN	2021	RTRN2021
47 00 22.05314	96 15 29.41602	610263.238	237502.785	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(1996)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
47 00 22.05243	96 15 29.41651	610263.204	237502.713	.033	C	GPS - STATIC	2023	HHITT

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2123689.246	1065998.927	827863.134	17096416.456	.010	C	GPS - STATIC	2023	HHITT
2123689.246	1065998.927	827863.134	17096416.456	.010		ADJUSTMENT	2023	GPS3626
2123689.165	1065998.968	827863.054	17096416.499	.131	3	GPS - RTRN	2022	RTRN2022
2123689.240	1065998.962	827863.130	17096416.492	.131	3	GPS - OPUS	2021	GPSBM
2123689.207	1065998.916	827863.095	17096416.446	.131	3	GPS - OPUS	2021	GPSBM
2123689.200	1065998.946	827863.089	17096416.477	.131	3	GPS - RTRN	2021	RTRN2021
2123689.254	1065998.981	827863.143	17096416.511	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2123689.218	1065998.910	827863.107	17096416.440	.033	C	GPS - STATIC	2023	HHITT

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<b>Location:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_X-DQ2012-3W-14JUL2021.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_X-DQ2012-3W-14JUL2021.jpg</a>	W	Jul 14, 2021
<b>Monument:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_X-DQ2012-2-14JUL2021.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_X-DQ2012-2-14JUL2021.jpg</a>		Jul 14, 2021
<b>Disk:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_X-DQ2012-1-14JUL2021.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_X-DQ2012-1-14JUL2021.jpg</a>		Jul 14, 2021

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1403 Y  
County: CLAY, MN (Sheet 1)

NGS Name: 1403 Y

NGS ACRN: [DQ2010](#) [Get Map](#)  
NGS Quad / Sta Num : 46096141/  
USGS Quad: HAWLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	28	141 N	44 W	465930.52	961529.91	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 19 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: 1403 Y 2014

1.0 MILE NORTH OF HITTERDAL, 1.0 MILE NORTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND COUNTY ROAD 26 IN HITTERDAL, AT TRUNK HIGHWAY 32 MILEPOINT 23.45, 32.6 FEET WEST OF TRUNK HIGHWAY 32, 27.0 FEET SOUTH OF A FIELD ENTRANCE, 5.0 FEET NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>	
1225.982	.016	2/1				VERTICAL ADJUSTMENT		2019	00000941	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>	
1225.982	.131		1138.374	.066	1996	GPS - STATIC		2023	HHITT	
1225.982			1138.249	.012	2011	GPS - STATIC		2023	HHITT	
1225.982			1138.249	.012	2011	HORIZONTAL ADJUSTMENT		2023	GPS3626	
1226.080	.262		1138.206	.197	2011	GPS - RTRN		2022	RTRN2022	
1226.054	.262		1138.177	.197	2011	GPS - RTRN		2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.874    12B = -87.877    09 = -87.759    03 = -87.700

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
46 59 30.52214	96 15 29.90749	610258.612	232281.519	.010	C	GPS - STATIC		2023	HHITT
46 59 30.52214	96 15 29.90749	610258.612	232281.519	.010		ADJUSTMENT		2023	GPS3626
46 59 30.52146	96 15 29.90881	610258.520	232281.449	.131	3	GPS - RTRN		2022	RTRN2022
46 59 30.52213	96 15 29.90733	610258.623	232281.518	.131	3	GPS - RTRN		2014	RTRN2014

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
46 59 30.52197	96 15 29.90789	610258.584	232281.501	.033	C	GPS - STATIC		2023	HHITT

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
2123522.840	1060780.731	827611.840	17091199.752	.010	C	GPS - STATIC		2023	HHITT
2123522.840	1060780.731	827611.840	17091199.752	.010		ADJUSTMENT		2023	GPS3626
2123522.747	1060780.665	827611.746	17091199.687	.131	3	GPS - RTRN		2022	RTRN2022
2123522.851	1060780.730	827611.851	17091199.751	.131	3	GPS - RTRN		2014	RTRN2014

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
2123522.812	1060780.715	827611.812	17091199.736	.033	C	GPS - STATIC		2023	HHITT



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_Y-DQ2010-3W-03JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_Y-DQ2010-3W-03JUN2014.jpg</a>	W	Jun 3, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_Y-DQ2010-2-03JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_Y-DQ2010-2-03JUN2014.jpg</a>		Jun 3, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_Y-DQ2010-1-03JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_Y-DQ2010-1-03JUN2014.jpg</a>		Jun 3, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1403 Z

NGS Name: 1403 Z

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ2007](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096141/  
 USGS Quad: HAWLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	8	140 N	44 W	465700.35	961535.72	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 19 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014) Stamping: 1403 Z 2014

1.8 MILES SOUTH OF HITTERDAL, 1.85 MILES SOUTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND COUNTY ROAD 26 IN HITTERDAL, AT TRUNK HIGHWAY 32 MILEPOINT 20.55, 117.4 FEET WEST OF TRUNK HIGHWAY 32, 20.3 FEET NORTH OF 70TH AVENUE NORTH, 1.5 FEET EAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1236.441	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1236.441	.131			1148.784	.066	1996	GPS - STATIC	2023	HHITT	
1236.441				1148.659	.012	2011	GPS - STATIC	2023	HHITT	
1236.441				1148.659	.012	2011	HORIZONTAL ADJUSTMENT	2023	GPS3626	
1236.549	.262			1148.626	.197	2011	GPS - RTRN	2022	RTRN2022	
1236.497	.262			1148.574	.197	2011	GPS - OPUS	2021	GPSBM	
1236.520	.262			1148.597	.197	2011	GPS - OPUS	2021	GPSBM	
1236.467	.262			1148.544	.197	2011	GPS - RTRN	2021	RTRN2021	
1236.494	.262			1148.571	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.923 12B = -87.923 09 = -87.805 03 = -87.743

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 57 00.34728	96 15 35.71808	609941.215	217063.746	.010	C	GPS - STATIC	2023	HHITT	
46 57 00.34728	96 15 35.71808	609941.215	217063.746	.010		ADJUSTMENT	2023	GPS3626	
46 57 00.34754	96 15 35.71859	609941.180	217063.772	.131	3	GPS - RTRN	2022	RTRN2022	
46 57 00.34729	96 15 35.71844	609941.191	217063.747	.131	3	GPS - OPUS	2021	GPSBM	
46 57 00.34754	96 15 35.71870	609941.172	217063.772	.131	3	GPS - OPUS	2021	GPSBM	
46 57 00.34742	96 15 35.71809	609941.215	217063.760	.131	3	GPS - RTRN	2021	RTRN2021	
46 57 00.34756	96 15 35.71752	609941.254	217063.775	.131	3	GPS - RTRN	2014	RTRN2014	

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 57 00.34711	96 15 35.71847	609941.189	217063.729	.033	C	GPS - STATIC	2023	HHITT	

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2122734.115	1045581.247	826576.060	17076009.433	.010	C	GPS - STATIC	2023	HHITT
2122734.115	1045581.247	826576.060	17076009.433	.010		ADJUSTMENT	2023	GPS3626
2122734.080	1045581.275	826576.026	17076009.461	.131	3	GPS - RTRN	2022	RTRN2022
2122734.090	1045581.249	826576.035	17076009.435	.131	3	GPS - OPUS	2021	GPSBM
2122734.073	1045581.275	826576.018	17076009.461	.131	3	GPS - OPUS	2021	GPSBM
2122734.115	1045581.262	826576.060	17076009.447	.131	3	GPS - RTRN	2021	RTRN2021
2122734.154	1045581.275	826576.100	17076009.460	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2122734.088	1045581.231	826576.032	17076009.417	.033	C	GPS - STATIC	2023	HHITT

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<b>Location:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_Z-DQ2007-3N-14JUL2021.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_Z-DQ2007-3N-14JUL2021.jpg</a>	N	Jul 14, 2021
<b>Monument:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_Z-DQ2007-2-14JUL2021.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_Z-DQ2007-2-14JUL2021.jpg</a>		Jul 14, 2021
<b>Disk:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_Z-DQ2007-1-14JUL2021.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1403_Z-DQ2007-1-14JUL2021.jpg</a>		Jul 14, 2021

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1404 A

NGS Name: 1404 A

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0089](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	24	137 N	46 W	463934.90	962512.80	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1968	2013	DESTROYED	Horz=NO Vert=NO	YES		RECESSED 6 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	BENCH MARK DISK	MNDT

**Description:** (2005)                      **Stamping:** 1404 A 1968

IN THE NORTH PART OF BARNESVILLE, AT THE JUNCTION OF TRUNK HIGHWAY 34 AND TRUNK HIGHWAY 9 AND COUNTY ROAD 2, 33.0 FEET WEST OF TRUNK HIGHWAY 9, 38.0 FEET NORTH OF COUNTY ROAD 2, 35.0 FEET SOUTHEAST OF A BUILDING, 6.5 FEET NORTHEAST OF A FIRE HYDRANT, 1.5 FEET WEST OF THE SOUTH LEG OF A ROAD SIGN AND A WITNESS POST.

**Station Notes**

THE DISK WAS TURNED IN TO THE OFFICE.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1016.113	.016	2/1				VERTICAL ADJUSTMENT	2020	0000941-2	
1016.113	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941	
1016.245	.016	2/1				VERTICAL ADJUSTMENT	2009	00000425-35	
1016.245	.016	2/1				VERTICAL CONTROL SURVEY	2006	V THER	
1016.245	.016	2/1				VERTICAL ADJUSTMENT	1991	00000025	

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1015.382	.016	2				VERTICAL CONTROL SURVEY	1972	Q460961	
1015.382	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A	
1015.382	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A	

**Geoid Separations(ft):** GEOID18 = -87.063    12B = -87.057    09 = -86.962    03 = -86.916

\* No Horizontal Positions in the Database \*

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<b>Location:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_A-RP0089-3W-07JUN2005.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_A-RP0089-3W-07JUN2005.jpg</a>	W	Jun 7, 2005
<b>Monument:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_A-RP0089-2-07JUN2005.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_A-RP0089-2-07JUN2005.jpg</a>		Jun 7, 2005
<b>Disk:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_A-RP0089-1-07JUN2005.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_A-RP0089-1-07JUN2005.jpg</a>		Jun 7, 2005

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1404 B

NGS Name: 1404 B

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0088](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	19	137 N	45 W	463936.00	962436.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1968	2001	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE FOOTING - SMALL	SURVEY DISK	MNDT

Description: (1973)                      Stamping: 1404 B 1968

NORTH OF BARNESVILLE, ON TRUNK HIGHWAY 34, BY THE JUNCTION OF 5TH AVENUE NORTHEAST AND TRUNK HIGHWAY 34.

**Station Notes**

THE SURVEY MARK WAS RESET AS BENCHMARK 1404 B RESET.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1028.712	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025	

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1027.846	.016	2				VERTICAL CONTROL SURVEY	1972	Q460961	
1027.846	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A	
1027.846	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A	

Geoid Separations(ft): GEOID18 = -87.080 12B = -87.070 09 = -86.975 03 = -86.926

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1404 B RESET

NGS Name: 1404 B RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [DK7699](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	19	137 N	45 W	463935.62	962436.87	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1970	2015	GOOD	Horz=NO Vert=NO	YES	8677	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	BENCH MARK DISK	MNDT

**Description:** (2015)                      **Stamping:** 1404-B RESET 19

IN BARNESVILLE, IN A CULVERT HEADWALL IN THE SOUTHEAST CORNER OF TRUNK HIGHWAY 34 BOX CULVERT NUMBER 8677 OVER WHISKEY CREEK, 0.8 MILE WEST ALONG TRUNK HIGHWAY 34 FROM THE JUNCTION OF TRUNK HIGHWAY 34 AND INTERSTATE HIGHWAY 94 (THE JUNCTION IS 1.0 MILE EAST OF BARNESVILLE), AT TRUNK HIGHWAY 34 MILEPOINT 0.50, 21.8 FEET SOUTH OF TRUNK HIGHWAY 34.

**Station Notes**

THE SURVEY MARK HAS BEEN DEEMED UNSAFE DUE TO FALL RISK AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1028.531	.016	2/1				VERTICAL ADJUSTMENT	2020	00000941-2	
1028.531	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941	
1028.669	.016	2/1				VERTICAL ADJUSTMENT	2012	00000717	
1028.669	.016	2/1				VERTICAL CONTROL SURVEY	2010	VBARN	
1028.669	.016	2/1				VERTICAL ADJUSTMENT	2009	00000425-35	
1028.669	.016	2/1				VERTICAL CONTROL SURVEY	2006	VOTHER	

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1027.800	.066	3				VERTICAL CONTROL SURVEY	1973	CS1404	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1028.679	.262		941.599	.197	2011	GPS - RTRN	2023	RTRN2023	
1028.636	.262		941.566	.197	2011	GPS - RTRN	2015	RTRN2015	
1028.636	.262		941.566	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.080 12B = -87.070 09 = -86.975 03 = -86.926

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 39 35.61572	96 24 36.86582	572786.296	111041.220	.131	3	GPS - RTRN	2023	RTRN2023	
46 39 35.61624	96 24 36.86614	572786.273	111041.273	.131	3	GPS - RTRN	2015	RTRN2015	
46 39 35.61580	96 24 36.86596	572786.286	111041.228	.131	3	GPS - RTRN	2014	RTRN2014	

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
2082318.076	940770.329	784456.030	16971818.350	.131	3	GPS - RTRN	2023	RTRN2023	
2082318.055	940770.382	784456.010	16971818.404	.131	3	GPS - RTRN	2015	RTRN2015	
2082318.066	940770.338	784456.021	16971818.359	.131	3	GPS - RTRN	2014	RTRN2014	



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_B_RESET-DK7699-3S-26JUL2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_B_RESET-DK7699-3S-26JUL2023.jpg</a>	S	Jul 26, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_B_RESET-DK7699-2-26JUL2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_B_RESET-DK7699-2-26JUL2023.jpg</a>		Jul 26, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_B_RESET-DK7699-1-26JUL2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_B_RESET-DK7699-1-26JUL2023.jpg</a>		Jul 26, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1404 C

NGS Name: 1404 C

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0087](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	29	137 N	45 W	463934.00	962346.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1968	2001	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE FOOTING - SMALL	SURVEY DISK	MNDT

Description: (1973)                      Stamping: 1404 C 1968

1.0 MILE EAST OF BARNESVILLE, 1.2 MILES EAST ALONG TRUNK HIGHWAY 34 EAST (160TH AVENUE SOUTH) FROM THE JUNCTION OF TRUNK HIGHWAY 34 EAST AND TRUNK HIGHWAY 9 (FRONT STREET NORTH).

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1040.474	.016	2/0					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1039.608	.016	2					VERTICAL CONTROL SURVEY	1972	Q460961	
1039.608	.016	2					VERTICAL CONTROL SURVEY	1972	L22167-A	
1039.608	.016	2					VERTICAL CONTROL SURVEY	1971	L22167-A	

Geoid Separations(ft): GEOID18 = -87.100    12B = -87.086    09 = -86.995    03 = -86.945

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1404 C RESET  
 County: CLAY, MN (Sheet 1)

NGS Name: 1404 C RESET

NGS ACRN: [DK7700](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				Reference	Reference	Vert	Horz
1/4	Sec	Twp	Rng	Latitude	Longitude	Order	Order
NW	29	137 N	45 W	463933.75	962355.94	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1968	2015	GOOD	Horz=NO Vert=NO	YES	5625	FLUSH	NO MAG MATERIAL

Monument Type	Disk Type	Mon. Agency
CULVERT - ANY SIZE, ANY TYPE	BENCH MARK DISK	MNDT

**Description:** (2015)                      **Stamping:** 1404 C RESET 1968

1.0 MILE EAST OF BARNESVILLE, IN A CULVERT HEADWALL IN THE SOUTHEAST CORNER OF TRUNK HIGHWAY 34 BOX CULVERT NUMBER 5625 AT WHISKEY CREEK, 0.15 MILE WEST ALONG TRUNK HIGHWAY 34 FROM THE JUNCTION OF TRUNK HIGHWAY 34 AND INTERSTATE HIGHWAY 94 (THE JUNCTION IS 1.0 MILE EAST OF BARNESVILLE), AT TRUNK HIGHWAY 34 MILEPOST 1.00, 51.3 FEET SOUTH OF TRUNK HIGHWAY 34.

**Station Notes**

THE SURVEY MARK HAS BEEN DEEMED UNSAFE DUE TO FALL RISK AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88							Project Info	
Orthometric Height			Ellipsoid (NAD83)			Determination Method	Year	Reference
Height	Acc	Order (/Class)	Height	Acc	Adj			
1040.310	.016	2/1				VERTICAL ADJUSTMENT	2020	00000941-2
1040.310	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941
1040.454	.016	2/1				VERTICAL ADJUSTMENT	2012	00000717
1040.454	.016	2/1				VERTICAL CONTROL SURVEY	2010	VBARN
1040.454	.016	2/1				VERTICAL ADJUSTMENT	2009	00000425-35
1040.451	.016	2/1				VERTICAL CONTROL SURVEY	2006	VOTHER

  

NGVD29							Project Info	
Orthometric Height			Ellipsoid (NAD83)			Determination Method	Year	Reference
Height	Acc	Order (/Class)	Height	Acc	Adj			
1039.598	.066	3				VERTICAL CONTROL SURVEY	1973	CS1404

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88							Project Info	
Orthometric Height			Ellipsoid (NAD83)			Determination Method	Year	Reference
Height	Acc	Order (/Class)	Height	Acc	Adj			
1040.428	.262		953.345	.197	2011	GPS - RTRN	2015	RTRN2015
1040.300	.262		953.217	.197	2011	GPS - RTRN	2014	RTRN2014

Geoid Separations(ft): GEOID18 = -87.096    12B = -87.083    09 = -86.991    03 = -86.942

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)				Clay County			Project Info			
Geodetic Position				X	Y	Acc	Order	Determination Method	Year	Reference
Latitude	Longitude									
46 39 33.75425	96 23 55.93766			575641.952	110863.336	.131	3	GPS - RTRN	2015	RTRN2015
46 39 33.75503	96 23 55.93888			575641.866	110863.414	.131	3	GPS - RTRN	2014	RTRN2014

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)				UTM - Zone 15			Project Info			
MN State Plane - Central Zone				X	Y	Acc	Order	Determination Method	Year	Reference
X	Y									
2085166.535	940504.184			787301.265	16971506.403	.131	3	GPS - RTRN	2015	RTRN2015
2085166.452	940504.265			787301.184	16971506.486	.131	3	GPS - RTRN	2014	RTRN2014

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_C_RESET-DK7700-3S-27MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_C_RESET-DK7700-3S-27MAY2014.jpg</a>	S	May 27, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_C_RESET-DK7700-2-27MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_C_RESET-DK7700-2-27MAY2014.jpg</a>		May 27, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_C_RESET-DK7700-1-27MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_C_RESET-DK7700-1-27MAY2014.jpg</a>		May 27, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1404 D

NGS Name: 1404 D

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	28	137 N	45 W	463934.00	962300.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1949	2014	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

Description: (1949)                      Stamping: 1404 D

1.8 MILES NORTHEAST OF BARNESVILLE, 1.7 MILES EAST ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 34 AND TRUNK HIGHWAY 52 AT BARNESVILLE, 75.0 FEET RIGHT OF TRUNK HIGHWAY 34, AT TRUNK HIGHWAY 34 STATION 91+55.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1066.182	.033	3				VERTICAL CONTROL SURVEY	1949	CS1404	

**Geoid Separations(ft): GEOID18 = -87.116    12B = -87.103    09 = -87.008    03 = -86.958**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1404 E

NGS Name: 1404 E

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP4932](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096131/  
 USGS Quad: BIG SLOUGH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	22	137 N	45 W	463935.94	962145.05	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1949	2023	GOOD	Horz=YES Vert=YES	YES		FLUSH	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	BENCH MARK DISK	MNDT

Description: (2015)                      Stamping: 1404 E 1949

2.75 MILES EAST OF BARNESVILLE, 1.5 MILES EAST ALONG TRUNK HIGHWAY 34 FROM THE JUNCTION OF TRUNK HIGHWAY 34 AND INTERSTATE HIGHWAY 94 (THE JUNCTION IS 1.0 MILE EAST OF BARNESVILLE), AT TRUNK HIGHWAY 34 MILEPOINT 2.70, 72.0 FEET NORTH OF TRUNK HIGHWAY 34, 60.0 FEET EAST OF 210TH STREET SOUTH, 7.9 FEET EAST-SOUTHEAST OF A RIGHT-OF-WAY SIGN, 1.0 FOOT SOUTH OF A WITNESS POST.

Station Pair: WILLIS - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1092.137	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	

  

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1091.281	.033	3					VERTICAL CONTROL SURVEY	1949	CS1404	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1092.137				1005.080	.015	2011	HORIZONTAL ADJUSTMENT	2024	GPS3671	
1092.137	.131			1005.221	.066	1996	GPS - STATIC	2023	HTH9	
1092.137				1005.080	.015	2011	GPS - STATIC	2023	HTH9	
1092.212	.262			1005.073	.197	2011	GPS - RTRN	2023	RTRN2023	
1092.255	.262			1005.119	.197	2011	GPS - RTRN	2022	RTRN2022	
1092.078	.262			1004.952	.197	2011	GPS - RTRN	2015	RTRN2015	
1092.281				1005.080	.018	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084	
1092.275	.131			1005.221	.066	1996	GPS - STATIC	2015	HCLAY	
1092.281				1005.110	.018	2011	GPS - STATIC	2015	HCLAY	
1092.255				1005.080	.027	2011	HORIZONTAL ADJUSTMENT	2014	GPS2750	
1092.255				1005.080	.027	2011	GPS - STATIC	2014	HBARN	
1092.104	.262			1004.978	.197	2011	GPS - RTRN	2014	RTRN2014	
1092.255	.131			1005.155	.066	2007	GPS - STATIC	2010	HBARN	
1092.242	.131			1005.221	.066	1996	GPS - STATIC	2010	HBARN	
				1005.362	.066	1996	GPS - STATIC	2001	DIST 4	

Geoid Separations(ft): GEOID18 = -87.139    12B = -87.126    09 = -87.021    03 = -86.975

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 39 35.94312	96 21 45.04857	584771.228	111122.104	.010		ADJUSTMENT	2024	GPS3671
46 39 35.94312	96 21 45.04857	584771.228	111122.104	.010	C	GPS - STATIC	2023	HTH9
46 39 35.94297	96 21 45.04927	584771.179	111122.088	.131	3	GPS - RTRN	2023	RTRN2023
46 39 35.94326	96 21 45.04856	584771.229	111122.118	.131	3	GPS - RTRN	2022	RTRN2022
46 39 35.94405	96 21 45.04768	584771.290	111122.198	.131	3	GPS - RTRN	2015	RTRN2015
46 39 35.94312	96 21 45.04857	584771.228	111122.104	.010		ADJUSTMENT	2015	GPS3084
46 39 35.94319	96 21 45.04847	584771.235	111122.110	.010	C	GPS - STATIC	2015	HCLAY
46 39 35.94312	96 21 45.04857	584771.228	111122.104	.016		ADJUSTMENT	2014	GPS2750
46 39 35.94312	96 21 45.04857	584771.228	111122.104	.016	C	GPS - STATIC	2014	HBARN
46 39 35.94312	96 21 45.04734	584771.314	111122.104	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(2007)

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 39 35.94327	96 21 45.04949	584771.164	111122.118	.033	C	GPS - STATIC	2010	HBARN

NAD83(1996)

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 39 35.94289	96 21 45.04923	584771.182	111122.080	.033	C	GPS - STATIC	2023	HTH9
46 39 35.94289	96 21 45.04923	584771.182	111122.080	.033	C	GPS - STATIC	2015	HCLAY
46 39 35.94289	96 21 45.04923	584771.182	111122.080	.033	C	GPS - STATIC	2010	HBARN
46 39 35.94203	96 21 45.05080	584771.075	111121.992	.033	C	GPS - STATIC	2001	DIST 4

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2094298.400	940480.286	796435.994	16971335.996	.010		ADJUSTMENT	2024	GPS3671
2094298.400	940480.286	796435.994	16971335.996	.010	C	GPS - STATIC	2023	HTH9
2094298.351	940480.272	796435.945	16971335.982	.131	3	GPS - RTRN	2023	RTRN2023
2094298.401	940480.300	796435.996	16971336.010	.131	3	GPS - RTRN	2022	RTRN2022
2094298.464	940480.379	796436.061	16971336.087	.131	3	GPS - RTRN	2015	RTRN2015
2094298.400	940480.286	796435.994	16971335.996	.010		ADJUSTMENT	2015	GPS3084
2094298.407	940480.293	796436.002	16971336.002	.010	C	GPS - STATIC	2015	HCLAY
2094298.400	940480.286	796435.994	16971335.996	.016		ADJUSTMENT	2014	GPS2750
2094298.400	940480.286	796435.994	16971335.996	.016	C	GPS - STATIC	2014	HBARN
2094298.486	940480.284	796436.080	16971335.992	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2094298.336	940480.303	796435.931	16971336.013	.033	C	GPS - STATIC	2010	HBARN

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2094298.353	940480.264	796435.947	16971335.974	.033	C	GPS - STATIC	2023	HTH9
2094298.353	940480.264	796435.947	16971335.974	.033	C	GPS - STATIC	2015	HCLAY
2094298.353	940480.264	796435.947	16971335.974	.033	C	GPS - STATIC	2010	HBARN
2094298.242	940480.179	796435.834	16971335.892	.033	C	GPS - STATIC	2001	DIST 4

Station Photos

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_E-DP4932-3N-14AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_E-DP4932-3N-14AUG2023.jpg</a>	N	Aug 14, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_E-DP4932-2-14AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_E-DP4932-2-14AUG2023.jpg</a>		Aug 14, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_E-DP4932-1-14AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_E-DP4932-1-14AUG2023.jpg</a>		Aug 14, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1404 F

NGS Name: 1404 F

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096131/  
 USGS Quad: BIG SLOUGH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	26	137 N	45 W	463934.00	961953.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1949	2014	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

Description: (1949)                      Stamping: 1404 F

4.2 MILES NORTHEAST OF BARNESVILLE, 4.2 MILES EAST ALONG TRUNK HIGHWAY 34 FROM THE JUNCTION OF TRUNK HIGHWAY 34 AND TRUNK HIGHWAY 52 AT BARNESVILLE, AT TRUNK HIGHWAY 34 STATION 222+30, 65.0 FEET RIGHT OF TRUNK HIGHWAY 34, 120.0 FEET WEST OF COUNTY ROAD 7.

Station Notes

THE DISK WAS TURNED IN TO THE OFFICE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1173.344	.033	3					VERTICAL CONTROL SURVEY	1949	CS1404	

**Geoid Separations(ft): GEOID18 = -87.168    12B = -87.152    09 = -87.050    03 = -86.998**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1404 H

NGS Name: 1404 H

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096131/  
 USGS Quad: BIG SLOUGH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	19	137 N	44 W	463936.00	961755.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1949	2014	DESTROYED	Horz=NO Vert=NO	YES			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

Description: (1949)                      Stamping: 1404 H

5.7 MILES NORTHEAST OF BARNESVILLE, 5.75 MILES EAST ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 34 AND TRUNK HIGHWAY 52 AT BARNESVILLE, 75.0 FEET LEFT OF TRUNK HIGHWAY 34, AT TRUNK HIGHWAY 34 STATION 304+30, 42.0 FEET EAST OF A NORTH-SOUTH ROAD.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1162.058	.033	3					VERTICAL CONTROL SURVEY	1949	CS1404	

Geoid Separations(ft): GEOID18 = -87.205    12B = -87.182    09 = -87.077    03 = -87.024

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1404 I

NGS Name: 1404 I

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096131/  
 USGS Quad: BIG SLOUGH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	30	137 N	44 W	463934.00	961736.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1949	2014	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

Description: (1949)                      Stamping: 1404 I

6.0 MILES NORTHEAST OF BARNESVILLE, 6.75 MILES EAST ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 34 AND TRUNK HIGHWAY 52 AT BARNESVILLE, 71.0 FEET RIGHT OF TRUNK HIGHWAY 34, AT TRUNK HIGHWAY 34 STATION 318+75, 54.0 FEET EAST OF COUNTY ROAD 51.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1246.152	.033	3					VERTICAL CONTROL SURVEY	1949	CS1404	

**Geoid Separations(ft): GEOID18 = -87.208    12B = -87.185    09 = -87.080    03 = -87.027**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1404 J

NGS Name: 1404 J

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096131/  
 USGS Quad: BIG SLOUGH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	30	137 N	44 W	463934.00	961702.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1949	2014	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	SURVEY DISK	MNDT

Description: (1949)                      Stamping: 1404 J

6.5 MILES NORTHEAST OF BARNESVILLE, IN A CULVERT HEADWALL IN THE SOUTH END OF A TRUNK HIGHWAY 34 BOX CULVERT, 7.2 MILES EAST ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 34 AND TRUNK HIGHWAY 52 AT BARNESVILLE, AT TRUNK HIGHWAY 34 STATION 342+99.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1242.022	.033	3				VERTICAL CONTROL SURVEY	1949	CS1404	

Geoid Separations(ft): GEOID18 = -87.214    12B = -87.188    09 = -87.090    03 = -87.034

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1404 K

NGS Name: 1404 K

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP7336](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096131/  
 USGS Quad: BIG SLOUGH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	19	137 N	44 W	463935.36	961754.48	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2013	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 15 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2013) Stamping: 1404 K 2013

6.0 MILES EAST OF BARNESVILLE, 5.75 MILES EAST ALONG TRUNK HIGHWAY 34 FROM THE JUNCTION OF TRUNK HIGHWAY 34 AND TRUNK HIGHWAY 9 IN BARNESVILLE, AT TRUNK HIGHWAY 34 MILEPOINT 5.75, 55.2 FEET NORTH OF TRUNK HIGHWAY 34, 0.05 MILE EAST OF 240TH STREET SOUTH, 19.1 FEET WEST OF A FIELD ENTRANCE, 3.0 FEET EAST OF A WITNESS POST.

Station Pair: KRAUSE - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1165.447	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1165.447			1078.377	.017	2011	HORIZONTAL ADJUSTMENT	2024	GPS3671
1165.447	.131		1078.521	.066	1996	GPS - STATIC	2023	HTH9
1165.447			1078.377	.017	2011	GPS - STATIC	2023	HTH9
1165.572	.262		1078.367	.197	2011	GPS - RTRN	2022	RTRN2022
1165.588			1078.377	.024	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084
1165.575	.131		1078.521	.066	1996	GPS - STATIC	2015	HCLAY
1165.588			1078.377	.024	2011	GPS - STATIC	2015	HCLAY
1165.480	.262		1078.302	.197	2011	GPS - RTRN	2014	RTRN2014
1165.345	.262		1078.164	.197	2011	GPS - RTRN	2013	RTRN2013

Geoid Separations(ft): GEOID18 = -87.205 12B = -87.182 09 = -87.077 03 = -87.024

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 39 35.35816	96 17 54.47772	600854.916	111138.278	.010		ADJUSTMENT	2024	GPS3671
46 39 35.35816	96 17 54.47772	600854.916	111138.278	.010	C	GPS - STATIC	2023	HTH9
46 39 35.35813	96 17 54.47735	600854.942	111138.275	.131	3	GPS - RTRN	2022	RTRN2022
46 39 35.35816	96 17 54.47772	600854.916	111138.278	.016		ADJUSTMENT	2015	GPS3084
46 39 35.35816	96 17 54.47772	600854.916	111138.278	.016	C	GPS - STATIC	2015	HCLAY
46 39 35.35831	96 17 54.47805	600854.893	111138.293	.131	3	GPS - RTRN	2014	RTRN2014
46 39 35.35827	96 17 54.47845	600854.865	111138.290	.131	3	GPS - RTRN	2013	RTRN2013

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 39 35.35774	96 17 54.47849	600854.863	111138.236	.033	C	GPS - STATIC	2023	HTH9
46 39 35.35774	96 17 54.47849	600854.863	111138.236	.033	C	GPS - STATIC	2015	HCLAY

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2110373.000	939998.675	812508.198	16970596.418	.010		ADJUSTMENT	2024	GPS3671
2110373.000	939998.675	812508.198	16970596.418	.010	C	GPS - STATIC	2023	HTH9
2110373.026	939998.672	812508.224	16970596.414	.131	3	GPS - RTRN	2022	RTRN2022
2110373.000	939998.675	812508.198	16970596.418	.016		ADJUSTMENT	2015	GPS3084
2110373.000	939998.675	812508.198	16970596.418	.016	C	GPS - STATIC	2015	HCLAY
2110372.977	939998.691	812508.176	16970596.434	.131	3	GPS - RTRN	2014	RTRN2014
2110372.950	939998.688	812508.148	16970596.431	.131	3	GPS - RTRN	2013	RTRN2013

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2110372.945	939998.634	812508.143	16970596.377	.033	C	GPS - STATIC	2023	HTH9
2110372.945	939998.634	812508.143	16970596.377	.033	C	GPS - STATIC	2015	HCLAY

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<b>Location:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_K-DP7336-3N-13SEP2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_K-DP7336-3N-13SEP2022.jpg</a>	N	Sep 13, 2022
<b>Monument:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_K-DP7336-2-13SEP2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_K-DP7336-2-13SEP2022.jpg</a>		Sep 13, 2022
<b>Disk:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_K-DP7336-1-13SEP2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_K-DP7336-1-13SEP2022.jpg</a>		Sep 13, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1404 L

NGS Name: 1404 L

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP7337](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096124/  
 USGS Quad: ROLLAG

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	21	137 N	44 W	463934.59	961410.72	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2013	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 64 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2013) Stamping: 1404 L 2013

9.0 MILES EAST OF BARNESVILLE, 8.75 MILES EAST ALONG TRUNK HIGHWAY 34 FROM THE JUNCTION OF TRUNK HIGHWAY 34 AND TRUNK HIGHWAY 9 IN BARNESVILLE, AT TRUNK HIGHWAY 34 MILEPOINT 8.75, 127.7 FEET NORTH OF TRUNK HIGHWAY 34, 128.8 FEET WEST OF TRUNK HIGHWAY 32, 1.5 FEET SOUTH OF A WITNESS POST.

Station Pair: MINSKE - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>
1296.218	.016	2/1							VERTICAL ADJUSTMENT		2019	00000941

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>
1296.218			1209.066	.010	2011	HORIZONTAL ADJUSTMENT			2024	GPS3762		
1296.218	.131		1209.148	.066	1996	GPS - STATIC			2024	HTH32		
1296.218			1209.066	.010	2011	GPS - STATIC			2024	HTH32		
1296.218			1209.066	.016	2011	HORIZONTAL ADJUSTMENT			2024	GPS3671		
1296.218	.131		1209.210	.066	1996	GPS - STATIC			2023	HTH9		
1296.218			1209.066	.016	2011	GPS - STATIC			2023	HTH9		
1296.333	.262		1209.082	.197	2011	GPS - RTRN			2022	RTRN2022		
1296.310			1209.066	.023	2011	HORIZONTAL ADJUSTMENT			2015	GPS3084		
1296.283	.131		1209.210	.066	1996	GPS - STATIC			2015	HCLAY		
1296.310			1209.066	.023	2011	GPS - STATIC			2015	HCLAY		
1296.175	.262		1208.958	.197	2011	GPS - RTRN			2014	RTRN2014		
1296.234	.262		1209.017	.197	2011	GPS - RTRN			2013	RTRN2013		

Geoid Separations(ft): GEOID18 = -87.250 12B = -87.218 09 = -87.116 03 = -87.050

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 39 34.59231	96 14 10.71827	616463.672	111146.401	.007		ADJUSTMENT	2024	GPS3762
46 39 34.59231	96 14 10.71827	616463.672	111146.401	.007	C	GPS - STATIC	2024	HTH32
46 39 34.59231	96 14 10.71827	616463.672	111146.401	.010		ADJUSTMENT	2024	GPS3671
46 39 34.59231	96 14 10.71827	616463.672	111146.401	.010	C	GPS - STATIC	2023	HTH9
46 39 34.59246	96 14 10.71824	616463.674	111146.416	.131	3	GPS - RTRN	2022	RTRN2022
46 39 34.59231	96 14 10.71827	616463.672	111146.401	.013		ADJUSTMENT	2015	GPS3084
46 39 34.59231	96 14 10.71827	616463.672	111146.401	.013	C	GPS - STATIC	2015	HCLAY
46 39 34.59212	96 14 10.71829	616463.671	111146.382	.131	3	GPS - RTRN	2014	RTRN2014
46 39 34.59186	96 14 10.71869	616463.643	111146.355	.131	3	GPS - RTRN	2013	RTRN2013

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 39 34.59230	96 14 10.71821	616463.677	111146.400	.033	C	GPS - STATIC	2024	HTH32
46 39 34.59185	96 14 10.71905	616463.618	111146.354	.033	C	GPS - STATIC	2023	HTH9
46 39 34.59185	96 14 10.71905	616463.618	111146.354	.033	C	GPS - STATIC	2015	HCLAY

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2125972.643	939523.650	828104.931	16969871.156	.007		ADJUSTMENT	2024	GPS3762
2125972.643	939523.650	828104.931	16969871.156	.007	C	GPS - STATIC	2024	HTH32
2125972.643	939523.650	828104.931	16969871.156	.010		ADJUSTMENT	2024	GPS3671
2125972.643	939523.650	828104.931	16969871.156	.010	C	GPS - STATIC	2023	HTH9
2125972.645	939523.666	828104.934	16969871.171	.131	3	GPS - RTRN	2022	RTRN2022
2125972.643	939523.650	828104.931	16969871.156	.013		ADJUSTMENT	2015	GPS3084
2125972.643	939523.650	828104.931	16969871.156	.013	C	GPS - STATIC	2015	HCLAY
2125972.641	939523.631	828104.929	16969871.137	.131	3	GPS - RTRN	2014	RTRN2014
2125972.612	939523.606	828104.900	16969871.111	.131	3	GPS - RTRN	2013	RTRN2013

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2125972.647	939523.649	828104.935	16969871.155	.033	C	GPS - STATIC	2024	HTH32
2125972.587	939523.605	828104.875	16969871.111	.033	C	GPS - STATIC	2023	HTH9
2125972.587	939523.605	828104.875	16969871.111	.033	C	GPS - STATIC	2015	HCLAY

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_L-DP7337-3N-13SEP2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_L-DP7337-3N-13SEP2022.jpg</a>	N	Sep 13, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_L-DP7337-2-13SEP2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_L-DP7337-2-13SEP2022.jpg</a>		Sep 13, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_L-DP7337-1-13SEP2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_L-DP7337-1-13SEP2022.jpg</a>		Sep 13, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1404 M  
 County: CLAY, MN (Sheet 1)

NGS Name: 1404 M

NGS ACRN: [DQ1971](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096124/  
 USGS Quad: ROLLAG

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	25	137 N	44 W	463931.34	961137.56	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 19 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

**Description:** (2014)                      **Stamping:** 1404 M 2014

10.75 MILES EAST OF BARNESVILLE, 10.75 MILES EAST ALONG TRUNK HIGHWAY 34 FROM THE JUNCTION OF TRUNK HIGHWAY 34 AND TRUNK HIGHWAY 9 IN BARNESVILLE, AT TRUNK HIGHWAY 34 MILEPOINT 10.75, 49.5 FEET NORTH OF TRUNK HIGHWAY 34, 23.0 FEET EAST OF 290TH STREET SOUTH EXTENDED, 1.5 FEET SOUTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
1340.135	.016	2/1				2019	00000941					

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
1340.135			1252.940	.021	2011	2024	GPS3671					
1340.135	.131		1253.052	.066	1996	2023	HTH9					
1340.135			1252.940	.021	2011	2023	HTH9					
1340.204	.262		1252.931	.197	2011	2022	RTRN2022					
1340.181	.262		1252.904	.197	2011	2021	GPSBM					
1340.168	.262		1252.891	.197	2011	2021	GPSBM					
1340.188	.262		1252.914	.197	2011	2021	RTRN2021					
1340.089	.262		1252.849	.197	2011	2014	RTRN2014					

Geoid Separations(ft): GEOID18 = -87.277    12B = -87.241    09 = -87.145    03 = -87.070

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			
46 39 31.34384	96 11 37.55986	627149.361	110883.057	.013		2024	GPS3671			
46 39 31.34384	96 11 37.55986	627149.361	110883.057	.013	C	2023	HTH9			
46 39 31.34443	96 11 37.55957	627149.381	110883.117	.131	3	2022	RTRN2022			
46 39 31.34351	96 11 37.55987	627149.361	110883.024	.131	3	2021	GPSBM			
46 39 31.34369	96 11 37.55990	627149.359	110883.042	.131	3	2021	GPSBM			
46 39 31.34306	96 11 37.55980	627149.366	110882.978	.131	3	2021	RTRN2021			
46 39 31.34368	96 11 37.56000	627149.352	110883.041	.131	3	2014	RTRN2014			

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			
46 39 31.34360	96 11 37.56029	627149.331	110883.033	.033	C	2023	HTH9			

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2136643.730	938929.671	838769.458	16969105.991	.013		ADJUSTMENT	2024	GPS3671
2136643.730	938929.671	838769.458	16969105.991	.013	C	GPS - STATIC	2023	HTH9
2136643.752	938929.731	838769.481	16969106.049	.131	3	GPS - RTRN	2022	RTRN2022
2136643.729	938929.638	838769.456	16969105.957	.131	3	GPS - OPUS	2021	GPSBM
2136643.727	938929.656	838769.455	16969105.975	.131	3	GPS - OPUS	2021	GPSBM
2136643.732	938929.592	838769.459	16969105.911	.131	3	GPS - RTRN	2021	RTRN2021
2136643.720	938929.656	838769.448	16969105.974	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2136643.699	938929.648	838769.427	16969105.967	.033	C	GPS - STATIC	2023	HTH9

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_M-DQ1971-3N-13SEP2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_M-DQ1971-3N-13SEP2022.jpg</a>	N	Sep 13, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_M-DQ1971-2-13SEP2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_M-DQ1971-2-13SEP2022.jpg</a>		Sep 13, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_M-DQ1971-1-13SEP2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_M-DQ1971-1-13SEP2022.jpg</a>		Sep 13, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1404 N

NGS Name: 1404 N

County: CLAY, MN (Sheet 1)

NGS ACRN: <a href="#">DQ1970</a>	<a href="#">Get Map</a>
NGS Quad / Sta Num : 46096124/	
USGS Quad: ROLLAG	

		<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Latitide</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	27	463933.28	961254.10	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 24 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: 1404 N 2014

9.75 MILES EAST OF BARNESVILLE, 9.75 MILES EAST ALONG TRUNK HIGHWAY 34 FROM THE JUNCTION OF TRUNK HIGHWAY 34 AND TRUNK HIGHWAY 9 IN BARNESVILLE, AT TRUNK HIGHWAY 34 MILEPOINT 9.75, 81.5 FEET SOUTH OF TRUNK HIGHWAY 34, 50.8 FEET EAST OF DRIVEWAY NUMBER 28001, 8.9 FEET NORTH OF A RIGHT-OF-WAY POST, 8.9 FEET NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
1300.673	.016	2/1				VERTICAL ADJUSTMENT		2019	00000941

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
1300.673			1213.479	.022	2011	HORIZONTAL ADJUSTMENT		2024	GPS3671
1300.673	.131		1213.590	.066	1996	GPS - STATIC		2023	HTH9
1300.673			1213.479	.022	2011	GPS - STATIC		2023	HTH9
1300.752	.262		1213.485	.197	2011	GPS - RTRN		2022	RTRN2022
1300.752	.262		1213.485	.197	2011	GPS - OPUS		2021	GPSBM
1300.736	.262		1213.469	.197	2011	GPS - OPUS		2021	GPSBM
1300.772	.262		1213.505	.197	2011	GPS - RTRN		2021	RTRN2021
1300.611	.262		1213.377	.197	2011	GPS - RTRN		2014	RTRN2014

Geoid Separations(ft): GEOID18 = -87.267    12B = -87.234    09 = -87.129    03 = -87.060

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>								
46 39 33.28478	96 12 54.09718	621809.197	111046.112	.013		ADJUSTMENT		2024	GPS3671
46 39 33.28478	96 12 54.09718	621809.197	111046.112	.013	C	GPS - STATIC		2023	HTH9
46 39 33.28482	96 12 54.09636	621809.254	111046.117	.131	3	GPS - RTRN		2022	RTRN2022
46 39 33.28434	96 12 54.09727	621809.191	111046.068	.131	3	GPS - OPUS		2021	GPSBM
46 39 33.28456	96 12 54.09745	621809.178	111046.090	.131	3	GPS - OPUS		2021	GPSBM
46 39 33.28410	96 12 54.09740	621809.182	111046.043	.131	3	GPS - RTRN		2021	RTRN2021
46 39 33.28483	96 12 54.09750	621809.175	111046.117	.131	3	GPS - RTRN		2014	RTRN2014

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>								
46 39 33.28454	96 12 54.09762	621809.166	111046.088	.033	C	GPS - STATIC		2023	HTH9

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2131311.841	939257.946	833441.377	16969519.800	.013		ADJUSTMENT	2024	GPS3671
2131311.841	939257.946	833441.377	16969519.800	.013	C	GPS - STATIC	2023	HTH9
2131311.898	939257.948	833441.434	16969519.802	.131	3	GPS - RTRN	2022	RTRN2022
2131311.833	939257.901	833441.369	16969519.756	.131	3	GPS - OPUS	2021	GPSBM
2131311.821	939257.924	833441.357	16969519.779	.131	3	GPS - OPUS	2021	GPSBM
2131311.824	939257.877	833441.359	16969519.732	.131	3	GPS - RTRN	2021	RTRN2021
2131311.819	939257.951	833441.355	16969519.806	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2131311.810	939257.922	833441.345	16969519.777	.033	C	GPS - STATIC	2023	HTH9

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<b>Location:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_N-DQ1970-3S-13SEP2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_N-DQ1970-3S-13SEP2022.jpg</a>	S	Sep 13, 2022
<b>Monument:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_N-DQ1970-2-13SEP2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_N-DQ1970-2-13SEP2022.jpg</a>		Sep 13, 2022
<b>Disk:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_N-DQ1970-1-13SEP2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_N-DQ1970-1-13SEP2022.jpg</a>		Sep 13, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1404 P

NGS Name: 1404 P

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ1968](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096131/  
 USGS Quad: BIG SLOUGH

				Reference	Reference	Vert	Horz
1/4	Sec	Twp	Rng	Latitude	Longitude	Order	Order
NE	29	137 N	44 W	463932.31	961530.70	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 39 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: 1404 P 2014

7.65 MILES EAST OF BARNESVILLE, 7.65 MILES EAST ALONG TRUNK HIGHWAY 34 FROM THE JUNCTION OF TRUNK HIGHWAY 34 AND TRUNK HIGHWAY 9 IN BARNESVILLE, AT TRUNK HIGHWAY 34 MILEPOINT 7.65, 56.6 FEET SOUTH OF TRUNK HIGHWAY 34, 16.0 FEET EAST OF A FIELD ENTRANCE, 1.5 FEET NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88				Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference	
1266.746	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88				Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference	
1266.746			1179.650	.023	2011	HORIZONTAL ADJUSTMENT	2024	GPS3671	
1266.746	.131		1179.761	.066	1996	GPS - STATIC	2023	HTH9	
1266.746			1179.650	.023	2011	GPS - STATIC	2023	HTH9	
1266.854	.262		1179.617	.197	2011	GPS - RTRN	2022	RTRN2022	
1266.756	.262		1179.551	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.237 12B = -87.208 09 = -87.109 03 = -87.044

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 39 32.31486	96 15 30.70218	610885.681	110883.613	.013		ADJUSTMENT	2024	GPS3671
46 39 32.31486	96 15 30.70218	610885.681	110883.613	.013	C	GPS - STATIC	2023	HTH9
46 39 32.31499	96 15 30.70177	610885.710	110883.626	.131	3	GPS - RTRN	2022	RTRN2022
46 39 32.31501	96 15 30.70154	610885.726	110883.628	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(1996)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 39 32.31462	96 15 30.70264	610885.649	110883.588	.033	C	GPS - STATIC	2023	HTH9

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone		X	Y	Acc	Order	Determination Method	Year	Reference
		822519.085	16969870.654	.013		ADJUSTMENT	2024	GPS3671
2120389.871	939433.684	822519.085	16969870.654	.013	C	GPS - STATIC	2023	HTH9
2120389.900	939433.697	822519.114	16969870.666	.131	3	GPS - RTRN	2022	RTRN2022
2120389.916	939433.699	822519.131	16969870.668	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(1996)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone		X	Y	Acc	Order	Determination Method	Year	Reference
2120389.839	939433.661	822519.052	16969870.631	.033	C	GPS - STATIC	2023	HTH9



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_P-DQ1968-3S-13SEP2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_P-DQ1968-3S-13SEP2022.jpg</a>	S	Sep 13, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_P-DQ1968-2-13SEP2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_P-DQ1968-2-13SEP2022.jpg</a>		Sep 13, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_P-DQ1968-1-13SEP2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_P-DQ1968-1-13SEP2022.jpg</a>		Sep 13, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1404 Q

NGS Name: 1404 Q

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ1967](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096131/  
 USGS Quad: BIG SLOUGH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	20	137 N	44 W	463934.77	961640.42	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 24 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: 1404 Q 2014

6.75 MILES EAST OF BARNESVILLE, 6.75 MILES EAST ALONG TRUNK HIGHWAY 34 FROM THE JUNCTION OF TRUNK HIGHWAY 34 AND TRUNK HIGHWAY 9 IN BARNESVILLE, AT TRUNK HIGHWAY 34 MILEPOINT 6.75, 72.6 FEET NORTH OF TRUNK HIGHWAY 34, 80.5 FEET EAST OF COUNTY ROAD 127 (250TH STREET SOUTH), 1.5 FEET SOUTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1251.333	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1251.333				1164.246	.023	2011	HORIZONTAL ADJUSTMENT	2024	GPS3671	
1251.333	.131			1164.358	.066	1996	GPS - STATIC	2023	HTH9	
1251.333				1164.246	.023	2011	GPS - STATIC	2023	HTH9	
1251.497	.262			1164.279	.197	2011	GPS - RTRN	2022	RTRN2022	
1251.438	.262			1164.220	.197	2011	GPS - OPUS	2021	GPSBM	
1251.408	.262			1164.191	.197	2011	GPS - OPUS	2021	GPSBM	
1251.375	.262			1164.154	.197	2011	GPS - RTRN	2021	RTRN2021	
1251.366	.262			1164.174	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.218    12B = -87.191    09 = -87.093    03 = -87.037

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>								
46 39 34.76735	96 16 40.42063	606021.076	111105.426	.013		ADJUSTMENT	2024	GPS3671	
46 39 34.76735	96 16 40.42063	606021.076	111105.426	.013	C	GPS - STATIC	2023	HTH9	
46 39 34.76740	96 16 40.42050	606021.086	111105.432	.131	3	GPS - RTRN	2022	RTRN2022	
46 39 34.76707	96 16 40.42106	606021.046	111105.398	.131	3	GPS - OPUS	2021	GPSBM	
46 39 34.76718	96 16 40.42110	606021.044	111105.409	.131	3	GPS - OPUS	2021	GPSBM	
46 39 34.76709	96 16 40.42051	606021.085	111105.400	.131	3	GPS - RTRN	2021	RTRN2021	
46 39 34.76729	96 16 40.42051	606021.085	111105.421	.131	3	GPS - RTRN	2014	RTRN2014	

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>								
46 39 34.76712	96 16 40.42109	606021.045	111105.403	.033	C	GPS - STATIC	2023	HTH9	

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2115535.051	939805.940	817668.766	16970320.855	.013		ADJUSTMENT	2024	GPS3671
2115535.051	939805.940	817668.766	16970320.855	.013	C	GPS - STATIC	2023	HTH9
2115535.060	939805.945	817668.776	16970320.859	.131	3	GPS - RTRN	2022	RTRN2022
2115535.020	939805.913	817668.735	16970320.827	.131	3	GPS - OPUS	2021	GPSBM
2115535.018	939805.924	817668.733	16970320.838	.131	3	GPS - OPUS	2021	GPSBM
2115535.058	939805.914	817668.773	16970320.828	.131	3	GPS - RTRN	2021	RTRN2021
2115535.059	939805.934	817668.774	16970320.848	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2115535.018	939805.918	817668.733	16970320.833	.033	C	GPS - STATIC	2023	HTH9

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<b>Location:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_Q-DQ1967-3N-13SEP2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_Q-DQ1967-3N-13SEP2022.jpg</a>	N	Sep 13, 2022
<b>Monument:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_Q-DQ1967-2-13SEP2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_Q-DQ1967-2-13SEP2022.jpg</a>		Sep 13, 2022
<b>Disk:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_Q-DQ1967-1-13SEP2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_Q-DQ1967-1-13SEP2022.jpg</a>		Sep 13, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1404 R

NGS Name: 1404 R

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ1965](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096131/  
 USGS Quad: BIG SLOUGH

				Reference	Reference	Vert	Horz
1/4	Sec	Twp	Rng	Latitude	Longitude	Order	Order
SW	24	137 N	45 W	463934.42	961913.41	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2014	2023	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 22 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: 1404 R 2014

4.75 MILES EAST OF BARNESVILLE, 4.75 MILES EAST ALONG TRUNK HIGHWAY 34 FROM THE JUNCTION OF TRUNK HIGHWAY 34 AND TRUNK HIGHWAY 9 IN BARNESVILLE, AT TRUNK HIGHWAY 34 MILEPOINT 4.75, 57.7 FEET NORTH OF TRUNK HIGHWAY 34, 28.4 FEET WEST OF A FIELD ENTRANCE, 5.5 FEET EAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88				Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference	
1182.357	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88				Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference	
1182.357			1095.326	.022	2011	HORIZONTAL ADJUSTMENT	2024	GPS3671	
1182.357	.131		1095.437	.066	1996	GPS - STATIC	2023	HTH9	
1182.357			1095.326	.022	2011	GPS - STATIC	2023	HTH9	
1182.511	.262		1095.329	.197	2011	GPS - RTRN	2022	RTRN2022	
1182.429	.262		1095.267	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.182    12B = -87.162    09 = -87.060    03 = -87.008

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 39 34.41933	96 19 13.40925	595349.519	111015.866	.013		ADJUSTMENT	2024	GPS3671
46 39 34.41933	96 19 13.40925	595349.519	111015.866	.013	C	GPS - STATIC	2023	HTH9
46 39 34.41922	96 19 13.40946	595349.504	111015.854	.131	3	GPS - RTRN	2022	RTRN2022
46 39 34.41944	96 19 13.40914	595349.526	111015.877	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(1996)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 39 34.41909	96 19 13.40971	595349.486	111015.841	.033	C	GPS - STATIC	2023	HTH9

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone		X	Y	Acc	Order	Determination Method	Year	Reference
		807001.302	16970732.781	.013		ADJUSTMENT	2024	GPS3671
2104867.102	940046.730	807001.302	16970732.781	.013	C	GPS - STATIC	2023	HTH9
2104867.088	940046.719	807001.287	16970732.770	.131	3	GPS - RTRN	2022	RTRN2022
2104867.110	940046.741	807001.310	16970732.792	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(1996)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone		X	Y	Acc	Order	Determination Method	Year	Reference
2104867.069	940046.707	807001.269	16970732.758	.033	C	GPS - STATIC	2023	HTH9



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_R-DQ1965-3N-13SEP2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_R-DQ1965-3N-13SEP2022.jpg</a>	N	Sep 13, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_R-DQ1965-2-13SEP2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_R-DQ1965-2-13SEP2022.jpg</a>		Sep 13, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_R-DQ1965-1-13SEP2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_R-DQ1965-1-13SEP2022.jpg</a>		Sep 13, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1404 S

NGS Name: 1404 S

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ1964](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096131/  
 USGS Quad: BIG SLOUGH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	23	137 N	45 W	463936.02	962016.64	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 17 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: 1404 S 2014

3.95 MILES EAST OF BARNESVILLE, 3.95 MILES EAST ALONG TRUNK HIGHWAY 34 FROM THE JUNCTION OF TRUNK HIGHWAY 34 AND TRUNK HIGHWAY 9 IN BARNESVILLE, AT TRUNK HIGHWAY 34 MILEPOINT 3.95, 105.7 FEET NORTH OF TRUNK HIGHWAY 34, 17.0 FEET EAST OF A FIELD ENTRANCE, 13.4 FEET SOUTH OF A RIGHT-OF-WAY POST, 1.5 FEET SOUTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>	
1136.901	.016	2/1						VERTICAL ADJUSTMENT	2019	00000941	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>	
1136.901				1049.873	.023	2011		HORIZONTAL ADJUSTMENT	2024	GPS3671	
1136.901	.131			1049.985	.066	1996		GPS - STATIC	2023	HTH9	
1136.901				1049.873	.023	2011		GPS - STATIC	2023	HTH9	
1137.035	.262			1049.877	.197	2011		GPS - RTRN	2022	RTRN2022	
1136.992	.262			1049.834	.197	2011		GPS - OPUS	2021	GPSBM	
1137.019	.262			1049.860	.197	2011		GPS - OPUS	2021	GPSBM	
1137.019	.262			1049.860	.197	2011		GPS - RTRN	2021	RTRN2021	
1136.947	.262			1049.804	.197	2011		GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.159    12B = -87.145    09 = -87.044    03 = -86.991

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 39 36.02321	96 20 16.64112	590938.021	111157.598	.013		ADJUSTMENT	2024	GPS3671	
46 39 36.02321	96 20 16.64112	590938.021	111157.598	.013	C	GPS - STATIC	2023	HTH9	
46 39 36.02327	96 20 16.64091	590938.036	111157.603	.131	3	GPS - RTRN	2022	RTRN2022	
46 39 36.02308	96 20 16.64106	590938.025	111157.584	.131	3	GPS - OPUS	2021	GPSBM	
46 39 36.02304	96 20 16.64131	590938.008	111157.580	.131	3	GPS - OPUS	2021	GPSBM	
46 39 36.02305	96 20 16.63995	590938.103	111157.581	.131	3	GPS - RTRN	2021	RTRN2021	
46 39 36.02350	96 20 16.64084	590938.041	111157.627	.131	3	GPS - RTRN	2014	RTRN2014	

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 39 36.02297	96 20 16.64157	590937.990	111157.573	.033	C	GPS - STATIC	2023	HTH9	

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2100462.622	940324.910	802599.826	16971081.692	.013		ADJUSTMENT	2024	GPS3671
2100462.622	940324.910	802599.826	16971081.692	.013	C	GPS - STATIC	2023	HTH9
2100462.637	940324.916	802599.840	16971081.697	.131	3	GPS - RTRN	2022	RTRN2022
2100462.626	940324.897	802599.829	16971081.678	.131	3	GPS - OPUS	2021	GPSBM
2100462.608	940324.893	802599.811	16971081.675	.131	3	GPS - OPUS	2021	GPSBM
2100462.703	940324.892	802599.906	16971081.672	.131	3	GPS - RTRN	2021	RTRN2021
2100462.642	940324.939	802599.846	16971081.720	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2100462.590	940324.886	802599.793	16971081.669	.033	C	GPS - STATIC	2023	HTH9

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_S-DQ1964-3N-13SEP2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_S-DQ1964-3N-13SEP2022.jpg</a>	N	Sep 13, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_S-DQ1964-2-13SEP2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_S-DQ1964-2-13SEP2022.jpg</a>		Sep 13, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_S-DQ1964-1-13SEP2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_S-DQ1964-1-13SEP2022.jpg</a>		Sep 13, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1404 T  
 County: CLAY, MN (Sheet 1)

NGS Name: 1404 T

NGS ACRN: [DQ1962](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	28	137 N	45 W	463934.24	962243.74	2	C

  

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 15 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2015)                      Stamping: 1404 T 2014

1.95 MILES EAST OF BARNESVILLE, 1.95 MILES EAST ALONG TRUNK HIGHWAY 34 FROM THE JUNCTION OF TRUNK HIGHWAY 34 AND TRUNK HIGHWAY 9 IN BARNESVILLE, AT TRUNK HIGHWAY 34 MILEPOINT 1.95, 60.2 FEET SOUTH OF TRUNK HIGHWAY 34, 33.6 FEET WEST OF A FIELD ENTRANCE, 1.5 FEET NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1070.989	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1070.989			984.020	.022	2011	HORIZONTAL ADJUSTMENT	2024	GPS3671	
1070.989	.131		984.135	.066	1996	GPS - STATIC	2023	HTH9	
1070.989			984.020	.022	2011	GPS - STATIC	2023	HTH9	
1071.104	.262		983.984	.197	2011	GPS - RTRN	2022	RTRN2022	
1071.002	.262		983.892	.197	2011	GPS - RTRN	2015	RTRN2015	
1071.002	.262		983.896	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.123    12B = -87.109    09 = -87.011    03 = -86.962

**Lat/Lon and County Coordinates (Feet)**

<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
46 39 34.23903	96 22 43.74431	580677.631	110932.340	.013		ADJUSTMENT	2024	GPS3671
46 39 34.23903	96 22 43.74431	580677.631	110932.340	.013	C	GPS - STATIC	2023	HTH9
46 39 34.23902	96 22 43.74386	580677.662	110932.339	.131	3	GPS - RTRN	2022	RTRN2022
46 39 34.23943	96 22 43.74558	580677.542	110932.380	.131	3	GPS - RTRN	2015	RTRN2015
46 39 34.23953	96 22 43.74435	580677.628	110932.391	.131	3	GPS - RTRN	2014	RTRN2014

<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
46 39 34.23880	96 22 43.74477	580677.599	110932.317	.033	C	GPS - STATIC	2023	HTH9

**State Plane and UTM Coordinates (Feet)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
2090201.362	940417.318	792336.509	16971338.730	.013		ADJUSTMENT	2024	GPS3671
2090201.362	940417.318	792336.509	16971338.730	.013	C	GPS - STATIC	2023	HTH9
2090201.393	940417.316	792336.541	16971338.728	.131	3	GPS - RTRN	2022	RTRN2022
2090201.275	940417.361	792336.423	16971338.774	.131	3	GPS - RTRN	2015	RTRN2015
2090201.361	940417.369	792336.509	16971338.781	.131	3	GPS - RTRN	2014	RTRN2014

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
2090201.329	940417.295	792336.476	16971338.708	.033	C	GPS - STATIC	2023	HTH9



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_T-DQ1962-3S-13SEP2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_T-DQ1962-3S-13SEP2022.jpg</a>	S	Sep 13, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_T-DQ1962-2-13SEP2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_T-DQ1962-2-13SEP2022.jpg</a>		Sep 13, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_T-DQ1962-1-13SEP2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_T-DQ1962-1-13SEP2022.jpg</a>		Sep 13, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1404 U

NGS Name: 1404 U

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ1961](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	29	137 N	45 W	463933.71	962352.99	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2024	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 20 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: 1404 U 2014

1.05 MILES EAST OF BARNESVILLE, 1.05 MILES EAST ALONG TRUNK HIGHWAY 34 FROM THE JUNCTION OF TRUNK HIGHWAY 34 AND TRUNK HIGHWAY 9 IN BARNESVILLE, AT TRUNK HIGHWAY 34 MILEPOINT 1.05, 58.2 FEET SOUTH OF TRUNK HIGHWAY 34, 19.0 FEET WEST OF DRIVEWAY NUMBER 19327, 1.5 FEET NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1048.344	.016	2/1					VERTICAL CONTROL SURVEY	2024	VTH92	
1048.344	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1048.344				961.392	.021	2011	HORIZONTAL ADJUSTMENT	2024	GPS3671	
1048.344	.131			961.507	.066	1996	GPS - STATIC	2023	HTH9	
1048.344				961.392	.021	2011	GPS - STATIC	2023	HTH9	
1048.423	.262			961.324	.197	2011	GPS - RTRN	2023	RTRN2023	
1048.489	.262			961.392	.197	2011	GPS - RTRN	2022	RTRN2022	
1048.423	.262			961.340	.197	2011	GPS - RTRN	2015	RTRN2015	
1048.466	.262			961.383	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.096    12B = -87.086    09 = -86.991    03 = -86.942

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>								
46 39 33.71162	96 23 52.98796	575847.726	110859.804	.013		ADJUSTMENT	2024	GPS3671	
46 39 33.71162	96 23 52.98796	575847.726	110859.804	.013	C	GPS - STATIC	2023	HTH9	
46 39 33.71156	96 23 52.98846	575847.691	110859.798	.131	3	GPS - RTRN	2023	RTRN2023	
46 39 33.71196	96 23 52.98848	575847.690	110859.838	.131	3	GPS - RTRN	2022	RTRN2022	
46 39 33.71117	96 23 52.98820	575847.710	110859.759	.131	3	GPS - RTRN	2015	RTRN2015	
46 39 33.71163	96 23 52.98785	575847.734	110859.805	.131	3	GPS - RTRN	2014	RTRN2014	

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>								
46 39 33.71138	96 23 52.98841	575847.695	110859.780	.033	C	GPS - STATIC	2023	HTH9	

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2085372.078	940494.287	787506.725	16971493.205	.013		ADJUSTMENT	2024	GPS3671
2085372.078	940494.287	787506.725	16971493.205	.013	C	GPS - STATIC	2023	HTH9
2085372.043	940494.282	787506.689	16971493.201	.131	3	GPS - RTRN	2023	RTRN2023
2085372.043	940494.322	787506.690	16971493.241	.131	3	GPS - RTRN	2022	RTRN2022
2085372.060	940494.242	787506.706	16971493.160	.131	3	GPS - RTRN	2015	RTRN2015
2085372.085	940494.288	787506.732	16971493.206	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2085372.046	940494.264	787506.692	16971493.182	.033	C	GPS - STATIC	2023	HTH9

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_U-DQ1961-3S-26JUL2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_U-DQ1961-3S-26JUL2023.jpg</a>	S	Jul 26, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_U-DQ1961-2-26JUL2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_U-DQ1961-2-26JUL2023.jpg</a>		Jul 26, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_U-DQ1961-1-26JUL2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1404_U-DQ1961-1-26JUL2023.jpg</a>		Jul 26, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1406 A

NGS Name: 1406 A

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096431/  
 USGS Quad: HICKSON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	28	137 N	48 W	463933.00	964528.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1952	2009	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

Description: (1955)                      Stamping: 1406 A

NEAR COMSTOCK, AT THE SOUTHEAST CORNER OF THE JUNCTION OF TRUNK HIGHWAY 75 AND A CROSSROAD, 2.0 MILES NORTH OF THE COUNTY LINE, 135.0 FEET RIGHT OF TRUNK HIGHWAY 75, AT TRUNK HIGHWAY 75 STATION 790+76.

Station Notes

FOUND THE CONCRETE MONUMENT WITH A 1/2 INCH SQUARE ROD WITH A DIVOT IN THE TOP.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
920.562	.033	3					VERTICAL CONTROL SURVEY	1955	CS1406	

**Geoid Separations(ft): GEOID18 = -86.680    12B = -86.686    09 = -86.637    03 = -86.568**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1406 AA  
County: CLAY, MN (Sheet 1)

NGS Name: 1406 AA

NGS ACRN: [DM1809](#) [Get Map](#)  
NGS Quad / Sta Num : 46096431/  
USGS Quad: HICKSON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	8	137 N	48 W	464209.83	964530.48	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2009	2023	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 40 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2009)                      Stamping: 1406 AA 2009

3.1 MILES NORTH OF COMSTOCK, 3.0 MILES NORTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND COUNTY ROAD 2 (THE JUNCTION IS 0.5 MILE WEST OF COMSTOCK), AT TRUNK HIGHWAY 75 MILEPOINT 238.25, 101.0 FEET WEST OF TRUNK HIGHWAY 75, 35.0 FEET SOUTH OF 130TH AVENUE SOUTH, 22.0 FEET WEST OF A POWER POLE WITH 2 GUY WIRES. 2.4 FEET NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
915.989	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
916.212	.016	2/1					VERTICAL ADJUSTMENT	2011	00000699	
916.225	.016	2/1					VERTICAL CONTROL SURVEY	2010	VCOMS	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
915.989				829.378	.025	2011	HORIZONTAL ADJUSTMENT	2025	GPS3838	
915.989				829.378	.025	2011	GPS - STATIC	2024	HENLOE	
916.058	.262			829.224	.197	2011	GPS - RTRN	2023	RTRN2023	
916.176	.262			829.342	.197	2011	GPS - OPUS	2021	GPSBM	
916.225	.262			829.395	.197	2011	GPS - RTRN	2021	RTRN2021	
				829.385	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
916.238	.131			829.372	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2690	
916.238	.131			829.441	.066	1996	GPS - STATIC	2010	HCOMS	
916.238	.131			829.372	.066	2007	GPS - STATIC	2010	HCOMS	

Geoid Separations(ft): GEOID18 = -86.834    12B = -86.837    09 = -86.785    03 = -86.689

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 42 09.83072	96 45 30.48095	485352.195	126536.935	.020		ADJUSTMENT	2025	GPS3838	
46 42 09.83072	96 45 30.48095	485352.195	126536.935	.020	C	GPS - STATIC	2024	HENLOE	
46 42 09.83122	96 45 30.48136	485352.166	126536.986	.131	3	GPS - RTRN	2023	RTRN2023	
46 42 09.83048	96 45 30.48181	485352.135	126536.911	.131	3	GPS - OPUS	2021	GPSBM	
46 42 09.83111	96 45 30.48195	485352.125	126536.975	.131	3	GPS - RTRN	2021	RTRN2021	
46 42 09.83148	96 45 30.48106	485352.187	126537.012	.007		ADJUSTMENT	2012	GPS2800	

<u>NAD83(2007)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 42 09.83172	96 45 30.48205	485352.118	126537.037	.033	C	ADJUSTMENT	2011	GPS2690	
46 42 09.83172	96 45 30.48205	485352.118	126537.037	.033	C	GPS - STATIC	2010	HCOMS	

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 42 09.83040	96 45 30.48177	485352.138	126536.903	.066		NCAT	2024	HENLOE	
46 42 09.83129	96 45 30.48189	485352.129	126536.993	.033	C	GPS - STATIC	2010	HCOMS	

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1995414.466	958961.521	697805.400	16991415.181	.020		ADJUSTMENT	2025	GPS3838
1995414.466	958961.521	697805.400	16991415.181	.020	C	GPS - STATIC	2024	HENLOE
1995414.439	958961.573	697805.374	16991415.233	.131	3	GPS - RTRN	2023	RTRN2023
1995414.405	958961.499	697805.339	16991415.160	.131	3	GPS - OPUS	2021	GPSBM
1995414.398	958961.563	697805.332	16991415.224	.131	3	GPS - RTRN	2021	RTRN2021
1995414.461	958961.598	697805.396	16991415.259	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1995414.393	958961.625	697805.328	16991415.286	.033	C	ADJUSTMENT	2011	GPS2690
1995414.393	958961.625	697805.328	16991415.286	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1995414.408	958961.491	697805.342	16991415.152	.066		NCAT	2024	HENLOE
1995414.402	958961.581	697805.337	16991415.242	.033	C	GPS - STATIC	2010	HCOMS

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_AA-DM1809-3S-11OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_AA-DM1809-3S-11OCT2023.jpg</a>	S	Oct 11, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_AA-DM1809-2-11OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_AA-DM1809-2-11OCT2023.jpg</a>		Oct 11, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_AA-DM1809-1-11OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_AA-DM1809-1-11OCT2023.jpg</a>		Oct 11, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1406 AB

NGS Name: 1406 AB

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM7588](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096431/  
 USGS Quad: HICKSON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	9	137 N	48 W	464128.42	964530.57	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1990	2009	GOOD	Horz=YES Vert=YES	YES	8770	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	VERTICAL CONTROL DISK	NGS

**Description:** (2009)                      **Stamping:** 1406 AB 2009

2.25 MILES NORTH OF COMSTOCK, IN THE SOUTHEAST CORNER OF BOX CULVERT NUMBER 8770 OVER WOLVERTON CREEK, 2.25 MILES NORTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND COUNTY ROAD 2 (THE JUNCTION IS 0.5 MILE WEST OF COMSTOCK), 41.0 FEET EAST OF TRUNK HIGHWAY 75, AT TRUNK HIGHWAY 75 MILEPOINT 237.45.

**Station Notes**

THE DISK WAS SET IN THE CULVERT WHEN BUILT IN 1990 THEN STAMPED WHEN USED IN 2009.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order</u>	<u>(/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
912.820	.016		2/1				2019	00000941	VERTICAL ADJUSTMENT				
913.040	.016		2/1				2011	00000699	VERTICAL ADJUSTMENT				
913.056	.016		2/1				2010	VCOMS	VERTICAL CONTROL SURVEY				

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order</u>	<u>(/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
912.938	.262			826.307	.197	1996	2009	RTRN2009	GPS - RTRN				

Geoid Separations(ft): GEOID18 = -86.768    12B = -86.781    09 = -86.732    03 = -86.630

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(1996)</u>				<u>Geodetic Position</u>			<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>		
46 41 28.42261	96 45 30.57068	485342.824	122341.722	.131	3	2009	RTRN2009	GPS - RTRN					

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(1996)</u>				<u>MN State Plane - Central Zone</u>			<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>		
1995275.385	954769.038	697598.704	16987222.661	.131	3	2009	RTRN2009	GPS - RTRN					

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_AB-DM7588-3E-22SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_AB-DM7588-3E-22SEP2009.jpg</a>	E	Sep 22, 2009
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_AB-DM7588-2-22SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_AB-DM7588-2-22SEP2009.jpg</a>		Sep 22, 2009
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_AB-DM7588-1-22SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_AB-DM7588-1-22SEP2009.jpg</a>		Sep 22, 2009

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1406 AC

NGS Name: 1406 AC

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM1810](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096431/  
 USGS Quad: HICKSON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	9	137 N	48 W	464118.14	964529.82	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2009	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 35 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2009)                      Stamping: 1406 AC 2009

2.05 MILES NORTH OF COMSTOCK, 2.05 MILES NORTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND COUNTY ROAD 2 (THE JUNCTION IS 0.5 MILE WEST OF COMSTOCK), AT TRUNK HIGHWAY 75 MILEPOINT 237.25, 83.0 FEET EAST OF TRUNK HIGHWAY 75, 37.5 FEET NORTH OF 140TH AVENUE SOUTH, 2.8 FEET SOUTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
914.552	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
914.772	.016	2/1					VERTICAL ADJUSTMENT	2011	00000699	
914.788	.016	2/1					VERTICAL CONTROL SURVEY	2010	VCOMS	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
914.552				828.033	.031	2011	HORIZONTAL ADJUSTMENT	2025	GPS3838	
914.552				828.033	.031	2011	GPS - STATIC	2024	HENLOE	
914.673	.262			827.918	.197	2011	GPS - RTRN	2023	RTRN2023	
				828.020	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
914.795	.131			828.013	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2690	
914.795	.131			828.082	.066	1996	GPS - STATIC	2010	HCOMS	
914.795	.131			828.013	.066	2007	GPS - STATIC	2010	HCOMS	

Geoid Separations(ft): GEOID18 = -86.755    12B = -86.768    09 = -86.719    03 = -86.621

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 41 18.13874	96 45 29.82495	485394.041	121299.785	.023		ADJUSTMENT	2025	GPS3838	
46 41 18.13874	96 45 29.82495	485394.041	121299.785	.023	C	GPS - STATIC	2024	HENLOE	
46 41 18.13950	96 45 29.82486	485394.047	121299.862	.131	3	GPS - RTRN	2023	RTRN2023	
46 41 18.13817	96 45 29.82398	485394.108	121299.728	.007		ADJUSTMENT	2012	GPS2800	

<u>NAD83(2007)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 41 18.13837	96 45 29.82498	485394.039	121299.748	.033	C	ADJUSTMENT	2011	GPS2690	
46 41 18.13837	96 45 29.82498	485394.039	121299.748	.033	C	GPS - STATIC	2010	HCOMS	

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 41 18.13840	96 45 29.82573	485393.987	121299.751	.066		NCAT	2024	HENLOE	
46 41 18.13793	96 45 29.82480	485394.051	121299.703	.033	C	GPS - STATIC	2010	HCOMS	

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1995294.356	953726.125	697600.889	16986178.875	.023		ADJUSTMENT	2025	GPS3838
1995294.356	953726.125	697600.889	16986178.875	.023	C	GPS - STATIC	2024	HENLOE
1995294.364	953726.202	697600.899	16986178.951	.131	3	GPS - RTRN	2023	RTRN2023
1995294.421	953726.065	697600.954	16986178.814	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1995294.352	953726.088	697600.885	16986178.837	.033	C	ADJUSTMENT	2011	GPS2690
1995294.352	953726.088	697600.885	16986178.837	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1995294.300	953726.093	697600.833	16986178.843	.066		NCAT	2024	HENLOE
1995294.363	953726.043	697600.895	16986178.792	.033	C	GPS - STATIC	2010	HCOMS

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_AC-DM1810-3E-11OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_AC-DM1810-3E-11OCT2023.jpg</a>	E	Oct 11, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_AC-DM1810-2-11OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_AC-DM1810-2-11OCT2023.jpg</a>		Oct 11, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_AC-DM1810-1-11OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_AC-DM1810-1-11OCT2023.jpg</a>		Oct 11, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1406 AD

NGS Name: 1406 AD

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM1811](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096431/  
 USGS Quad: HICKSON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	20	137 N	48 W	463934.74	964530.99	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2009	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 22 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

**Description:** (2009)                      **Stamping:** 1406 AD 2009

0.5 MILE WEST OF COMSTOCK, AT THE JUNCTION OF TRUNK HIGHWAY 75 AND COUNTY ROAD 2 (160 AVENUE SOUTH) (THE JUNCTION IS 0.5 MILE WEST OF COMSTOCK), AT TRUNK HIGHWAY 75 MILEPOINT 235.25, 55.4 FEET WEST OF TRUNK HIGHWAY 75, 131.0 FEET NORTH OF COUNTY ROAD 2 (160TH AVENUE SOUTH), 2.0 FEET SOUTHWEST OF A RIGHT-OF-WAY POST AND WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
922.259	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
922.469	.016	2/1					VERTICAL ADJUSTMENT	2011	00000699	
922.482	.016	2/1					VERTICAL CONTROL SURVEY	2010	VCOMS	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
922.259				835.792	.009	2011	HORIZONTAL ADJUSTMENT	2025	GPS3838	
922.259				835.792	.009	2011	GPS - STATIC	2024	HENLOE	
922.249	.262			835.569	.197	2011	GPS - RTRN	2023	RTRN2023	
				835.792	.008	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
922.472	.131			835.786	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2690	
922.472	.131			835.851	.066	1996	GPS - STATIC	2010	HCOMS	
922.472	.131			835.786	.066	2007	GPS - STATIC	2010	HCOMS	

Geoid Separations(ft): GEOID18 = -86.683    12B = -86.686    09 = -86.640    03 = -86.568

**Lat/Lon and County Coordinates (Feet)**

<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
46 39 34.74180	96 45 30.98601	485305.299	110824.338	.007		ADJUSTMENT	2025	GPS3838
46 39 34.74180	96 45 30.98601	485305.299	110824.338	.007	C	GPS - STATIC	2024	HENLOE
46 39 34.74296	96 45 30.98574	485305.318	110824.456	.131	3	GPS - RTRN	2023	RTRN2023
46 39 34.74180	96 45 30.98601	485305.299	110824.338	.007		ADJUSTMENT	2012	GPS2800

<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
46 39 34.74197	96 45 30.98709	485305.224	110824.355	.033	C	ADJUSTMENT	2011	GPS2690
46 39 34.74197	96 45 30.98709	485305.224	110824.355	.033	C	GPS - STATIC	2010	HCOMS

<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
46 39 34.74141	96 45 30.98683	485305.242	110824.299	.066		NCAT	2024	HENLOE
46 39 34.74152	96 45 30.98689	485305.237	110824.310	.033	C	GPS - STATIC	2010	HCOMS

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1994881.763	943259.542	697019.645	16975713.206	.007		ADJUSTMENT	2025	GPS3838
1994881.763	943259.542	697019.645	16975713.206	.007	C	GPS - STATIC	2024	HENLOE
1994881.786	943259.659	697019.669	16975713.323	.131	3	GPS - RTRN	2023	RTRN2023
1994881.763	943259.542	697019.645	16975713.206	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1994881.688	943259.561	697019.571	16975713.227	.033	C	ADJUSTMENT	2011	GPS2690
1994881.688	943259.561	697019.571	16975713.227	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1994881.705	943259.504	697019.586	16975713.170	.066		NCAT	2024	HENLOE
1994881.701	943259.515	697019.582	16975713.181	.033	C	GPS - STATIC	2010	HCOMS

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_AD-DM1811-3W-11OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_AD-DM1811-3W-11OCT2023.jpg</a>	W	Oct 11, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_AD-DM1811-2-11OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_AD-DM1811-2-11OCT2023.jpg</a>		Oct 11, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_AD-DM1811-1-11OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_AD-DM1811-1-11OCT2023.jpg</a>		Oct 11, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1406 AD 1  
 County: CLAY, MN (Sheet 1)

NGS Name: 1406 AD 1

NGS ACRN: [DM7587](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096431/  
 USGS Quad: HICKSON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	30	137 N	48 W	463933.20	964747.40	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2009	2009	GOOD	Horz=YES Vert=YES	YES	14501	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE RAILING	SURVEY DISK	MNDT

**Description:** (2009)                      **Stamping:** 1406 AD 1 2009

2.3 MILES WEST OF COMSTOCK, IN A RAIL IN THE SOUTHEAST CORNER OF COUNTY ROAD 2 BRIDGE NUMBER 14501 OVER THE RED RIVER, 1.8 MILES WEST ALONG COUNTY ROAD 2 FROM THE JUNCTION OF COUNTY ROAD 2 AND TRUNK HIGHWAY 75 (THE JUNCTION IS 0.5 MILE WEST OF COMSTOCK), 15.0 FEET SOUTH OF COUNTY ROAD 2.

**Station Notes**

THE DISK WAS SET IN A DRILL HOLE IN 2009.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>							<u>Project Info</u>		
<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>				
912.544	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941	
912.761	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699	
912.764	.016	2/1				VERTICAL CONTROL SURVEY	2010	VCOMS	

**Geoid Separations(ft):** GEOID18 = -86.726    12B = -86.719    09 = -86.673    03 = -86.630

\* No Horizontal Positions in the Database \*

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<b>Location:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_AD_1-DM7587-3W-29SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_AD_1-DM7587-3W-29SEP2009.jpg</a>	W	Sep 29, 2009
<b>Monument:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_AD_1-DM7587-2-29SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_AD_1-DM7587-2-29SEP2009.jpg</a>		Sep 29, 2009
<b>Disk:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_AD_1-DM7587-1-29SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_AD_1-DM7587-1-29SEP2009.jpg</a>		Sep 29, 2009

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1406 AE  
County: CLAY, MN (Sheet 1)

NGS Name: 1406 AE

NGS ACRN: [DR9710](#) [Get Map](#)  
NGS Quad / Sta Num : 46096442/  
USGS Quad: FARGO SOUTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SE	32	139 N	48 W	464815.38	964602.26	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2022	2023	GOOD	Horz=YES Vert=YES	NO		RECESSED 4 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 72 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

**Description:** (2022)                      **Stamping:** 1406 AE 2022

3.0 MILES SOUTH OF MOORHEAD, 2.95 MILES SOUTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND INTERSTATE HIGHWAY 94 IN MOORHEAD, AT TRUNK HIGHWAY 75 MILEPOINT 245.4, 75.9 FEET EAST OF TRUNK HIGHWAY 75, 93.7 FEET NORTH OF COUNTY ROAD 12 (60TH AVENUE SOUTH), 1.5 FEET WEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
909.562	.016	2/1				VERTICAL ADJUSTMENT	2024	00000941-3	
909.562	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
909.562			822.626	.023	2011	HORIZONTAL ADJUSTMENT	2024	GPS3715	
909.562			822.626	.023	2011	GPS - STATIC	2024	HMOFA2	
909.562	.131		822.735	.066	1996	GPS - STATIC	2024	HMOFA2	
909.887	.262		822.715	.197	2011	GPS - RTRN	2022	RTRN2022	

**Geoid Separations(ft):** GEOID18 = -87.168    03 = -86.962

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 48 15.37611	96 46 02.25754			483169.059	163573.909	.013		ADJUSTMENT	2024	GPS3715
46 48 15.37611	96 46 02.25754			483169.059	163573.909	.013	C	GPS - STATIC	2024	HMOFA2
46 48 15.37634	96 46 02.25764			483169.052	163573.932	.131	3	GPS - RTRN	2022	RTRN2022

<u>NAD83(1996)</u>				<u>Clay County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 48 15.37602	96 46 02.25832			483169.005	163573.900	.033	C	GPS - STATIC	2024	HMOFA2

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
1994377.733	996044.701			697367.174	17028534.986	.013		ADJUSTMENT	2024	GPS3715
1994377.733	996044.701			697367.174	17028534.986	.013	C	GPS - STATIC	2024	HMOFA2
1994377.727	996044.725			697367.168	17028535.010	.131	3	GPS - RTRN	2022	RTRN2022

<u>NAD83(1996)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
1994377.679	996044.694			697367.119	17028534.980	.033	C	GPS - STATIC	2024	HMOFA2

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<b>Location:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_AE-DR9710-3E-26JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_AE-DR9710-3E-26JUL2022.jpg</a>	E	Jul 26, 2022
<b>Monument:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_AE-DR9710-2-26JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_AE-DR9710-2-26JUL2022.jpg</a>		Jul 26, 2022
<b>Disk:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_AE-DR9710-1-26JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_AE-DR9710-1-26JUL2022.jpg</a>		Jul 26, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1406 B RESET

NGS Name: 1406 B RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096431/  
 USGS Quad: HICKSON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	9	137 N	48 W	464129.00	964529.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1978	2009	DESTROYED	Horz=NO Vert=NO	NO	8770		SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	SURVEY DISK	MNDT

**Description:** (1978)                      **Stamping:** 1406 B RESET 1978

2.26 MILES NORTHWEST OF COMSTOCK, IN THE SOUTHEAST HEADWALL OF TRUNK HIGHWAY 75 DOUBLE BOX CULVERT 8770 AT WOLVERTON CREEK, 0.5 MILE WEST ALONG 160TH AVENUE/BROADWAY FROM THE JUNCTION OF 160TH AVENUE AND 1ST STREET, THEN 2.3 MILES NORTH ON TRUNK HIGHWAY 75 NORTH (14TH STREET SOUTH) TO TRUNK HIGHWAY 75 MILEPOINT 237.4.

**Station Notes**  
 THE CULVERT WAS REPLACED.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
913.085	.033	3					VERTICAL CONTROL SURVEY	1978	CS1406	

**Geoid Separations(ft): GEOID18 = -86.768    12B = -86.781    09 = -86.732    03 = -86.630**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1406 C

NGS Name: 1406 C

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096431/  
 USGS Quad: HICKSON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	9	137 N	48 W	464209.00	964527.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1952	2009	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	SURVEY DISK	MNDT

**Description:** (1952)                      **Stamping:** 1406 C

3.0 MILES NORTH OF COMSTOCK, IN THE SOUTHEAST HEADWALL OF A TRUNK HIGHWAY 75 BOX CULVERT, 0.5 MILE WEST ALONG 160TH AVENUE/BROADWAY FROM THE JUNCTION OF 160TH AVENUE AND 1ST STREET, THEN 3.0 MILES NORTH ON TRUNK HIGHWAY 75 NORTH/14TH STREET SOUTH, THEN 148.0 FEET EAST ON COUNTY ROAD 60 (130TH AVENUE SOUTH), AT TRUNK HIGHWAY 75 STATION 949+42.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>		
915.651	.033	3							VERTICAL CONTROL SURVEY	1955	CS1406	

**Geoid Separations(ft): GEOID18 = -86.831    12B = -86.837    09 = -86.785    03 = -86.689**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1406 D

NGS Name: 1406 D

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096431/  
 USGS Quad: HICKSON

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	4	137 N	48 W	464300.00	964527.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1952	2009	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	SURVEY DISK	MNDT

**Description:** (1952)                      **Stamping:** 1406 D

1.28 MILES SOUTHWEST OF RUSTAD, IN THE SOUTHEAST HEADWALL OF A TRUNK HIGHWAY 75 BOX CULVERT, 0.4 MILE WEST ALONG COUNTY ROAD 8 (110TH AVENUE SOUTH) FROM THE JUNCTION OF 110TH AVENUE SOUTH AND 18TH STREET SOUTH IN RUSTAD, THEN 1.0 MILE SOUTH ON TRUNK HIGHWAY 75 SOUTH (14TH STREET SOUTH), THEN 125.0 FEET EAST ON COUNTY ROAD 4 (120TH AVENUE SOUTH), AT TRUNK HIGHWAY 75 STATION 1000+67.

**Station Notes**

REMOVED THE HEADWALLS DURING CONSTRUCTION IN 1991.

**Leveling-Derived Orthometric Heights (Feet)**

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
914.509	.033	3				VERTICAL CONTROL SURVEY	1955	CS1406

**Geoid Separations(ft):** GEOID18 = -86.922    12B = -86.916    09 = -86.867    03 = -86.775

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1406 E

NGS Name: 1406 E

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096431/  
 USGS Quad: HICKSON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	33	138 N	48 W	464352.00	964527.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1952	2022	DESTROYED	Horz=NO Vert=NO	NO	4242		SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE CURB	SURVEY DISK	MNDT

Description: (1952)                      Stamping: 1406 E

0.4 MILE WEST OF RUSTAD, IN THE SOUTHEAST CURB ON TRUNK HIGHWAY 75 BRIDGE NUMBER 4242, 0.4 MILE WEST ALONG COUNTY ROAD 8 (110TH AVENUE SOUTH) FROM THE JUNCTION OF 110TH AVENUE SOUTH AND 18TH STREET SOUTH, AT TRUNK HIGHWAY 75 STATION 1053+20.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>	
915.349	.033	3				VERTICAL CONTROL SURVEY		1955	CS1406	

**Geoid Separations(ft): GEOID18 = -87.011    12B = -87.001    09 = -86.945    03 = -86.847**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1406 F

NGS Name: 1406 F

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	20	138 N	48 W	464516.00	964602.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1952	2009	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	SURVEY DISK	MNDT

**Description:** (1952)                      **Stamping:** 1406 F

1.68 MILES NORTHWEST OF RUSTAD, IN THE SOUTHEAST HEADWALL OF A TRUNK HIGHWAY 75 BOX CULVERT, 0.5 MILE WEST ALONG COUNTY ROAD 8 (110TH AVENUE SOUTH) FROM THE JUNCTION OF 110TH AVENUE SOUTH AND 18TH STREET SOUTH, THEN 1.7 MILES NORTH ON TRUNK HIGHWAY 75 NORTH (14TH STREET SOUTH), AT TRUNK HIGHWAY 75 STATION 1146+60.

**Station Notes**  
 REMOVED THE HEADWALLS DURING CONSTRUCTION IN 1991.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>							<u>Project Info</u>	
<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			
908.686	.033	3				VERTICAL CONTROL SURVEY	1955	CS1406

**Geoid Separations(ft): GEOID18 = -87.113    12B = -87.106    09 = -87.044    03 = -86.932**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1406 G

NGS Name: 1406 G

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	20	138 N	48 W	464536.00	964604.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1952	2009	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	SURVEY DISK	MNDT

**Description:** (1952)                      **Stamping:** 1406 G

2.1 MILES NORTHWEST OF RUSTAD, IN THE SOUTHEAST HEADWALL OF A TRUNK HIGHWAY 75 BOX CULVERT, 0.5 MILE WEST ALONG COUNTY ROAD 8 (110TH AVENUE SOUTH) FROM THE JUNCTION OF 110TH AVENUE SOUTH AND 18TH STREET SOUTH, THEN 2.1 MILES NORTH ON TRUNK HIGHWAY 75 NORTH (14TH STREET SOUTH), THEN 121.0 FEET EAST ON 28TH STREET SOUTH, AT TRUNK HIGHWAY 75 STATION 1166+15.

**Station Notes**

REMOVED THE HEADWALLS DURING CONSTRUCTION IN 1991.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>							<u>Project Info</u>	
<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			
909.299	.033	3				VERTICAL CONTROL SURVEY	1955	CS1406

**Geoid Separations(ft):** GEOID18 = -87.132    12B = -87.126    09 = -87.063    03 = -86.949

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1406 H

NGS Name: 1406 H

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	17	138 N	48 W	464628.00	964602.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1952	2009	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	SURVEY DISK	MNDT

**Description:** (1952)                      **Stamping:** 1406 H

3.1 MILES NORTH OF RUSTAD, IN THE SOUTHEAST HEADWALL OF A TRUNK HIGHWAY 75 DOUBLE BOX CULVERT, 0.5 MILE WEST ALONG COUNTY ROAD 8 (110TH AVENUE SOUTH) FROM THE JUNCTION OF 110TH AVENUE SOUTH AND 18TH STREET SOUTH IN RUSTAD, THEN 3.1 MILES NORTH ALONG TRUNK HIGHWAY 75 NORTH (14TH STREET SOUTH), THEN 161.0 FEET EAST ON COUNTY ROAD 67 (80TH AVENUE SOUTH), AT TRUNK HIGHWAY 75 STATION 1218+94.

**Station Notes**

REMOVED THE HEADWALLS DURING CONSTRUCTION IN 1991.

**Leveling-Derived Orthometric Heights (Feet)**

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
911.081	.033	3				VERTICAL CONTROL SURVEY	1955	CS1406

**Geoid Separations(ft):** GEOID18 = -87.172    12B = -87.168    09 = -87.100    03 = -86.985

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1406 I

NGS Name: 1406 I

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	17	138 N	48 W	464627.00	964602.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1952	2022	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	SURVEY DISK	MNDT

Description: (1952)                      Stamping: 1406 I

2.0 MILES SOUTH OF FINKLE, IN THE SOUTHEAST HEADWALL OF A TRUNK HIGHWAY 75 BOX CULVERT, 3.1 MILES SOUTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 (8TH STREET SOUTH) AND COUNTY ROAD 75 (50TH AVENUE SOUTH/TOWN AND COUNTY ROAD), AT TRUNK HIGHWAY 75 STATION 1245+65.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>		
908.735	.033	3							VERTICAL CONTROL SURVEY	1955	CS1406	

Geoid Separations(ft): GEOID18 = -87.172    12B = -87.165    09 = -87.100    03 = -86.985

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1406 J

NGS Name: 1406 J

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	5	138 N	48 W	464814.00	964602.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1952	2009	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	SURVEY DISK	MNDT

Description: (1952)                      Stamping: 1406 J

1.0 MILE SOUTHWEST OF FINKLE, IN THE SOUTHEAST HEADWALL OF A TRUNK HIGHWAY 75 BOX CULVERT, 1.0 MILE SOUTH TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND COUNTY ROAD 75 (50TH AVENUE SOUTH), THEN 0.5 MILE WEST ON 60TH AVENUE SOUTH, AT TRUNK HIGHWAY 75 STATION 1326+16.

Station Notes  
 REMOVED THE HEADWALLS DURING CONSTRUCTION IN 1991.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
909.860	.033	3					VERTICAL CONTROL SURVEY	1955	CS1406	

**Geoid Separations(ft): GEOID18 = -87.172    12B = -87.185    09 = -87.083    03 = -86.962**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1406 K

NGS Name: 1406 K

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	32	139 N	48 W	464906.00	964602.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1948	2009	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	SURVEY DISK	MNDT

**Description:** (1948)

**Stamping:**

AT FINKLE, IN THE SOUTHEAST CORNER OF A TRUNK HIGHWAY 75 CULVERT HEADWALL, 0.5 MILE WEST ALONG COUNTY ROAD 75 (50TH AVENUE SOUTH/TOWN AND COUNTY ROAD) FROM THE JUNCTION OF COUNTY ROAD 75 (50TH AVENUE SOUTH/TOWN AND COUNTY ROAD) AND TRUNK HIGHWAY 75 IN FINKLE, 2.5 MILES SOUTH OF THE SOUTH LIMITS OF MOORHEAD, AT TRUNK HIGHWAY 75 STATION 1378+77.

**Station Notes**

REMOVED THE HEADWALLS DURING CONSTRUCTION IN 1991. THE MARK IS A BRASS PLUG.

**Leveling-Derived Orthometric Heights (Feet)**

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
908.541	.033	3				VERTICAL CONTROL SURVEY	1955	CS1406

**Geoid Separations(ft):** GEOID18 = -87.142 12B = -87.165 09 = -87.057 03 = -86.922

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1406 L

NGS Name: 1406 L

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	29	139 N	48 W	464959.00	964602.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1948	2022	NOT FOUND	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

Description: (1948)                      Stamping: 1406 L

1.6 MILES NORTHWEST OF FINKLE, AT THE SOUTHEAST CORNER OF THE JUNCTION OF TRUNK HIGHWAY 75 AND COUNTY ROAD 65, 75.0 FEET RIGHT OF TRUNK HIGHWAY 75, AT TRUNK HIGHWAY 75 STATION 1432+00.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
905.290	.033	3				VERTICAL CONTROL SURVEY	1955	CS1406		

**Geoid Separations(ft): GEOID18 = -87.106    12B = -87.123    09 = -87.004    03 = -86.896**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1406 M

NGS Name: 1406 M

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	20	139 N	48 W	465030.00	964603.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1948	1994	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	SURVEY DISK	MNDT

Description: (1994)

Stamping:

2.1 MILES NORTHWEST OF FINKLE, IN THE SOUTHEAST CORNER OF A TRUNK HIGHWAY 75 CULVERT HEADWALL, 0.5 MILE WEST ALONG COUNTY ROAD 75 (50TH AVENUE SOUTH) FROM THE JUNCTION OF COUNTY ROAD 75 (50TH AVENUE SOUTH) AND TRUNK HIGHWAY 75 IN FINKLE, THEN 1.5 MILES NORTH ALONG 8TH STREET SOUTH, THEN 131.0 FEET EAST ALONG BELSLY BOULEVARD, AT TRUNK HIGHWAY 75 STATION 1464+50, AT THE NORTH EDGE OF A CEMETERY.

**Leveling-Derived Orthometric Heights (Feet)**

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
903.991	.033	3				VERTICAL CONTROL SURVEY	1955	CS1406	

Geoid Separations(ft): GEOID18 = -87.080 12B = -87.093 09 = -86.975 03 = -86.876

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1406 O

NGS Name: 1406 O

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	8	139 N	48 W	465158.00	964602.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1948	2008	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	SURVEY DISK	MNDT

Description: (1994)

Stamping:

IN MOORHEAD, IN THE SOUTHEAST HEADWALL OF A TRUNK HIGHWAY 75 CULVERT, 0.4 MILE EAST ALONG NP AVENUE FROM THE JUNCTION OF NP AVENUE AND ROBERTS STREET NORTH IN FARGO, THEN 0.1 MILE SOUTH-SOUTHEAST ALONG 2ND STREET NORTH, THEN 0.8 MILE EAST ALONG MAIN AVENUE, THEN 0.5 MILE SOUTH ALONG 8TH STREET SOUTH, 38.0 FEET RIGHT OF TRUNK HIGHWAY 75, AT TRUNK HIGHWAY 75 STATION 1552+58, AT THE CONCORDIA COLLEGE CAMPUS.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
899.260	.033	3				VERTICAL CONTROL SURVEY	1962	CS1506	

Geoid Separations(ft): GEOID18 = -86.985 12B = -86.981 09 = -86.870 03 = -86.798

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1406 P

NGS Name: 1406 P

County: CLAY, MN (Sheet 1)

NGS ACRN: [DF8001](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	17	139 N	48 W	465122.97	964603.74	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1994	2022	DESTROYED	Horz=NO Vert=NO	YES		RECESSED 1 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 50 FT)	SURVEY DISK	MNDT

Description: (1994)                      Stamping: 1406 P 1994

IN MOORHEAD, 0.7 MILE NORTH ALONG TRUNK HIGHWAY 75 (SOUTH 8TH STREET) FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND INTERSTATE HIGHWAY 94 IN MOORHEAD, AT TRUNK HIGHWAY 75 MILEPOINT 249.05, 96.0 FEET EAST OF TRUNK HIGHWAY 75, 35.0 FEET NORTH OF SOUTH 18TH AVENUE, 20.1 FEET NORTH OF THE BACK OF A SOUTH 18TH AVENUE CURB, 133.5 FEET SOUTHEAST OF A FIRE HYDRANT, 25.0 FEET EAST OF THE EAST EDGE OF A SIDEWALK, 70.1 FEET EAST OF THE BACK OF A TRUNK HIGHWAY 75 CURB.

Station Notes

THE DISK WAS TURNED IN TO THE OFFICE.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
904.372	.016	2/1				VERTICAL ADJUSTMENT		2019	00000941
904.611	.016	2/1				VERTICAL ADJUSTMENT		2011	00000699
904.611	.016	2/1				VERTICAL CONTROL SURVEY		2010	VCOMS
904.611	.016	2/1				VERTICAL ADJUSTMENT		2004	00000425-2
904.621	.016	2/1				VERTICAL CONTROL SURVEY		2002	VMOOR

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
904.611			817.613	.009	2011	HORIZONTAL ADJUSTMENT		2015	GPS3084
904.611	.131		817.748	.066	1996	GPS - STATIC		2015	HCLAY
904.611			817.607	.009	2011	GPS - STATIC		2015	HCLAY
			817.613	.009	2011	HORIZONTAL ADJUSTMENT		2012	GPS2800
904.624	.131		817.682	.066	2007	HORIZONTAL ADJUSTMENT		2011	GPS2690
904.624	.131		817.748	.066	1996	GPS - STATIC		2010	HCOMS
904.624	.131		817.682	.066	2007	GPS - STATIC		2010	HCOMS
904.506	.262		817.676	.197	1996	GPS - RTRN		2009	RTRN2009

Geoid Separations(ft): GEOID18 = -87.027 12B = -87.027 09 = -86.916 03 = -86.834

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
46 51 22.96969	96 46 03.74153	483082.200	182580.283	.010		ADJUSTMENT		2015	GPS3084
46 51 22.96973	96 46 03.74161	483082.195	182580.288	.010	C	GPS - STATIC		2015	HCLAY
46 51 22.96969	96 46 03.74153	483082.200	182580.283	.010		ADJUSTMENT		2012	GPS2800

NAD83(2007)

<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
46 51 22.97045	96 46 03.74298	483082.099	182580.361	.033	C	ADJUSTMENT		2011	GPS2690
46 51 22.97045	96 46 03.74298	483082.099	182580.361	.033	C	GPS - STATIC		2010	HCOMS

NAD83(1996)

<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
46 51 22.96990	96 46 03.74281	483082.111	182580.305	.033	C	GPS - STATIC		2015	HCLAY
46 51 22.96990	96 46 03.74281	483082.111	182580.305	.033	C	GPS - STATIC		2010	HCOMS
46 51 22.97107	96 46 03.74356	483082.059	182580.424	.131	3	GPS - RTRN		2009	RTRN2009

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1994878.560	1015043.036	698176.325	17047535.155	.010		ADJUSTMENT	2015	GPS3084
1994878.555	1015043.040	698176.320	17047535.159	.010	C	GPS - STATIC	2015	HCLAY
1994878.560	1015043.036	698176.325	17047535.155	.010		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1994878.462	1015043.116	698176.228	17047535.237	.033	C	ADJUSTMENT	2011	GPS2690
1994878.462	1015043.116	698176.228	17047535.237	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1994878.472	1015043.060	698176.238	17047535.180	.033	C	GPS - STATIC	2015	HCLAY
1994878.472	1015043.060	698176.238	17047535.180	.033	C	GPS - STATIC	2010	HCOMS
1994878.424	1015043.180	698176.191	17047535.301	.131	3	GPS - RTRN	2009	RTRN2009

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_P-DF8001-3E-16SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_P-DF8001-3E-16SEP2009.jpg</a>	E	Sep 16, 2009
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_P-DF8001-2-16SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_P-DF8001-2-16SEP2009.jpg</a>		Sep 16, 2009
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_P-DF8001-1-16SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_P-DF8001-1-16SEP2009.jpg</a>		Sep 16, 2009

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1406 P RESET

NGS Name: 1406 P RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [DR9626](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	17	139 N	48 W	465122.97	964603.74	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2022	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 50 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

**Description:** (2022)                      **Stamping:** 1406 P RESET 2022

IN MOORHEAD, 0.7 MILE NORTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND INTERSTATE HIGHWAY 94 IN MOORHEAD, AT TRUNK HIGHWAY 75 MILEPOINT 249.05, 96.0 FEET EAST OF TRUNK HIGHWAY 75 (SOUTH 8TH STREET), 35.0 FEET NORTH OF SOUTH 18TH AVENUE, 20.1 FEET NORTH OF THE BACK OF A SOUTH 18TH AVENUE CURB, 133.5 FEET SOUTHEAST OF A FIRE HYDRANT, 25.0 FEET EAST OF THE EAST EDGE OF A SIDEWALK, 70.1 FEET EAST OF THE BACK OF A TRUNK HIGHWAY 75 CURB.

**Station Notes**

NO WITNESS POST, THE SURVEY MARK IS IN A MOWED AREA.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order</u>	<u>(/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
904.185	.016		2/1				2024	00000941-3	VERTICAL ADJUSTMENT				
904.178	.016		2/1				2023	VMOFA	VERTICAL CONTROL SURVEY				

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order</u>	<u>(/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
904.178				817.413	.025	2011	2024	GPS3674	HORIZONTAL ADJUSTMENT				
904.178				817.413	.025	2011	2023	HMOFA3	GPS - STATIC				
904.178	.131			817.511	.066	1996	2023	HMOFA3	GPS - STATIC				
904.431	.262			817.400	.197	2011	2022	RTRN2022	GPS - RTRN				

Geoid Separations(ft): GEOID18 = -87.027 03 = -86.834

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Geodetic Position</u>				<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>				
46 51 22.96989	96 46 03.74160	483082.195	182580.304	.010		2024	GPS3674	ADJUSTMENT							
46 51 22.96989	96 46 03.74160	483082.195	182580.304	.010	C	2023	HMOFA3	GPS - STATIC							
46 51 22.96883	96 46 03.74196	483082.170	182580.197	.131	3	2022	RTRN2022	GPS - RTRN							

<u>NAD83(1996)</u>				<u>Geodetic Position</u>				<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>				
46 51 22.96978	96 46 03.74242	483082.138	182580.293	.033	C	2023	HMOFA3	GPS - STATIC							

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>MN State Plane - Central Zone</u>				<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>				
1994878.556	1015043.057	698176.321	17047535.175	.010		2024	GPS3674	ADJUSTMENT							
1994878.556	1015043.057	698176.321	17047535.175	.010	C	2023	HMOFA3	GPS - STATIC							
1994878.527	1015042.950	698176.291	17047535.069	.131	3	2022	RTRN2022	GPS - RTRN							

<u>NAD83(1996)</u>				<u>MN State Plane - Central Zone</u>				<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>				
1994878.498	1015043.047	698176.264	17047535.167	.033	C	2023	HMOFA3	GPS - STATIC							



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_P_RESET-DR9626-3E-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_P_RESET-DR9626-3E-15JUN2022.jpg</a>	E	Jun 15, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_P_RESET-DR9626-2-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_P_RESET-DR9626-2-15JUN2022.jpg</a>		Jun 15, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_P_RESET-DR9626-1-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_P_RESET-DR9626-1-15JUN2022.jpg</a>		Jun 15, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1406 Q

NGS Name: 1406 Q

County: CLAY, MN (Sheet 1)

NGS ACRN: [DF8002](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	8	139 N	48 W	465158.15	964604.39	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1994	2023	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 50 FT)	SURVEY DISK	MNDT

**Description:** (1994)                      **Stamping:** 1406 Q 1994

IN MOORHEAD, 1.35 MILES NORTH ALONG TRUNK HIGHWAY 75 (SOUTH 8TH STREET) FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND INTERSTATE HIGHWAY 94 IN MOORHEAD, AT TRUNK HIGHWAY 75 MILEPOINT 249.7, 39.5 FEET EAST OF TRUNK HIGHWAY 75, 108.3 FEET SOUTH OF A NORTH BRICK GATE POST AT THE PRAIRIE HOME CEMETERY, 80.4 FEET SOUTH OF A SOUTH BRICK GATE POST AT A CEMETERY, 13.4 FEET EAST OF THE BACK OF A CURB, 5.4 FEET EAST OF THE EAST EDGE OF A SIDEWALK, 1.8 FEET WEST OF A WROUGHT IRON FENCE.

**Station Notes**

NO WITNESS POST, THE SURVEY MARK IS IN A MOWED AREA.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
901.645	.016	2/1				VERTICAL ADJUSTMENT	2024	00000941-3
901.635	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA
901.635	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941
901.891	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699
901.891	.016	2/1				VERTICAL CONTROL SURVEY	2010	VCOMS
901.891	.016	2/1				VERTICAL ADJUSTMENT	2004	00000425-2
901.904	.016	2/1				VERTICAL CONTROL SURVEY	2002	VMOOR

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
901.635			814.923	.010	2011	HORIZONTAL ADJUSTMENT	2024	GPS3674
901.635			814.923	.010	2011	GPS - STATIC	2023	HMOFA3
901.635	.131		815.054	.066	1996	GPS - STATIC	2023	HMOFA3
901.881	.262		814.897	.197	2011	GPS - RTRN	2022	RTRN2022
			814.923	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
901.901	.131		814.989	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2690
901.901	.131		815.054	.066	1996	GPS - STATIC	2010	HCOMS
901.901	.131		814.989	.066	2007	GPS - STATIC	2010	HCOMS
901.835	.262		815.038	.197	1996	GPS - RTRN	2009	RTRN2009

Geoid Separations(ft): GEOID18 = -86.985    12B = -86.978    09 = -86.867    03 = -86.798

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County				Project Info		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 51 58.14740	96 46 04.38571	483040.510	186144.417	.007		ADJUSTMENT	2024	GPS3674
46 51 58.14740	96 46 04.38571	483040.510	186144.417	.007	C	GPS - STATIC	2023	HMOFA3
46 51 58.14704	96 46 04.38623	483040.474	186144.380	.131	3	GPS - RTRN	2022	RTRN2022
46 51 58.14740	96 46 04.38571	483040.510	186144.417	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

Geodetic Position		Clay County				Project Info		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 51 58.14813	96 46 04.38717	483040.409	186144.491	.033	C	ADJUSTMENT	2011	GPS2690
46 51 58.14813	96 46 04.38717	483040.409	186144.491	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

Geodetic Position		Clay County				Project Info		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 51 58.14759	96 46 04.38700	483040.420	186144.436	.033	C	GPS - STATIC	2023	HMOFA3
46 51 58.14759	96 46 04.38700	483040.420	186144.436	.033	C	GPS - STATIC	2010	HCOMS
46 51 58.14851	96 46 04.38747	483040.388	186144.529	.131	3	GPS - RTRN	2009	RTRN2009

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1994947.088	1018606.464	698302.757	17051099.315	.007		ADJUSTMENT	2024	GPS3674
1994947.088	1018606.464	698302.757	17051099.315	.007	C	GPS - STATIC	2023	HMOFA3
1994947.050	1018606.429	698302.719	17051099.280	.131	3	GPS - RTRN	2022	RTRN2022
1994947.088	1018606.464	698302.757	17051099.315	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1994946.988	1018606.541	698302.659	17051099.394	.033	C	ADJUSTMENT	2011	GPS2690
1994946.988	1018606.541	698302.659	17051099.394	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1994946.999	1018606.486	698302.668	17051099.338	.033	C	GPS - STATIC	2023	HMOFA3
1994946.999	1018606.486	698302.668	17051099.338	.033	C	GPS - STATIC	2010	HCOMS
1994946.969	1018606.580	698302.639	17051099.433	.131	3	GPS - RTRN	2009	RTRN2009

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_Q-DF8002-3E-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_Q-DF8002-3E-15JUN2022.jpg</a>	E	Jun 15, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_Q-DF8002-2-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_Q-DF8002-2-15JUN2022.jpg</a>		Jun 15, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_Q-DF8002-1-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_Q-DF8002-1-15JUN2022.jpg</a>		Jun 15, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1406 R

NGS Name: 1406 R

County: CLAY, MN (Sheet 1)

NGS ACRN: [AH9832](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096431/  
 USGS Quad: HICKSON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	29	137 N	48 W	463842.00	964531.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1995	2009	DESTROYED	Horz=NO Vert=NO	NO		RECESSED 1 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 35 FT)	SURVEY DISK	MNDT

**Description:** (1995)                      **Stamping:** 1406 R 1995

1.0 MILE SOUTH-SOUTHWEST OF COMSTOCK, 1.0 MILE SOUTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND COUNTY ROAD 2 IN COMSTOCK, AT TRUNK HIGHWAY 75 MILEPOINT 234.25, 79.5 FEET WEST OF TRUNK HIGHWAY 75, 17.5 FEET NORTH OF COUNTY ROAD 51 (170TH AVENUE), 31.7 FEET SOUTH OF A TELEPHONE CABLE MARKER POST, 18.0 FEET EAST OF A FIELD ENTRANCE, 4.9 FEET WEST OF A WITNESS POST.

**Station Notes**

FOUND THE CAP BROKEN OFF OF THE ROD. THE DISK WAS TURNED IN TO THE OFFICE.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
923.781	.016	2/1				VERTICAL ADJUSTMENT	1999	00000320	
923.791	.016	2/1				VERTICAL CONTROL SURVEY	1996	VKENT	

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
922.688	.016	2/1				VERTICAL CONTROL SURVEY	1995	VKENT	

Geoid Separations(ft): GEOID18 = -86.689 12B = -86.680 09 = -86.630 03 = -86.584

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1406 R RESET

NGS Name: 1406 R RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM1812](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096431/  
 USGS Quad: HICKSON

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SE	29	137 N	48 W	463841.48	964530.73	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2009	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 4 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 35 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

**Description:** (2009)                      **Stamping:** 1406 R RESET 2009

1.0 MILE SOUTH-SOUTHWEST OF COMSTOCK, 1.0 MILE SOUTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND COUNTY ROAD 22 IN COMSTOCK, AT TRUNK HIGHWAY 75 MILEPOINT 234.25, 79.5 FEET WEST OF TRUNK HIGHWAY 75, 17.5 FEET NORTH OF 170TH AVENUE SOUTH, 31.7 FEET SOUTH OF A TELEPHONE CABLE MARKER POST, 18.0 FEET EAST OF A FIELD ENTRANCE, 4.9 FEET WEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
923.400	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941	
923.601	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699	
923.607	.016	2/1				VERTICAL CONTROL SURVEY	2010	VCOMS	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
923.400			836.898	.009	2011	HORIZONTAL ADJUSTMENT	2025	GPS3838	
923.400			836.898	.009	2011	GPS - STATIC	2024	HENLOE	
923.535	.262		836.845	.197	2011	GPS - RTRN	2023	RTRN2023	
923.532	.262		836.842	.197	2011	GPS - OPUS	2021	GPSBM	
923.574	.262		836.885	.197	2011	GPS - RTRN	2021	RTRN2021	
			836.898	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
923.620	.131		836.898	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2690	
923.620	.131		836.960	.066	1996	GPS - STATIC	2010	HCOMS	
923.620	.131		836.898	.066	2007	GPS - STATIC	2010	HCOMS	
923.568	.262		836.983	.197	1996	GPS - RTRN	2009	RTRN2009	

Geoid Separations(ft): GEOID18 = -86.689    12B = -86.680    09 = -86.630    03 = -86.584

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 38 41.48178	96 45 30.73308	485318.933	105428.386	.007		ADJUSTMENT	2025	GPS3838	
46 38 41.48178	96 45 30.73308	485318.933	105428.386	.007	C	GPS - STATIC	2024	HENLOE	
46 38 41.48246	96 45 30.73147	485319.045	105428.455	.131	3	GPS - RTRN	2023	RTRN2023	
46 38 41.48185	96 45 30.73331	485318.917	105428.393	.131	3	GPS - OPUS	2021	GPSBM	
46 38 41.48253	96 45 30.73327	485318.920	105428.462	.131	3	GPS - RTRN	2021	RTRN2021	
46 38 41.48178	96 45 30.73308	485318.933	105428.386	.007		ADJUSTMENT	2012	GPS2800	

<u>NAD83(2007)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 38 41.48190	96 45 30.73420	485318.855	105428.398	.033	C	ADJUSTMENT	2011	GPS2690	
46 38 41.48190	96 45 30.73420	485318.855	105428.398	.033	C	GPS - STATIC	2010	HCOMS	

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 38 41.48139	96 45 30.73399	485318.870	105428.346	.066		NCAT	2024	HENLOE	
46 38 41.48145	96 45 30.73398	485318.870	105428.352	.033	C	GPS - STATIC	2010	HCOMS	
46 38 41.48242	96 45 30.73376	485318.886	105428.451	.131	3	GPS - RTRN	2009	RTRN2009	

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1994728.545	937866.332	696779.647	16970319.492	.007		ADJUSTMENT	2025	GPS3838
1994728.545	937866.332	696779.647	16970319.492	.007	C	GPS - STATIC	2024	HENLOE
1994728.659	937866.398	696779.763	16970319.555	.131	3	GPS - RTRN	2023	RTRN2023
1994728.529	937866.340	696779.632	16970319.500	.131	3	GPS - OPUS	2021	GPSBM
1994728.534	937866.408	696779.638	16970319.568	.131	3	GPS - RTRN	2021	RTRN2021
1994728.545	937866.332	696779.647	16970319.492	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1994728.467	937866.347	696779.570	16970319.508	.033	C	ADJUSTMENT	2011	GPS2690
1994728.467	937866.347	696779.570	16970319.508	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1994728.480	937866.295	696779.582	16970319.455	.066		NCAT	2024	HENLOE
1994728.481	937866.301	696779.583	16970319.462	.033	C	GPS - STATIC	2010	HCOMS
1994728.500	937866.399	696779.603	16970319.559	.131	3	GPS - RTRN	2009	RTRN2009

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_R_RESET-DM1812-3W-11OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_R_RESET-DM1812-3W-11OCT2023.jpg</a>	W	Oct 11, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_R_RESET-DM1812-2-11OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_R_RESET-DM1812-2-11OCT2023.jpg</a>		Oct 11, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_R_RESET-DM1812-1-11OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_R_RESET-DM1812-1-11OCT2023.jpg</a>		Oct 11, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1406 S

NGS Name: 1406 S

County: CLAY, MN (Sheet 1)

NGS ACRN: [AH9834](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096431/  
 USGS Quad: HICKSON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	19	137 N	48 W	463934.00	964647.00	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1995	2009	DESTROYED	Horz=NO Vert=NO	NO		RECESSED 2 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 22 FT)	SURVEY DISK	MNDT

Description: (1995)                      Stamping: 1406 S 1995

1.25 MILES WEST OF COMSTOCK, 1.0 MILE WEST ALONG COUNTY ROAD 2 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND COUNTY ROAD 2 IN COMSTOCK, 72.0 FEET NORTH OF COUNTY ROAD 2, 22.5 FEET WEST OF COUNTY ROAD 59, 17.5 FEET SOUTH OF A FIELD ENTRANCE, 31.0 FEET NORTHEAST OF A TELEPHONE CABLE MARKER POST, 19.2 FEET NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
920.602	.016	2/1					VERTICAL ADJUSTMENT	1999	00000320	
920.612	.016	2/1					VERTICAL CONTROL SURVEY	1996	VKENT	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
919.509	.016	2/1					VERTICAL CONTROL SURVEY	1995	VKENT	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
				834.027	.066	1996	GPS - STATIC	2001	DIST 4	

Geoid Separations(ft): GEOID18 = -86.703    12B = -86.699    09 = -86.650    03 = -86.604

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 39 33.95325	96 46 45.81315	480085.641	110749.021	.033	C	GPS - STATIC	2001	DIST 4	

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>X</u>	<u>Y</u>								
1989662.833	943345.656	691799.204	16975883.297	.033	C	GPS - STATIC	2001	DIST 4	



Mn/DOT Name: 1406 S RESET

NGS Name: 1406 S RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM1813](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096431/  
 USGS Quad: HICKSON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	19	137 N	48 W	463933.95	964645.81	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2009	2009	GOOD	Horz=YES Vert=YES	YES		RECESSED 4 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 22 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

**Description:** (2009)                      **Stamping:** 1406 S RESET 2009

1.25 MILES WEST OF COMSTOCK, 1.0 MILE WEST ALONG COUNTY ROAD 2 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND COUNTY ROAD 2 IN COMSTOCK, 72.0 FEET NORTH OF COUNTY ROAD 2, 22.5 FEET WEST OF COUNTY ROAD 59, 17.5 FEET SOUTH OF A FIELD ENTRANCE, 31.0 FEET NORTHEAST OF A TELEPHONE CABLE MARKER POST, 19.2 FEET NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
920.270	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941
920.484	.016	2/1					VERTICAL ADJUSTMENT	2011	00000699
920.494	.016	2/1					VERTICAL CONTROL SURVEY	2010	VCOMS

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
				833.758	.008	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
920.503	.131			833.758	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2690
920.503	.131			833.821	.066	1996	GPS - STATIC	2010	HCOMS
920.503	.131			833.758	.066	2007	GPS - STATIC	2010	HCOMS
920.339	.262			833.738	.197	1996	GPS - RTRN	2009	RTRN2009

**Geoid Separations(ft): GEOID18 = -86.703    12B = -86.699    09 = -86.650    03 = -86.601**

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>							
46 39 33.95321	96 46 45.81219	480085.707	110749.015	.007		ADJUSTMENT	2012	GPS2800

  

<u>NAD83(2007)</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>							
46 39 33.95333	96 46 45.81336	480085.626	110749.027	.033	C	ADJUSTMENT	2011	GPS2690
46 39 33.95333	96 46 45.81336	480085.626	110749.027	.033	C	GPS - STATIC	2010	HCOMS

  

<u>NAD83(1996)</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>							
46 39 33.95286	96 46 45.81314	480085.641	110748.980	.033	C	GPS - STATIC	2010	HCOMS
46 39 33.95472	96 46 45.81359	480085.610	110749.168	.131	3	GPS - RTRN	2009	RTRN2009



**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
1989662.900	943345.650	691799.271	16975883.290	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
1989662.819	943345.665	691799.190	16975883.306	.033	C	ADJUSTMENT	2011	GPS2690
1989662.819	943345.665	691799.190	16975883.306	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
1989662.833	943345.617	691799.203	16975883.257	.033	C	GPS - STATIC	2010	HCOMS
1989662.807	943345.806	691799.181	16975883.447	.131	3	GPS - RTRN	2009	RTRN2009

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_S_RESET-DM1813-3NW-15SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_S_RESET-DM1813-3NW-15SEP2009.jpg</a>	NW	Sep 15, 2009
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_S_RESET-DM1813-2-15SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_S_RESET-DM1813-2-15SEP2009.jpg</a>		Sep 15, 2009
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_S_RESET-DM1813-1-15SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_S_RESET-DM1813-1-15SEP2009.jpg</a>		Sep 15, 2009

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1406 T

NGS Name: 1406 T

County: CLAY, MN (Sheet 1)

NGS ACRN: [AH9835](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096431/  
 USGS Quad: HICKSON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	30	137 N	48 W	463932.00	964749.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1995	2021	DESTROYED	Horz=NO Vert=NO	NO	14501	FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE ABUTMENT	SURVEY DISK	MNDT

**Description:** (1995)                      **Stamping:** 1406 T 1995

2.25 MILES WEST OF COMSTOCK, IN THE SOUTHEAST CORNER OF COUNTY ROAD 2 BRIDGE NUMBER 14501 OVER THE RED RIVER AT THE MINNESOTA-NORTH DAKOTA BORDER, 1.8 MILES WEST ALONG COUNTY ROAD 2 FROM THE JUNCTION OF COUNTY ROAD 2 AND TRUNK HIGHWAY 75 IN COMSTOCK, 15.6 FEET SOUTH OF COUNTY ROAD 2, 0.70 FOOT WEST OF THE EAST END OF A BRIDGE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
910.838	.016	2/1				1999	00000320					
910.845	.016	2/1				1996	VKENT					

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
909.739	.016	2/1				1995	VKENT					

Geoid Separations(ft): GEOID18 = -86.729    12B = -86.719    09 = -86.673    03 = -86.630

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1406 U

NGS Name: 1406 U

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM1814](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	20	139 N	48 W	465037.98	964603.70	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2000	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 25 FT)	SURVEY DISK	MNDT

**Description:** (2000)                      **Stamping:** 1406 U 2000

IN MOORHEAD, 0.2 MILE SOUTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND INTERSTATE HIGHWAY 94 IN MOORHEAD, AT TRUNK HIGHWAY 75 MILEPOINT 248.1, 70.0 FEET EAST OF NORTHBOUND TRUNK HIGHWAY 75, 48.3 FEET SOUTH OF EASTBOUND 30TH AVENUE, 12.8 FEET WEST OF A MONITORING WELL, 57.0 FEET WEST OF A FRONTAGE ROAD, 1.5 FEET WEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
908.387	.016	2/1				VERTICAL ADJUSTMENT	2024	0000941-3		
908.387	.016	2/1				VERTICAL ADJUSTMENT	2024	0000941-3		
908.391	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA		
908.410	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941		
908.646	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699		
908.673	.016	2/1				VERTICAL ADJUSTMENT	2011	00000685		
908.646	.016	2/1				VERTICAL CONTROL SURVEY	2010	VCOMS		
908.683	.016	2/1				VERTICAL CONTROL SURVEY	2002	VMORE		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
908.391			821.603	.009	2011	HORIZONTAL ADJUSTMENT	2024	GPS3715	
908.391			821.603	.009	2011	GPS - STATIC	2024	HMOFA2	
908.391	.131		821.724	.066	1996	GPS - STATIC	2024	HMOFA2	
908.607	.262		821.534	.197	2011	GPS - RTRN	2022	RTRN2022	
			821.603	.008	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
908.660	.131		821.665	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2690	
908.660	.131		821.724	.066	1996	GPS - STATIC	2010	HCOMS	
908.660	.131		821.665	.066	2007	GPS - STATIC	2010	HCOMS	
908.502	.262		821.632	.197	1996	GPS - RTRN	2009	RTRN2009	

Geoid Separations(ft): GEOID18 = -87.073    12B = -87.083    09 = -86.965    03 = -86.870

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 50 37.97748	96 46 03.69608	483081.430	178021.821	.007		ADJUSTMENT	2024	GPS3715
46 50 37.97748	96 46 03.69608	483081.430	178021.821	.007	C	GPS - STATIC	2024	HMOFA2
46 50 37.97714	96 46 03.69564	483081.460	178021.787	.131	3	GPS - RTRN	2022	RTRN2022
46 50 37.97748	96 46 03.69608	483081.430	178021.821	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 50 37.97822	96 46 03.69756	483081.327	178021.896	.033	C	ADJUSTMENT	2011	GPS2690
46 50 37.97822	96 46 03.69756	483081.327	178021.896	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 50 37.97768	96 46 03.69738	483081.340	178021.841	.033	C	GPS - STATIC	2024	HMOFA2
46 50 37.97768	96 46 03.69738	483081.340	178021.841	.033	C	GPS - STATIC	2010	HCOMS
46 50 37.97815	96 46 03.69908	483081.221	178021.889	.131	3	GPS - RTRN	2009	RTRN2009

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1994736.853	1010487.156	697960.599	17042979.205	.007		ADJUSTMENT	2024	GPS3715
1994736.853	1010487.156	697960.599	17042979.205	.007	C	GPS - STATIC	2024	HMOFA2
1994736.883	1010487.121	697960.628	17042979.170	.131	3	GPS - RTRN	2022	RTRN2022
1994736.853	1010487.156	697960.599	17042979.205	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1994736.753	1010487.234	697960.500	17042979.285	.033	C	ADJUSTMENT	2011	GPS2690
1994736.753	1010487.234	697960.500	17042979.285	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1994736.763	1010487.179	697960.510	17042979.230	.033	C	GPS - STATIC	2024	HMOFA2
1994736.763	1010487.179	697960.510	17042979.230	.033	C	GPS - STATIC	2010	HCOMS
1994736.647	1010487.230	697960.394	17042979.283	.131	3	GPS - RTRN	2009	RTRN2009

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_U-DM1814-3E-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_U-DM1814-3E-15JUN2022.jpg</a>	E	Jun 15, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_U-DM1814-2-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_U-DM1814-2-15JUN2022.jpg</a>		Jun 15, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_U-DM1814-1-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_U-DM1814-1-15JUN2022.jpg</a>		Jun 15, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1406 V

NGS Name: 1406 V

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM4277](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	29	139 N	48 W	464914.00	964600.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2000	2009	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE)	SURVEY DISK	MNDT

**Description:** (2000)                      **Stamping:** 1406 V 2000

3.0 MILES SOUTH OF MOORHEAD, 1.8 MILES SOUTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND INTERSTATE HIGHWAY 94 IN MOORHEAD, AT TRUNK HIGHWAY 75 MILEPOINT 246.55, 63.0 FEET EAST OF TRUNK HIGHWAY 75, 13.4 FEET NORTH-NORTHWEST OF A POWER POLE, 27.0 FEET SOUTH OF A CONCRETE ENTRANCE.

**Station Notes**

THE MARK WAS FOUND WITH A LOOSE CAP. MAY NEED TO BE REPLACED. THE DISK WAS TURNED IN TO THE OFFICE. SEE 1406 V RESET.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
907.278	.016	2/1				VERTICAL ADJUSTMENT	2011	00000685	
907.285	.016	2/1				VERTICAL CONTROL SURVEY	2002	VMORE	

Geoid Separations(ft): GEOID18 = -87.139    12B = -87.162    09 = -87.050    03 = -86.919

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1406 V RESET

NGS Name: 1406 V RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM1815](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	29	139 N	48 W	464914.40	964603.17	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2009	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 5 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 11 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

**Description:** (2009)                      **Stamping:** 1406 V RESET 2009

3.0 MILES SOUTH OF MOORHEAD, 1.8 MILES SOUTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND INTERSTATE HIGHWAY 94 IN MOORHEAD, 63.0 FEET EAST OF TRUNK HIGHWAY 75, AT MILEPOINT 246.55, 13.4 FEET NORTH-NORTHWEST OF A POWER POLE WITH A GUY WIRE, 27.0 FEET SOUTH OF DRIVEWAY NUMBER 4838, 23.0 FEET SOUTH OF DRIVEWAY NUMBER 4848, 2.8 FEET NORTHWEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
906.803	.016	2/1				2024	0000941-3	VERTICAL ADJUSTMENT				
906.803	.016	2/1				2023	VMOFA	VERTICAL CONTROL SURVEY				
906.803	.016	2/1				2019	00000941	VERTICAL ADJUSTMENT				
907.052	.016	2/1				2011	00000699	VERTICAL ADJUSTMENT				
907.055	.016	2/1				2010	VCOMS	VERTICAL CONTROL SURVEY				

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
906.803			819.890	.025	2011	2024	GPS3715	HORIZONTAL ADJUSTMENT				
906.803			819.890	.025	2011	2024	HMOFA2	GPS - STATIC				
906.803	.131		820.054	.066	1996	2024	HMOFA2	GPS - STATIC				
907.026	.262		819.890	.197	2011	2022	RTRN2022	GPS - RTRN				
907.055	.262		819.920	.197	2011	2021	GPSBM	GPS - OPUS				
907.111	.262		819.975	.197	2011	2021	RTRN2021	GPS - RTRN				
			819.936	.008	2011	2012	GPS2800	HORIZONTAL ADJUSTMENT				
907.052	.131		819.992	.066	2007	2011	GPS2690	HORIZONTAL ADJUSTMENT				
907.052	.131		820.054	.066	1996	2010	HCOMS	GPS - STATIC				
907.052	.131		819.992	.066	2007	2010	HCOMS	GPS - STATIC				
906.917	.262		819.998	.197	1996	2009	RTRN2009	GPS - RTRN				

**Geoid Separations(ft): GEOID18 = -87.136    12B = -87.159    09 = -87.047    03 = -86.919**

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 49 14.39556	96 46 03.17021	483110.706	169553.576	.016		ADJUSTMENT	2024	GPS3715
46 49 14.39556	96 46 03.17021	483110.706	169553.576	.016	C	GPS - STATIC	2024	HMOFA2
46 49 14.39564	96 46 03.17188	483110.590	169553.584	.131	3	GPS - RTRN	2022	RTRN2022
46 49 14.39533	96 46 03.17118	483110.638	169553.553	.131	3	GPS - OPUS	2021	GPSBM
46 49 14.39494	96 46 03.17186	483110.591	169553.514	.131	3	GPS - RTRN	2021	RTRN2021
46 49 14.39477	96 46 03.16960	483110.748	169553.496	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 49 14.39550	96 46 03.17111	483110.643	169553.570	.033	C	ADJUSTMENT	2011	GPS2690
46 49 14.39550	96 46 03.17111	483110.643	169553.570	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 49 14.39498	96 46 03.17093	483110.656	169553.518	.033	C	GPS - STATIC	2024	HMOFA2
46 49 14.39498	96 46 03.17093	483110.656	169553.518	.033	C	GPS - STATIC	2010	HCOMS
46 49 14.39684	96 46 03.17151	483110.615	169553.706	.131	3	GPS - RTRN	2009	RTRN2009

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1994504.292	1002022.783	697590.652	17034514.171	.016		ADJUSTMENT	2024	GPS3715
1994504.292	1002022.783	697590.652	17034514.171	.016	C	GPS - STATIC	2024	HMOFA2
1994504.177	1002022.795	697590.537	17034514.185	.131	3	GPS - RTRN	2022	RTRN2022
1994504.224	1002022.762	697590.584	17034514.151	.131	3	GPS - OPUS	2021	GPSBM
1994504.176	1002022.724	697590.535	17034514.114	.131	3	GPS - RTRN	2021	RTRN2021
1994504.333	1002022.701	697590.691	17034514.089	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1994504.230	1002022.779	697590.589	17034514.168	.033	C	ADJUSTMENT	2011	GPS2690
1994504.230	1002022.779	697590.589	17034514.168	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1994504.241	1002022.726	697590.600	17034514.115	.033	C	GPS - STATIC	2024	HMOFA2
1994504.241	1002022.726	697590.600	17034514.115	.033	C	GPS - STATIC	2010	HCOMS
1994504.206	1002022.915	697590.568	17034514.305	.131	3	GPS - RTRN	2009	RTRN2009

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_V_RESET-DM1815-3E-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_V_RESET-DM1815-3E-15JUN2022.jpg</a>	E	Jun 15, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_V_RESET-DM1815-2-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_V_RESET-DM1815-2-15JUN2022.jpg</a>		Jun 15, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_V_RESET-DM1815-1-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_V_RESET-DM1815-1-15JUN2022.jpg</a>		Jun 15, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1406 W  
County: CLAY, MN (Sheet 1)

NGS Name: 1406 W

NGS ACRN: [DM1816](#) [Get Map](#)  
NGS Quad / Sta Num : 46096442/  
USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	32	139 N	48 W	464815.20	964602.76	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2009	2021	DESTROYED	Horz=NO Vert=NO	YES		FLUSH	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 55 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2009)                      Stamping: 1406 W 2009

2.95 MILES SOUTH OF MOORHEAD, 2.95 MILES SOUTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 74 AND INTERSTATE HIGHWAY 94 IN MOORHEAD, AT TRUNK HIGHWAY 75 MILEPOINT 245.4, 72.0 FEET EAST OF TRUNK HIGHWAY 75, 84.2 FEET NORTH OF COUNTY ROAD 12 (60 AVENUE SOUTH), 16.0 FEET NORTH OF A POWER POLE, 2.6 FEET WEST OF A RIGHT-OF-WAY POST, 2.2 FEET WEST OF A WITNESS POST.

Station Notes

NEW ROUNDABOUT.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
909.345	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
909.598	.016	2/1					VERTICAL ADJUSTMENT	2011	00000699	
909.598	.016	2/1					VERTICAL CONTROL SURVEY	2010	VCOMS	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
				822.423	.008	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
909.611	.131			822.436	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2690	
909.611	.131			822.515	.066	1996	GPS - STATIC	2010	HCOMS	
909.611	.131			822.436	.066	2007	GPS - STATIC	2010	HCOMS	

Geoid Separations(ft): GEOID18 = -87.172    12B = -87.185    09 = -87.080    03 = -86.962

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 48 15.20076	96 46 02.75633			483134.344	163556.173	.007		ADJUSTMENT	2012	GPS2800

  

<u>NAD83(2007)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 48 15.20133	96 46 02.75777			483134.244	163556.231	.033	C	ADJUSTMENT	2011	GPS2690
46 48 15.20133	96 46 02.75777			483134.244	163556.231	.033	C	GPS - STATIC	2010	HCOMS

  

<u>NAD83(1996)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 48 15.20090	96 46 02.75760			483134.256	163556.187	.033	C	GPS - STATIC	2010	HCOMS



**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
1994342.489	996028.049	697331.641	17028518.896	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
1994342.391	996028.110	697331.544	17028518.958	.033	C	ADJUSTMENT	2011	GPS2690
1994342.391	996028.110	697331.544	17028518.958	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
1994342.401	996028.066	697331.554	17028518.914	.033	C	GPS - STATIC	2010	HCOMS

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_W-DM1816-3E-29SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_W-DM1816-3E-29SEP2009.jpg</a>	E	Sep 29, 2009
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_W-DM1816-2-29SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_W-DM1816-2-29SEP2009.jpg</a>		Sep 29, 2009
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_W-DM1816-1-29SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_W-DM1816-1-29SEP2009.jpg</a>		Sep 29, 2009

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1406 W 1  
 County: CLAY, MN (Sheet 1)

NGS Name: 1406 W 1

NGS ACRN: [DM7591](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	6	138 N	48 W	464812.40	964743.70	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2009	2020	GOOD	Horz=YES Vert=YES	YES	14510	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE ABUTMENT	SURVEY DISK	MNDT

**Description:** (2009)                      **Stamping:** 1406 W 1 1978

3.3 MILES SOUTHWEST OF MOORHEAD, IN AN ABUTMENT IN THE SOUTHEAST CORNER OF COUNTY ROAD 12 (60TH AVENUE SOUTH) BRIDGE NUMBER 14510 OVER THE RED RIVER, 2.95 MILES SOUTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 74 AND INTERSTATE HIGHWAY 94 IN MOORHEAD, TO TRUNK HIGHWAY 75 MILEPOINT 245.40, THEN 1.35 MILES WEST ON COUNTY ROAD 12 (60TH AVENUE SOUTH), 32.0 FEET SOUTH OF COUNTY ROAD 12 (60TH AVENUE SOUTH).

**Station Notes**

THE DISK WAS SET IN A DRILL HOLE WHEN USED IN 2009, YET STAMPED 1978 FOR THE YEAR THE BRIDGE WAS BUILT.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
907.846	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941	
908.105	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699	
908.105	.016	2/1				VERTICAL CONTROL SURVEY	2010	VCOMS	

**Geoid Separations(ft):** GEOID18 = -87.109    12B = -87.116    09 = -87.021    03 = -86.903

\* No Horizontal Positions in the Database \*

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<b>Location:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_W_1-DM7591-3W-29SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_W_1-DM7591-3W-29SEP2009.jpg</a>	W	Sep 29, 2009
<b>Monument:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_W_1-DM7591-2-29SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_W_1-DM7591-2-29SEP2009.jpg</a>		Sep 29, 2009
<b>Disk:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_W_1-DM7591-1-29SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_W_1-DM7591-1-29SEP2009.jpg</a>		Sep 29, 2009

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1406 X

NGS Name: 1406 X

County: CLAY, MN (Sheet 1)

NGS ACRN: <a href="#">DM1817</a>	<a href="#">Get Map</a>
NGS Quad / Sta Num : 46096442/	
USGS Quad: FARGO SOUTH	

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	8	138 N	48 W	464719.76	964605.02	2	C

  

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2009	2022	DESTROYED	Horz=NO Vert=NO	YES		FLUSH	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 50 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2009)                      Stamping: 1406 X 2009

4.0 MILES SOUTH OF MOORHEAD, 4.0 MILES SOUTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 74 AND INTERSTATE HIGHWAY 94 IN MOORHEAD, AT TRUNK HIGHWAY 75 MILEPOINT 244.35, 73.0 FEET WEST OF TRUNK HIGHWAY 75, 77.0 FEET SOUTH OF COUNTY ROAD 67 (70TH AVENUE SOUTH), 8.3 FEET NORTH OF A CABLE BOX, 24.0 FEET SOUTH OF THE EAST POST OF THE NOKKEN FARM SIGN. 2.0 FEET EAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
909.204	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941		
909.454	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699		
909.450	.016	2/1				VERTICAL CONTROL SURVEY	2010	VCOMS		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
			822.259	.007	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800		
909.447	.131		822.279	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2690		
909.447	.131		822.354	.066	1996	GPS - STATIC	2010	HCOMS		
909.447	.131		822.279	.066	2007	GPS - STATIC	2010	HCOMS		

Geoid Separations(ft): GEOID18 = -87.185 12B = -87.185 09 = -87.100 03 = -86.988

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 47 19.76241	96 46 05.02163	482971.886	157939.534	.007		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 47 19.76299	96 46 05.02311	482971.783	157939.593	.033	C	ADJUSTMENT	2011	GPS2690
46 47 19.76299	96 46 05.02311	482971.783	157939.593	.033	C	GPS - STATIC	2010	HCOMS

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 47 19.76255	96 46 05.02294	482971.795	157939.548	.033	C	GPS - STATIC	2010	HCOMS

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1994006.467	990419.630	696904.647	17022912.940	.007		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1994006.366	990419.692	696904.547	17022913.004	.033	C	ADJUSTMENT	2011	GPS2690
1994006.366	990419.692	696904.547	17022913.004	.033	C	GPS - STATIC	2010	HCOMS

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1994006.376	990419.647	696904.557	17022912.959	.033	C	GPS - STATIC	2010	HCOMS



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_X-DM1817-3W-30SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_X-DM1817-3W-30SEP2009.jpg</a>	W	Sep 30, 2009
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_X-DM1817-2-30SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_X-DM1817-2-30SEP2009.jpg</a>		Sep 30, 2009
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_X-DM1817-1-30SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_X-DM1817-1-30SEP2009.jpg</a>		Sep 30, 2009

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1406 X RESET

NGS Name: 1406 X RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [DR9709](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	8	138 N	48 W	464719.76	964605.02	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2022	2023	GOOD	Horz=YES Vert=YES	NO		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 50 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2022)                      Stamping: 1406 X RESET 2022

4.0 MILES SOUTH OF MOORHEAD, 4.0 MILES SOUTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 74 AND INTERSTATE HIGHWAY 94 IN MOORHEAD, AT TRUNK HIGHWAY 75 MILEPOINT 244.35, 73.0 FEET WEST OF TRUNK HIGHWAY 75, 77.0 FEET SOUTH OF COUNTY ROAD 67 (70TH AVENUE SOUTH), 24.0 FEET SOUTH OF THE EAST POST OF THE NOKKEN FARM SIGN, 8.3 FEET NORTH OF A CABLE BOX, 2.0 FEET EAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
909.201	.016	2/1				2024	00000941-3	VERTICAL ADJUSTMENT				
909.201	.016	2/1				2023	VMOFA	VERTICAL CONTROL SURVEY				

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
909.201			822.272	.022	2011	2024	GPS3715	HORIZONTAL ADJUSTMENT				
909.201			822.272	.022	2011	2024	HMOFA2	GPS - STATIC				
909.201	.131		822.364	.066	1996	2024	HMOFA2	GPS - STATIC				

Geoid Separations(ft): GEOID18 = -87.182 03 = -86.988

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			
46 47 19.76271	96 46 05.02087	482971.939	157939.564	.013		2024	GPS3715	ADJUSTMENT		
46 47 19.76271	96 46 05.02087	482971.939	157939.564	.013	C	2024	HMOFA2	GPS - STATIC		

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			
46 47 19.76266	96 46 05.02174	482971.878	157939.559	.033	C	2024	HMOFA2	GPS - STATIC		

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	
1994006.521	990419.659	696904.702	17022912.968	696904.702	17022912.968	.013		2024	GPS3715	
1994006.521	990419.659	696904.702	17022912.968	696904.702	17022912.968	.013	C	2024	HMOFA2	

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	
1994006.460	990419.656	696904.641	17022912.966	696904.641	17022912.966	.033	C	2024	HMOFA2	

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_X_RESET-DR9709-3W-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_X_RESET-DR9709-3W-15JUN2022.jpg</a>	W	Jun 15, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_X_RESET-DR9709-2-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_X_RESET-DR9709-2-15JUN2022.jpg</a>		Jun 15, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_X_RESET-DR9709-1-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_X_RESET-DR9709-1-15JUN2022.jpg</a>		Jun 15, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1406 Y

NGS Name: 1406 Y

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM1818](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096431/  
 USGS Quad: HICKSON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	20	138 N	48 W	464444.30	964605.68	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2009	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 30 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2009) Stamping: 1406 Y 2009

6.95 MILES SOUTH OF MOORHEAD, 7.0 MILES SOUTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND INTERSTATE HIGHWAY 94 IN MOORHEAD, AT TRUNK HIGHWAY 75 MILEPOINT 241.35, 76.0 FEET WEST OF TRUNK HIGHWAY 75, 38.7 FEET NORTH OF COUNTY ROAD 65 (100TH AVENUE SOUTH), 4.0 FEET EAST OF A RIGHT-OF-WAY POST, 5.4 FEET EAST OF CABLE BOX NUMBER SPL NLY, 1.8 FEET SOUTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
912.728	.016	2/1				VERTICAL ADJUSTMENT	2024	00000941-3		
912.728	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA		
912.741	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941		
912.980	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699		
912.977	.016	2/1				VERTICAL CONTROL SURVEY	2010	VCOMS		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
912.728			825.891	.009	2011	HORIZONTAL ADJUSTMENT	2024	GPS3715		
912.728			825.891	.009	2011	GPS - STATIC	2024	HMOFA2		
912.728	.131		825.969	.066	1996	GPS - STATIC	2024	HMOFA2		
913.040	.262		825.966	.197	2011	GPS - RTRN	2022	RTRN2022		
			825.891	.008	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800		
912.990	.131		825.887	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2690		
912.990	.131		825.969	.066	1996	GPS - STATIC	2010	HCOMS		
912.990	.131		825.887	.066	2007	GPS - STATIC	2010	HCOMS		

Geoid Separations(ft): GEOID18 = -87.077 12B = -87.067 09 = -87.004 03 = -86.896

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 44 44.29752	96 46 05.67509			482912.744	142188.621	.007		ADJUSTMENT	2024	GPS3715
46 44 44.29752	96 46 05.67509			482912.744	142188.621	.007	C	GPS - STATIC	2024	HMOFA2
46 44 44.29778	96 46 05.67454			482912.782	142188.648	.131	3	GPS - RTRN	2022	RTRN2022
46 44 44.29752	96 46 05.67509			482912.744	142188.621	.007		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 44 44.29796	96 46 05.67636			482912.655	142188.666	.033	C	ADJUSTMENT	2011	GPS2690
46 44 44.29796	96 46 05.67636			482912.655	142188.666	.033	C	GPS - STATIC	2010	HCOMS

<u>NAD83(1996)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 44 44.29754	96 46 05.67626			482912.662	142188.623	.033	C	GPS - STATIC	2024	HMOFA2
46 44 44.29754	96 46 05.67626			482912.662	142188.623	.033	C	GPS - STATIC	2010	HCOMS

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1993460.365	974679.576	696103.800	17007173.270	.007		ADJUSTMENT	2024	GPS3715
1993460.365	974679.576	696103.800	17007173.270	.007	C	GPS - STATIC	2024	HMOFA2
1993460.404	974679.601	696103.839	17007173.295	.131	3	GPS - RTRN	2022	RTRN2022
1993460.365	974679.576	696103.800	17007173.270	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1993460.278	974679.624	696103.714	17007173.319	.033	C	ADJUSTMENT	2011	GPS2690
1993460.278	974679.624	696103.714	17007173.319	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1993460.284	974679.581	696103.719	17007173.276	.033	C	GPS - STATIC	2024	HMOFA2
1993460.284	974679.581	696103.719	17007173.276	.033	C	GPS - STATIC	2010	HCOMS

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_Y-DM1818-3W-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_Y-DM1818-3W-15JUN2022.jpg</a>	W	Jun 15, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_Y-DM1818-2-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_Y-DM1818-2-15JUN2022.jpg</a>		Jun 15, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_Y-DM1818-1-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_Y-DM1818-1-15JUN2022.jpg</a>		Jun 15, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1406 Z

NGS Name: 1406 Z

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM1819](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096431/  
 USGS Quad: HICKSON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	28	138 N	48 W	464353.99	964528.20	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2009	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 40 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2009)                      Stamping: 1406 Z 2009

5.1 MILES NORTH OF COMSTOCK, 5.0 MILES NORTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND COUNTY ROAD 2 (THE JUNCTION IS 0.5 MILE WEST OF COMSTOCK), AT TRUNK HIGHWAY 75 MILEPOINT 240.25, 65.9 FEET EAST OF TRUNK HIGHWAY 75, 62.2 FEET NORTH OF COUNTY ROAD 8, 5.11 FEET WEST OF THE SOUTHWEST CORNER OF CABLE BOX NUMBER KVA 10, 6.4 FEET NORTH OF A CABLE BOX POST, 1.6 FEET WEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
912.800	.016	2/1				VERTICAL ADJUSTMENT	2024	00000941-3		
912.800	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA		
912.800	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941		
913.036	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699		
913.040	.016	2/1				VERTICAL CONTROL SURVEY	2010	VCOMS		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
912.800			826.006	.008	2011	HORIZONTAL ADJUSTMENT	2025	GPS3838		
912.800			826.006	.008	2011	GPS - STATIC	2024	HENLOE		
912.800			826.006	.009	2011	HORIZONTAL ADJUSTMENT	2024	GPS3715		
912.800			826.006	.009	2011	GPS - STATIC	2024	HMOFA2		
912.800	.131		826.078	.066	1996	GPS - STATIC	2024	HMOFA2		
912.866	.262		825.851	.197	2011	GPS - RTRN	2022	RTRN2022		
912.967	.262		825.953	.197	2011	GPS - OPUS	2021	GPSBM		
912.971	.262		825.956	.197	2011	GPS - RTRN	2021	RTRN2021		
			826.006	.007	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800		
913.056	.131		825.999	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2690		
913.056	.131		826.078	.066	1996	GPS - STATIC	2010	HCOMS		
913.056	.131		825.999	.066	2007	GPS - STATIC	2010	HCOMS		

Geoid Separations(ft): GEOID18 = -87.014    12B = -87.004    09 = -86.949    03 = -86.850

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 43 53.98887	96 45 28.20239	485518.764	137089.526	.007		ADJUSTMENT	2025	GPS3838
46 43 53.98887	96 45 28.20239	485518.764	137089.526	.007	C	GPS - STATIC	2024	HENLOE
46 43 53.98887	96 45 28.20239	485518.764	137089.526	.007		ADJUSTMENT	2024	GPS3715
46 43 53.98887	96 45 28.20239	485518.764	137089.526	.007	C	GPS - STATIC	2024	HMOFA2
46 43 53.98857	96 45 28.20370	485518.673	137089.496	.131	3	GPS - RTRN	2022	RTRN2022
46 43 53.98849	96 45 28.20240	485518.763	137089.488	.131	3	GPS - OPUS	2021	GPSBM
46 43 53.98836	96 45 28.20269	485518.743	137089.475	.131	3	GPS - RTRN	2021	RTRN2021
46 43 53.98887	96 45 28.20239	485518.764	137089.526	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 43 53.98923	96 45 28.20353	485518.684	137089.563	.033	C	ADJUSTMENT	2011	GPS2690
46 43 53.98923	96 45 28.20353	485518.684	137089.563	.033	C	GPS - STATIC	2010	HCOMS

NAD83(1996)

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 43 53.98864	96 45 28.20332	485518.699	137089.503	.066		NCAT	2024	HENLOE
46 43 53.98883	96 45 28.20347	485518.689	137089.522	.033	C	GPS - STATIC	2024	HMOFA2
46 43 53.98883	96 45 28.20347	485518.689	137089.522	.033	C	GPS - STATIC	2010	HCOMS

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1995907.222	969502.847	698468.408	17001954.252	.007		ADJUSTMENT	2025	GPS3838
1995907.222	969502.847	698468.408	17001954.252	.007	C	GPS - STATIC	2024	HENLOE
1995907.222	969502.847	698468.408	17001954.252	.007		ADJUSTMENT	2024	GPS3715
1995907.222	969502.847	698468.408	17001954.252	.007	C	GPS - STATIC	2024	HMOFA2
1995907.130	969502.820	698468.315	17001954.226	.131	3	GPS - RTRN	2022	RTRN2022
1995907.220	969502.808	698468.405	17001954.214	.131	3	GPS - OPUS	2021	GPSBM
1995907.200	969502.796	698468.384	17001954.201	.131	3	GPS - RTRN	2021	RTRN2021
1995907.222	969502.847	698468.408	17001954.252	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1995907.144	969502.886	698468.330	17001954.292	.033	C	ADJUSTMENT	2011	GPS2690
1995907.144	969502.886	698468.330	17001954.292	.033	C	GPS - STATIC	2010	HCOMS

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1995907.157	969502.826	698468.342	17001954.232	.066		NCAT	2024	HENLOE
1995907.147	969502.845	698468.332	17001954.252	.033	C	GPS - STATIC	2024	HMOFA2
1995907.147	969502.845	698468.332	17001954.252	.033	C	GPS - STATIC	2010	HCOMS

Station Photos

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_Z-DM1819-3E-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_Z-DM1819-3E-15JUN2022.jpg</a>	E	Jun 15, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_Z-DM1819-2-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_Z-DM1819-2-15JUN2022.jpg</a>		Jun 15, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_Z-DM1819-1-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_Z-DM1819-1-15JUN2022.jpg</a>		Jun 15, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1406 Z 1

NGS Name: 1406 Z 1

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM7589](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096431/  
 USGS Quad: HICKSON

				Reference	Reference	Vert	Horz
1/4	Sec	Twp	Rng	Latitude	Longitude	Order	Order
SE	30	138 N	48 W	464351.65	964700.09	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1971	2022	GOOD	Horz=NO Vert=NO	YES	14503	FLUSH	NO MAG MATERIAL

Monument Type	Disk Type	Mon. Agency
BRIDGE DECK	BENCH MARK DISK	MNDT

Description: (2009) **Stamping:** 1406 Z 1 1971

5.3 MILES NORTHWEST OF COMSTOCK, IN A BRIDGE DECK IN THE NORTHEAST CORNER OF COUNTY ROAD 8 BRIDGE NUMBER 14503 OVER THE RED RIVER, 5.0 MILES NORTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND COUNTY ROAD 2 (THE JUNCTION IS 0.5 MILE WEST OF COMSTOCK) TO TRUNK HIGHWAY 75 MILEPOINT 240.25, THEN 1.2 MILES WEST ON COUNTY ROAD 8, 17.0 FEET NORTH OF COUNTY ROAD 8.

**Station Notes**

THE SURVEY MARK IS INSIDE THE EXPANSION JOINT.

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
914.273	.016	2/1				VERTICAL ADJUSTMENT	2024	00000941-3
914.273	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA
914.273	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941
914.509	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699
914.513	.016	2/1				VERTICAL CONTROL SURVEY	2010	VCOMS

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
914.529	.262		827.541	.197	2011	GPS - RTRN	2022	RTRN2022
914.408	.262		827.580	.197	1996	GPS - RTRN	2009	RTRN2009

Geoid Separations(ft): GEOID18 = -86.988 12B = -86.981 09 = -86.926 03 = -86.827

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)				Clay County			Project Info			
Geodetic Position				X	Y	Acc	Order	Determination Method	Year	Reference
Latitude	Longitude									
46 43 51.64744	96 47 00.09374			479117.133	136858.048	.131	3	GPS - RTRN	2022	RTRN2022

NAD83(1996)				Clay County			Project Info			
Geodetic Position				X	Y	Acc	Order	Determination Method	Year	Reference
Latitude	Longitude									
46 43 51.64719	96 47 00.09573			479116.995	136858.023	.131	3	GPS - RTRN	2009	RTRN2009

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)				UTM - Zone 15			Project Info			
MN State Plane - Central Zone				X	Y	Acc	Order	Determination Method	Year	Reference
X	Y									
1989502.134	969469.432			692059.295	17002024.186	.131	3	GPS - RTRN	2022	RTRN2022

NAD83(1996)				UTM - Zone 15			Project Info			
MN State Plane - Central Zone				X	Y	Acc	Order	Determination Method	Year	Reference
X	Y									
1989501.995	969469.412			692059.155	17002024.167	.131	3	GPS - RTRN	2009	RTRN2009

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_Z_1-DM7589-3N-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_Z_1-DM7589-3N-15JUN2022.jpg</a>	N	Jun 15, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_Z_1-DM7589-2-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_Z_1-DM7589-2-15JUN2022.jpg</a>		Jun 15, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_Z_1-DM7589-1-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1406_Z_1-DM7589-1-15JUN2022.jpg</a>		Jun 15, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1407 A

NGS Name: 1407 A

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	33	140 N	48 W	465327.00	964446.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1953	2022	NOT FOUND	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

Description: (1994)                      Stamping: 1407 A

1.8 MILES NORTH OF MOORHEAD, 2.2 MILES NORTH OF THE RAILROAD DEPOT AT MOORHEAD, 1.1 MILES EAST ALONG TRUNK HIGHWAY 10/TRUNK HIGHWAY 75 (CENTER AVENUE) FROM THE JUNCTION OF TRUNK HIGHWAY 10/TRUNK HIGHWAY 75 (CENTER AVENUE) AND 8TH STREET SOUTH IN MOORHEAD, THEN 1.1 MILES NORTH ALONG TRUNK HIGHWAY 75 NORTH, 89.0 FEET WEST OF TRUNK HIGHWAY 75, AT TRUNK HIGHWAY 75 STATION 197+27.

**Station Notes**

IN 1994 THE GEODETIC UNIT COULD NOT FIND THE STATION USING HIGHWAY STATIONING AND THE TIE FROM THE HIGHWAY AND A METAL LOCATOR.

**Leveling-Derived Orthometric Heights (Feet)**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
902.534	.033	3				VERTICAL CONTROL SURVEY	1953	CS1407	

Geoid Separations(ft): GEOID18 = -86.919    12B = -86.906    09 = -86.778    03 = -86.739

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1407 AA

NGS Name: 1407 AA

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	4	139 N	48 W	465319.00	964444.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1978	2008	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	SURVEY DISK	MNDT

**Description:** (1994)

**Stamping:**

1.8 MILES NORTH OF MOORHEAD, IN THE SOUTHEAST CORNER OF A TRUNK HIGHWAY 75 BOX CULVERT, 1.1 MILES EAST ALONG TRUNK HIGHWAY 10/TRUNK HIGHWAY 75 (CENTER AVENUE) FROM THE JUNCTION OF TRUNK HIGHWAY 10/TRUNK HIGHWAY 75 (CENTER AVENUE) AND 8TH STREET SOUTH IN MOORHEAD, THEN 1.1 MILES NORTH ALONG TRUNK HIGHWAY 75 NORTH, AT TRUNK HIGHWAY 75 STATION 189+27.

**Leveling-Derived Orthometric Heights (Feet)**

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>		
904.657	.033	3				VERTICAL CONTROL SURVEY	1978	CS1411	

**Geoid Separations(ft):** GEOID18 = -86.932 12B = -86.922 09 = -86.794 03 = -86.755

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1407 AB

NGS Name: 1407 AB

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	4	139 N	48 W	465318.00	964447.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1978	1994	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	SURVEY DISK	MNDT

**Description:** (1994)                      **Stamping:** 1407 AB

2.0 MILES NORTH OF MOORHEAD, IN THE SOUTHEAST CORNER OF A TRUNK HIGHWAY 75 BOX CULVERT, 1.0 MILE NORTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND TRUNK HIGHWAY 75 IN MOORHEAD, AT TRUNK HIGHWAY 75 MILEPOINT 252.4, 35.2 FEET EAST OF TRUNK HIGHWAY 75, 45.0 FEET SOUTH OF A TOWNSHIP ROAD EAST.

\* No Horizontal or Vertical Positions in the Database \*

**Geoid Separations(ft): GEOID18 = -86.932    12B = -86.919    09 = -86.794    03 = -86.752**



Mn/DOT Name: 1407 AC

NGS Name: 1407 AC

County: CLAY, MN (Sheet 1)

NGS ACRN: [DF8768](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096332/  
 USGS Quad: GEORGETOWN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	28	141 N	48 W	470021.60	964534.90	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2002	2012	DESTROYED	Horz=NO Vert=NO	NO		RECESSED 2 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	SURVEY DISK	MNDT

**Description:** (2002)                      **Stamping:** 1407 AC 2002

1.4 MILES NORTH-NORTHWEST OF KRAGNES, 9.1 MILES NORTH ALONG TRUNK HIGHWAY 75 FROM THE EAST JUNCTION OF TRUNK HIGHWAY 75 AND TRUNK HIGHWAY 10 IN MOORHEAD, AT TRUNK HIGHWAY 75 MILEPOINT 260.5, 189.0 FEET EAST-NORTHEAST OF TRUNK HIGHWAY 75, 34.0 FEET SOUTH OF COUNTY ROAD 99 (110TH AVENUE NORTH), 30.0 FEET EAST OF A POWER POLE, 16.0 FEET WEST OF A FIELD ENTRANCE, 9.7 FEET EAST OF A WITNESS POST.

**Station Notes**

THE DISK WAS TURNED IN TO THE OFFICE.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
890.047	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941	
890.323	.016	2/1				VERTICAL ADJUSTMENT	2004	00000425-2	
890.359	.016	2/1				VERTICAL CONTROL SURVEY	2002	V1407	

Geoid Separations(ft): GEOID18 = -86.384    12B = -86.397    09 = -86.253    03 = -86.237

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1407 AC RESET

NGS Name: 1407 AC RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP2179](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096332/  
 USGS Quad: GEORGETOWN

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	28	141 N	48 W	470021.56	964534.63	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2012	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 4 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 75 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012)                      Stamping: 1407 AC RESET 2012

1.4 MILES NORTH-NORTHWEST OF KRAGNES, 1.0 MILE NORTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND COUNTY ROADS 5 AND 96 IN KRAGNES, AT TRUNK HIGHWAY 75 MILEPOINT 260.5, 189.0 FEET EAST-NORTHEAST OF TRUNK HIGHWAY 75, 34.0 FEET SOUTH OF COUNTY ROAD 99 (110TH AVENUE NORTH), 30.0 FEET EAST OF A POWER POLE, 16.0 FEET WEST OF A FIELD ENTRANCE, 12.2 FEET EAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
889.798	.016	2/1				VERTICAL ADJUSTMENT	2024	0000941-3		
889.824	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA		
889.788	.016	2/1				VERTICAL ADJUSTMENT	2019	0000941		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
889.824			803.696	.023	2011	HORIZONTAL ADJUSTMENT	2024	GPS3674		
889.824			803.696	.023	2011	GPS - STATIC	2023	HMOFA3		
889.824	.131		803.794	.066	1996	GPS - STATIC	2023	HMOFA3		
889.949	.262		803.565	.197	2011	GPS - RTRN	2022	RTRN2022		
889.959	.262		803.706	.197	2007	GPS - RTRN	2012	RTRN2012		

Geoid Separations(ft): GEOID18 = -86.384    12B = -86.397    09 = -86.253    03 = -86.237

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>							
47 00 21.56227	96 45 34.63377	485146.722	237147.813	.010		ADJUSTMENT	2024	GPS3674
47 00 21.56227	96 45 34.63377	485146.722	237147.813	.010	C	GPS - STATIC	2023	HMOFA3
47 00 21.56297	96 45 34.63385	485146.716	237147.884	.131	3	GPS - RTRN	2022	RTRN2022

  

<u>NAD83(2007)</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>							
47 00 21.56214	96 45 34.63450	485146.671	237147.800	.131	3	GPS - RTRN	2012	RTRN2012

  

<u>NAD83(1996)</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>							
47 00 21.56207	96 45 34.63442	485146.677	237147.793	.033	C	GPS - STATIC	2023	HMOFA3

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1998629.044	1069516.876	702816.244	17101975.111	.010		ADJUSTMENT	2024	GPS3674
1998629.044	1069516.876	702816.244	17101975.111	.010	C	GPS - STATIC	2023	HMOFA3
1998629.040	1069516.947	702816.242	17101975.182	.131	3	GPS - RTRN	2022	RTRN2022

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1998628.993	1069516.865	702816.193	17101975.100	.131	3	GPS - RTRN	2012	RTRN2012

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1998628.998	1069516.857	702816.198	17101975.093	.033	C	GPS - STATIC	2023	HMOFA3

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_AC_RESET-DP2179-3S-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_AC_RESET-DP2179-3S-28JUN2022.jpg</a>	S	Jun 28, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_AC_RESET-DP2179-2-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_AC_RESET-DP2179-2-28JUN2022.jpg</a>		Jun 28, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_AC_RESET-DP2179-1-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_AC_RESET-DP2179-1-28JUN2022.jpg</a>		Jun 28, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1407 AD

NGS Name: 1407 AD

County: CLAY, MN (Sheet 1)

NGS ACRN: [DF8769](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096332/  
 USGS Quad: GEORGETOWN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	16	141 N	48 W	470114.60	964606.40	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2002	2012	DESTROYED	Horz=NO Vert=NO	NO		RECESSED 5 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	SURVEY DISK	MNDT

Description: (2002)                      Stamping: 1407 AD 2002

2.4 MILES NORTHWEST OF KRAGNES, 10.2 MILES NORTH ALONG TRUNK HIGHWAY 75 FROM THE EAST JUNCTION OF TRUNK HIGHWAY 75 AND TRUNK HIGHWAY 10 IN MOORHEAD, 204.0 FEET WEST-SOUTHWEST OF TRUNK HIGHWAY 75, AT TRUNK HIGHWAY 75 MILEPOINT 261.60, 27.0 FEET NORTH OF 120TH AVENUE NORTH, 68.5 FEET WEST-SOUTHWEST OF THE WEST RAIL OF THE RACKS, 29.1 FEET NORTHWEST OF THE NORTH END OF A 18.0 INCH DIAMETER CORRUGATED METAL PIPE UNDER 120TH AVENUE NORTH, 16.0 FEET EAST OF A FIELD ENTRANCE, 9.9 FEET WEST OF A WITNESS POST.

**Station Notes**

THE DISK WAS TURNED IN TO THE OFFICE.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
888.965	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941
889.234	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699
889.234	.016	2/1				VERTICAL CONTROL SURVEY	2011	VFMA
889.234	.016	2/1				VERTICAL ADJUSTMENT	2004	00000425-2
889.270	.016	2/1				VERTICAL CONTROL SURVEY	2002	V1407

Geoid Separations(ft): GEOID18 = -86.361 12B = -86.365 09 = -86.237 03 = -86.224

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1407 AD RESET

NGS Name: 1407 AD RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP2180](#) [Get Map](#)  
 NGS Quad / Sta Num : 4709633Z/  
 USGS Quad: GEORGETOWN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	16	141 N	48 W	470114.52	964606.39	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2012	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 8 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 40 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012)                      Stamping: 1407 AD RESET 2012

2.4 MILES NORTHWEST OF KRAGNES, 2.1 MILES NORTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND COUNTY ROADS 5 AND 96 IN KRAGNES, AT TRUNK HIGHWAY 75 MILEPOINT 261.60, 204.0 FEET WEST-SOUTHWEST OF TRUNK HIGHWAY 75, 27.0 FEET NORTH OF 120TH AVENUE NORTH, 68.5 FEET WEST-SOUTHWEST OF THE WEST RAIL OF THE TRACKS, 29.1 FEET NORTHWEST OF THE NORTH END OF A 18.0 INCH DIAMETER CORRUGATED METAL PIPE UNDER 120TH AVENUE NORTH, 16.0 FEET EAST OF FIELD ENTRANCE, 16.6 FEET WEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
888.729	.016	2/1					VERTICAL ADJUSTMENT	2024	0000941-3	
888.755	.016	2/1					VERTICAL CONTROL SURVEY	2023	VMOFA	
888.725	.016	2/1					VERTICAL ADJUSTMENT	2019	0000941	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
888.755				802.669	.022	2011	HORIZONTAL ADJUSTMENT	2024	GPS3674	
888.755				802.669	.022	2011	GPS - STATIC	2023	HMOFA3	
888.755	.131			802.764	.066	1996	GPS - STATIC	2023	HMOFA3	
888.998	.262			802.636	.197	2011	GPS - RTRN	2022	RTRN2022	
888.853	.262			802.617	.197	2007	GPS - RTRN	2012	RTRN2012	

Geoid Separations(ft): GEOID18 = -86.361    12B = -86.365    09 = -86.237    03 = -86.224

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>			<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>									
47 01 14.51875	96 46 06.39364		482950.183	242515.139	.010		ADJUSTMENT	2024	GPS3674	
47 01 14.51875	96 46 06.39364		482950.183	242515.139	.010	C	GPS - STATIC	2023	HMOFA3	
47 01 14.51854	96 46 06.39322		482950.212	242515.118	.131	3	GPS - RTRN	2022	RTRN2022	

  

<u>NAD83(2007)</u>			<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>									
47 01 14.51944	96 46 06.39441		482950.129	242515.209	.131	3	GPS - RTRN	2012	RTRN2012	

  

<u>NAD83(1996)</u>			<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>									
47 01 14.51855	96 46 06.39429		482950.137	242515.119	.033	C	GPS - STATIC	2023	HMOFA3	

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1996599.612	1074949.259	700874.698	17107443.298	.010		ADJUSTMENT	2024	GPS3674
1996599.612	1074949.259	700874.698	17107443.298	.010	C	GPS - STATIC	2023	HMOFA3
1996599.641	1074949.237	700874.726	17107443.276	.131	3	GPS - RTRN	2022	RTRN2022

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1996599.562	1074949.331	700874.648	17107443.371	.131	3	GPS - RTRN	2012	RTRN2012

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1996599.567	1074949.241	700874.652	17107443.280	.033	C	GPS - STATIC	2023	HMOFA3

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_AD_RESET-DP2180-3N-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_AD_RESET-DP2180-3N-28JUN2022.jpg</a>	N	Jun 28, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_AD_RESET-DP2180-2-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_AD_RESET-DP2180-2-28JUN2022.jpg</a>		Jun 28, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_AD_RESET-DP2180-1-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_AD_RESET-DP2180-1-28JUN2022.jpg</a>		Jun 28, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1407 AE

NGS Name: 1407 AE

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP2181](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096332/  
 USGS Quad: GEORGETOWN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	32	142 N	48 W	470436.19	964732.37	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2012	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 40 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012)                      Stamping: 1407 AE 2012

IN GEORGETOWN, 0.2 MILE SOUTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND COUNTY ROAD 100/COUNTY ROAD 34 IN GEORGETOWN, AT TRUNK HIGHWAY 75 MILEPOINT 265.7, 34.4 FEET EAST OF TRUNK HIGHWAY 75, 1.5 FEET WEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
881.416	.016	2/1					VERTICAL ADJUSTMENT	2024	00000941-3	
881.455	.016	2/1					VERTICAL CONTROL SURVEY	2023	VMOFA	
881.412	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
881.455				795.445	.024	2011	HORIZONTAL ADJUSTMENT	2024	GPS3674	
881.455				795.445	.024	2011	GPS - STATIC	2023	HMOFA3	
881.455	.131			795.540	.066	1996	GPS - STATIC	2023	HMOFA3	
881.662	.262			795.402	.197	2011	GPS - RTRN	2022	RTRN2022	
881.517	.262			795.353	.197	2007	GPS - RTRN	2012	RTRN2012	

Geoid Separations(ft): GEOID18 = -86.260    12B = -86.296    09 = -86.165    03 = -86.135

**Lat/Lon and County Coordinates (Feet)**

<u>Geodetic Position</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 04 36.18598	96 47 32.37046	477016.997	262954.212	.010		ADJUSTMENT	2024	GPS3674
47 04 36.18598	96 47 32.37046	477016.997	262954.212	.010	C	GPS - STATIC	2023	HMOFA3
47 04 36.18655	96 47 32.36980	477017.042	262954.270	.131	3	GPS - RTRN	2022	RTRN2022

<u>Geodetic Position</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 04 36.18583	96 47 32.37220	477016.876	262954.197	.131	3	GPS - RTRN	2012	RTRN2012

<u>Geodetic Position</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 04 36.18578	96 47 32.37112	477016.951	262954.192	.033	C	GPS - STATIC	2023	HMOFA3



**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
1991301.392	1095561.041	695911.720	17128151.789	.010		ADJUSTMENT	2024	GPS3674
1991301.392	1095561.041	695911.720	17128151.789	.010	C	GPS - STATIC	2023	HMOFA3
1991301.439	1095561.098	695911.769	17128151.844	.131	3	GPS - RTRN	2022	RTRN2022

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
1991301.271	1095561.030	695911.599	17128151.779	.131	3	GPS - RTRN	2012	RTRN2012

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
1991301.345	1095561.022	695911.674	17128151.771	.033	C	GPS - STATIC	2023	HMOFA3

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_AE-DP2181-3E-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_AE-DP2181-3E-28JUN2022.jpg</a>	E	Jun 28, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_AE-DP2181-2-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_AE-DP2181-2-28JUN2022.jpg</a>		Jun 28, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_AE-DP2181-1-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_AE-DP2181-1-28JUN2022.jpg</a>		Jun 28, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1407 AF  
County: CLAY, MN (Sheet 1)

NGS Name: 1407 AF

NGS ACRN: [DO9522](#) [Get Map](#)  
NGS Quad / Sta Num : 47096332/  
USGS Quad: GEORGETOWN

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	17	142 N	48 W	470718.23	964747.10	2	C

  

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2012	2013	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 25 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012)                      Stamping: 1407 AF 2012

2.9 MILES NORTH OF GEORGETOWN, 2.85 MILES NORTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND COUNTY ROAD 100/COUNTY ROAD 34 IN GEORGETOWN, AT TRUNK HIGHWAY 75 MILEPOINT 268.8, 66.7 FEET EAST OF TRUNK HIGHWAY 75, 103.2 FEET SOUTH OF 190TH AVENUE NORTHWEST, 18.6 FEET NORTH OF A FIELD ENTRANCE, 1.5 FEET SOUTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>		<u>Year</u>	<u>Reference</u>	
877.344	.016	2/1				VERTICAL ADJUSTMENT		2019	00000941	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>		<u>Year</u>	<u>Reference</u>	
877.528			791.134	.030	2011	HORIZONTAL ADJUSTMENT		2013	GPS2963	
877.600	.131		791.317	.066	1996	GPS - STATIC		2013	HGEOR	
877.528			791.134	.030	2011	GPS - STATIC		2013	HGEOR	
877.423	.262		791.134	.197	2007	GPS - RTRN		2012	RTRN2012	

Geoid Separations(ft): GEOID18 = -86.381 12B = -86.381 09 = -86.289 03 = -86.283

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>		<u>Year</u>	<u>Reference</u>	
47 07 18.22782	96 47 47.09640	476017.951	279373.694	.016		ADJUSTMENT		2013	GPS2963	
47 07 18.22782	96 47 47.09640	476017.951	279373.694	.016	C	GPS - STATIC		2013	HGEOR	

  

<u>NAD83(2007)</u>		<u>Geodetic Position</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>		<u>Year</u>	<u>Reference</u>	
47 07 18.22809	96 47 47.09765	476017.865	279373.721	.131	3	GPS - RTRN		2012	RTRN2012	

  

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>		<u>Year</u>	<u>Reference</u>	
47 07 18.22718	96 47 47.09692	476017.915	279373.629	.033	C	GPS - STATIC		2013	HGEOR	

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>					<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>		<u>Year</u>	<u>Reference</u>	
1990810.407	1112002.987	695690.645	17144609.577	.016		ADJUSTMENT		2013	GPS2963	
1990810.407	1112002.987	695690.645	17144609.577	.016	C	GPS - STATIC		2013	HGEOR	

  

<u>NAD83(2007)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>					<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>		<u>Year</u>	<u>Reference</u>	
1990810.322	1112003.017	695690.560	17144609.608	.131	3	GPS - RTRN		2012	RTRN2012	

  

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>					<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>		<u>Year</u>	<u>Reference</u>	
1990810.369	1112002.923	695690.606	17144609.514	.033	C	GPS - STATIC		2013	HGEOR	



**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_AF-DO9522-3E-05AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_AF-DO9522-3E-05AUG2013.jpg</a>	E	Aug 5, 2013
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_AF-DO9522-2-30JUL2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_AF-DO9522-2-30JUL2013.jpg</a>		Jul 30, 2013
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_AF-DO9522-1-30JUL2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_AF-DO9522-1-30JUL2013.jpg</a>		Jul 30, 2013

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1407 AG

NGS Name: 1407 AG

County: CLAY, MN (Sheet 1)

NGS ACRN: <a href="#">DR9627</a>	<a href="#">Get Map</a>
NGS Quad / Sta Num : 46096414/	
USGS Quad: DILWORTH	

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	4	139 N	48 W	465313.30	964445.28	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2022	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 68 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2022)    Stamping: 1407 AG 2022

IN DILWORTH, 0.75 MILE NORTH ALONG TRUNK HIGHWAY 75 FROM THE EAST JUNCTION OF TRUNK HIGHWAY 75 AND TRUNK HIGHWAY 10 IN DILWORTH, AT TRUNK HIGHWAY 75 MILEPOINT 252.20, 60.6 FEET EAST OF TRUNK HIGHWAY 75, 36.3 FEET SOUTH OF A FIELD ENTRANCE, 30.5 FEET EAST OF A LIGHT POLE NUMBERED 18, 1.5 FEET WEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88				Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference	
901.954	.016	2/1				VERTICAL ADJUSTMENT	2024	0000941-3	
901.950	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88				Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference	
901.950			815.274	.023	2011	HORIZONTAL ADJUSTMENT	2024	GPS3674	
901.950			815.274	.023	2011	GPS - STATIC	2023	HMOFA3	
901.950	.131		815.369	.066	1996	GPS - STATIC	2023	HMOFA3	
902.229	.262		815.287	.197	2011	GPS - RTRN	2022	RTRN2022	

Geoid Separations(ft): GEOID18 = -86.942    03 = -86.762

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 53 13.30379	96 44 45.28295	488541.745	193755.062	.010		ADJUSTMENT	2024	GPS3674
46 53 13.30379	96 44 45.28295	488541.745	193755.062	.010	C	GPS - STATIC	2023	HMOFA3
46 53 13.30432	96 44 45.28367	488541.695	193755.116	.131	3	GPS - RTRN	2022	RTRN2022

NAD83(1996)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 53 13.30368	96 44 45.28378	488541.687	193755.051	.033	C	GPS - STATIC	2023	HMOFA3

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone		X	Y	Acc	Order	Determination Method	Year	Reference
2000680.569	1026042.780	704159.994	17058446.245	.010		ADJUSTMENT	2024	GPS3674
2000680.569	1026042.780	704159.994	17058446.245	.010	C	GPS - STATIC	2023	HMOFA3
2000680.521	1026042.835	704159.946	17058446.301	.131	3	GPS - RTRN	2022	RTRN2022

NAD83(1996)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone		X	Y	Acc	Order	Determination Method	Year	Reference
2000680.512	1026042.770	704159.936	17058446.237	.033	C	GPS - STATIC	2023	HMOFA3

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_AG-DR9627-3E-26JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_AG-DR9627-3E-26JUL2022.jpg</a>	E	Jul 26, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_AG-DR9627-2-26JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_AG-DR9627-2-26JUL2022.jpg</a>		Jul 26, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_AG-DR9627-1-26JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_AG-DR9627-1-26JUL2022.jpg</a>		Jul 26, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1407 AH  
County: CLAY, MN (Sheet 1)

NGS Name: 1407 AH

NGS ACRN: [DR9628](#) [Get Map](#)  
NGS Quad / Sta Num : 47096332/  
USGS Quad: GEORGETOWN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	5	141 N	48 W	470311.82	964700.65	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2022	2023	GOOD	Horz=YES Vert=YES	NO		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 16 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2022)                      Stamping: 1407 AH 2022

1.8 MILES SOUTH OF GEORGETOWN, 1.9 MILES SOUTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND COUNTY ROAD 100 AND COUNTY ROAD 34 IN GEORGETOWN, AT TRUNK HIGHWAY 75 MILEPOINT 264.0, 35.2 FEET EAST OF TRUNK HIGHWAY 75, 35.2 FEET NORTH OF A FIELD ENTRANCE, 37.9 FEET SOUTHEAST OF MILEPOST NUMBER 264, 5.0 FEET EAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj		Year	Reference	
883.256	.016	2/1				VERTICAL ADJUSTMENT	2024	00000941-3	
883.292	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj		Year	Reference	
883.292			797.220	.028	2011	HORIZONTAL ADJUSTMENT	2024	GPS3674	
883.292			797.220	.028	2011	GPS - STATIC	2023	HMOFA3	
883.292	.131		797.315	.066	1996	GPS - STATIC	2023	HMOFA3	

Geoid Separations(ft): GEOID18 = -86.302 03 = -86.168

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Clay County				Determination Method		Project Info	
Latitude	Longitude	X	Y	Acc	Order		Year	Reference	
47 03 11.82354	96 47 00.64554	479203.776	254404.103	.013		ADJUSTMENT	2024	GPS3674	
47 03 11.82354	96 47 00.64554	479203.776	254404.103	.013	C	GPS - STATIC	2023	HMOFA3	

NAD83(1996)		Clay County				Determination Method		Project Info	
Latitude	Longitude	X	Y	Acc	Order		Year	Reference	
47 03 11.82333	96 47 00.64621	479203.730	254404.082	.033	C	GPS - STATIC	2023	HMOFA3	

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		UTM - Zone 15				Determination Method		Project Info	
MN State Plane - Central Zone		X	Y	Acc	Order		Year	Reference	
1993222.725	1086947.783	697692.700	17119502.891	.013		ADJUSTMENT	2024	GPS3674	
1993222.725	1086947.783	697692.700	17119502.891	.013	C	GPS - STATIC	2023	HMOFA3	

NAD83(1996)		UTM - Zone 15				Determination Method		Project Info	
MN State Plane - Central Zone		X	Y	Acc	Order		Year	Reference	
1993222.678	1086947.763	697692.653	17119502.872	.033	C	GPS - STATIC	2023	HMOFA3	

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/1501_A_RESET-DS1499-3N-25JUL2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/1501_A_RESET-DS1499-3N-25JUL2023.jpg</a>	N	Jul 25, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/1501_N-DS1506-2-07AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/1501_N-DS1506-2-07AUG2023.jpg</a>		Aug 7, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_AH-DR9628-1-25JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_AH-DR9628-1-25JUL2022.jpg</a>		Jul 25, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1407 AJ  
County: CLAY, MN (Sheet 1)

NGS Name: 1407 AJ

NGS ACRN: [DR9629](#) [Get Map](#)  
NGS Quad / Sta Num : 47096332/  
USGS Quad: GEORGETOWN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	32	142 N	48 W	470401.54	964725.09	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2022	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 12 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2022)                      Stamping: 1407 AJ 2022

0.8 MILE SOUTH OF GEORGETOWN, 0.9 MILE SOUTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND COUNTY ROAD 100 AND COUNTY ROAD 34 IN GEORGETOWN, AT TRUNK HIGHWAY 75 MILEPOINT 265.0, 39.3 FEET EAST OF TRUNK HIGHWAY 75, 15.4 FEET SOUTHEAST OF MILEPOST NUMBER 265, 16.0 FEET NORTHWEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
879.280	.016	2/1				2024	00000941-3	VERTICAL ADJUSTMENT				
879.316	.016	2/1				2023	VMOFA	VERTICAL CONTROL SURVEY				

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
879.316			793.328	.029	2011	2024	GPS3674	HORIZONTAL ADJUSTMENT				
879.316			793.328	.029	2011	2023	HMOFA3	GPS - STATIC				
879.316	.131		793.420	.066	1996	2023	HMOFA3	GPS - STATIC				

Geoid Separations(ft): GEOID18 = -86.266 03 = -86.135

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>	
47 04 01.54375	96 47 25.09205	477516.735	259443.653	.013		ADJUSTMENT		2024	GPS3674	
47 04 01.54375	96 47 25.09205	477516.735	259443.653	.013	C	GPS - STATIC		2023	HMOFA3	

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>	
47 04 01.54357	96 47 25.09276	477516.686	259443.635	.033	C	GPS - STATIC		2023	HMOFA3	

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Determination Method</u>			<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
1991692.352	1092036.856	696245.043	17124619.501	696245.043	17124619.501	.013		ADJUSTMENT		2024	GPS3674
1991692.352	1092036.856	696245.043	17124619.501	696245.043	17124619.501	.013	C	GPS - STATIC		2023	HMOFA3

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Determination Method</u>			<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
1991692.302	1092036.840	696244.993	17124619.485	696244.993	17124619.485	.033	C	GPS - STATIC		2023	HMOFA3

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_AJ-DR9629-3E-25JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_AJ-DR9629-3E-25JUL2022.jpg</a>	E	Jul 25, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_AJ-DR9629-2-25JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_AJ-DR9629-2-25JUL2022.jpg</a>		Jul 25, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_AJ-DR9629-1-25JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_AJ-DR9629-1-25JUL2022.jpg</a>		Jul 25, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1407 B RESET

NGS Name: 1407 B RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	28	140 N	48 W	465430.00	964445.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1978	2008	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	SURVEY DISK	MNDT

**Description:** (1994)                      **Stamping:** 1407 B RESET

3.2 MILES NORTH OF MOORHEAD, IN THE SOUTHEAST CORNER OF A TRUNK HIGHWAY 75 BOX CULVERT, 2.3 MILES NORTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND TRUNK HIGHWAY 75 IN MOORHEAD, AT TRUNK HIGHWAY 75 MILEPOINT 253.7, 24.6 FEET EAST OF TRUNK HIGHWAY 75.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
901.757	.033	3				VERTICAL CONTROL SURVEY	1978	CS1407	

**Geoid Separations(ft):** GEOID18 = -86.798    12B = -86.798    09 = -86.657    03 = -86.634

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1407 C RESET

NGS Name: 1407 C RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	28	140 N	48 W	465506.00	964447.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1978	2002	NOT FOUND	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	SURVEY DISK	MNDT

**Description:** (1982)                      **Stamping:** 1407 C RESET

3.9 MILES NORTH OF MOORHEAD, IN THE SOUTHEAST CORNER OF A TRUNK HIGHWAY 75 BOX CULVERT AT A CREEK, 3.0 MILES NORTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND TRUNK HIGHWAY 75 AT MOORHEAD, IN TRUNK HIGHWAY 75 MILEPOINT 254.4, 37.2 FEET EAST OF TRUNK HIGHWAY 75, 550.0 FEET SOUTH OF A TOWNSHIP ROAD EAST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
896.652	.033	3				VERTICAL CONTROL SURVEY	1978	CS1407

**Geoid Separations(ft): GEOID18 = -86.726    12B = -86.732    09 = -86.581    03 = -86.562**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1407 D

NGS Name: 1407 D

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	21	140 N	48 W	465600.00	964448.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1953	2022	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	SURVEY DISK	MNDT

**Description:** (1982)                      **Stamping:** 1407 D

4.1 MILES NORTH OF MOORHEAD, IN THE SOUTHEAST CORNER OF A HEADWALL OF A TRUNK HIGHWAY 75 BOX CULVERT, 4.1 MILES NORTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND TRUNK HIGHWAY 75 IN MOORHEAD, AT TRUNK HIGHWAY 75 MILEPOINT 255.5, 23.2 FEET EAST OF TRUNK HIGHWAY 75, 45.0 FEET SOUTH OF COUNTY ROAD 22 EAST.

**Station Notes**  
 THE BOX CULVERT WAS EXTENDED.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
898.558	.033	3				VERTICAL CONTROL SURVEY	1978	CS1407	

**Geoid Separations(ft): GEOID18 = -86.627    12B = -86.644    09 = -86.479    03 = -86.453**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1407 E

NGS Name: 1407 E

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	16	140 N	48 W	465654.00	964444.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1953	2022	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	SURVEY DISK	MNDT

Description: (1978)                      Stamping: 1407 E

5.9 MILES NORTH OF MOORHEAD, IN THE SOUTHEAST HEADWALL OF A TRUNK HIGHWAY 75 CULVERT, 1.6 MILES EAST ALONG TRUNK HIGHWAY 22 (57TH AVENUE NORTH/WALL STREET AVENUE NORTH) FROM THE JUNCTION OF TRUNK HIGHWAY 22 (57TH AVENUE NORTH/WALL STREET AVENUE NORTH) AND 2ND STREET NORTH IN OAKPORT, THEN 0.9 MILE NORTH ALONG TRUNK HIGHWAY 75 NORTH, THEN 151.0 FEET EAST ALONG 70TH AVENUE NORTH, 6.1 MILES NORTH OF THE RAILROAD DEPOT AT MOORHEAD, 23.0 FEET EAST OF TRUNK HIGHWAY 75, AT TRUNK HIGHWAY 75 STATION 407+75.

Station Notes  
 THE BOX CULVERT HAS BEEN EXTENDED.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
896.534	.033	3				VERTICAL CONTROL SURVEY	1978	CS1407	

**Geoid Separations(ft): GEOID18 = -86.552    12B = -86.571    09 = -86.401    03 = -86.391**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1407 F

NGS Name: 1407 F

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	9	140 N	48 W	465747.00	964444.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1953	2022	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	SURVEY DISK	MNDT

Description: (1953)                      Stamping: 1407 F

6.9 MILES NORTH OF MOORHEAD, IN THE SOUTHEAST HEADWALL OF A TRUNK HIGHWAY 75 CULVERT, 1.6 MILES EAST ALONG TRUNK HIGHWAY 22 (57TH AVENUE NORTH/WALL STREET AVENUE NORTH) FROM THE JUNCTION OF TRUNK HIGHWAY 22 (57TH AVENUE NORTH/WALL STREET AVENUE NORTH) AND 2ND STREET NORTH IN OAKPORT, THEN 1.9 MILES NORTH ALONG TRUNK HIGHWAY 75 NORTH, THEN 151.0 FEET EAST ALONG 80TH AVENUE NORTH, 7.1 MILES NORTH OF THE RAILROAD DEPOT AT MOORHEAD, 23.5 FEET EAST OF TRUNK HIGHWAY 75, AT TRUNK HIGHWAY 75 STATION 460+53.

Station Notes  
 THE BOX CULVERT HAS BEEN REPLACED.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
894.696	.033	3					VERTICAL CONTROL SURVEY	1953	CS1407	

**Geoid Separations(ft): GEOID18 = -86.499    12B = -86.512    09 = -86.355    03 = -86.342**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1407 G

NGS Name: 1407 G

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096441/  
 USGS Quad: FARGO NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	34	141 N	48 W	465929.00	964510.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1953	2022	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

Description: (1953)                      Stamping: 1407 G

6.9 MILES NORTH OF MOORHEAD, 9.1 MILES NORTH OF THE RAILROAD DEPOT AT MOORHEAD, 1.6 MILES EAST ALONG TRUNK HIGHWAY 22 (57TH AVENUE NORTH/WALL STREET AVENUE NORTH) FROM THE JUNCTION OF TRUNK HIGHWAY 22 (57TH AVENUE NORTH/WALL STREET AVENUE NORTH) AND 2ND STREET NORTH IN OAKPORT, THEN 3.9 MILES NORTH ALONG TRUNK HIGHWAY 75 NORTH, THEN 46.0 FEET EAST ALONG 100TH AVENUE NORTHWEST/100TH AVENUE NORTH, 128.0 FEET WEST OF TRUNK HIGHWAY 75, AT TRUNK HIGHWAY 75 STATION 568+59.

**Station Notes**

THE BOX CULVERT HAS BEEN REPLACED.

**Leveling-Derived Orthometric Heights (Feet)**

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
890.195	.033	3				VERTICAL CONTROL SURVEY	1953	CS1407	

**Geoid Separations(ft): GEOID18 = -86.417    12B = -86.430    09 = -86.279    03 = -86.270**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1407 H

NGS Name: 1407 H

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 47096332/  
 USGS Quad: GEORGETOWN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	28	141 N	48 W	470021.00	964537.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1953	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

Description: (1953)                      Stamping: 1407 H

10.2 MILES NORTH OF MOORHEAD, 1.6 MILES EAST ALONG TRUNK HIGHWAY 22 (57TH AVENUE NORTH/WALL STREET AVENUE NORTH) FROM THE JUNCTION OF TRUNK HIGHWAY 22 (57TH AVENUE NORTH/WALL STREET AVENUE NORTH) AND 2ND STREET NORTH IN OAKPORT, THEN 4.9 MILES NORTH ALONG TRUNK HIGHWAY 75 NORTH, 100.0 FEET LEFT OF TRUNK HIGHWAY 75 AT STATION 625+50.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
885.966	.033	3				VERTICAL CONTROL SURVEY	1953	CS1407	

**Geoid Separations(ft): GEOID18 = -86.384    12B = -86.394    09 = -86.253    03 = -86.237**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1407 I

NGS Name: 1407 I

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 47096332/  
 USGS Quad: GEORGETOWN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	16	141 N	48 W	470115.00	964603.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1953	2002	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

Description: (2002)                      Stamping: 1407 I

11.2 MILES NORTH OF MOORHEAD, 4.3 MILES SOUTH ALONG TRUNK HIGHWAY 75 SOUTH FROM THE JUNCTION OF TRUNK HIGHWAY 75 SOUTH AND 160TH AVENUE NORTHWEST IN GEORGETOWN, 100.0 FEET LEFT OF TRUNK HIGHWAY 75, AT TRUNK HIGHWAY 75 STATION 681+80.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
888.112	.033	3				VERTICAL CONTROL SURVEY	1953	CS1407	

Geoid Separations(ft): GEOID18 = -86.365    12B = -86.365    09 = -86.240    03 = -86.224

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1407 J

NGS Name: 1407 J

County: CLAY, MN (Sheet 1)

NGS ACRN: [DE5238](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096332/  
 USGS Quad: GEORGETOWN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	8	141 N	48 W	470206.35	964630.46	2	B

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1953	2014	GOOD	Horz=NO Vert=NO	YES		FLUSH	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	BENCH MARK DISK	MNDT

Description: (2001) Stamping: 1407 J 1953

3.0 MILES SOUTH OF GEORGETOWN, 3.1 MILES SOUTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND COUNTY ROAD 34 IN GEORGETOWN, AT TRUNK HIGHWAY 75 MILEPOINT 262.65, 101.0 FEET SOUTHWEST OF TRUNK HIGHWAY 75, 38.6 FEET SOUTH OF 130TH AVENUE NORTH, 22.1 FEET NORTHEAST OF THE EAST RAIL OF THE RAILROAD TRACKS, 3.4 FEET EAST-NORTHEAST OF A WITNESS POST. THE STATION IS A PRIMARY PROJECT CONTROL POINT (PPCP) FOR HARWOOD LEVEE PROJECT AND THE PRIMARY REFERENCE POINT FOR RIVER GAUGE 05060400. STATION 1407 J IS 85.66 FEET ABOVE ZERO GAGE REFERENCE POINT AT SHEYENNE RIVER AT HARWOOD, NORTH DAKOTA. STATION 1407 J IS 0.18 FEET ABOVE NGVD29 AT SHEYENNE RIVER AT HARWOOD, NORTH DAKOTA. THE STATION IS 11.82 FEET BELOW RM 1, (BASE) BOLT IN DOWNSTREAM MIDDLE BRIDGE RAIL. STATION 1407 J IS 10.62 FEET BELOW RM 2, BOLT IN LEFT UPSTREAM BRIDGE RAIL. THE STATION IS 10.90 FEET BELOW RM 3, BOLT IN LEFT DOWNSTREAM BRIDGE RAIL. THE STATION IS 10.32 FEET BELOW RM 4, NORTH BOLT IN MANHOLE COVER BY DIKE EAST OF BRIDGE. STATION 1407 J IS 6.97 FEET BELOW RM 5, LAG SCREW IN GREEN ASH TREE, 25 FEET NORTH OF GAGE HOUSE. STATION 1407 J IS 5.79 FEET BELOW RM 6, HEAD OF SOUTHWEST BOLT ON TOP OF COLLAR OF FIRE PLUG 50 FEET EAST OF GAGE HOUSE.

Station Notes

THE SURVEY MARK IS ON RAILROAD PROPERTY AND HAS BEEN ABANDONED FOR MINNESOTA DEPARTMENT OF TRANSPORTATION GEODETIC USE.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
885.389	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941
885.661	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699
885.661	.016	2/1				VERTICAL CONTROL SURVEY	2011	VFMMMA
885.661	.016	2/1				VERTICAL ADJUSTMENT	2004	00000425-2
885.697	.016	2/1				VERTICAL CONTROL SURVEY	2002	V1407

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
884.683	.033	3				VERTICAL CONTROL SURVEY	1953	CS1407



**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

Orthometric Height			Ellipsoid (NAD83)			Determination Method	Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj		Year	Reference
885.661			799.254	.008	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084
885.661	.131		799.391	.066	1996	GPS - STATIC	2015	HCLAY
885.661			799.254	.008	2011	GPS - STATIC	2015	HCLAY
885.661			799.254	.008	2011	HORIZONTAL ADJUSTMENT	2013	GPS2963
885.661	.131		799.451	.066	1996	GPS - STATIC	2013	HGEOR
885.661			799.254	.008	2011	GPS - STATIC	2013	HGEOR
885.503	.262		799.277	.197	2007	GPS - RTRN	2012	RTRN2012
			799.254	.008	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
885.661	.131		799.362	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2690
885.661	.098		799.362	.049	2007	HORIZONTAL ADJUSTMENT	2010	GPS2697
885.661	.098		799.362	.049	2007	GPS - STATIC	2010	HBMN2
885.661	.131		799.391	.066	1996	GPS - STATIC	2010	HCOMS
885.661	.131		799.362	.066	2007	GPS - STATIC	2010	HCOMS
			799.362	.066	2007	HORIZONTAL ADJUSTMENT	2007	GPS2320-B
885.661	.131		799.391	.066	1996	HORIZONTAL ADJUSTMENT	2007	GPS2320
			799.362	.010	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
885.661	.131		799.391	.066	1996	GPS - STATIC	2006	HNRMN
885.661	.098		799.391	.049	1996	GPS - STATIC	2005	GPS2036
885.661	.098		799.391	.049	1996	GPS - STATIC	2004	GPS1954
			799.391	.049	1996	GPS - STATIC	2002	GPS1641

Geoid Separations(ft): GEOID18 = -86.342 12B = -86.338 09 = -86.224 03 = -86.210

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County				Determination Method	Project Info	
Latitude	Longitude	X	Y	Acc	Order		Year	Reference
47 02 06.35195	96 46 30.46064	481287.632	247768.397	.007		ADJUSTMENT	2015	GPS3084
47 02 06.35194	96 46 30.46063	481287.633	247768.396	.007	C	GPS - STATIC	2015	HCLAY
47 02 06.35195	96 46 30.46064	481287.632	247768.397	.007		ADJUSTMENT	2013	GPS2963
47 02 06.35196	96 46 30.46064	481287.632	247768.398	.007	C	GPS - STATIC	2013	HGEOR
47 02 06.35195	96 46 30.46064	481287.632	247768.397	.003		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

Geodetic Position		Clay County				Determination Method	Project Info	
Latitude	Longitude	X	Y	Acc	Order		Year	Reference
47 02 06.35236	96 46 30.46147	481287.575	247768.439	.131	3	GPS - RTRN	2012	RTRN2012
47 02 06.35196	96 46 30.46131	481287.586	247768.398	.033	C	ADJUSTMENT	2011	GPS2690
47 02 06.35196	96 46 30.46131	481287.586	247768.398	.016	B	ADJUSTMENT	2010	GPS2697
47 02 06.35196	96 46 30.46131	481287.586	247768.398	.016	B	GPS - STATIC	2010	HBMN2
47 02 06.35196	96 46 30.46131	481287.586	247768.398	.033	C	GPS - STATIC	2010	HCOMS
47 02 06.35196	96 46 30.46131	481287.586	247768.398	.033	C	ADJUSTMENT	2007	GPS2320-B
47 02 06.35196	96 46 30.46131	481287.586	247768.398	.010		ADJUSTMENT	2007	GPS2300

**NAD83(1996)**

Geodetic Position		Clay County				Determination Method	Project Info	
Latitude	Longitude	X	Y	Acc	Order		Year	Reference
47 02 06.35141	96 46 30.46111	481287.600	247768.343	.033	C	GPS - STATIC	2015	HCLAY
47 02 06.35141	96 46 30.46111	481287.600	247768.343	.033	C	GPS - STATIC	2013	HGEOR
47 02 06.35141	96 46 30.46111	481287.600	247768.343	.033	C	GPS - STATIC	2010	HCOMS
47 02 06.35141	96 46 30.46111	481287.600	247768.343	.033	C	ADJUSTMENT	2007	GPS2320
47 02 06.35141	96 46 30.46111	481287.600	247768.343	.033	C	GPS - STATIC	2006	HNRMN
47 02 06.35141	96 46 30.46111	481287.600	247768.343	.016	B	GPS - STATIC	2005	GPS2036
47 02 06.35141	96 46 30.46111	481287.600	247768.343	.016	B	GPS - STATIC	2004	GPS1954
47 02 06.35141	96 46 30.46111	481287.600	247768.343	.016	B	GPS - STATIC	2002	GPS1641

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1995100.349	1080251.140	699461.506	17112772.269	.007		ADJUSTMENT	2015	GPS3084
1995100.349	1080251.139	699461.507	17112772.268	.007	C	GPS - STATIC	2015	HCLAY
1995100.349	1080251.140	699461.506	17112772.269	.007		ADJUSTMENT	2013	GPS2963
1995100.349	1080251.141	699461.506	17112772.270	.007	C	GPS - STATIC	2013	HGEOR
1995100.349	1080251.140	699461.506	17112772.269	.003		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1995100.292	1080251.183	699461.450	17112772.314	.131	3	GPS - RTRN	2012	RTRN2012
1995100.302	1080251.143	699461.460	17112772.273	.033	C	ADJUSTMENT	2011	GPS2690
1995100.302	1080251.143	699461.460	17112772.273	.016	B	ADJUSTMENT	2010	GPS2697
1995100.302	1080251.143	699461.460	17112772.273	.016	B	GPS - STATIC	2010	HBMN2
1995100.302	1080251.143	699461.460	17112772.273	.033	C	GPS - STATIC	2010	HCOMS
1995100.302	1080251.143	699461.460	17112772.273	.033	C	ADJUSTMENT	2007	GPS2320-B
1995100.302	1080251.143	699461.460	17112772.273	.010		ADJUSTMENT	2007	GPS2300

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1995100.314	1080251.087	699461.471	17112772.216	.033	C	GPS - STATIC	2015	HCLAY
1995100.314	1080251.087	699461.471	17112772.216	.033	C	GPS - STATIC	2013	HGEOR
1995100.314	1080251.087	699461.471	17112772.216	.033	C	GPS - STATIC	2010	HCOMS
1995100.314	1080251.087	699461.471	17112772.216	.033	C	ADJUSTMENT	2007	GPS2320
1995100.314	1080251.087	699461.471	17112772.216	.033	C	GPS - STATIC	2006	HNRMN
1995100.314	1080251.087	699461.471	17112772.216	.016	B	GPS - STATIC	2005	GPS2036
1995100.314	1080251.087	699461.471	17112772.216	.016	B	GPS - STATIC	2004	GPS1954
1995100.314	1080251.087	699461.471	17112772.216	.016	B	GPS - STATIC	2002	GPS1641

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_J-DE5238-3W-22AUG2012.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_J-DE5238-3W-22AUG2012.jpg</a>	W	Aug 22, 2012
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_J-DE5238-2-22AUG2012.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_J-DE5238-2-22AUG2012.jpg</a>		Aug 22, 2012
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_J-DE5238-1-22AUG2012.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_J-DE5238-1-22AUG2012.jpg</a>		Aug 22, 2012

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1407 K  
County: CLAY, MN (Sheet 1)

NGS Name: 1407 K

NGS ACRN: [AB9896](#) [Get Map](#)  
NGS Quad / Sta Num : 47096332/  
USGS Quad: GEORGETOWN

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	8	141 N	48 W	470258.29	964656.03		B

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1953	2008	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

Description: (1999)                      Stamping: 1407 K 1953

1.8 MILES SOUTH OF GEORGETOWN, 2.05 MILES SOUTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND COUNTY ROAD 34 IN GEORGETOWN, 99.5 FEET WEST-SOUTHWEST OF TRUNK HIGHWAY 75, AT TRUNK HIGHWAY 75 MILEPOINT 263.75, 23.1 FEET EAST-NORTHEAST OF THE EAST RAIL OF A RAILROAD, 51.0 FEET SOUTH OF A ROAD, 26.0 FEET WEST OF A RIGHT-OF-WAY POST, 3.4 FEET EAST-NORTHEAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u> <u>Reference</u>
884.762	.033	3				VERTICAL CONTROL SURVEY	1953   CS1407

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u> <u>Reference</u>
			798.305	.021	2011	HORIZONTAL ADJUSTMENT	2012   GPS2800
			798.410	.022	2007	HORIZONTAL ADJUSTMENT	2007   GPS2300
884.421	.098		798.447	.049	1996	GPS - STATIC	1997   GPS805-B
884.421	.131		798.447	.066	1996	GPS - STATIC	1997   GPS805-C

Geoid Separations(ft): GEOID18 = -86.309   12B = -86.315   09 = -86.201   03 = -86.178

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u> <u>Reference</u>
47 02 58.28903	96 46 56.02770	479522.109	253032.445	.010		ADJUSTMENT	2012   GPS2800

<u>NAD83(2007)</u>		<u>Clay County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u> <u>Reference</u>
47 02 58.28885	96 46 56.02848	479522.055	253032.427	.013		ADJUSTMENT	2007   GPS2300

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u> <u>Reference</u>
47 02 58.28842	96 46 56.02845	479522.057	253032.383	.016	B	GPS - STATIC	1997   GPS805-B
47 02 58.28842	96 46 56.02845	479522.057	253032.383	.033	C	GPS - STATIC	1997   GPS805-C

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u> <u>Reference</u>
		697945.963	17118116.927	.010		ADJUSTMENT	2012   GPS2800

<u>NAD83(2007)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u> <u>Reference</u>
		697945.908	17118116.911	.013		ADJUSTMENT	2007   GPS2300

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u> <u>Reference</u>
		697945.908	17118116.868	.016	B	GPS - STATIC	1997   GPS805-B
		697945.908	17118116.868	.033	C	GPS - STATIC	1997   GPS805-C



Mn/DOT Name: 1407 L

NGS Name: 1407 L

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 47096332/  
 USGS Quad: GEORGETOWN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	5	141 N	48 W	470349.00	964720.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1953	2002	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

Description: (1953)                      Stamping: 1407 L

0.8 MILE SOUTH OF GEORGETOWN, 1.2 MILES SOUTH ALONG TRUNK HIGHWAY 75 SOUTH FROM THE JUNCTION OF TRUNK HIGHWAY 75 SOUTH AND 160TH AVENUE NORTHWEST IN GEORGETOWN, 100.0 FEET LEFT OF TRUNK HIGHWAY 75, AT TRUNK HIGHWAY 75 STATION 848+60.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
880.189	.033	3				VERTICAL CONTROL SURVEY	1953	CS1407	

Geoid Separations(ft): GEOID18 = -86.273    12B = -86.299    09 = -86.171    03 = -86.142

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1407 M

NGS Name: 1407 M

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 47096332/  
 USGS Quad: GEORGETOWN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	32	142 N	48 W	470429.00	964732.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1953	2002	DESTROYED	Horz=NO Vert=NO	NO	6476		SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE WING WALL	SURVEY DISK	MNDT

Description: (1953)                      Stamping: 1407 M

IN GEORGETOWN, IN THE SOUTHEAST WING WALL OF TRUNK HIGHWAY 75 BRIDGE NUMBER 6476, 0.4 MILE SOUTH ALONG TRUNK HIGHWAY 75 SOUTH FROM THE JUNCTION OF TRUNK HIGHWAY 75 SOUTH AND 160TH AVENUE NORTHWEST IN GEORGETOWN, AT TRUNK HIGHWAY 75 STATION 890+22.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>		
883.545	.033	3							VERTICAL CONTROL SURVEY	1953	CS1407	

Geoid Separations(ft): GEOID18 = -86.260    12B = -86.292    09 = -86.161    03 = -86.132

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1407 M RESET 1995

NGS Name: 1407 M RESET 1995

County: CLAY, MN (Sheet 1)

NGS ACRN: [DN4391](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096332/  
 USGS Quad: GEORGETOWN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	32	142 N	48 W	470429.68	964732.94	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1995	2012	GOOD	Horz=NO Vert=YES	YES	14011	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE RAILING	SURVEY DISK	MNDT

**Description:** (2012)                      **Stamping:** 1407 M RESET 1995

AT GEORGETOWN, IN THE SOUTHEAST CORNER OF TRUNK HIGHWAY 75 BRIDGE NUMBER 14011, 0.4 MILE SOUTH ALONG TRUNK HIGHWAY 75 SOUTH FROM THE JUNCTION OF TRUNK HIGHWAY 75 SOUTH AND COUNTY ROAD 34/ 160TH AVENUE NORTHWEST IN GEORGETOWN, AT TRUNK HIGHWAY 75 MILEPOINT 265.95, 22.3 FEET EAST OF TRUNK HIGHWAY 75, 26.3 FEET NORTH OF THE SOUTHEAST CORNER OF A BRIDGE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
887.666	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941
887.935	.016	2/1					VERTICAL ADJUSTMENT	2011	00000699
887.941	.016	2/1					VERTICAL CONTROL SURVEY	2011	VFMA

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
887.721	.262			801.560	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -86.260 12B = -86.292 09 = -86.161 03 = -86.132

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2007)</u>				<u>Clay County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
47 04 29.67553	96 47 32.94390			476976.525	262294.616	.131	3	GPS - RTRN	2012	RTRN2012

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2007)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
1991240.552	1094903.038			695840.053	17127494.469	.131	3	GPS - RTRN	2012	RTRN2012

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_M_RESET_1995-DN4391-3E-22AUG2012.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_M_RESET_1995-DN4391-3E-22AUG2012.jpg</a>	E	Aug 22, 2012
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_M_RESET_1995-DN4391-2-22AUG2012.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_M_RESET_1995-DN4391-2-22AUG2012.jpg</a>		Aug 22, 2012
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_M_RESET_1995-DN4391-1-22AUG2012.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_M_RESET_1995-DN4391-1-22AUG2012.jpg</a>		Aug 22, 2012

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1407 N

NGS Name: 1407 N

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 47096332/  
 USGS Quad: GEORGETOWN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	29	142 N	48 W	470533.00	964737.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1953	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	SURVEY DISK	MNDT

Description: (1953)                      Stamping: 1407 N

1.0 MILE NORTH OF GEORGETOWN, IN THE SOUTHEAST HEADWALL OF A TRUNK HIGHWAY 75 DOUBLE BOX CULVERT, 0.9 MILE NORTH ALONG TRUNK HIGHWAY 75 NORTH FROM THE JUNCTION OF TRUNK HIGHWAY 75 NORTH AND COUNTY ROAD 34, AT TRUNK HIGHWAY 75 STATION 955+30.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
881.662	.033	3				VERTICAL CONTROL SURVEY	1953	CS1407	

Geoid Separations(ft): GEOID18 = -86.283    12B = -86.315    09 = -86.191    03 = -86.165

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1407 O

NGS Name: 1407 O

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 47096332/  
 USGS Quad: GEORGETOWN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	20	142 N	48 W	470626.90	964745.10		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1953	2012	DESTROYED	Horz=NO Vert=NO	NO		RECESSED 10 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

Description: (2002)                      Stamping:

1.9 MILES NORTH OF GEORGETOWN, 1.9 MILES NORTH ALONG TRUNK HIGHWAY 75 NORTH FROM THE JUNCTION OF TRUNK HIGHWAY 75 NORTH AND COUNTY ROAD 34 (160TH AVENUE NORTHWEST), THEN 95.0 FEET WEST ON 180TH AVENUE NORTH, 100.0 FEET LEFT OF TRUNK HIGHWAY 75, AT TRUNK HIGHWAY 75 STATION 1008+66, 38.4 FEET SOUTH OF 180TH AVENUE NORTHWEST, 22.5 FEET EAST OF THE EAST RAIL OF THE RAILROAD TRACKS, 1.0 FOOT EAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
877.298	.033	3				VERTICAL CONTROL SURVEY	1953	CS1407	

**Geoid Separations(ft): GEOID18 = -86.325    12B = -86.342    09 = -86.233    03 = -86.220**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1407 P

NGS Name: 1407 P

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 47096332/  
 USGS Quad: GEORGETOWN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	18	142 N	48 W	470718.00	964746.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1953	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	SURVEY DISK	MNDT

Description: (1953)                      Stamping: 1407 P

2.9 MILES NORTH OF GEORGETOWN, IN THE SOUTHEAST HEADWALL OF A TRUNK HIGHWAY 75 DOUBLE BOX CULVERT, 2.9 MILES NORTH ALONG TRUNK HIGHWAY 75 NORTH FROM THE JUNCTION OF TRUNK HIGHWAY 75 NORTH AND COUNTY ROAD 34 (160TH AVENUE NORTHWEST) IN GEORGETOWN, THEN 144.0 FEET EAST ON 190TH AVENUE, AT TRUNK HIGHWAY 75 STATION 1062+47.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
878.797	.033	3				VERTICAL CONTROL SURVEY	1953	CS1407	

**Geoid Separations(ft): GEOID18 = -86.384    12B = -86.381    09 = -86.292    03 = -86.286**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1407 Q

NGS Name: 1407 Q

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 47096331/  
 USGS Quad: PERLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	7	142 N	48 W	470811.20	964753.90		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1953	2012	DESTROYED	Horz=NO Vert=NO	NO		RECESSED 6 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

Description: (2002)                      Stamping:

1.9 MILES SOUTH OF PERLEY, 2.9 MILES SOUTH ALONG TRUNK HIGHWAY 75 SOUTH FROM THE JUNCTION OF TRUNK HIGHWAY 75 SOUTH AND TRUNK HIGHWAY 75 NORTH IN PERLEY, THEN 102.0 FEET WEST ALONG COUNTY ROAD 101 (200TH AVENUE NORTHWEST), AT TRUNK HIGHWAY 75 MILEPOINT 269.85, 1.0 MILE SOUTH OF THE NORTH COUNTY LINE, 100.0 FEET LEFT OF TRUNK HIGHWAY 75, AT TRUNK HIGHWAY 75 STATION 1115+30, 65.0 FEET SOUTH OF COUNTY ROAD 101, 23.0 FEET WEST OF A POWER POLE, 21.0 FEET EAST OF THE EAST RAIL OF THE RAILROAD TRACKS, 1.0 FOOT EAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
875.645	.033	3					VERTICAL CONTROL SURVEY	1953	CS1407	

Geoid Separations(ft): GEOID18 = -86.434    12B = -86.430    09 = -86.342    03 = -86.332

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1407 R

NGS Name: 1407 R

County: CLAY, MN (Sheet 1)

NGS ACRN: [DI4113](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096331/  
 USGS Quad: PERLEY

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	6	142 N	48 W	470901.43	964758.17		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1953	2012	DESTROYED	Horz=NO Vert=NO	YES		PROJECTS 5 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	SURVEY DISK	MNDT

Description: (1953) Stamping: 1407 R

1.89 MILES SOUTH OF PERLEY, 2.05 MILES SOUTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND COUNTY ROAD 39 IN PERLEY, AT TRUNK HIGHWAY 75 MILEPOINT 270, AT TRUNK HIGHWAY 75 STATION 1167+00.8, AT THE NORTH COUNTY LINE, 100.0 FEET WEST OF TRUNK HIGHWAY 75, 22.8 FEET EAST OF A RAIL OF THE TRACKS, 133.0 FEET SOUTH OF 210TH AVENUE NORTHWEST WEST, 0.7 FOOT NORTH-NORTHEAST OF A WITNESS POST.

Station Notes

THE DISK WAS TURNED IN TO THE OFFICE.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
876.124	.033	3				VERTICAL CONTROL SURVEY	1953	CS1407	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
			790.691	.022	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
			790.789	.066	2007	HORIZONTAL ADJUSTMENT	2007	GPS2320-B	
877.164	.131		790.888	.066	1996	HORIZONTAL ADJUSTMENT	2007	GPS2320	
877.164	.131		790.888	.066	1996	GPS - STATIC	2006	HNRMN	
			790.966	.066	1996	GPS - STATIC	2001	DIST 4	

Geoid Separations(ft): GEOID18 = -86.483 12B = -86.493 09 = -86.388 03 = -86.378

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
47 09 01.42529	96 47 58.17332	475265.195	289830.799	.016		ADJUSTMENT	2012	GPS2800

NAD83(2007)

<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
47 09 01.42519	96 47 58.17410	475265.141	289830.788	.033	C	ADJUSTMENT	2007	GPS2320-B

NAD83(1996)

<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
47 09 01.42464	96 47 58.17398	475265.149	289830.733	.033	C	ADJUSTMENT	2007	GPS2320
47 09 01.42464	96 47 58.17398	475265.149	289830.733	.033	C	GPS - STATIC	2006	HNRMN
47 09 01.42388	96 47 58.17494	475265.083	289830.657	.033	C	GPS - STATIC	2001	DIST 4



**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
1990381.264	1122478.091	695433.717	17155096.605	.016		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
1990381.210	1122478.082	695433.662	17155096.598	.033	C	ADJUSTMENT	2007	GPS2320-B

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
1990381.216	1122478.027	695433.668	17155096.542	.033	C	ADJUSTMENT	2007	GPS2320
1990381.216	1122478.027	695433.668	17155096.542	.033	C	GPS - STATIC	2006	HNRMN
1990381.147	1122477.952	695433.598	17155096.468	.033	C	GPS - STATIC	2001	DIST 4

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_R-DI4113-3W-30JAN2006.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_R-DI4113-3W-30JAN2006.jpg</a>	W	Jan 30, 2006
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_R-DI4113-2-30JAN2006.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_R-DI4113-2-30JAN2006.jpg</a>		Jan 30, 2006
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_R-DI4113-1-30JAN2006.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_R-DI4113-1-30JAN2006.jpg</a>		Jan 30, 2006

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1407 S

NGS Name: 1407 S

County: CLAY, MN (Sheet 1)

NGS ACRN: [DF8010](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	4	139 N	48 W	465318.97	964445.81	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1994	2022	GOOD	Horz=NO Vert=NO	YES	6397	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	SURVEY DISK	MNDT

Description: (1994)                      Stamping: 1407 S 1994

0.5 MILE NORTHEAST OF MOORHEAD, IN A HEADWALL AT THE SOUTHEAST CORNER OF TRUNK HIGHWAY 75 BOX CULVERT NUMBER 6397 OVER A COUNTY DITCH 41, 0.9 MILE NORTH ALONG TRUNK HIGHWAY 75 FROM THE EAST JUNCTION OF TRUNK HIGHWAY 75 AND TRUNK HIGHWAY 10 IN MOORHEAD, AT TRUNK HIGHWAY 75 MILEPOINT 252.3, 40.5 FEET EAST OF TRUNK HIGHWAY 75, ABOUT 700.0 FEET SOUTH OF COUNTY ROAD 83 (15TH AVENUE), 11.6 FEET NORTH OF THE SOUTH END OF A HEADWALL, 1.4 FEET SOUTH OF THE CENTER PIER OF A BOX CULVERT.

**Station Notes**

THE SURVEY MARK HAS BEEN DEEMED UNSAFE DUE TO FALL RISK AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
903.948	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941		
904.253	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699		
904.253	.016	2/1				VERTICAL CONTROL SURVEY	2010	VCOMS		
904.283	.016	2/1				VERTICAL ADJUSTMENT	2004	00000425-2		
904.296	.016	2/1				VERTICAL CONTROL SURVEY	2002	VMOOR		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
904.135	.262		817.203	.197	2011	GPS - RTRN	2022	RTRN2022		
904.145	.262		817.226	.197	2011	GPS - RTRN	2014	RTRN2014		
904.053	.262		817.259	.197	2007	GPS - RTRN	2012	RTRN2012		
			817.295	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800		
904.263	.131		817.279	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2690		
904.263	.131		817.393	.066	1996	GPS - STATIC	2010	HCOMS		
904.263	.131		817.279	.066	2007	GPS - STATIC	2010	HCOMS		
904.096	.262		817.344	.197	1996	GPS - RTRN	2009	RTRN2009		
			817.623	.066	1996	GPS - STATIC	2001	DIST 4		

Geoid Separations(ft): GEOID18 = -86.932    12B = -86.919    09 = -86.794    03 = -86.752

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 53 18.97417	96 44 45.80790	488505.618	194329.591	.131	3	GPS - RTRN	2022	RTRN2022
46 53 18.97424	96 44 45.80742	488505.651	194329.598	.131	3	GPS - RTRN	2014	RTRN2014
46 53 18.97388	96 44 45.80816	488505.600	194329.562	.010		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 53 18.97451	96 44 45.80864	488505.567	194329.625	.131	3	GPS - RTRN	2012	RTRN2012
46 53 18.97402	96 44 45.80905	488505.538	194329.576	.033	C	ADJUSTMENT	2011	GPS2690
46 53 18.97402	96 44 45.80905	488505.538	194329.576	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 53 18.97388	96 44 45.80942	488505.512	194329.562	.033	C	GPS - STATIC	2010	HCOMS
46 53 18.97479	96 44 45.81035	488505.448	194329.654	.131	3	GPS - RTRN	2009	RTRN2009
46 53 18.97247	96 44 45.81085	488505.414	194329.418	.033	C	GPS - STATIC	2001	DIST 4

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2000662.227	1026618.107	704150.995	17059022.158	.131	3	GPS - RTRN	2022	RTRN2022
2000662.260	1026618.113	704151.029	17059022.164	.131	3	GPS - RTRN	2014	RTRN2014
2000662.208	1026618.078	704150.976	17059022.130	.010		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2000662.177	1026618.143	704150.945	17059022.196	.131	3	GPS - RTRN	2012	RTRN2012
2000662.147	1026618.094	704150.915	17059022.147	.033	C	ADJUSTMENT	2011	GPS2690
2000662.147	1026618.094	704150.915	17059022.147	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2000662.120	1026618.081	704150.888	17059022.134	.033	C	GPS - STATIC	2010	HCOMS
2000662.059	1026618.175	704150.828	17059022.229	.131	3	GPS - RTRN	2009	RTRN2009
2000662.017	1026617.941	704150.782	17059021.996	.033	C	GPS - STATIC	2001	DIST 4

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_S-DF8010-3N-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_S-DF8010-3N-28JUN2022.jpg</a>	N	Jun 28, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_S-DF8010-2-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_S-DF8010-2-28JUN2022.jpg</a>		Jun 28, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_S-DF8010-1-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_S-DF8010-1-28JUN2022.jpg</a>		Jun 28, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1407 T

NGS Name: 1407 T

County: CLAY, MN (Sheet 1)

NGS ACRN: [DF8011](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	33	140 N	48 W	465357.00	964444.00	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1994	2009	DESTROYED	Horz=NO Vert=NO	NO			MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 50 FT)	SURVEY DISK	MNDT

Description: (1994)                      Stamping: 1407 T 1994

1.0 MILE NORTH OF MOORHEAD, 1.6 MILES NORTH ALONG TRUNK HIGHWAY 75 FROM THE EAST JUNCTION OF TRUNK HIGHWAY 75 AND TRUNK HIGHWAY 10 IN MOORHEAD, AT TRUNK HIGHWAY 75 MILEPOINT 253.0, 499.0 FEET EAST OF TRUNK HIGHWAY 75, ON THE WEST BERM OF A LANDFILL, 69.0 FEET EAST OF MILEPOST 253, 160.8 FEET NORTH OF A WELL HEAD.

Station Notes

FOUND THE CAP LOOSE, SEE THE RESET.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>				<u>Year</u>	<u>Reference</u>		
905.802	.016	2/1						VERTICAL ADJUSTMENT		2004	0000425-2		
905.818	.016	2/1						VERTICAL CONTROL SURVEY		2002	VMOOR		

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>				<u>Year</u>	<u>Reference</u>		
				819.185	.066	1996		GPS - STATIC		2001	DIST 4		

Geoid Separations(ft): GEOID18 = -86.863    12B = -86.857    09 = -86.722    03 = -86.689

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>				<u>Geodetic Position</u>				<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>						
46 53 54.66087	96 44 44.96801	488566.067	197945.241	.033	C	GPS - STATIC		2001	DIST 4						

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>				<u>MN State Plane - Central Zone</u>				<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>						
2000834.439	1030229.884	704382.025	17062632.939	.033	C	GPS - STATIC		2001	DIST 4						



Mn/DOT Name: 1407 T RESET

NGS Name: 1407 T RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM1820](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	33	140 N	48 W	465354.66	964444.97	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2009	2023	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 50 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

**Description:** (2009)                      **Stamping:** 1407 T RESET 2009

1.0 MILE NORTH OF MOORHEAD, 1.6 MILES NORTH ALONG TRUNK HIGHWAY 75 FROM THE EAST JUNCTION OF TRUNK HIGHWAY 75 AND TRUNK HIGHWAY 10 IN MOORHEAD, AT TRUNK HIGHWAY 75 MILEPOINT 253.0, 499.0 FEET EAST OF TRUNK HIGHWAY 75, ON THE WEST BERM OF A LANDFILL, 69.0 FEET EAST OF MILEPOST 253, 160.8 FEET NORTH OF A WELL HEAD.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
905.215	.016	2/1					VERTICAL ADJUSTMENT	2024	0000941-3	
905.215	.016	2/1					VERTICAL CONTROL SURVEY	2023	VMOFA	
905.254	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
905.559	.016	2/1					VERTICAL ADJUSTMENT	2011	00000699	
905.562	.016	2/1					VERTICAL CONTROL SURVEY	2010	VCOMS	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
905.215				818.676	.010	2011	HORIZONTAL ADJUSTMENT	2024	GPS3674	
905.215				818.676	.010	2011	GPS - STATIC	2023	HMOFA3	
905.215	.131			818.771	.066	1996	GPS - STATIC	2023	HMOFA3	
905.435	.262			818.565	.197	2011	GPS - RTRN	2022	RTRN2022	
905.461	.262			818.591	.197	2011	GPS - OPUS	2021	GPSBM	
905.428	.262			818.561	.197	2011	GPS - RTRN	2021	RTRN2021	
905.369	.262			818.643	.197	2007	GPS - RTRN	2012	RTRN2012	
				818.676	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
905.576	.131			818.676	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2690	
905.576	.131			818.771	.066	1996	GPS - STATIC	2010	HCOMS	
905.576	.131			818.676	.066	2007	GPS - STATIC	2010	HCOMS	

**Geoid Separations(ft):** GEOID18 = -86.870    12B = -86.860    09 = -86.729    03 = -86.693

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 53 54.66128	96 44 44.96752	488566.102	197945.283	.007		ADJUSTMENT	2024	GPS3674
46 53 54.66128	96 44 44.96752	488566.102	197945.283	.007	C	GPS - STATIC	2023	HMOFA3
46 53 54.66082	96 44 44.97019	488565.917	197945.236	.131	3	GPS - RTRN	2022	RTRN2022
46 53 54.66095	96 44 44.96874	488566.017	197945.249	.131	3	GPS - OPUS	2021	GPSBM
46 53 54.66116	96 44 44.96925	488565.982	197945.271	.131	3	GPS - RTRN	2021	RTRN2021
46 53 54.66128	96 44 44.96752	488566.102	197945.283	.010		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 53 54.66163	96 44 44.96839	488566.042	197945.318	.131	3	GPS - RTRN	2012	RTRN2012
46 53 54.66144	96 44 44.96843	488566.039	197945.299	.033	C	ADJUSTMENT	2011	GPS2690
46 53 54.66144	96 44 44.96843	488566.039	197945.299	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 53 54.66129	96 44 44.96877	488566.015	197945.284	.033	C	GPS - STATIC	2023	HMOFA3
46 53 54.66129	96 44 44.96877	488566.015	197945.284	.033	C	GPS - STATIC	2010	HCOMS

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2000834.474	1030229.925	704382.061	17062632.979	.007		ADJUSTMENT	2024	GPS3674
2000834.474	1030229.925	704382.061	17062632.979	.007	C	GPS - STATIC	2023	HMOFA3
2000834.287	1030229.884	704381.874	17062632.941	.131	3	GPS - RTRN	2022	RTRN2022
2000834.388	1030229.894	704381.975	17062632.949	.131	3	GPS - OPUS	2021	GPSBM
2000834.354	1030229.917	704381.941	17062632.972	.131	3	GPS - RTRN	2021	RTRN2021
2000834.474	1030229.925	704382.061	17062632.979	.010		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2000834.415	1030229.963	704382.003	17062633.017	.131	3	GPS - RTRN	2012	RTRN2012
2000834.412	1030229.943	704381.999	17062632.998	.033	C	ADJUSTMENT	2011	GPS2690
2000834.412	1030229.943	704381.999	17062632.998	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2000834.387	1030229.929	704381.974	17062632.984	.033	C	GPS - STATIC	2023	HMOFA3
2000834.387	1030229.929	704381.974	17062632.984	.033	C	GPS - STATIC	2010	HCOMS

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_T_RESET-DM1820-3E-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_T_RESET-DM1820-3E-28JUN2022.jpg</a>	E	Jun 28, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_T_RESET-DM1820-2-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_T_RESET-DM1820-2-28JUN2022.jpg</a>		Jun 28, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_T_RESET-DM1820-1-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_T_RESET-DM1820-1-28JUN2022.jpg</a>		Jun 28, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1407 U

NGS Name: 1407 U

County: CLAY, MN (Sheet 1)

NGS ACRN: <a href="#">DF8013</a>	<a href="#">Get Map</a>
NGS Quad / Sta Num : 46096414/	
USGS Quad: DILWORTH	

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	27	140 N	48 W	465419.16	964331.98	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1994	2022	DESTROYED	Horz=NO Vert=NO	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 50 FT)	SURVEY DISK	MNDT

Description: (2009)                      Stamping: 1407 U 1994

2.0 MILES NORTHEAST OF MOORHEAD, 2.0 MILES NORTH ALONG TRUNK HIGHWAY 75 FROM THE EAST JUNCTION OF TRUNK HIGHWAY 75 AND TRUNK HIGHWAY 10 IN MOORHEAD, TO TRUNK HIGHWAY 75 MILEPOINT 253.45, THEN 1.0 MILE EAST ON COUNTY ROAD 18, 61.0 FEET NORTH OF COUNTY ROAD 18, 22.0 FEET NORTH OF THE EAST END OF A CULVERT, 21.0 FEET EAST OF A FIELD ENTRANCE, 7.4 FEET WEST OF A POWER POLE, 1.0 FOOT EAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
902.980	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
903.279	.016	2/1					VERTICAL ADJUSTMENT	2011	00000699	
903.279	.016	2/1					VERTICAL CONTROL SURVEY	2010	VCOMS	
903.279	.016	2/1					VERTICAL ADJUSTMENT	2004	00000425-2	
903.295	.016	2/1					VERTICAL CONTROL SURVEY	2002	V1407	
903.295	.016	2/1					VERTICAL CONTROL SURVEY	2002	VMOOR	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
903.125	.262			816.389	.197	2007	GPS - RTRN	2012	RTRN2012	
				816.370	.010	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
903.279	.131			816.366	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2690	
903.279	.131			816.462	.066	1996	GPS - STATIC	2010	HCOMS	
903.279	.131			816.366	.066	2007	GPS - STATIC	2010	HCOMS	
				816.662	.066	1996	GPS - STATIC	2001	DIST 4	

Geoid Separations(ft): GEOID18 = -86.880 12B = -86.876 09 = -86.735 03 = -86.709

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 54 19.15839	96 43 31.98321			493635.477	200424.965	.010		ADJUSTMENT	2012	GPS2800

  

<u>NAD83(2007)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 54 19.15843	96 43 31.98393			493635.427	200424.970	.131	3	GPS - RTRN	2012	RTRN2012
46 54 19.15855	96 43 31.98414			493635.412	200424.982	.033	C	ADJUSTMENT	2011	GPS2690
46 54 19.15855	96 43 31.98414			493635.412	200424.982	.033	C	GPS - STATIC	2010	HCOMS

  

<u>NAD83(1996)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 54 19.15841	96 43 31.98445			493635.391	200424.967	.033	C	GPS - STATIC	2010	HCOMS
46 54 19.15804	96 43 31.98452			493635.387	200424.931	.033	C	GPS - STATIC	2001	DIST 4

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15						Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
2005977.722	1032551.487	709565.602	17064872.021	.010		ADJUSTMENT	2012	GPS2800	

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15						Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
2005977.672	1032551.493	709565.552	17064872.027	.131	3	GPS - RTRN	2012	RTRN2012	
2005977.658	1032551.505	709565.538	17064872.040	.033	C	ADJUSTMENT	2011	GPS2690	
2005977.658	1032551.505	709565.538	17064872.040	.033	C	GPS - STATIC	2010	HCOMS	

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15						Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
2005977.636	1032551.492	709565.516	17064872.027	.033	C	GPS - STATIC	2010	HCOMS	
2005977.630	1032551.455	709565.509	17064871.990	.033	C	GPS - STATIC	2001	DIST 4	

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_U-DF8013-3N-23AUG2012.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_U-DF8013-3N-23AUG2012.jpg</a>	N	Aug 23, 2012
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_U-DF8013-2-23AUG2012.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_U-DF8013-2-23AUG2012.jpg</a>		Aug 23, 2012
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_U-DF8013-1-23AUG2012.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_U-DF8013-1-23AUG2012.jpg</a>		Aug 23, 2012

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1407 U RESET

NGS Name: 1407 U RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [DR9630](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	27	140 N	48 W	465419.16	964331.98	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2022	2023	GOOD	Horz=YES Vert=YES	NO		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 50 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

**Description:** (2022)                      **Stamping:** 1407 U RESET 2022

2.0 MILES NORTHEAST OF MOORHEAD, 2.0 MILES NORTH ALONG TRUNK HIGHWAY 75 FROM THE EAST JUNCTION OF TRUNK HIGHWAY 75 AND TRUNK HIGHWAY 10 IN MOORHEAD TO TRUNK HIGHWAY 75 MILEPOINT 253.45, THEN 1.0 MILE EAST ON COUNTY ROAD 18 (28TH AVENUE NORTH), 61.0 FEET NORTH OF COUNTY ROAD 18 (28TH AVENUE NORTH), 21.0 FEET EAST OF A FIELD ENTRANCE, 12.0 FEET WEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
902.652	.016	2/1				VERTICAL ADJUSTMENT	2024	0000941-3	
902.652	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
902.652			816.006	.020	2011	HORIZONTAL ADJUSTMENT	2024	GPS3674	
902.652			816.006	.020	2011	GPS - STATIC	2023	HMOFA3	
902.652	.131		816.104	.066	1996	GPS - STATIC	2023	HMOFA3	
902.830	.262		815.947	.197	2011	GPS - RTRN	2022	RTRN2022	

Geoid Separations(ft): GEOID18 = -86.883 03 = -86.709

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 54 19.15831	96 43 31.98286	493635.501	200424.957	.010		ADJUSTMENT	2024	GPS3674	
46 54 19.15831	96 43 31.98286	493635.501	200424.957	.010	C	GPS - STATIC	2023	HMOFA3	
46 54 19.15758	96 43 31.98259	493635.520	200424.883	.131	3	GPS - RTRN	2022	RTRN2022	

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 54 19.15818	96 43 31.98367	493635.445	200424.944	.033	C	GPS - STATIC	2023	HMOFA3	

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
2005977.746	1032551.478	709565.626	17064872.012	.010		ADJUSTMENT	2024	GPS3674	
2005977.746	1032551.478	709565.626	17064872.012	.010	C	GPS - STATIC	2023	HMOFA3	
2005977.763	1032551.404	709565.641	17064871.937	.131	3	GPS - RTRN	2022	RTRN2022	

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
2005977.689	1032551.467	709565.569	17064872.001	.033	C	GPS - STATIC	2023	HMOFA3	

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_U_RESET-DR9630-3N-29JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_U_RESET-DR9630-3N-29JUN2022.jpg</a>	N	Jun 29, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_U_RESET-DR9630-2-29JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_U_RESET-DR9630-2-29JUN2022.jpg</a>		Jun 29, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_U_RESET-DR9630-1-29JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_U_RESET-DR9630-1-29JUN2022.jpg</a>		Jun 29, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1407 V

NGS Name: 1407 V

County: CLAY, MN (Sheet 1)

NGS ACRN: [DF8762](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	21	140 N	48 W	465511.00	964440.15	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2002	2022	DESTROYED	Horz=NO Vert=NO	YES		RECESSED 3 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 45 FT)	SURVEY DISK	MNDT

Description: (2002) Stamping: 1407 V 2002

4.0 MILES NORTH-NORTHEAST OF MOORHEAD, 3.0 MILES NORTH ALONG TRUNK HIGHWAY 75 FROM THE EAST JUNCTION OF TRUNK HIGHWAY 75 AND TRUNK HIGHWAY 10 IN MOORHEAD, AT TRUNK HIGHWAY 75 MILEPOINT 254.45, THEN ABOUT 400.0 FEET EAST ALONG 43RD AVENUE NORTH, 21.0 FEET NORTH OF 43RD AVENUE NORTH, 149.0 FEET EAST OF AN EXTENDED DRIVEWAY NUMBER 2377, 13.0 FEET WEST OF A FIELD ENTRANCE, 4.7 FEET SOUTHEAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
900.015	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941
900.369	.016	2/1					VERTICAL ADJUSTMENT	2004	00000425-2
900.392	.016	2/1					VERTICAL CONTROL SURVEY	2002	V1407

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
900.123	.262			813.545	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -86.722 12B = -86.729 09 = -86.578 03 = -86.555

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2007)</u>				<u>Clay County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 55 10.99542	96 44 40.15204			488904.910	205679.090	.131	3	GPS - RTRN	2012	RTRN2012

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2007)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2001412.223	1037948.992			705085.711	17070346.466	.131	3	GPS - RTRN	2012	RTRN2012

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_V-DF8762-3N-23AUG2012.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_V-DF8762-3N-23AUG2012.jpg</a>	N	Aug 23, 2012
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_V-DF8762-2-23AUG2012.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_V-DF8762-2-23AUG2012.jpg</a>		Aug 23, 2012
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_V-DF8762-1-23AUG2012.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_V-DF8762-1-23AUG2012.jpg</a>		Aug 23, 2012

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1407 V RESET  
 County: CLAY, MN (Sheet 1)

NGS Name: 1407 V RESET

NGS ACRN: [DR9631](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	21	140 N	48 W	465511.00	964440.15	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2022	2023	GOOD	Horz=YES Vert=YES	NO		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 45 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2022)                      Stamping: 1407 V RESET 2022

4.0 MILES NORTH-NORTHEAST OF MOORHEAD, 3.0 MILES NORTH ALONG TRUNK HIGHWAY 75 FROM THE EAST JUNCTION OF TRUNK HIGHWAY 75 AND TRUNK HIGHWAY 10 IN DILWORTH TO TRUNK HIGHWAY 75 MILEPOINT 254.45, THEN 0.05 MILE EAST ON 43RD AVENUE NORTH, 21.0 FEET NORTH OF 43ED AVENUE NORTH, 13.0 FEET WEST OF A FIELD ENTRANCE, 4.7 FEET SOUTHEAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88			Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year Reference
899.792	.016	2/1				VERTICAL ADJUSTMENT	2024 0000941-3
899.801	.016	2/1				VERTICAL CONTROL SURVEY	2023 VMOFA

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year Reference
899.801			813.328	.022	2011	HORIZONTAL ADJUSTMENT	2024 GPS3674
899.801			813.328	.022	2011	GPS - STATIC	2023 HMOFA3
899.801	.131		813.424	.066	1996	GPS - STATIC	2023 HMOFA3
899.979	.262		813.256	.197	2011	GPS - RTRN	2022 RTRN2022

Geoid Separations(ft): GEOID18 = -86.722 03 = -86.555

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Clay County				Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year Reference
46 55 10.99581	96 44 40.15056	488905.012	205679.129	.010		ADJUSTMENT	2024 GPS3674
46 55 10.99581	96 44 40.15056	488905.012	205679.129	.010	C	GPS - STATIC	2023 HMOFA3
46 55 10.99560	96 44 40.15234	488904.889	205679.108	.131	3	GPS - RTRN	2022 RTRN2022

NAD83(1996)		Clay County				Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year Reference
46 55 10.99567	96 44 40.15137	488904.956	205679.115	.033	C	GPS - STATIC	2023 HMOFA3

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		UTM - Zone 15				Project Info	
MN State Plane - Central Zone		X	Y	Acc	Order	Determination Method	Year Reference
2001412.327	1037949.028	705085.816	17070346.501	.010		ADJUSTMENT	2024 GPS3674
2001412.327	1037949.028	705085.816	17070346.501	.010	C	GPS - STATIC	2023 HMOFA3
2001412.203	1037949.011	705085.691	17070346.486	.131	3	GPS - RTRN	2022 RTRN2022

NAD83(1996)		UTM - Zone 15				Project Info	
MN State Plane - Central Zone		X	Y	Acc	Order	Determination Method	Year Reference
2001412.270	1037949.016	705085.759	17070346.489	.033	C	GPS - STATIC	2023 HMOFA3

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_V_RESET-DR9631-3N-29JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_V_RESET-DR9631-3N-29JUN2022.jpg</a>	N	Jun 29, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_V_RESET-DR9631-2-29JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_V_RESET-DR9631-2-29JUN2022.jpg</a>		Jun 29, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_V_RESET-DR9631-1-29JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_V_RESET-DR9631-1-29JUN2022.jpg</a>		Jun 29, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1407 W

NGS Name: 1407 W

County: CLAY, MN (Sheet 1)

NGS ACRN: [DF8763](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	16	140 N	48 W	465603.60	964445.20	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2002	2012	DESTROYED	Horz=NO Vert=NO	NO		RECESSED 1 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	SURVEY DISK	MNDT

**Description:** (2002)                      **Stamping:** 1407 W 2002

5.0 MILES NORTH OF MOORHEAD, 4.0 MILES NORTH ALONG TRUNK HIGHWAY 75 FROM THE EAST JUNCTION OF TRUNK HIGHWAY 75 AND TRUNK HIGHWAY 10 IN MOORHEAD, AT TRUNK HIGHWAY 75 MILEPOINT 255.5, 81.0 FEET EAST OF TRUNK HIGHWAY 75, 49.0 FEET NORTH OF COUNTY ROAD 22, 6.8 FEET SOUTHEAST OF A POWER POLE, 1.6 FEET SOUTH OF A WITNESS POST.

**Station Notes**

THE DISK WAS TURNED INTO THE OFFICE.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
897.223	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941	
897.524	.016	2/1				VERTICAL ADJUSTMENT	2004	00000425-2	
897.554	.016	2/1				VERTICAL CONTROL SURVEY	2002	V1407	

Geoid Separations(ft): GEOID18 = -86.624    12B = -86.640    09 = -86.476    03 = -86.450

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1407 W RESET

NGS Name: 1407 W RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP2172](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	16	140 N	48 W	465603.36	964445.12	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2012	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 4 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 65 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2015)                      Stamping: 1407 W RESET 2012

5.0 MILES NORTH OF MOORHEAD, 4.0 MILES NORTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND TRUNK HIGHWAY 10 IN MOORHEAD, AT TRUNK HIGHWAY 75 MILEPOINT 255.5, 81.0 FEET EAST OF TRUNK HIGHWAY 75, 49.0 FEET NORTH OF COUNTY ROAD 22 (57TH AVENUE NORTH), 6.8 FEET SOUTHEAST OF A POWER POLE, 1.6 FEET SOUTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
897.016	.016	2/1				2024	0000941-3	VERTICAL ADJUSTMENT				
897.032	.016	2/1				2023	VMOFA	VERTICAL CONTROL SURVEY				
896.993	.016	2/1				2019	00000941	VERTICAL ADJUSTMENT				

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
897.032			810.648	.022	2011	2024	GPS3674	HORIZONTAL ADJUSTMENT				
897.032			810.648	.022	2011	2023	HMOFA3	GPS - STATIC				
897.032	.131		810.769	.066	1996	2023	HMOFA3	GPS - STATIC				
897.164	.262		810.540	.197	2011	2022	RTRN2022	GPS - RTRN				
897.292			810.635	.024	2011	2015	GPS3084	HORIZONTAL ADJUSTMENT				
897.259	.131		810.769	.066	1996	2015	HCLAY	GPS - STATIC				
897.292			810.635	.024	2011	2015	HCLAY	GPS - STATIC				
897.164	.262		810.687	.197	2007	2012	RTRN2012	GPS - RTRN				

Geoid Separations(ft): GEOID18 = -86.624    12B = -86.640    09 = -86.476    03 = -86.450

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>	
46 56 03.35870	96 44 45.11880	488563.220	210984.632	.010		ADJUSTMENT		2024	GPS3674	
46 56 03.35870	96 44 45.11880	488563.220	210984.632	.010	C	GPS - STATIC		2023	HMOFA3	
46 56 03.35916	96 44 45.11809	488563.269	210984.678	.131	3	GPS - RTRN		2022	RTRN2022	
46 56 03.35923	96 44 45.11871	488563.226	210984.685	.016		ADJUSTMENT		2015	GPS3084	
46 56 03.35923	96 44 45.11871	488563.226	210984.685	.016	C	GPS - STATIC		2015	HCLAY	

<u>NAD83(2007)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>	
46 56 03.35936	96 44 45.11907	488563.201	210984.698	.131	3	GPS - RTRN		2012	RTRN2012	

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>	
46 56 03.35882	96 44 45.11958	488563.166	210984.644	.033	C	GPS - STATIC		2023	HMOFA3	
46 56 03.35882	96 44 45.11958	488563.166	210984.644	.033	C	GPS - STATIC		2015	HCLAY	

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2001234.767	1043262.190	704994.705	17075665.165	.010		ADJUSTMENT	2024	GPS3674
2001234.767	1043262.190	704994.705	17075665.165	.010	C	GPS - STATIC	2023	HMOFA3
2001234.818	1043262.236	704994.756	17075665.209	.131	3	GPS - RTRN	2022	RTRN2022
2001234.775	1043262.244	704994.714	17075665.218	.016		ADJUSTMENT	2015	GPS3084
2001234.775	1043262.244	704994.714	17075665.218	.016	C	GPS - STATIC	2015	HCLAY

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2001234.750	1043262.258	704994.689	17075665.232	.131	3	GPS - RTRN	2012	RTRN2012

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2001234.713	1043262.204	704994.651	17075665.180	.033	C	GPS - STATIC	2023	HMOFA3
2001234.713	1043262.204	704994.651	17075665.180	.033	C	GPS - STATIC	2015	HCLAY

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_W_RESET-DP2172-3E-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_W_RESET-DP2172-3E-28JUN2022.jpg</a>	E	Jun 28, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_W_RESET-DP2172-2-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_W_RESET-DP2172-2-28JUN2022.jpg</a>		Jun 28, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_W_RESET-DP2172-1-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_W_RESET-DP2172-1-28JUN2022.jpg</a>		Jun 28, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1407 X

NGS Name: 1407 X

County: CLAY, MN (Sheet 1)

NGS ACRN: [DF8764](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	9	140 N	48 W	465702.50	964444.80	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2002	2012	DESTROYED	Horz=NO Vert=NO	NO		RECESSED 2 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	SURVEY DISK	MNDT

**Description:** (2002)                      **Stamping:** 1407 X 2002

2.8 MILES SOUTH OF KRAGNES, 2.6 MILES SOUTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND 98TH AVENUE NORTH IN KRAGNES, AT TRUNK HIGHWAY 75 MILEPOINT 256.65, 53.0 FEET EAST OF TRUNK HIGHWAY 75, 187.5 FEET NORTH-NORTHWEST OF A POWER POLE, 87.3 FEET SOUTH-SOUTHWEST OF A POWER POLE, 12.0 FEET SOUTH OF A FIELD ENTRANCE, 11.2 FEET NORTH-NORTHEAST OF A WITNESS POST.

**Station Notes**

THE DISK WAS TURNED IN TO THE OFFICE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
895.031	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941	
895.330	.016	2/1				VERTICAL ADJUSTMENT	2004	00000425-2	
895.362	.016	2/1				VERTICAL CONTROL SURVEY	2002	V1407	

Geoid Separations(ft): GEOID18 = -86.542    12B = -86.562    09 = -86.391    03 = -86.381

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1407 X RESET

NGS Name: 1407 X RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP2174](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	9	140 N	48 W	465702.87	964445.49	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2012	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 5 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 75 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012)                      Stamping: 1407 X RESET 2012

2.8 MILES SOUTH OF KRAGNES, 2.6 MILES SOUTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND 98TH AVENUE NORTH IN KRAGNES, AT TRUNK HIGHWAY 75 MILEPOINT 256.65, 187.5 FEET NORTH-NORTHWEST OF A POWER POLE, 87.3 FEET SOUTH-SOUTHWEST OF A POWER POLE, 53.0 FEET EAST OF TRUNK HIGHWAY 75, 12.0 FEET SOUTH OF A FIELD ENTRANCE, 11.2 FEET NORTH-NORTHEAST OF A WITNESS POST.

Station Pair: PORT - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
894.851	.016	2/1					VERTICAL ADJUSTMENT	2024	00000941-3	
894.874	.016	2/1					VERTICAL CONTROL SURVEY	2023	VMOFA	
894.821	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
894.874				808.584	.023	2011	HORIZONTAL ADJUSTMENT	2024	GPS3674	
894.874				808.584	.023	2011	GPS - STATIC	2023	HMOFA3	
894.874	.131			808.683	.066	1996	GPS - STATIC	2023	HMOFA3	
895.015	.262			808.473	.197	2011	GPS - RTRN	2022	RTRN2022	
894.959	.262			808.568	.197	2007	GPS - RTRN	2012	RTRN2012	

Geoid Separations(ft): GEOID18 = -86.539 12B = -86.558 09 = -86.391 03 = -86.381

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 57 02.86898	96 44 45.49333			488540.761	217014.127	.010		ADJUSTMENT	2024	GPS3674
46 57 02.86898	96 44 45.49333			488540.761	217014.127	.010	C	GPS - STATIC	2023	HMOFA3
46 57 02.86832	96 44 45.49427			488540.696	217014.060	.131	3	GPS - RTRN	2022	RTRN2022

  

<u>NAD83(2007)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 57 02.86973	96 44 45.49420			488540.701	217014.203	.131	3	GPS - RTRN	2012	RTRN2012

  

<u>NAD83(1996)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 57 02.86884	96 44 45.49414			488540.705	217014.113	.033	C	GPS - STATIC	2023	HMOFA3



**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2001398.751	1049289.092	705257.003	17081692.334	.010		ADJUSTMENT	2024	GPS3674
2001398.751	1049289.092	705257.003	17081692.334	.010	C	GPS - STATIC	2023	HMOFA3
2001398.684	1049289.027	705256.935	17081692.271	.131	3	GPS - RTRN	2022	RTRN2022

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2001398.693	1049289.170	705256.946	17081692.413	.131	3	GPS - RTRN	2012	RTRN2012

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2001398.694	1049289.080	705256.946	17081692.323	.033	C	GPS - STATIC	2023	HMOFA3

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_X_RESET-DP2174-3E-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_X_RESET-DP2174-3E-28JUN2022.jpg</a>	E	Jun 28, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_X_RESET-DP2174-2-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_X_RESET-DP2174-2-28JUN2022.jpg</a>		Jun 28, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_X_RESET-DP2174-1-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_X_RESET-DP2174-1-28JUN2022.jpg</a>		Jun 28, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1407 Y

NGS Name: 1407 Y

County: CLAY, MN (Sheet 1)

NGS ACRN: [DF8765](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	4	140 N	48 W	465747.80	964449.20	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2002	2012	DESTROYED	Horz=NO Vert=NO	NO		RECESSED 2 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	SURVEY DISK	MNDT

**Description:** (2002)                      **Stamping:** 1407 Y 2002

1.8 MILES SOUTH OF KRAGNES, 1.8 MILES SOUTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND 98TH AVENUE NORTH, AT TRUNK HIGHWAY 75 MILEPOINT 257.5, 195.0 FEET WEST OF TRUNK HIGHWAY 75, 30.0 FEET NORTH OF 80TH AVENUE NORTH, 74.9 FEET NORTHWEST OF A RAILROAD CROSSING SIGNPOST, 68.6 FEET WEST OF THE WEST RAIL OF THE TRACKS, 11.0 FEET EAST OF A FIELD ENTRANCE, 8.1 FEET WEST OF A WITNESS POST.

**Station Notes**

THE DISK WAS TURNED IN TO THE OFFICE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
894.175	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941	
894.467	.016	2/1				VERTICAL ADJUSTMENT	2004	00000425-2	
894.500	.016	2/1				VERTICAL CONTROL SURVEY	2002	V1407	

Geoid Separations(ft): GEOID18 = -86.496    12B = -86.509    09 = -86.348    03 = -86.338

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1407 Y RESET

NGS Name: 1407 Y RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP2175](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	4	140 N	48 W	465747.67	964449.07	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2012	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 5 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 50 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012)                      Stamping: 1407 Y RESET 2012

1.8 MILES SOUTH OF KRAGNES, 1.8 MILES SOUTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND 98TH AVENUE NORTH IN KRAGNES, AT TRUNK HIGHWAY 75 MILEPOINT 257.5, 195.0 FEET WEST OF TRUNK HIGHWAY 75, 74.9 FEET NORTHWEST OF A RAILROAD CROSSING SIGNPOST, 68.6 FEET WEST OF THE WEST RAIL OF THE RAILROAD TRACKS, 30.0 FEET NORTH OF 80TH AVENUE NORTH, 11.0 FEET EAST OF A FIELD ENTRANCE, 8.1 FEET WEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
894.004	.016	2/1				VERTICAL ADJUSTMENT	2024	0000941-3		
894.027	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA		
893.965	.016	2/1				VERTICAL ADJUSTMENT	2019	0000941		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
894.027			807.787	.023	2011	HORIZONTAL ADJUSTMENT	2024	GPS3674		
894.027			807.787	.023	2011	GPS - STATIC	2023	HMOFA3		
894.027	.131		807.886	.066	1996	GPS - STATIC	2023	HMOFA3		
894.181	.262		807.685	.197	2011	GPS - RTRN	2022	RTRN2022		
894.270			807.731	.021	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084		
894.237	.131		807.872	.066	1996	GPS - STATIC	2015	HCLAY		
894.270			807.731	.021	2011	GPS - STATIC	2015	HCLAY		
894.106	.262		807.754	.197	2007	GPS - RTRN	2012	RTRN2012		

Geoid Separations(ft): GEOID18 = -86.493    12B = -86.509    09 = -86.348    03 = -86.338

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 57 47.66523	96 44 49.06521			488295.664	221552.965	.010		ADJUSTMENT	2024	GPS3674
46 57 47.66523	96 44 49.06521			488295.664	221552.965	.010	C	GPS - STATIC	2023	HMOFA3
46 57 47.66611	96 44 49.06455			488295.710	221553.054	.131	3	GPS - RTRN	2022	RTRN2022
46 57 47.66509	96 44 49.06589			488295.617	221552.950	.013		ADJUSTMENT	2015	GPS3084
46 57 47.66509	96 44 49.06589			488295.617	221552.950	.013	C	GPS - STATIC	2015	HCLAY

<u>NAD83(2007)</u>				<u>Clay County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 57 47.66576	96 44 49.06608			488295.604	221553.018	.131	3	GPS - RTRN	2012	RTRN2012

<u>NAD83(1996)</u>				<u>Clay County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 57 47.66508	96 44 49.06599			488295.610	221552.949	.033	C	GPS - STATIC	2023	HMOFA3
46 57 47.66456	96 44 49.06669			488295.561	221552.897	.033	C	GPS - STATIC	2015	HCLAY

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2001294.125	1053833.045	705226.442	17086240.197	.010		ADJUSTMENT	2024	GPS3674
2001294.125	1053833.045	705226.442	17086240.197	.010	C	GPS - STATIC	2023	HMOFA3
2001294.174	1053833.133	705226.491	17086240.284	.131	3	GPS - RTRN	2022	RTRN2022
2001294.077	1053833.032	705226.394	17086240.185	.013		ADJUSTMENT	2015	GPS3084
2001294.077	1053833.032	705226.394	17086240.185	.013	C	GPS - STATIC	2015	HCLAY

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2001294.066	1053833.101	705226.384	17086240.253	.131	3	GPS - RTRN	2012	RTRN2012

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2001294.071	1053833.032	705226.387	17086240.184	.033	C	GPS - STATIC	2023	HMOFA3
2001294.020	1053832.981	705226.336	17086240.134	.033	C	GPS - STATIC	2015	HCLAY

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_Y_RESET-DP2175-3N-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_Y_RESET-DP2175-3N-28JUN2022.jpg</a>	N	Jun 28, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_Y_RESET-DP2175-2-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_Y_RESET-DP2175-2-28JUN2022.jpg</a>		Jun 28, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_Y_RESET-DP2175-1-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_Y_RESET-DP2175-1-28JUN2022.jpg</a>		Jun 28, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1407 Z

NGS Name: 1407 Z

County: CLAY, MN (Sheet 1)

NGS ACRN: [DF8766](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	34	141 N	48 W	465838.30	964445.80	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2002	2012	DESTROYED	Horz=NO Vert=NO	NO		RECESSED 2 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	SURVEY DISK	MNDT

**Description:** (2002)                      **Stamping:** 1407 Z 2002

0.8 MILE SOUTH-SOUTHEAST OF KRAGNES, 0.8 MILE SOUTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND 98TH AVENUE NORTH IN KRAGNES, AT TRUNK HIGHWAY 75 MILEPOINT 258.45, 114.0 FEET EAST-NORTHEAST OF TRUNK HIGHWAY 75, 92.0 FEET NORTH OF COUNTY ROAD 26 (90TH AVENUE NORTH), 92.0 FEET SOUTH-SOUTHWEST OF THE NORTHWEST CORNER OF A CYCLONE FENCE AROUND A POWER SUBSTATION, 60.5 FEET SOUTHEAST OF A RIGHT-OF-WAY POST, 48.8 FEET WEST OF A CYCLONE FENCE AROUND A SUBSTATION, 41.9 FEET NORTHWEST OF THE SOUTHWEST CORNER OF A CYCLONE FENCE AROUND A SUB POWER STATION, 1.1 FEET WEST OF A WITNESS POST.

**Station Notes**

THE DISK WAS TURNED IN TO THE OFFICE.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
891.317	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941	
891.603	.016	2/1				VERTICAL ADJUSTMENT	2004	00000425-2	
891.639	.016	2/1				VERTICAL CONTROL SURVEY	2002	V1407	

**Geoid Separations(ft):** GEOID18 = -86.460    12B = -86.473    09 = -86.319    03 = -86.312

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1407 Z RESET

NGS Name: 1407 Z RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP2176](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	34	141 N	48 W	465838.21	964445.87	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2012	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 6 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 25 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012)                      Stamping: 1407 Z RESET 2012

0.8 MILE SOUTH-SOUTHEAST OF KRAGNES, 0.8 MILE SOUTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND 98TH AVENUE NORTH IN KRAGNES, AT TRUNK HIGHWAY 75 MILEPOINT 258.45, 114.0 FEET EAST-NORTHEAST OF TRUNK HIGHWAY 75, 92.0 FEET NORTH OF COUNTY ROAD 26 (90TH AVENUE NORTH), 92.0 FEET SOUTH-SOUTHWEST OF THE NORTHWEST CORNER OF A CYCLONE FENCE AROUND A POWER SUBSTATION, 60.5 FEET SOUTHEAST OF A RIGHT-OF-WAY POST, 48.8 FEET WEST OF A CYCLONE FENCE AROUND A SUBSTATION, 1.1 FEET WEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
891.124	.016	2/1					VERTICAL ADJUSTMENT	2024	0000941-3	
891.147	.016	2/1					VERTICAL CONTROL SURVEY	2023	VMOFA	
891.087	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
891.147				804.936	.023	2011	HORIZONTAL ADJUSTMENT	2024	GPS3674	
891.147				804.936	.023	2011	GPS - STATIC	2023	HMOFA3	
891.147	.131			805.031	.066	1996	GPS - STATIC	2023	HMOFA3	
891.314	.262			804.854	.197	2011	GPS - RTRN	2022	RTRN2022	
891.343	.262			805.025	.197	2007	GPS - RTRN	2012	RTRN2012	

Geoid Separations(ft): GEOID18 = -86.460    12B = -86.473    09 = -86.319    03 = -86.312

**Lat/Lon and County Coordinates (Feet)**

<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
46 58 38.20706	96 44 45.87111	488520.229	226673.670	.010		ADJUSTMENT	2024	GPS3674
46 58 38.20706	96 44 45.87111	488520.229	226673.670	.010	C	GPS - STATIC	2023	HMOFA3
46 58 38.20657	96 44 45.87250	488520.133	226673.620	.131	3	GPS - RTRN	2022	RTRN2022

<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
46 58 38.20814	96 44 45.87172	488520.187	226673.779	.131	3	GPS - RTRN	2012	RTRN2012

<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
46 58 38.20691	96 44 45.87188	488520.176	226673.655	.033	C	GPS - STATIC	2023	HMOFA3

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2001676.898	1058944.042	705692.815	17091347.407	.010		ADJUSTMENT	2024	GPS3674
2001676.898	1058944.042	705692.815	17091347.407	.010	C	GPS - STATIC	2023	HMOFA3
2001676.800	1058943.995	705692.717	17091347.363	.131	3	GPS - RTRN	2022	RTRN2022

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2001676.859	1058944.152	705692.778	17091347.519	.131	3	GPS - RTRN	2012	RTRN2012

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2001676.844	1058944.028	705692.761	17091347.395	.033	C	GPS - STATIC	2023	HMOFA3

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_Z_RESET-DP2176-3E-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_Z_RESET-DP2176-3E-28JUN2022.jpg</a>	E	Jun 28, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_Z_RESET-DP2176-2-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_Z_RESET-DP2176-2-28JUN2022.jpg</a>		Jun 28, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_Z_RESET-DP2176-1-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1407_Z_RESET-DP2176-1-28JUN2022.jpg</a>		Jun 28, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1408 A

NGS Name: 1408 A

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	35	137 N	46 W	463751.00	962639.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1955	2005	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

Description: (1955)                      Stamping:

1.9 MILES SOUTHWEST OF BARNESVILLE, 2.3 MILES WEST-SOUTHWEST ALONG TRUNK HIGHWAY 9 SOUTH (MAIN AVENUE WEST) FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND FRONT STREET, THEN 151.0 FEET EAST ON 180TH AVENUE SOUTH, 100.0 FEET RIGHT OF TRUNK HIGHWAY 9, AT TRUNK HIGHWAY 9 STATION 1324+75.

Station Notes

FOUND THE WITNESS POST IN THE DITCH, NOW A FIELD ROAD TO THE EAST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>							<u>Project Info</u>	
<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			
999.161	.033	3				VERTICAL CONTROL SURVEY	1955	CS1408

**Geoid Separations(ft): GEOID18 = -87.070    12B = -87.063    09 = -86.978    03 = -86.929**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1408 A RESET

NGS Name: 1408 A RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [DK7701](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	35	137 N	46 W	463750.68	962642.15	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2005	2024	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 24 FT)	SURVEY DISK	MNDT

Description: (2005)                      Stamping: 1408 A RESET 2005

1.9 MILES SOUTHWEST OF BARNESVILLE, 2.2 MILES WEST AND SOUTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 52 IN BARNESVILLE, AT TRUNK HIGHWAY 9 MILEPOINT 144.8, 74.7 FEET WEST OF TRUNK HIGHWAY 9, 35.7 FEET NORTH OF 180TH AVENUE SOUTH, 1.0 FOOT EAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
997.990	.016	2/1				VERTICAL CONTROL SURVEY	2024	V THER2		
997.993	.016	2/1				VERTICAL ADJUSTMENT	2020	00000941-2		
997.993	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941		
998.121	.016	2/1				VERTICAL ADJUSTMENT	2009	00000425-35		
998.121	.016	2/1				VERTICAL CONTROL SURVEY	2006	V THER		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
997.993			911.064	.023	2011	HORIZONTAL ADJUSTMENT	2024	GPS3671		
997.993	.131		911.186	.066	1996	GPS - STATIC	2023	HTH9		
997.993			911.064	.023	2011	GPS - STATIC	2023	HTH9		
998.049	.262		910.979	.197	2011	GPS - RTRN	2023	RTRN2023		
998.318	.262		911.248	.197	2011	GPS - RTRN	2022	RTRN2022		

Geoid Separations(ft): GEOID18 = -87.070    12B = -87.060    09 = -86.975    03 = -86.926

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 37 50.67838	96 26 42.14892	564081.599	100379.495	.013		ADJUSTMENT	2024	GPS3671	
46 37 50.67838	96 26 42.14892	564081.599	100379.495	.013	C	GPS - STATIC	2023	HTH9	
46 37 50.67850	96 26 42.14893	564081.598	100379.508	.131	3	GPS - RTRN	2023	RTRN2023	
46 37 50.67808	96 26 42.14910	564081.586	100379.465	.131	3	GPS - RTRN	2022	RTRN2022	

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 37 50.67812	96 26 42.14937	564081.567	100379.469	.033	C	GPS - STATIC	2023	HTH9	

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>X</u>	<u>Y</u>								
2073288.646	930384.264	775256.601	16961573.139	.013		ADJUSTMENT	2024	GPS3671	
2073288.646	930384.264	775256.601	16961573.139	.013	C	GPS - STATIC	2023	HTH9	
2073288.646	930384.276	775256.601	16961573.151	.131	3	GPS - RTRN	2023	RTRN2023	
2073288.633	930384.234	775256.587	16961573.109	.131	3	GPS - RTRN	2022	RTRN2022	

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>X</u>	<u>Y</u>								
2073288.614	930384.238	775256.569	16961573.114	.033	C	GPS - STATIC	2023	HTH9	



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1408_A_RESET-DK7701-3SW-26JUL2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1408_A_RESET-DK7701-3SW-26JUL2023.jpg</a>	SW	Jul 26, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1408_A_RESET-DK7701-2-26JUL2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1408_A_RESET-DK7701-2-26JUL2023.jpg</a>		Jul 26, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1408_A_RESET-DK7701-1-26JUL2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1408_A_RESET-DK7701-1-26JUL2023.jpg</a>		Jul 26, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1408 B

NGS Name: 1408 B

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	35	137 N	46 W	463817.00	962633.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1955	2005	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

**Description:** (1955)                      **Stamping:**

1.44 MILES SOUTHWEST OF BARNESVILLE, 1.8 MILES WEST-SOUTHWEST ALONG TRUNK HIGHWAY 9 SOUTH (MAIN AVENUE WEST) FROM THE JUNCTION OF TRUNK HIGHWAY 9 SOUTH AND FRONT STREET IN BARNESVILLE, 75.0 FEET LEFT OF TRUNK HIGHWAY 9, AT TRUNK HIGHWAY 9 STATION 1351+31.

**Station Notes**

FOUND THE MONUMENT TIPPED OUT OF THE GROUND, REMOVED THE DISK.

**Leveling-Derived Orthometric Heights (Feet)**

							<u>Project Info</u>	
<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			
995.858	.033	3				VERTICAL CONTROL SURVEY	1955	CS1408

**Geoid Separations(ft): GEOID18 = -87.057    12B = -87.050    09 = -86.962    03 = -86.913**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1408 C

NGS Name: 1408 C

County: CLAY, MN (Sheet 1)

NGS ACRN: [DK7702](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	35	137 N	46 W	463842.26	962628.98	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1955	2024	GOOD	Horz=YES Vert=YES	YES		RECESSED 1 IN.	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	BENCH MARK DISK	MNDT

Description: (2012) Stamping: 1408 C 19

1.0 MILE SOUTHWEST OF BARNESVILLE, 1.3 MILES WEST AND SOUTHWEST ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 52 (FRONT STREET) IN BARNESVILLE, AT TRUNK HIGHWAY 9 MILEPOINT 145.8, 76.8 FEET WEST OF TRUNK HIGHWAY 9, 48.7 FEET SOUTH OF 170TH AVENUE SOUTH/COUNTY ROAD 51, 4.5 FEET EAST OF A POWER POLE, 1.0 FOOT SOUTHEAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			
993.404	.016	2/1				2024	VOTHER2			
993.390	.016	2/1				2020	00000941-2			
993.390	.016	2/1				2019	00000941			
993.518	.016	2/1				2009	00000425-35			
993.522	.016	2/1				2006	VOTHER			

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			
992.554	.033	3				1955	CS1408			

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>		
993.390			906.481	.015	2011	2024	GPS3671		
993.390	.131		906.635	.066	1996	2023	HTH9		
993.390			906.481	.015	2011	2023	HTH9		
993.479	.262		906.432	.197	2011	2023	RTRN2023		
993.712	.262		906.665	.197	2011	2022	RTRN2022		
993.518			906.481	.016	2011	2015	GPS3084		
993.518	.131		906.635	.066	1996	2015	HCLAY		
993.518			906.475	.016	2011	2015	HCLAY		
993.518			906.481	.021	2011	2014	GPS2750		
993.518			906.481	.021	2011	2014	HBARN		
993.535	.131		906.573	.066	2007	2010	HBARN		
993.518	.131		906.635	.066	1996	2010	HBARN		
			906.730	.066	1996	2001	DIST 4		

Geoid Separations(ft): GEOID18 = -87.047 12B = -87.041 09 = -86.949 03 = -86.899

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 38 42.26336	96 26 28.97770	564983.698	105608.710	.010		ADJUSTMENT	2024	GPS3671
46 38 42.26336	96 26 28.97770	564983.698	105608.710	.010	C	GPS - STATIC	2023	HTH9
46 38 42.26303	96 26 28.97773	564983.696	105608.677	.131	3	GPS - RTRN	2023	RTRN2023
46 38 42.26297	96 26 28.97804	564983.674	105608.670	.131	3	GPS - RTRN	2022	RTRN2022
46 38 42.26336	96 26 28.97770	564983.698	105608.710	.010		ADJUSTMENT	2015	GPS3084
46 38 42.26336	96 26 28.97781	564983.690	105608.710	.010	C	GPS - STATIC	2015	HCLAY
46 38 42.26336	96 26 28.97770	564983.698	105608.710	.013		ADJUSTMENT	2014	GPS2750
46 38 42.26336	96 26 28.97770	564983.698	105608.710	.013	C	GPS - STATIC	2014	HBARN

**NAD83(2007)**

Geodetic Position		Clay County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 38 42.26344	96 26 28.97873	564983.626	105608.718	.033	C	GPS - STATIC	2010	HBARN

**NAD83(1996)**

Geodetic Position		Clay County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 38 42.26305	96 26 28.97847	564983.644	105608.678	.033	C	GPS - STATIC	2023	HTH9
46 38 42.26305	96 26 28.97847	564983.644	105608.678	.033	C	GPS - STATIC	2015	HCLAY
46 38 42.26305	96 26 28.97847	564983.644	105608.678	.033	C	GPS - STATIC	2010	HBARN
46 38 42.26307	96 26 28.97830	564983.657	105608.680	.033	C	GPS - STATIC	2001	DIST 4

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2074352.004	935582.467	776403.718	16966756.316	.010		ADJUSTMENT	2024	GPS3671
2074352.004	935582.467	776403.718	16966756.316	.010	C	GPS - STATIC	2023	HTH9
2074352.001	935582.433	776403.714	16966756.283	.131	3	GPS - RTRN	2023	RTRN2023
2074351.979	935582.428	776403.692	16966756.278	.131	3	GPS - RTRN	2022	RTRN2022
2074352.004	935582.467	776403.718	16966756.316	.010		ADJUSTMENT	2015	GPS3084
2074351.996	935582.467	776403.710	16966756.316	.010	C	GPS - STATIC	2015	HCLAY
2074352.004	935582.467	776403.718	16966756.316	.013		ADJUSTMENT	2014	GPS2750
2074352.004	935582.467	776403.718	16966756.316	.013	C	GPS - STATIC	2014	HBARN

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2074351.932	935582.477	776403.646	16966756.327	.033	C	GPS - STATIC	2010	HBARN

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2074351.949	935582.437	776403.662	16966756.287	.033	C	GPS - STATIC	2023	HTH9
2074351.949	935582.437	776403.662	16966756.287	.033	C	GPS - STATIC	2015	HCLAY
2074351.949	935582.437	776403.662	16966756.287	.033	C	GPS - STATIC	2010	HBARN
2074351.961	935582.439	776403.674	16966756.289	.033	C	GPS - STATIC	2001	DIST 4

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1408_C-DK7702-3NW-26JUL2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1408_C-DK7702-3NW-26JUL2023.jpg</a>	NW	Jul 26, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1408_C-DK7702-2-26JUL2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1408_C-DK7702-2-26JUL2023.jpg</a>		Jul 26, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1408_C-DK7702-1-26JUL2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1408_C-DK7702-1-26JUL2023.jpg</a>		Jul 26, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1408 C 1

NGS Name: 1408 C 1

County: CLAY, MN (Sheet 1)

NGS ACRN: [DK7703](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	25	137 N	46 W	463911.64	962549.41	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2005	2024	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 20 FT)	SURVEY DISK	MNDT

Description: (2013)                      Stamping: 1408 C 1 2005

IN BARNESVILLE, 0.9 MILE SOUTH AND WEST ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND TRUNK HIGHWAY 34 IN BARNESVILLE, AT TRUNK HIGHWAY 9 MILEPOINT 146.6, 43.2 FEET SOUTH OF TRUNK HIGHWAY 9, 25.8 FEET EAST OF 7TH STREET SOUTHWEST, 9.0 FEET NORTHWEST OF A SIGNPOST, 1.0 FOOT NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
995.920	.016	2/1				VERTICAL CONTROL SURVEY	2024	V THER2		
995.917	.016	2/1				VERTICAL ADJUSTMENT	2020	00000941-2		
995.917	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941		
996.045	.016	2/1				VERTICAL ADJUSTMENT	2009	00000425-35		
996.045	.016	2/1				VERTICAL CONTROL SURVEY	2006	V THER		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
995.917			908.988	.022	2011	HORIZONTAL ADJUSTMENT	2024	GPS3671		
995.917	.131		909.103	.066	1996	GPS - STATIC	2023	HTH9		
995.917			908.988	.022	2011	GPS - STATIC	2023	HTH9		
995.972	.262		908.916	.197	2011	GPS - RTRN	2023	RTRN2023		
996.054	.262		908.998	.197	2011	GPS - RTRN	2022	RTRN2022		

Geoid Separations(ft): GEOID18 = -87.054    12B = -87.047    09 = -86.955    03 = -86.906

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 39 11.64043	96 25 49.41104	567734.232	108594.243	.013		ADJUSTMENT	2024	GPS3671	
46 39 11.64043	96 25 49.41104	567734.232	108594.243	.013	C	GPS - STATIC	2023	HTH9	
46 39 11.64027	96 25 49.41084	567734.246	108594.226	.131	3	GPS - RTRN	2023	RTRN2023	
46 39 11.64001	96 25 49.41061	567734.262	108594.200	.131	3	GPS - RTRN	2022	RTRN2022	

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 39 11.64020	96 25 49.41151	567734.199	108594.219	.033	C	GPS - STATIC	2023	HTH9	

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>X</u>	<u>Y</u>								
2077193.286	938481.126	779292.588	16969610.512	.013		ADJUSTMENT	2024	GPS3671	
2077193.286	938481.126	779292.588	16969610.512	.013	C	GPS - STATIC	2023	HTH9	
2077193.300	938481.110	779292.601	16969610.496	.131	3	GPS - RTRN	2023	RTRN2023	
2077193.315	938481.083	779292.616	16969610.469	.131	3	GPS - RTRN	2022	RTRN2022	

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>X</u>	<u>Y</u>								
2077193.253	938481.104	779292.554	16969610.491	.033	C	GPS - STATIC	2023	HTH9	



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1408_C_1-DK7703-3S-26JUL2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1408_C_1-DK7703-3S-26JUL2023.jpg</a>	S	Jul 26, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1408_C_1-DK7703-2-26JUL2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1408_C_1-DK7703-2-26JUL2023.jpg</a>		Jul 26, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1408_C_1-DK7703-1-26JUL2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1408_C_1-DK7703-1-26JUL2023.jpg</a>		Jul 26, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1408 D

NGS Name: 1408 D

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	25	137 N	46 W	463918.00	962538.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1955	2023	NOT FOUND	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

Description: (1955)                      Stamping:

IN BARNESVILLE, 0.3 MILE WEST ALONG MAIN AVENUE WEST FROM THE JUNCTION OF MAIN AVENUE WEST AND FRONT STREET SOUTH IN BARNESVILLE, THEN 0.1 MILE NORTH ALONG 5TH STREET NORTHWEST, THEN 135.0 FEET WEST ALONG 3RD SOUTHWEST, ON 3RD SOUTHWEST, 37.0 FEET LEFT OF TRUNK HIGHWAY 9, AT TRUNK HIGHWAY 9 STATION 1428+73.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1000.546	.033	3				VERTICAL CONTROL SURVEY	1955	CS1408	

Geoid Separations(ft): GEOID18 = -87.057    12B = -87.050    09 = -86.955    03 = -86.909

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1409 A

NGS Name: 1409 A

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	17	139 N	46 W	465146.00	963018.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1955	2005	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

Description: (1955)                      Stamping: 1409 A

3.5 MILES SOUTHEAST OF GLYNDON, 1.0 MILE SOUTH OF THE JUNCTION OF TRUNK HIGHWAY 10 AND TRUNK HIGHWAY 9, 75.0 FEET RIGHT OF TRUNK HIGHWAY 9, AT TRUNK HIGHWAY 9 STATION 790+50.

Station Notes

THE DISK WAS REMOVED.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
938.653	.033	3				1964	USGS-VERT	VERTICAL CONTROL SURVEY				
938.515	.033	3				1955	CS1409	VERTICAL CONTROL SURVEY				

Geoid Separations(ft): GEOID18 = -87.700    12B = -87.713    09 = -87.569    03 = -87.497

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1409 AA

NGS Name: 1409 AA

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0090](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	13	137 N	46 W	464026.82	962513.82	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1968	2023	POOR	Horz=NO Vert=NO	YES		PROJECTS 3 IN.	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	BENCH MARK DISK	MNDT

Description: (1968)                      Stamping: 1409 AA 1968

1.0 MILE NORTH OF BARNESVILLE, 0.4 MILE SOUTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND INTERSTATE HIGHWAY 94, AT TRUNK HIGHWAY 9 MILEPOINT 148.5, AT TRUNK HIGHWAY 9 STATION 60+94, 83.0 FEET WEST OF TRUNK HIGHWAY 9, 50.0 FEET NORTH OF COUNTY ROAD 55/ 150TH AVENUE SOUTH, 1.0 FOOT EAST OF A WITNESS POST.

Station Notes

THE CONCRETE IS CHIPPED, AND THE DISK IS BENT.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1005.520	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941	
1005.638	.016	2/1				VERTICAL ADJUSTMENT	2012	00000717	
1005.641	.016	2/1				VERTICAL CONTROL SURVEY	2010	VBARN	
1005.474	.016	2				VERTICAL ADJUSTMENT	1991	00000025	

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1004.604	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD	
1004.604	.016	2				VERTICAL CONTROL SURVEY	1972	Q460961	
1004.604	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A	
1004.604	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1005.651	.262		918.587	.197	2011	GPS - RTRN	2023	RTRN2023	
1005.710	.262		918.646	.197	2011	GPS - RTRN	2022	RTRN2022	
1005.638			918.538	.020	2011	HORIZONTAL ADJUSTMENT	2014	GPS2750	
1005.638			918.538	.020	2011	GPS - STATIC	2014	HBARN	
1005.720	.262		918.660	.197	2011	GPS - RTRN	2014	RTRN2014	
1005.641	.131		918.620	.066	2007	GPS - STATIC	2010	HBARN	
1005.641	.131		918.679	.066	1996	GPS - STATIC	2010	HBARN	
			918.610	.066	1996	GPS - STATIC	2001	DIST 4	

Geoid Separations(ft): GEOID18 = -87.063    12B = -87.060    09 = -86.958    03 = -86.906

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 40 26.82453	96 25 13.81872	570190.245	116220.042	.131	3	GPS - RTRN	2023	RTRN2023
46 40 26.82450	96 25 13.81809	570190.289	116220.039	.131	3	GPS - RTRN	2022	RTRN2022
46 40 26.82388	96 25 13.81743	570190.336	116219.977	.013		ADJUSTMENT	2014	GPS2750
46 40 26.82388	96 25 13.81743	570190.336	116219.977	.013	C	GPS - STATIC	2014	HBARN
46 40 26.82435	96 25 13.81713	570190.356	116220.024	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(2007)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 40 26.82404	96 25 13.81846	570190.264	116219.992	.033	C	GPS - STATIC	2010	HBARN

**NAD83(1996)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 40 26.82365	96 25 13.81819	570190.283	116219.953	.033	C	GPS - STATIC	2010	HBARN
46 40 26.82627	96 25 13.81507	570190.500	116220.220	.033	C	GPS - STATIC	2001	DIST 4

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2079883.813	946026.421	782105.231	16977115.468	.131	3	GPS - RTRN	2023	RTRN2023
2079883.857	946026.416	782105.275	16977115.463	.131	3	GPS - RTRN	2022	RTRN2022
2079883.901	946026.352	782105.318	16977115.398	.013		ADJUSTMENT	2014	GPS2750
2079883.901	946026.352	782105.318	16977115.398	.013	C	GPS - STATIC	2014	HBARN
2079883.923	946026.400	782105.341	16977115.445	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2079883.830	946026.371	782105.247	16977115.417	.033	C	GPS - STATIC	2010	HBARN

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2079883.847	946026.331	782105.264	16977115.377	.033	C	GPS - STATIC	2010	HBARN
2079884.072	946026.590	782105.493	16977115.633	.033	C	GPS - STATIC	2001	DIST 4

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_AA-RP0090-3W-26JUL2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_AA-RP0090-3W-26JUL2023.jpg</a>	W	Jul 26, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_AA-RP0090-2-26JUL2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_AA-RP0090-2-26JUL2023.jpg</a>		Jul 26, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_AA-RP0090-1-26JUL2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_AA-RP0090-1-26JUL2023.jpg</a>		Jul 26, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1409 B

NGS Name: 1409 B

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	21	139 N	46 W	465053.48	963017.59		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1955	2005	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

Description: (1961)                      Stamping: 1409 B

3.9 MILES SOUTHEAST OF GLYNDON, 2.0 MILES SOUTH OF THE JUNCTION OF TRUNK HIGHWAY 10 AND TRUNK HIGHWAY 9, 75.0 FEET LEFT OF TRUNK HIGHWAY 9, AT TRUNK HIGHWAY 9 STATION 843+19.

Station Notes

FOUND THE DISK LYING NEXT TO THE CONCRETE.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
941.461	.033	3				VERTICAL CONTROL SURVEY	1964	USGS-VERT	
940.510	.033	3				VERTICAL CONTROL SURVEY	1961	CS1409	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
			855.057	.066	1996	GPS - STATIC	2001	DIST 4	

Geoid Separations(ft): GEOID18 = -87.700    12B = -87.713    09 = -87.572    03 = -87.500

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
46 50 53.48580	96 30 17.59707	548848.295	179646.419	.033	C	GPS - STATIC	2001	DIST 4

State Plane and UTM Coordinates (Feet)

NAD83(1996)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
2060516.962	1010076.555	763763.791	17041502.182	.033	C	GPS - STATIC	2001	DIST 4



Mn/DOT Name: 1409 BB  
County: CLAY, MN (Sheet 1)

NGS Name: 1409 BB

NGS ACRN: [DQ1957](#) [Get Map](#)  
NGS Quad / Sta Num : 46096134/  
USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	12	137 N	46 W	464119.07	962517.51	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1959	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	BENCH MARK DISK	MNDT

Description: (1961)                      Stamping: 1409 BB 1959

2.5 MILES NORTH OF BARNESVILLE, 2.0 MILES NORTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND TRUNK HIGHWAY 34 IN BARNESVILLE, 63.0 FEET WEST OF TRUNK HIGHWAY 9, 50.5 FEET NORTH OF 140TH AVENUE SOUTH, AT TRUNK HIGHWAY 9 MILEPOINT 149.55.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1011.468	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1010.697	.033	3					VERTICAL CONTROL SURVEY	1961	CS1409	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1011.612	.262			924.526	.197	2011	GPS - RTRN	2023	RTRN2023	
1011.583	.262			924.496	.197	2011	GPS - RTRN	2022	RTRN2022	
1011.681	.262			924.595	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.083    12B = -87.090    09 = -86.975    03 = -86.916

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>					<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>		
46 41 19.06956	96 25 17.51196	569913.975	121512.261	.131	3	GPS - RTRN	2023	RTRN2023		
46 41 19.07043	96 25 17.51218	569913.959	121512.349	.131	3	GPS - RTRN	2022	RTRN2022		
46 41 19.07110	96 25 17.51029	569914.091	121512.417	.131	3	GPS - RTRN	2014	RTRN2014		

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
2079771.470	951324.068	782077.938	16982416.892	.131	3	GPS - RTRN	2023	RTRN2023
2079771.457	951324.157	782077.927	16982416.980	.131	3	GPS - RTRN	2022	RTRN2022
2079771.590	951324.221	782078.061	16982417.043	.131	3	GPS - RTRN	2014	RTRN2014

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<u>Location:</u>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_BB-DQ1957-3W-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_BB-DQ1957-3W-18OCT2023.jpg</a>	W	Oct 18, 2023
<u>Monument:</u>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_BB-DQ1957-2-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_BB-DQ1957-2-18OCT2023.jpg</a>		Oct 18, 2023
<u>Disk:</u>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_BB-DQ1957-1-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_BB-DQ1957-1-18OCT2023.jpg</a>		Oct 18, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1409 C

NGS Name: 1409 C

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	21	139 N	46 W	465002.00	963017.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1955	2005	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

Description: (1961)                      Stamping: 1409 C

5.2 MILES SOUTHEAST OF GLYNDON, 3.0 MILES SOUTH OF THE JUNCTION OF TRUNK HIGHWAY 9 AND TRUNK HIGHWAY 10, 75.0 FEET LEFT OF TRUNK HIGHWAY 9, AT TRUNK HIGHWAY 9 STATION 895+32.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
941.235	.033	3				VERTICAL CONTROL SURVEY	1961	CS1409	

Geoid Separations(ft): GEOID18 = -87.690    12B = -87.703    09 = -87.565    03 = -87.487

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1409 CC

NGS Name: 1409 CC

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	2	137 N	46 W	464215.00	962631.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1959	2014	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	SURVEY DISK	MNDT

Description: (1961)                      Stamping: 1409 CC

3.7 MILES NORTHWEST OF BARNESVILLE, IN A CULVERT HEADWALL IN THE SOUTHEAST CORNER OF A TRUNK HIGHWAY 9 BOX CULVERT, 3.5 MILES NORTH-NORTHEAST ALONG TRUNK HIGHWAY 9 NORTH FROM THE JUNCTION OF TRUNK HIGHWAY 9 NORTH AND COUNTY ROAD 2 (160TH AVENUE SOUTH), AT TRUNK HIGHWAY 9 STATION 191+65.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
969.788	.033	3				VERTICAL CONTROL SURVEY	1961	CS1409	

**Geoid Separations(ft): GEOID18 = -87.132    12B = -87.132    09 = -87.018    03 = -86.962**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1409 D

NGS Name: 1409 D

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	33	139 N	46 W	464909.00	963016.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1955	2005	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

Description: (1961)                      Stamping: 1409 D

5.2 MILES SOUTHWEST OF GLYNDON, 4.0 MILES SOUTH OF THE JUNCTION OF TRUNK HIGHWAY 82 AND TRUNK HIGHWAY 10, 75.0 FEET LEFT OF TRUNK HIGHWAY 82, AT TRUNK HIGHWAY 82 STATION 949+22.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
943.210	.033	3				VERTICAL CONTROL SURVEY	1964	USGS-VERT		
942.882	.033	3				VERTICAL CONTROL SURVEY	1961	CS1409		

Geoid Separations(ft): GEOID18 = -87.664    12B = -87.674    09 = -87.542    03 = -87.464

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1409 DD

NGS Name: 1409 DD

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	2	137 N	46 W	464303.00	962723.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1959	2014	DESTROYED	Horz=NO Vert=NO	YES			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

Description: (1961)                      Stamping: 1409 DD

4.8 MILES NORTHWEST OF BARNESVILLE, 4.6 MILES NORTH ALONG TRUNK HIGHWAY 9 NORTH FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 2/160TH AVENUE SOUTH IN BARNESVILLE, THEN 23.0 FEET EAST ON COUNTY ROAD 126 (120TH AVENUE SOUTH), 109.0 FEET LEFT OF TRUNK HIGHWAY 9, AT TRUNK HIGHWAY 9 STATION 252+75.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
961.153	.033	3				VERTICAL CONTROL SURVEY	1961	CS1409	

**Geoid Separations(ft): GEOID18 = -87.201    12B = -87.195    09 = -87.090    03 = -87.037**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1409 E

NGS Name: 1409 E

County: CLAY, MN (Sheet 1)

NGS ACRN: [DI0842](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	5	138 N	46 W	464815.82	963019.49	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1955	2014	GOOD	Horz=NO Vert=YES	YES		RECESSED 3 IN.	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	BENCH MARK DISK	MNDT

Description: (1979)                      Stamping: 1409 E 1955

3.8 MILES NORTH OF DOWNER, 3.8 MILES NORTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 10 IN DOWNER, AT TRUNK HIGHWAY 9 MILEPOINT 158.8, 75.0 FEET WEST OF TRUNK HIGHWAY 9, 103.0 FEET SOUTH OF COUNTY ROAD 72 (60TH AVENUE SOUTH), 1.4 FEET EAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
948.965	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
949.135	.016	2/1					VERTICAL ADJUSTMENT	2006	00000425-10	
949.129	.016	2/1					VERTICAL CONTROL SURVEY	2005	VPIET	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
948.236	.033	3					VERTICAL CONTROL SURVEY	1961	CS1409	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
949.129	.262			861.494	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.621 12B = -87.634 09 = -87.503 03 = -87.424

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 48 15.81978	96 30 19.49321			548756.056	163671.973	.131	3	GPS - RTRN	2014	RTRN2014

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2059930.447	994114.038			762918.830	17025542.944	.131	3	GPS - RTRN	2014	RTRN2014

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_E-DI0842-3W-27MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_E-DI0842-3W-27MAY2014.jpg</a>	W	May 27, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_E-DI0842-2-27MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_E-DI0842-2-27MAY2014.jpg</a>		May 27, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_E-DI0842-1-27MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_E-DI0842-1-27MAY2014.jpg</a>		May 27, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1409 EE

NGS Name: 1409 EE

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	35	138 N	46 W	464320.00	962739.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1959	2014	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	SURVEY DISK	MNDT

**Description:** (1961)                      **Stamping:** 1409 EE

5.2 MILES NORTHWEST OF BARNESVILLE, IN A CULVERT HEADWALL IN THE SOUTHEAST CORNER OF A TRUNK HIGHWAY 9 BOX CULVERT, 5.0 MILES NORTH-NORTHWEST ALONG TRUNK HIGHWAY 9 NORTH FROM THE JUNCTION OF TRUNK HIGHWAY 9 NORTH AND COUNTY ROAD 2 (160TH AVENUE SOUTH) IN BARNESVILLE, AT TRUNK HIGHWAY 9 STATION 273+00.

**Station Notes**

THE CULVERT HAS BEEN REPLACED.

**Leveling-Derived Orthometric Heights (Feet)**

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
960.841	.033	3				VERTICAL CONTROL SURVEY	1961	CS1409

**Geoid Separations(ft):** GEOID18 = -87.234    12B = -87.221    09 = -87.119    03 = -87.070

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1409 F

NGS Name: 1409 F

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	9	138 N	46 W	464724.00	963016.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1955	2014	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

Description: (1961)                      Stamping: 1409 F

2.8 MILES NORTH OF DOWNER, 2.7 MILES NORTHWEST ALONG TRUNK HIGHWAY 9 NORTH FROM THE JUNCTION OF TRUNK HIGHWAY 9 NORTH AND COUNTY ROAD 10 (90TH AVENUE SOUTH) IN DOWNER, THEN 180.0 FEET EAST ON COUNTY ROAD 71 (70TH AVENUE SOUTH), 90.0 FEET LEFT OF TRUNK HIGHWAY 9, AT TRUNK HIGHWAY 9 STATION 1054+95.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
950.963	.033	3				VERTICAL CONTROL SURVEY	1961	CS1409	

**Geoid Separations(ft): GEOID18 = -87.579    12B = -87.585    09 = -87.457    03 = -87.385**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1409 FF

NGS Name: 1409 FF

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP4933](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	27	138 N	46 W	464356.88	962810.99	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1955	2023	GOOD	Horz=YES Vert=YES	YES		FLUSH	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	BENCH MARK DISK	MNDT

Description: (2010)                      Stamping: 1409 FF 1955

1.6 MILES SOUTHEAST OF DOWNER, 1.6 MILES SOUTHEAST ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 10 IN DOWNER, AT TRUNK HIGHWAY 9 MILEPOINT 153.35, 69.9 FEET NORTHEAST OF TRUNK HIGHWAY 9, 61.3 FEET NORTH OF 110TH AVENUE SOUTH, 28.0 FEET SOUTH OF A POWER POLE WITH A GUY WIRE, 1.3 FEET WEST OF A WITNESS POST.

Station Pair:    WEBER - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
969.007	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	

  

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
968.236	.033	3					VERTICAL CONTROL SURVEY	1961	CS1409	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
969.007				881.865	.012	2011	HORIZONTAL ADJUSTMENT	2024	GPS3762	
969.007	.131			881.990	.066	1996	GPS - STATIC	2024	HTH32	
969.007				881.865	.012	2011	GPS - STATIC	2024	HTH32	
969.070	.262			881.763	.197	2011	GPS - RTRN	2023	RTRN2023	
969.158				881.865	.020	2011	HORIZONTAL ADJUSTMENT	2014	GPS2750	
969.158				881.865	.020	2011	GPS - STATIC	2014	HBARN	
969.125	.262			881.845	.197	2011	GPS - RTRN	2014	RTRN2014	
969.125	.131			881.931	.066	2007	GPS - STATIC	2010	HBARN	
969.138	.131			881.980	.066	1996	GPS - STATIC	2010	HBARN	
				882.072	.066	1996	GPS - STATIC	2001	DIST 4	

Geoid Separations(ft): GEOID18 = -87.306    12B = -87.280    09 = -87.185    03 = -87.142

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 43 56.87971	96 28 10.98665	557772.921	137461.587	.007		ADJUSTMENT	2024	GPS3762
46 43 56.87971	96 28 10.98665	557772.921	137461.587	.007	C	GPS - STATIC	2024	HTH32
46 43 56.87992	96 28 10.98533	557773.013	137461.608	.131	3	GPS - RTRN	2023	RTRN2023
46 43 56.87971	96 28 10.98665	557772.921	137461.587	.013		ADJUSTMENT	2014	GPS2750
46 43 56.87971	96 28 10.98665	557772.921	137461.587	.013	C	GPS - STATIC	2014	HBARN
46 43 56.88047	96 28 10.98736	557772.871	137461.663	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(2007)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 43 56.87983	96 28 10.98776	557772.843	137461.598	.033	C	GPS - STATIC	2010	HBARN

**NAD83(1996)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 43 56.87965	96 28 10.98665	557772.921	137461.580	.033	C	GPS - STATIC	2024	HTH32
46 43 56.87942	96 28 10.98752	557772.860	137461.557	.033	C	GPS - STATIC	2010	HBARN
46 43 56.87947	96 28 10.98758	557772.858	137461.562	.033	C	GPS - STATIC	2001	DIST 4

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2068131.063	967639.753	770695.561	16998926.017	.007		ADJUSTMENT	2024	GPS3762
2068131.063	967639.753	770695.561	16998926.017	.007	C	GPS - STATIC	2024	HTH32
2068131.155	967639.772	770695.653	16998926.035	.131	3	GPS - RTRN	2023	RTRN2023
2068131.063	967639.753	770695.561	16998926.017	.013		ADJUSTMENT	2014	GPS2750
2068131.063	967639.753	770695.561	16998926.017	.013	C	GPS - STATIC	2014	HBARN
2068131.016	967639.832	770695.514	16998926.097	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2068130.986	967639.767	770695.484	16998926.033	.033	C	GPS - STATIC	2010	HBARN

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2068131.063	967639.747	770695.560	16998926.012	.033	C	GPS - STATIC	2024	HTH32
2068131.002	967639.725	770695.499	16998925.991	.033	C	GPS - STATIC	2010	HBARN
2068130.997	967639.731	770695.495	16998925.996	.033	C	GPS - STATIC	2001	DIST 4

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_FF-DP4933-3NE-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_FF-DP4933-3NE-18OCT2023.jpg</a>	NE	Oct 18, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_FF-DP4933-2-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_FF-DP4933-2-18OCT2023.jpg</a>		Oct 18, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_FF-DP4933-1-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_FF-DP4933-1-18OCT2023.jpg</a>		Oct 18, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1409 G

NGS Name: 1409 G

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP4934](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096143/  
 USGS Quad: DOWNER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	21	138 N	46 W	464512.94	962902.60	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1955	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	BENCH MARK DISK	MNDT

Description: (1961)                      Stamping: 1409 G 19

IN DOWNER, 0.1 MILE EAST ALONG COUNTY ROAD 10 (90TH AVENUE SOUTH) FROM THE JUNCTION OF COUNTY ROAD 10 (90TH AVENUE SOUTH) AND 148TH STREET SOUTH IN DOWNER, THEN 236.0 FEET SOUTH-SOUTHEAST ALONG TRUNK HIGHWAY 9 SOUTH, 74.0 FEET NORTHEAST OF TRUNK HIGHWAY 9, AT TRUNK HIGHWAY 9 MILEPOST 155, AT TRUNK HIGHWAY 9 STATION 401+48, 24.0 FEET SOUTHEAST OF AN ENTRANCE TO A SHED, 188.0 FEET SOUTHEAST OF COUNTY ROAD 10, 41.0 FEET EAST OF MILEPOST 155, 3.0 FEET NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
969.040	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
968.276	.033	3				VERTICAL CONTROL SURVEY	1961	CS1409	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
969.040			881.776	.010	2011	HORIZONTAL ADJUSTMENT	2025	GPS3805	
969.040	.131		881.891	.066	1996	GPS - STATIC	2025	HTH94A	
969.040			881.776	.010	2011	GPS - STATIC	2025	HTH94A	
969.040			881.776	.011	2011	HORIZONTAL ADJUSTMENT	2024	GPS3762	
969.040	.131		881.891	.066	1996	GPS - STATIC	2024	HTH32	
969.040			881.776	.011	2011	GPS - STATIC	2024	HTH32	
969.135	.262		881.701	.197	2011	GPS - RTRN	2023	RTRN2023	
969.188			881.776	.021	2011	HORIZONTAL ADJUSTMENT	2014	GPS2750	
969.188			881.776	.021	2011	GPS - STATIC	2014	HBARN	
969.221	.262		881.809	.197	2011	GPS - RTRN	2014	RTRN2014	
969.158	.131		881.839	.066	2007	GPS - STATIC	2010	HBARN	
969.175	.131		881.891	.066	1996	GPS - STATIC	2010	HBARN	
			881.970	.066	1996	GPS - STATIC	2001	DIST 4	

Geoid Separations(ft): GEOID18 = -87.437    12B = -87.408    09 = -87.306    03 = -87.270

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 45 12.94286	96 29 02.60156	554156.200	145157.707	.007		ADJUSTMENT	2025	GPS3805
46 45 12.94286	96 29 02.60156	554156.200	145157.707	.007	C	GPS - STATIC	2025	HTH94A
46 45 12.94286	96 29 02.60156	554156.200	145157.707	.007		ADJUSTMENT	2024	GPS3762
46 45 12.94286	96 29 02.60156	554156.200	145157.707	.007	C	GPS - STATIC	2024	HTH32
46 45 12.94250	96 29 02.60253	554156.132	145157.670	.131	3	GPS - RTRN	2023	RTRN2023
46 45 12.94286	96 29 02.60156	554156.200	145157.707	.013		ADJUSTMENT	2014	GPS2750
46 45 12.94286	96 29 02.60156	554156.200	145157.707	.013	C	GPS - STATIC	2014	HBARN
46 45 12.94279	96 29 02.60243	554156.139	145157.699	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(2007)**

Geodetic Position		Clay County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 45 12.94293	96 29 02.60273	554156.118	145157.713	.033	C	GPS - STATIC	2010	HBARN

**NAD83(1996)**

Geodetic Position		Clay County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 45 12.94251	96 29 02.60252	554156.133	145157.671	.033	C	GPS - STATIC	2025	HTH94A
46 45 12.94251	96 29 02.60252	554156.133	145157.671	.033	C	GPS - STATIC	2024	HTH32
46 45 12.94251	96 29 02.60252	554156.133	145157.671	.033	C	GPS - STATIC	2010	HBARN
46 45 12.94242	96 29 02.60205	554156.165	145157.662	.033	C	GPS - STATIC	2001	DIST 4

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2064754.586	975443.320	767443.503	17006787.032	.007		ADJUSTMENT	2025	GPS3805
2064754.586	975443.320	767443.503	17006787.032	.007	C	GPS - STATIC	2025	HTH94A
2064754.586	975443.320	767443.503	17006787.032	.007		ADJUSTMENT	2024	GPS3762
2064754.586	975443.320	767443.503	17006787.032	.007	C	GPS - STATIC	2024	HTH32
2064754.517	975443.286	767443.434	17006786.998	.131	3	GPS - RTRN	2023	RTRN2023
2064754.586	975443.320	767443.503	17006787.032	.013		ADJUSTMENT	2014	GPS2750
2064754.586	975443.320	767443.503	17006787.032	.013	C	GPS - STATIC	2014	HBARN
2064754.525	975443.315	767443.442	17006787.027	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2064754.505	975443.330	767443.422	17006787.042	.033	C	GPS - STATIC	2010	HBARN

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2064754.518	975443.287	767443.434	17006786.999	.033	C	GPS - STATIC	2025	HTH94A
2064754.518	975443.287	767443.434	17006786.999	.033	C	GPS - STATIC	2024	HTH32
2064754.518	975443.287	767443.434	17006786.999	.033	C	GPS - STATIC	2010	HBARN
2064754.551	975443.277	767443.467	17006786.989	.033	C	GPS - STATIC	2001	DIST 4

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_G-DP4934-3NE-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_G-DP4934-3NE-18OCT2023.jpg</a>	NE	Oct 18, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_G-DP4934-2-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_G-DP4934-2-18OCT2023.jpg</a>		Oct 18, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_G-DP4934-1-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_G-DP4934-1-18OCT2023.jpg</a>		Oct 18, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1409 H

NGS Name: 1409 H

County: CLAY, MN (Sheet 1)

NGS ACRN: [DI0844](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096143/  
 USGS Quad: DOWNER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	16	138 N	46 W	464607.08	962942.34	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1959	2023	GOOD	Horz=YES Vert=YES	YES		FLUSH	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	BENCH MARK DISK	MNDT

Description: (2005) Stamping: 1409 H 1959

1.1 MILES NORTH OF DOWNER, 1.1 MILES NORTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 10 IN DOWNER, AT TRUNK HIGHWAY 9 MILEPOINT 156.15, AT TRUNK HIGHWAY 9 STATION 462+96, 73.0 FEET NORTHEAST OF TRUNK HIGHWAY 9, 4.6 FEET SOUTH-SOUTHEAST OF A RIGHT-OF-WAY POST, 4.1 FEET SOUTHWEST OF A FENCE CORNER, 1.0 FOOT NORTHWEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
967.685	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
967.833	.016	2/1					VERTICAL ADJUSTMENT	2006	00000425-10	
967.833	.016	2/1					VERTICAL CONTROL SURVEY	2005	VPIET	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
966.780	.033	3					VERTICAL CONTROL SURVEY	1961	CS1409	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
967.685				880.349	.012	2011	HORIZONTAL ADJUSTMENT	2024	GPS3762	
967.685	.131			880.471	.066	1996	GPS - STATIC	2024	HTH32	
967.685				880.349	.012	2011	GPS - STATIC	2024	HTH32	
967.728	.262			880.225	.197	2011	GPS - RTRN	2023	RTRN2023	
967.649	.262			880.159	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.503 12B = -87.490 09 = -87.382 03 = -87.329

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>			<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>									
46 46 07.08169	96 29 42.33848		551374.861	150635.381	.007		ADJUSTMENT	2024	GPS3762	
46 46 07.08169	96 29 42.33848		551374.861	150635.381	.007	C	GPS - STATIC	2024	HTH32	
46 46 07.08145	96 29 42.33975		551374.772	150635.357	.131	3	GPS - RTRN	2023	RTRN2023	
46 46 07.08201	96 29 42.33967		551374.777	150635.413	.131	3	GPS - RTRN	2014	RTRN2014	

<u>NAD83(1996)</u>			<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>									
46 46 07.08152	96 29 42.33871		551374.844	150635.364	.033	C	GPS - STATIC	2024	HTH32	



**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2062144.350	981003.894	764921.917	17012391.888	.007		ADJUSTMENT	2024	GPS3762
2062144.350	981003.894	764921.917	17012391.888	.007	C	GPS - STATIC	2024	HTH32
2062144.262	981003.872	764921.828	17012391.867	.131	3	GPS - RTRN	2023	RTRN2023
2062144.269	981003.929	764921.836	17012391.924	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2062144.334	981003.878	764921.901	17012391.871	.033	C	GPS - STATIC	2024	HTH32

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_H-DI0844-3NE-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_H-DI0844-3NE-18OCT2023.jpg</a>	NE	Oct 18, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_H-DI0844-2-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_H-DI0844-2-18OCT2023.jpg</a>		Oct 18, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_H-DI0844-1-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_H-DI0844-1-18OCT2023.jpg</a>		Oct 18, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1409 I

NGS Name: 1409 I

County: CLAY, MN (Sheet 1)

NGS ACRN: [DI0843](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	16	138 N	46 W	464632.37	963002.99	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1959	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 10 IN.	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	BENCH MARK DISK	MNDT

Description: (1961) Stamping: 1409 I 1959

1.6 MILES NORTH-NORTHWEST OF DOWNER, 1.65 MILES NORTHWEST ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 10 IN DOWNER, AT TRUNK HIGHWAY 9 STATION 492+19, AT TRUNK HIGHWAY 9 MILEPOINT 156.7, 110.0 FEET SOUTHWEST OF TRUNK HIGHWAY 9, 22.2 FEET SOUTHEAST OF 80TH AVENUE SOUTH, 20.0 FEET NORTHEAST OF AN OLD RAILROAD GRADE, 4.3 FEET SOUTHWEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
956.858	.016	2/1				VERTICAL ADJUSTMENT		2019	00000941
957.009	.016	2/1				VERTICAL ADJUSTMENT		2006	00000425-10
957.006	.016	2/1				VERTICAL CONTROL SURVEY		2005	VPIET

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
956.097	.033	3				VERTICAL CONTROL SURVEY		1961	CS1409

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
956.862			869.513	.010	2011	HORIZONTAL ADJUSTMENT		2024	GPS3762
956.858	.131		869.650	.066	1996	GPS - STATIC		2024	HTH32
956.862			869.513	.010	2011	GPS - STATIC		2024	HTH32
956.973	.262		869.444	.197	2011	GPS - RTRN		2023	RTRN2023
957.009			869.513	.022	2011	HORIZONTAL ADJUSTMENT		2015	GPS3084
957.009	.131		869.650	.066	1996	GPS - STATIC		2015	HCLAY
957.009			869.513	.022	2011	GPS - STATIC		2015	HCLAY
956.957	.262		869.434	.197	2011	GPS - RTRN		2014	RTRN2014
			869.723	.066	1996	GPS - STATIC		2001	DIST 4

Geoid Separations(ft): GEOID18 = -87.529 12B = -87.523 09 = -87.408 03 = -87.346

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>								
46 46 32.36771	96 30 02.98561	549931.025	153193.547	.007		ADJUSTMENT		2024	GPS3762
46 46 32.36771	96 30 02.98561	549931.025	153193.547	.007	C	GPS - STATIC		2024	HTH32
46 46 32.36792	96 30 02.98574	549931.016	153193.569	.131	3	GPS - RTRN		2023	RTRN2023
46 46 32.36771	96 30 02.98561	549931.025	153193.547	.016		ADJUSTMENT		2015	GPS3084
46 46 32.36771	96 30 02.98561	549931.025	153193.547	.016	C	GPS - STATIC		2015	HCLAY
46 46 32.36897	96 30 02.98589	549931.005	153193.675	.131	3	GPS - RTRN		2014	RTRN2014

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>								
46 46 32.36726	96 30 02.98639	549930.971	153193.501	.033	C	GPS - STATIC		2024	HTH32
46 46 32.36726	96 30 02.98639	549930.971	153193.501	.033	C	GPS - STATIC		2015	HCLAY
46 46 32.36720	96 30 02.98607	549930.993	153193.496	.033	C	GPS - STATIC		2001	DIST 4



**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2060780.504	983605.263	763599.508	17015016.293	.007		ADJUSTMENT	2024	GPS3762
2060780.504	983605.263	763599.508	17015016.293	.007	C	GPS - STATIC	2024	HTH32
2060780.496	983605.285	763599.500	17015016.314	.131	3	GPS - RTRN	2023	RTRN2023
2060780.504	983605.263	763599.508	17015016.293	.016		ADJUSTMENT	2015	GPS3084
2060780.504	983605.263	763599.508	17015016.293	.016	C	GPS - STATIC	2015	HCLAY
2060780.488	983605.391	763599.494	17015016.421	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2060780.449	983605.219	763599.451	17015016.250	.033	C	GPS - STATIC	2024	HTH32
2060780.449	983605.219	763599.451	17015016.250	.033	C	GPS - STATIC	2015	HCLAY
2060780.471	983605.213	763599.473	17015016.243	.033	C	GPS - STATIC	2001	DIST 4

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<b>Location:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_I-DI0843-3W-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_I-DI0843-3W-18OCT2023.jpg</a>	W	Oct 18, 2023
<b>Monument:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_I-DI0843-2-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_I-DI0843-2-18OCT2023.jpg</a>		Oct 18, 2023
<b>Disk:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_I-DI0843-1-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_I-DI0843-1-18OCT2023.jpg</a>		Oct 18, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1409 J

NGS Name: 1409 J

County: CLAY, MN (Sheet 1)

NGS ACRN: [DI0847](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	8	138 N	46 W	464724.42	963019.55	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2005	2023	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 39 FT)	SURVEY DISK	MNDT

Description: (2005) Stamping: 1409 J 2005

2.5 MILES NORTH OF DOWNER, 2.65 MILES NORTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 10 IN DOWNER, AT TRUNK HIGHWAY 9 MILEPOINT 157.70, 74.6 FEET WEST OF TRUNK HIGHWAY 9, 54.2 FEET SOUTH OF 70TH AVENUE SOUTH, 2.4 FEET SOUTH OF A RIGHT-OF-WAY POST, 1.5 FEET EAST OF A WITNESS POST.

Station Pair: PAPKE - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
950.428	.016	2/1				2019	00000941	VERTICAL ADJUSTMENT		2019	00000941	
950.585	.016	2/1				2006	00000425-10	VERTICAL ADJUSTMENT		2006	00000425-10	
950.582	.016	2/1				2005	VPIET	VERTICAL CONTROL SURVEY		2005	VPIET	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
950.428			863.063	.012	2011	2024	GPS3762	HORIZONTAL ADJUSTMENT		2024	GPS3762	
950.428	.131		863.184	.066	1996	2024	HTH32	GPS - STATIC		2024	HTH32	
950.428			863.063	.012	2011	2024	HTH32	GPS - STATIC		2024	HTH32	
950.615	.262		863.036	.197	2011	2023	RTRN2023	GPS - RTRN		2023	RTRN2023	
950.523	.262		862.938	.197	2011	2014	RTRN2014	GPS - RTRN		2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.579 12B = -87.585 09 = -87.457 03 = -87.385

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 47 24.42010	96 30 19.55367	548764.740	158464.369	.007		ADJUSTMENT	2024	GPS3762
46 47 24.42010	96 30 19.55367	548764.740	158464.369	.007	C	GPS - STATIC	2024	HTH32
46 47 24.41953	96 30 19.55321	548764.773	158464.312	.131	3	GPS - RTRN	2023	RTRN2023
46 47 24.42106	96 30 19.55262	548764.813	158464.467	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 47 24.41994	96 30 19.55389	548764.725	158464.353	.033	C	GPS - STATIC	2024	HTH32

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2059777.985	988909.146	762682.221	17020338.462	.007		ADJUSTMENT	2024	GPS3762
2059777.985	988909.146	762682.221	17020338.462	.007	C	GPS - STATIC	2024	HTH32
2059778.016	988909.088	762682.251	17020338.403	.131	3	GPS - RTRN	2023	RTRN2023
2059778.061	988909.241	762682.298	17020338.556	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2059777.969	988909.130	762682.205	17020338.446	.033	C	GPS - STATIC	2024	HTH32



**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_J-DI0847-3W-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_J-DI0847-3W-18OCT2023.jpg</a>	W	Oct 18, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_J-DI0847-2-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_J-DI0847-2-18OCT2023.jpg</a>		Oct 18, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_J-DI0847-1-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_J-DI0847-1-18OCT2023.jpg</a>		Oct 18, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1409 K

NGS Name: 1409 K

County: CLAY, MN (Sheet 1)

NGS ACRN: [DI0841](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	33	139 N	46 W	464908.66	963016.28	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2005	2014	DESTROYED	Horz=NO Vert=NO	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	SURVEY DISK	MNDT

**Description:** (2005)                      **Stamping:** 1409 K 2005

5 MILES NORTH OF DOWNER, 4.7 MILES NORTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 10 IN DOWNER, AT TRUNK HIGHWAY 9 MILEPOINT 159.75, 57.8 FEET SOUTH OF 50TH AVENUE SOUTH, 17.7 FEET EAST OF A FIELD ENTRANCE, 1.7 FEET WEST OF A WITNESS POST.

**Station Notes**

THE DISK WAS TURNED IN TO THE OFFICE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
944.519	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
944.693	.016	2/1					VERTICAL ADJUSTMENT	2006	00000425-10	
944.686	.016	2/1					VERTICAL CONTROL SURVEY	2005	VPIET	

Geoid Separations(ft): GEOID18 = -87.664    12B = -87.674    09 = -87.539    03 = -87.464

\* No Horizontal Positions in the Database \*

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<b>Location:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_K-DI0841-3S-26APR2005.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_K-DI0841-3S-26APR2005.jpg</a>	S	Apr 26, 2005
<b>Monument:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_K-DI0841-2-26APR2005.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_K-DI0841-2-26APR2005.jpg</a>		Apr 26, 2005
<b>Disk:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_K-DI0841-1-26APR2005.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_K-DI0841-1-26APR2005.jpg</a>		Apr 26, 2005

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1409 K RESET

NGS Name: 1409 K RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ1948](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	33	139 N	46 W	464908.79	963016.27	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 6 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 45 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: 1409 K RESET 2014

5.0 MILES NORTH OF DOWNER, 4.7 MILES NORTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 10 IN DOWNER, AT TRUNK HIGHWAY 9 MILEPOINT 159.75, 57.8 FEET SOUTH OF 50TH AVENUE SOUTH, 17.7 FEET EAST OF A FIELD ENTRANCE, 1.7 FEET WEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			
944.319	.016	2/1				2019	00000941			

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			
944.319			856.855	.014	2011	2024	GPS3762			
944.319	.131		856.980	.066	1996	2024	HTH32			
944.319			856.855	.014	2011	2024	HTH32			
944.473	.262		856.809	.197	2011	2023	RTRN2023			
944.532	.262		856.868	.197	2011	2021	GPSBM			
944.437	.262		856.773	.197	2011	2021	GPSBM			
944.463	.262		856.799	.197	2011	2021	RTRN2021			
944.381	.262		856.708	.197	2011	2014	RTRN2014			

Geoid Separations(ft): GEOID18 = -87.664    12B = -87.674    09 = -87.542    03 = -87.464

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
46 49 08.78812	96 30 16.27472	548966.613	169039.065	.010		2024	GPS3762		
46 49 08.78812	96 30 16.27472	548966.613	169039.065	.010	C	2024	HTH32		
46 49 08.78848	96 30 16.27547	548966.561	169039.102	.131	3	2023	RTRN2023		
46 49 08.78783	96 30 16.27531	548966.572	169039.036	.131	3	2021	GPSBM		
46 49 08.78819	96 30 16.27542	548966.564	169039.072	.131	3	2021	GPSBM		
46 49 08.78720	96 30 16.27536	548966.568	169038.972	.131	3	2021	RTRN2021		
46 49 08.78840	96 30 16.27513	548966.584	169039.094	.131	3	2014	RTRN2014		

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
46 49 08.78796	96 30 16.27495	548966.597	169039.049	.033	C	2024	HTH32		



**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2060306.964	999471.554	763382.104	17030896.472	.010		ADJUSTMENT	2024	GPS3762
2060306.964	999471.554	763382.104	17030896.472	.010	C	GPS - STATIC	2024	HTH32
2060306.913	999471.592	763382.053	17030896.511	.131	3	GPS - RTRN	2023	RTRN2023
2060306.922	999471.526	763382.061	17030896.444	.131	3	GPS - OPUS	2021	GPSBM
2060306.915	999471.562	763382.056	17030896.481	.131	3	GPS - OPUS	2021	GPSBM
2060306.917	999471.462	763382.055	17030896.381	.131	3	GPS - RTRN	2021	RTRN2021
2060306.936	999471.583	763382.077	17030896.501	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2060306.948	999471.538	763382.087	17030896.456	.033	C	GPS - STATIC	2024	HTH32

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<b>Location:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_K_RESET-DQ1948-3S-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_K_RESET-DQ1948-3S-18OCT2023.jpg</a>	S	Oct 18, 2023
<b>Monument:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_K_RESET-DQ1948-2-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_K_RESET-DQ1948-2-18OCT2023.jpg</a>		Oct 18, 2023
<b>Disk:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_K_RESET-DQ1948-1-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_K_RESET-DQ1948-1-18OCT2023.jpg</a>		Oct 18, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1409 L

NGS Name: 1409 L

County: CLAY, MN (Sheet 1)

NGS ACRN: [DI0839](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	16	139 N	46 W	465054.51	963017.62	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2005	2014	DESTROYED	Horz=NO Vert=NO	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	SURVEY DISK	MNDT

Description: (2005) Stamping: 1409 L 2005

7.0 MILES NORTH OF DOWNER, 6.7 MILES NORTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 10 IN DOWNER, AT TRUNK HIGHWAY 9 MILEPOINT 161.75, 72.1 FEET EAST OF TRUNK HIGHWAY 9, 52.3 FEET NORTH OF 28TH AVENUE SOUTH, 1.5 FEET WEST OF A WITNESS POST.

Station Notes

THE DISK WAS TURNED IN TO THE OFFICE.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>							<u>Project Info</u>	
<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			
941.547	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941
941.730	.016	2/1				VERTICAL ADJUSTMENT	2006	00000425-10
941.727	.016	2/1				VERTICAL CONTROL SURVEY	2005	VPIET

Geoid Separations(ft): GEOID18 = -87.700 12B = -87.713 09 = -87.572 03 = -87.500

\* No Horizontal Positions in the Database \*

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<b>Location:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_L-DI0839-3E-26APR2005.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_L-DI0839-3E-26APR2005.jpg</a>	E	Apr 26, 2005
<b>Monument:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_L-DI0839-2-26APR2005.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_L-DI0839-2-26APR2005.jpg</a>		Apr 26, 2005
<b>Disk:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_L-DI0839-1-26APR2005.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_L-DI0839-1-26APR2005.jpg</a>		Apr 26, 2005

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1409 L RESET

NGS Name: 1409 L RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ1946](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				Reference	Reference	Vert	Horz
1/4	Sec	Twp	Rng	Latitude	Longitude	Order	Order
SW	16	139 N	46 W	465054.52	963017.62	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 10 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 50 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

**Description:** (2014)                      **Stamping:** 1409 L RESET 2014

7.0 MILES NORTH OF DOWNER, 6.7 MILES NORTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 10 IN DOWNER, AT TRUNK HIGHWAY 9 MILEPOINT 161.75, 72.1 FEET EAST OF TRUNK HIGHWAY 9, 52.3 FEET NORTH OF 28TH AVENUE SOUTH, 1.5 FEET WEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88							Project Info	
Orthometric Height			Ellipsoid (NAD83)			Determination Method	Year	Reference
Height	Acc	Order (/Class)	Height	Acc	Adj			
941.347	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88							Project Info	
Orthometric Height			Ellipsoid (NAD83)			Determination Method	Year	Reference
Height	Acc	Order (/Class)	Height	Acc	Adj			
941.347			853.847	.023	2011	HORIZONTAL ADJUSTMENT	2024	GPS3719
941.347	.131		853.981	.066	1996	GPS - STATIC	2024	HMOFA1
941.347			853.847	.023	2011	GPS - STATIC	2024	HMOFA1
941.396	.262		853.696	.197	2011	GPS - RTRN	2022	RTRN2022
941.520	.262		853.807	.197	2011	GPS - RTRN	2014	RTRN2014

Geoid Separations(ft): GEOID18 = -87.700    12B = -87.713    09 = -87.572    03 = -87.500

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)				Clay County			Project Info			
Geodetic Position				X	Y	Acc	Order	Determination Method	Year	Reference
Latitude	Longitude									
46 50 54.51997	96 30 17.61950			548846.477	179751.195	.013		ADJUSTMENT	2024	GPS3719
46 50 54.51997	96 30 17.61950			548846.477	179751.195	.013	C	GPS - STATIC	2024	HMOFA1
46 50 54.52045	96 30 17.61903			548846.510	179751.244	.131	3	GPS - RTRN	2022	RTRN2022
46 50 54.51991	96 30 17.61968			548846.465	179751.189	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(1996)				Clay County			Project Info			
Geodetic Position				X	Y	Acc	Order	Determination Method	Year	Reference
Latitude	Longitude									
46 50 54.51964	96 30 17.62003			548846.440	179751.161	.033	C	GPS - STATIC	2024	HMOFA1

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)				UTM - Zone 15			Project Info			
MN State Plane - Central Zone				X	Y	Acc	Order	Determination Method	Year	Reference
X	Y									
2060518.386	1010181.327			763766.912	17041606.971	.013		ADJUSTMENT	2024	GPS3719
2060518.386	1010181.327			763766.912	17041606.971	.013	C	GPS - STATIC	2024	HMOFA1
2060518.420	1010181.374			763766.947	17041607.018	.131	3	GPS - RTRN	2022	RTRN2022
2060518.373	1010181.321			763766.899	17041606.965	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(1996)				UTM - Zone 15			Project Info			
MN State Plane - Central Zone				X	Y	Acc	Order	Determination Method	Year	Reference
X	Y									
2060518.348	1010181.294			763766.874	17041606.939	.033	C	GPS - STATIC	2024	HMOFA1



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_L_RESET-DQ1946-3E-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_L_RESET-DQ1946-3E-05JUL2022.jpg</a>	E	Jul 5, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_L_RESET-DQ1946-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_L_RESET-DQ1946-2-05JUL2022.jpg</a>		Jul 5, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_L_RESET-DQ1946-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_L_RESET-DQ1946-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1409 M  
County: CLAY, MN (Sheet 1)

NGS Name: 1409 M

NGS ACRN: [DI0840](#) [Get Map](#)  
NGS Quad / Sta Num : 46096412/  
USGS Quad: GLYNDON SOUTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	16	139 N	46 W	465145.64	963017.39	2	C

  

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2005	2023	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 60 FT)	SURVEY DISK	MNDT

Description: (2005)                      Stamping: 1409 M 2005

8.0 MILES NORTH OF DOWNER, 7.7 MILES NORTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 10 IN DOWNER, AT TRUNK HIGHWAY 9 MILEPOINT 162.75, 67.3 FEET EAST OF TRUNK HIGHWAY 9, 53.3 FEET SOUTH OF 12TH AVENUE SOUTH, 16.7 FEET SOUTHWEST OF A CABLE PEDESTAL, 1.5 FEET WEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
938.413	.016	2/1				VERTICAL ADJUSTMENT	2024	0000941-3		
938.413	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA		
938.413	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941		
938.600	.016	2/1				VERTICAL ADJUSTMENT	2006	00000425-10		
938.597	.016	2/1				VERTICAL CONTROL SURVEY	2005	VPIET		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
938.413			850.966	.023	2011	HORIZONTAL ADJUSTMENT	2024	GPS3719		
938.413	.131		851.097	.066	1996	GPS - STATIC	2024	HMOFA1		
938.413			850.966	.023	2011	GPS - STATIC	2024	HMOFA1		
938.564	.262		850.868	.197	2011	GPS - RTRN	2022	RTRN2022		
938.699	.262		850.986	.197	2011	GPS - RTRN	2014	RTRN2014		

Geoid Separations(ft): GEOID18 = -87.697    12B = -87.713    09 = -87.569    03 = -87.497

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>			<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 51 45.63972	96 30 17.39361		548849.307	184930.519	.013		ADJUSTMENT	2024	GPS3719	
46 51 45.63972	96 30 17.39361		548849.307	184930.519	.013	C	GPS - STATIC	2024	HMOFA1	
46 51 45.64018	96 30 17.39230		548849.398	184930.566	.131	3	GPS - RTRN	2022	RTRN2022	
46 51 45.64031	96 30 17.39344		548849.318	184930.579	.131	3	GPS - RTRN	2014	RTRN2014	

<u>NAD83(1996)</u>			<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 51 45.63942	96 30 17.39413		548849.271	184930.488	.033	C	GPS - STATIC	2024	HMOFA1	

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
X	Y					ADJUSTMENT	2024	GPS3719	
2060681.494	1015357.643	764013.928	17046782.628	.013		ADJUSTMENT	2024	GPS3719	
2060681.494	1015357.643	764013.928	17046782.628	.013	C	GPS - STATIC	2024	HMOFA1	
2060681.587	1015357.687	764014.021	17046782.670	.131	3	GPS - RTRN	2022	RTRN2022	
2060681.508	1015357.703	764013.942	17046782.687	.131	3	GPS - RTRN	2014	RTRN2014	

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
X	Y					GPS - STATIC	2024	HMOFA1	
2060681.457	1015357.614	764013.890	17046782.599	.033	C	GPS - STATIC	2024	HMOFA1	



**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_M-DI0840-3E-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_M-DI0840-3E-05JUL2022.jpg</a>	E	Jul 5, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_M-DI0840-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_M-DI0840-2-05JUL2022.jpg</a>		Jul 5, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_M-DI0840-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_M-DI0840-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1409 N

NGS Name: 1409 N

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP7338](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	2	137 N	46 W	464302.29	962721.34	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2013	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 4 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 17 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2013)                      Stamping: 1409 N 2013

3.0 MILES SOUTHEAST OF DOWNER, 3.0 MILES SOUTHEAST ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 10 IN DOWNER, AT TRUNK HIGHWAY 9 MILEPOINT 152.15, 79.6 FEET EAST OF TRUNK HIGHWAY 9, 53.5 FEET SOUTH OF 120TH AVENUE SOUTH, 3.0 FEET NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
960.110	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
960.110				873.086	.013	2011	HORIZONTAL ADJUSTMENT	2024	GPS3762	
960.110	.131			873.223	.066	1996	GPS - STATIC	2024	HTH32	
960.110				873.086	.013	2011	GPS - STATIC	2024	HTH32	
960.287	.262			873.082	.197	2011	GPS - RTRN	2023	RTRN2023	
960.293				873.086	.024	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084	
960.287	.131			873.223	.066	1996	GPS - STATIC	2015	HCLAY	
960.293				873.086	.024	2011	GPS - STATIC	2015	HCLAY	
960.261	.262			873.069	.197	2011	GPS - RTRN	2014	RTRN2014	
960.201	.262			873.010	.197	2011	GPS - RTRN	2013	RTRN2013	

Geoid Separations(ft): GEOID18 = -87.201    12B = -87.195    09 = -87.090    03 = -87.037

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 43 02.29439	96 27 21.34398	561248.252	131941.733	.007		ADJUSTMENT	2024	GPS3762	
46 43 02.29439	96 27 21.34398	561248.252	131941.733	.007	C	GPS - STATIC	2024	HTH32	
46 43 02.29391	96 27 21.34296	561248.323	131941.685	.131	3	GPS - RTRN	2023	RTRN2023	
46 43 02.29439	96 27 21.34398	561248.252	131941.733	.016		ADJUSTMENT	2015	GPS3084	
46 43 02.29439	96 27 21.34398	561248.252	131941.733	.016	C	GPS - STATIC	2015	HCLAY	
46 43 02.29458	96 27 21.34403	561248.248	131941.752	.131	3	GPS - RTRN	2014	RTRN2014	
46 43 02.29475	96 27 21.34436	561248.225	131941.770	.131	3	GPS - RTRN	2013	RTRN2013	

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 43 02.29396	96 27 21.34477	561248.196	131941.689	.033	C	GPS - STATIC	2024	HTH32	
46 43 02.29396	96 27 21.34477	561248.196	131941.689	.033	C	GPS - STATIC	2015	HCLAY	



State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2071433.562	962015.579	773908.797	16993246.509	.007		ADJUSTMENT	2024	GPS3762
2071433.562	962015.579	773908.797	16993246.509	.007	C	GPS - STATIC	2024	HTH32
2071433.632	962015.528	773908.866	16993246.457	.131	3	GPS - RTRN	2023	RTRN2023
2071433.562	962015.579	773908.797	16993246.509	.016		ADJUSTMENT	2015	GPS3084
2071433.562	962015.579	773908.797	16993246.509	.016	C	GPS - STATIC	2015	HCLAY
2071433.559	962015.598	773908.795	16993246.528	.131	3	GPS - RTRN	2014	RTRN2014
2071433.537	962015.616	773908.772	16993246.547	.131	3	GPS - RTRN	2013	RTRN2013

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2071433.506	962015.537	773908.740	16993246.468	.033	C	GPS - STATIC	2024	HTH32
2071433.506	962015.537	773908.740	16993246.468	.033	C	GPS - STATIC	2015	HCLAY

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_N-DP7338-3NE-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_N-DP7338-3NE-18OCT2023.jpg</a>	NE	Oct 18, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_N-DP7338-2-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_N-DP7338-2-18OCT2023.jpg</a>		Oct 18, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_N-DP7338-1-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_N-DP7338-1-18OCT2023.jpg</a>		Oct 18, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1409 P

NGS Name: 1409 P

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ1958](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	13	137 N	46 W	464031.87	962513.44	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	DESTROYED	Horz=NO Vert=NO	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 25 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: 1409 P 2014

1.7 MILES NORTH OF BARNESVILLE, 1.1 MILES NORTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND TRUNK HIGHWAY 34 IN BARNESVILLE, AT TRUNK HIGHWAY 9 MILEPOINT 148.65, 52.2 FEET WEST OF TRUNK HIGHWAY 9, 15.6 FEET SOUTH OF AN ENTRANCE, 5.0 FEET NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>							<u>Project Info</u>	
<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			
1017.006	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>							<u>Project Info</u>	
<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			
1017.216	.262		930.152	.197	2011	GPS - RTRN	2022	RTRN2022
1017.098	.262		930.038	.197	2011	GPS - RTRN	2014	RTRN2014

Geoid Separations(ft): GEOID18 = -87.063    12B = -87.063    09 = -86.958    03 = -86.906

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>							<u>Project Info</u>	
<u>Geodetic Position</u>		<u>Clay County</u>		<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>					
46 40 31.86751	96 25 13.43581	570215.135	116731.059	.131	3	GPS - RTRN	2022	RTRN2022
46 40 31.86819	96 25 13.43481	570215.204	116731.128	.131	3	GPS - RTRN	2014	RTRN2014

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Project Info</u>				
<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>					
2079924.500	946536.365	782154.122	16977624.950	.131	3	GPS - RTRN	2022	RTRN2022
2079924.572	946536.432	782154.195	16977625.015	.131	3	GPS - RTRN	2014	RTRN2014

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_P-DQ1958-3W-26JUL2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_P-DQ1958-3W-26JUL2023.jpg</a>	W	Jul 26, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_P-DQ1958-2-26JUL2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_P-DQ1958-2-26JUL2023.jpg</a>		Jul 26, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_P-DQ1958-1-26JUL2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_P-DQ1958-1-26JUL2023.jpg</a>		Jul 26, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1409 Q

NGS Name: 1409 Q

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ1956](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	12	137 N	46 W	464134.08	962535.48	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 25 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: 1409 Q 2014

2.5 MILES NORTH OF BARNESVILLE, 2.35 MILES NORTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND TRUNK HIGHWAY 34 IN BARNESVILLE, AT TRUNK HIGHWAY 9 MILEPOINT 149.9, 57.5 FEET SOUTHWEST OF TRUNK HIGHWAY 9, 42.2 FEET NORTHWEST OF A FIELD ENTRANCE, 1.5 FEET NORTHEAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>	
1010.923	.016	2/1						VERTICAL ADJUSTMENT	2019	00000941	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>	
1010.923				924.020	.012	2011		HORIZONTAL ADJUSTMENT	2024	GPS3762	
1010.923	.131			924.142	.066	1996		GPS - STATIC	2024	HTH32	
1010.923				924.020	.012	2011		GPS - STATIC	2024	HTH32	
1011.028	.262			923.935	.197	2011		GPS - RTRN	2023	RTRN2023	
1011.031	.262			923.935	.197	2011		GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.093    12B = -87.096    09 = -86.985    03 = -86.922

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>			<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>									
46 41 34.07896	96 25 35.47782		568656.153	123028.529	.007		ADJUSTMENT	2024	GPS3762	
46 41 34.07896	96 25 35.47782		568656.153	123028.529	.007	C	GPS - STATIC	2024	HTH32	
46 41 34.07852	96 25 35.47832		568656.118	123028.485	.131	3	GPS - RTRN	2023	RTRN2023	
46 41 34.07951	96 25 35.47824		568656.123	123028.585	.131	3	GPS - RTRN	2014	RTRN2014	

<u>NAD83(1996)</u>			<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>									
46 41 34.07881	96 25 35.47805		568656.137	123028.514	.033	C	GPS - STATIC	2024	HTH32	

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		
<u>X</u>	<u>Y</u>								
2078561.308	952878.368	780892.303	16983991.216	.007			ADJUSTMENT	2024	GPS3762
2078561.308	952878.368	780892.303	16983991.216	.007	C		GPS - STATIC	2024	HTH32
2078561.272	952878.324	780892.266	16983991.173	.131	3		GPS - RTRN	2023	RTRN2023
2078561.281	952878.424	780892.276	16983991.273	.131	3		GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		
<u>X</u>	<u>Y</u>								
2078561.292	952878.353	780892.286	16983991.202	.033	C		GPS - STATIC	2024	HTH32



**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_Q-DQ1956-3SW-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_Q-DQ1956-3SW-18OCT2023.jpg</a>	SW	Oct 18, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_Q-DQ1956-2-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_Q-DQ1956-2-18OCT2023.jpg</a>		Oct 18, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_Q-DQ1956-1-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_Q-DQ1956-1-18OCT2023.jpg</a>		Oct 18, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1409 R

NGS Name: 1409 R

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ1953](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	34	138 N	46 W	464324.53	962745.07	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 13 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014) Stamping: 1409 R 2014

5.1 MILES NORTH-NORTHWEST OF BARNESVILLE, 5.1 MILES NORTHWEST ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND TRUNK HIGHWAY 34 IN BARNESVILLE, AT TRUNK HIGHWAY 9 MILEPOINT 152.65, 65.5 FEET NORTHEAST OF TRUNK HIGHWAY 9, 18.6 FEET NORTHWEST OF A FIELD ENTRANCE, 5.0 FEET SOUTHEAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
960.471	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
960.471				873.397	.014	2011	HORIZONTAL ADJUSTMENT	2024	GPS3762	
960.471	.131			873.522	.066	1996	GPS - STATIC	2024	HTH32	
960.471				873.397	.014	2011	GPS - STATIC	2024	HTH32	
960.523	.262			873.282	.197	2011	GPS - RTRN	2023	RTRN2023	
960.533	.262			873.309	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.244 12B = -87.228 09 = -87.129 03 = -87.080

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 43 24.52980	96 27 45.06727	559588.393	134189.441	.010		ADJUSTMENT	2024	GPS3762	
46 43 24.52980	96 27 45.06727	559588.393	134189.441	.010	C	GPS - STATIC	2024	HTH32	
46 43 24.52962	96 27 45.06688	559588.420	134189.423	.131	3	GPS - RTRN	2023	RTRN2023	
46 43 24.52975	96 27 45.06739	559588.384	134189.436	.131	3	GPS - RTRN	2014	RTRN2014	

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 43 24.52963	96 27 45.06751	559588.376	134189.424	.033	C	GPS - STATIC	2024	HTH32	

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
		772355.829	16995570.731	.010		ADJUSTMENT	2024	GPS3762	
2069844.225	964313.337	772355.829	16995570.731	.010	C	GPS - STATIC	2024	HTH32	
2069844.252	964313.318	772355.855	16995570.711	.131	3	GPS - RTRN	2023	RTRN2023	
2069844.217	964313.332	772355.820	16995570.726	.131	3	GPS - RTRN	2014	RTRN2014	

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
2069844.208	964313.320	772355.811	16995570.714	.033	C	GPS - STATIC	2024	HTH32	



**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_R-DQ1953-3NE-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_R-DQ1953-3NE-18OCT2023.jpg</a>	NE	Oct 18, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_R-DQ1953-2-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_R-DQ1953-2-18OCT2023.jpg</a>		Oct 18, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_R-DQ1953-1-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_R-DQ1953-1-18OCT2023.jpg</a>		Oct 18, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1409 S

NGS Name: 1409 S

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ1951](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096143/  
 USGS Quad: DOWNER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	21	138 N	46 W	464541.21	962924.27	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 37 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: 1409 S 2014

0.55 MILE NORTHWEST OF DOWNER, 0.55 MILE NORTHWEST ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 10 IN DOWNER, AT TRUNK HIGHWAY 9 MILEPOINT 155.6, 64.0 FEET NORTHEAST OF TRUNK HIGHWAY 9, 40.4 FEET SOUTHEAST OF A FIELD ENTRANCE, 1.5 FEET SOUTHWEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
970.930	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
970.930				883.620	.011	2011	HORIZONTAL ADJUSTMENT	2024	GPS3762	
970.930	.131			883.735	.066	1996	GPS - STATIC	2024	HTH32	
970.930				883.620	.011	2011	GPS - STATIC	2024	HTH32	
971.009	.262			883.535	.197	2011	GPS - RTRN	2023	RTRN2023	
971.012	.262			883.538	.197	2011	GPS - OPUS	2021	GPSBM	
971.061	.262			883.587	.197	2011	GPS - OPUS	2021	GPSBM	
971.120	.262			883.647	.197	2011	GPS - RTRN	2021	RTRN2021	
971.005	.262			883.555	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.474    12B = -87.451    09 = -87.349    03 = -87.303

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 45 41.21108	96 29 24.27091	552639.628	148017.615	.007		ADJUSTMENT	2024	GPS3762	
46 45 41.21108	96 29 24.27091	552639.628	148017.615	.007	C	GPS - STATIC	2024	HTH32	
46 45 41.21003	96 29 24.27118	552639.609	148017.509	.131	3	GPS - RTRN	2023	RTRN2023	
46 45 41.21111	96 29 24.27144	552639.591	148017.618	.131	3	GPS - OPUS	2021	GPSBM	
46 45 41.21046	96 29 24.27137	552639.596	148017.552	.131	3	GPS - OPUS	2021	GPSBM	
46 45 41.21079	96 29 24.27130	552639.601	148017.586	.131	3	GPS - RTRN	2021	RTRN2021	
46 45 41.21081	96 29 24.27114	552639.612	148017.588	.131	3	GPS - RTRN	2014	RTRN2014	

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 45 41.21089	96 29 24.27120	552639.608	148017.596	.033	C	GPS - STATIC	2024	HTH32	

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2063327.386	978348.503	766062.587	17009716.368	.007		ADJUSTMENT	2024	GPS3762
2063327.386	978348.503	766062.587	17009716.368	.007	C	GPS - STATIC	2024	HTH32
2063327.364	978348.397	766062.563	17009716.262	.131	3	GPS - RTRN	2023	RTRN2023
2063327.349	978348.507	766062.550	17009716.372	.131	3	GPS - OPUS	2021	GPSBM
2063327.352	978348.441	766062.552	17009716.306	.131	3	GPS - OPUS	2021	GPSBM
2063327.358	978348.474	766062.558	17009716.339	.131	3	GPS - RTRN	2021	RTRN2021
2063327.369	978348.476	766062.569	17009716.341	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2063327.365	978348.485	766062.565	17009716.349	.033	C	GPS - STATIC	2024	HTH32

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<b>Location:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_S-DQ1951-3NE-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_S-DQ1951-3NE-18OCT2023.jpg</a>	NE	Oct 18, 2023
<b>Monument:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_S-DQ1951-2-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_S-DQ1951-2-18OCT2023.jpg</a>		Oct 18, 2023
<b>Disk:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_S-DQ1951-1-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_S-DQ1951-1-18OCT2023.jpg</a>		Oct 18, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1409 T

NGS Name: 1409 T

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ1949](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	32	139 N	46 W	464817.70	963019.33	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 45 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: 1409 T 2014

6.0 MILES SOUTHEAST OF GLYNDON, 5.0 MILES SOUTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND TRUNK HIGHWAY 10, (THE JUNCTION IS 3.5 MILES EAST OF GLYNDON), AT TRUNK HIGHWAY 9 MILEPOINT 158.75, 63.5 FEET WEST OF TRUNK HIGHWAY 9, 88.5 FEET NORTH OF 60TH AVENUE SOUTH, 11.6 FEET EAST OF A CABLE BOX, 1.5 FEET EAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
948.443	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
948.443				861.015	.013	2011	HORIZONTAL ADJUSTMENT	2024	GPS3762
948.443	.131			861.137	.066	1996	GPS - STATIC	2024	HTH32
948.443				861.015	.013	2011	GPS - STATIC	2024	HTH32
948.637	.262			861.012	.197	2011	GPS - RTRN	2023	RTRN2023
948.561	.262			860.927	.197	2011	GPS - RTRN	2014	RTRN2014

Geoid Separations(ft): GEOID18 = -87.624 12B = -87.634 09 = -87.503 03 = -87.428

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>			<u>Project Info</u>			
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 48 17.70350	96 30 19.33255			548766.760	163862.851	.010		ADJUSTMENT	2024	GPS3762
46 48 17.70350	96 30 19.33255			548766.760	163862.851	.010	C	GPS - STATIC	2024	HTH32
46 48 17.70291	96 30 19.33239			548766.772	163862.792	.131	3	GPS - RTRN	2023	RTRN2023
46 48 17.70372	96 30 19.33242			548766.769	163862.874	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>				<u>Clay County</u>			<u>Project Info</u>			
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 48 17.70334	96 30 19.33279			548766.744	163862.835	.033	C	GPS - STATIC	2024	HTH32

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>			
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2059947.052	994304.476			762938.519	17025733.189	.010		ADJUSTMENT	2024	GPS3762
2059947.052	994304.476			762938.519	17025733.189	.010	C	GPS - STATIC	2024	HTH32
2059947.061	994304.416			762938.528	17025733.129	.131	3	GPS - RTRN	2023	RTRN2023
2059947.061	994304.498			762938.529	17025733.211	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>			
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2059947.035	994304.460			762938.502	17025733.174	.033	C	GPS - STATIC	2024	HTH32



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_T-DQ1949-3W-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_T-DQ1949-3W-18OCT2023.jpg</a>	W	Oct 18, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_T-DQ1949-2-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_T-DQ1949-2-18OCT2023.jpg</a>		Oct 18, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_T-DQ1949-1-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1409_T-DQ1949-1-18OCT2023.jpg</a>		Oct 18, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1410 A

NGS Name: 1410 A

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0732](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	28	140 N	46 W	465512.00	963019.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1947	2014	DESTROYED	Horz=NO Vert=NO	NO	6417	FLUSH	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	SURVEY DISK	MNDT

**Description:** (1982)                      **Stamping:** 1929 ADJ NO 1410 A 1947

4.7 MILES NORTHEAST OF GLYNDON, IN AN ABUTMENT IN THE SOUTHEAST CORNER OF TRUNK HIGHWAY 9 BRIDGE NUMBER 6417 OVER COUNTY DITCH NUMBER 2, 0.3 MILE NORTH ALONG PARKE AVENUE SOUTH FROM THE JUNCTION OF PARKE AVENUE SOUTH AND 4TH STREET SOUTHEAST IN GLYNDON, THEN 3.5 MILES EAST ALONG TRUNK HIGHWAY 10 (STATE STREET NORTHEAST), THEN 3.0 MILES NORTH ALONG TRUNK HIGHWAY 9 NORTH (140TH STREET NORTH), THEN 138.0 FEET EAST ALONG COUNTY ROAD 86 (43RD AVENUE NORTH), 87.0 FEET SOUTH AND 19.0 FEET EAST OF THE CROSSROADS, 31.8 FEET EAST OF TRUNK HIGHWAY 9.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
937.344	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	
<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
936.143	.033	3					VERTICAL CONTROL SURVEY	1964	USGS-VERT	
936.107	.033	3					VERTICAL CONTROL SURVEY	1947	CS1410	

Geoid Separations(ft): GEOID18 = -87.585    12B = -87.572    09 = -87.444    03 = -87.421

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1410 AA

NGS Name: 1410 AA

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ1932](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/  
 USGS Quad: FELTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	28	142 N	46 W	470443.76	963002.14	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 78 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                                        Stamping: 1410 AA 2014

IN FELTON, AT THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 34 IN FELTON, AT TRUNK HIGHWAY 9 MILEPOINT 177.75, 38.9 FEET WEST OF TRUNK HIGHWAY 9, 113.5 FEET NORTH OF COUNTY ROAD 34 (160TH AVENUE NORTH), 37.2 FEET SOUTH OF A POWER POLE, 1.5 FEET EAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order</u> (/Class)	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>				
913.909	.016	2/1				2019	00000941				

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order</u> (/Class)	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>				
913.909			827.013	.022	2011	2023	GPS3618				
913.909	.131		827.147	.066	1996	2023	HFELT				
913.909			827.013	.022	2011	2023	HFELT				
914.135	.262		827.032	.197	2011	2014	RTRN2014				

Geoid Separations(ft): GEOID18 = -87.086    12B = -87.103    09 = -86.972    03 = -86.952

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>
47 04 43.76372	96 30 02.13834	549708.875	263771.736	.013		2023	GPS3618
47 04 43.76372	96 30 02.13834	549708.875	263771.736	.013	C	2023	HFELT
47 04 43.76347	96 30 02.13937	549708.804	263771.710	.131	3	2014	RTRN2014

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>
47 04 43.76339	96 30 02.13890	549708.836	263771.702	.033	C	2023	HFELT

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>
		768596.959	17125528.742	.013		2023	GPS3618
2063980.874	1094129.445	768596.959	17125528.742	.013	C	2023	HFELT
2063980.802	1094129.422	768596.887	17125528.719	.131	3	2014	RTRN2014

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>
2063980.835	1094129.412	768596.919	17125528.710	.033	C	2023	HFELT

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_AA-DQ1932-3W-11JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_AA-DQ1932-3W-11JUN2014.jpg</a>	W	Jun 11, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_AA-DQ1932-2-11JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_AA-DQ1932-2-11JUN2014.jpg</a>		Jun 11, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_AA-DQ1932-1-11JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_AA-DQ1932-1-11JUN2014.jpg</a>		Jun 11, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1410 AB  
County: CLAY, MN (Sheet 1)

NGS Name: 1410 AB

NGS ACRN: [DQ1930](#) [Get Map](#)  
NGS Quad / Sta Num : 47096322/  
USGS Quad: FELTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	21	142 N	46 W	470627.65	963003.04	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 69 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

**Description:** (2014)                      **Stamping:** 1410 AB 2014

2.0 MILES NORTH OF FELTON, 2.0 MILES NORTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 34 IN FELTON, AT TRUNK HIGHWAY 9 MILEPOINT 179.75, 87.7 FEET WEST OF TRUNK HIGHWAY 9, 19.3 FEET SOUTH OF 180TH AVENUE NORTH, 1.5 FEET NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
911.688	.016	2/1				VERTICAL ADJUSTMENT		2019	00000941

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
911.688			824.749	.023	2011	HORIZONTAL ADJUSTMENT		2023	GPS3618
911.688	.131		824.884	.066	1996	GPS - STATIC		2023	HFELT
911.688			824.749	.023	2011	GPS - STATIC		2023	HFELT
911.891	.262		824.769	.197	2011	GPS - OPUS		2021	GPSBM
912.019	.262		824.897	.197	2011	GPS - RTRN		2021	RTRN2021
911.875	.262		824.736	.197	2011	GPS - RTRN		2014	RTRN2014

Geoid Separations(ft): GEOID18 = -87.123    12B = -87.136    09 = -87.014    03 = -86.991

**Lat/Lon and County Coordinates (Feet)**

<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
47 06 27.65065	96 30 03.04071	549619.619	274297.497	.013		ADJUSTMENT		2023	GPS3618
47 06 27.65065	96 30 03.04071	549619.619	274297.497	.013	C	GPS - STATIC		2023	HFELT
47 06 27.65023	96 30 03.04096	549619.602	274297.454	.131	3	GPS - OPUS		2021	GPSBM
47 06 27.65066	96 30 03.04206	549619.526	274297.498	.131	3	GPS - RTRN		2021	RTRN2021
47 06 27.65127	96 30 03.04042	549619.639	274297.560	.131	3	GPS - RTRN		2014	RTRN2014

<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
47 06 27.65033	96 30 03.04127	549619.581	274297.465	.033	C	GPS - STATIC		2023	HFELT

**State Plane and UTM Coordinates (Feet)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
2064217.521	1104652.520	769005.936	17136051.351	.013		ADJUSTMENT		2023	GPS3618
2064217.521	1104652.520	769005.936	17136051.351	.013	C	GPS - STATIC		2023	HFELT
2064217.502	1104652.478	769005.917	17136051.309	.131	3	GPS - OPUS		2021	GPSBM
2064217.427	1104652.524	769005.843	17136051.356	.131	3	GPS - RTRN		2021	RTRN2021
2064217.542	1104652.582	769005.959	17136051.413	.131	3	GPS - RTRN		2014	RTRN2014

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
2064217.481	1104652.489	769005.896	17136051.320	.033	C	GPS - STATIC		2023	HFELT



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_AB-DQ1930-3W-13JUL2021.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_AB-DQ1930-3W-13JUL2021.jpg</a>	W	Jul 13, 2021
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_AB-DQ1930-2-13JUL2021.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_AB-DQ1930-2-13JUL2021.jpg</a>		Jul 13, 2021
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_AB-DQ1930-1-13JUL2021.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_AB-DQ1930-1-13JUL2021.jpg</a>		Jul 13, 2021

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1410 AC

NGS Name: 1410 AC

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ1929](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/  
 USGS Quad: FELTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>					
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>					
NW	15	142 N	46 W	470718.58	963001.54	2	C					
<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>		<u>Geodetic Usability</u>		<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>			
2014	2023	GOOD		Horz=YES Vert=YES		YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE			

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 77 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014) Stamping: 1410 AC 2014

3.0 MILES NORTH OF FELTON, 3.0 MILES NORTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 34 IN FELTON, AT TRUNK HIGHWAY 9 MILEPOINT 180.70, 90.5 FEET EAST OF TRUNK HIGHWAY 9, 114.8 FEET SOUTH OF COUNTY ROAD 40(190TH AVENUE NORTH), 56.7 FEET NORTH OF A FIELD ENTRANCE, 1.5 FEET WEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>							<u>Project Info</u>	
<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			
911.543	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>							<u>Project Info</u>	
<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			
911.543			824.555	.024	2011	HORIZONTAL ADJUSTMENT	2023	GPS3618
911.543	.131		824.687	.066	1996	GPS - STATIC	2023	HFELT
911.543			824.555	.024	2011	GPS - STATIC	2023	HFELT
911.767	.262		824.598	.197	2011	GPS - RTRN	2014	RTRN2014

Geoid Separations(ft): GEOID18 = -87.162 12B = -87.168 09 = -87.060 03 = -87.034

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>							<u>Project Info</u>	
<u>Geodetic Position</u>		<u>Clay County</u>		<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>					
47 07 18.58351	96 30 01.54432	549709.964	279458.345	.013		ADJUSTMENT	2023	GPS3618
47 07 18.58351	96 30 01.54432	549709.964	279458.345	.013	C	GPS - STATIC	2023	HFELT
47 07 18.58442	96 30 01.54326	549710.037	279458.437	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>							<u>Project Info</u>	
<u>Geodetic Position</u>		<u>Clay County</u>		<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>					
47 07 18.58319	96 30 01.54489	549709.925	279458.312	.033	C	GPS - STATIC	2023	HFELT

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>				<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>						
2064467.593	1109807.925	769340.558	17141204.297	.013		ADJUSTMENT	2023	GPS3618	
2064467.593	1109807.925	769340.558	17141204.297	.013	C	GPS - STATIC	2023	HFELT	
2064467.669	1109808.015	769340.635	17141204.386	.131	3	GPS - RTRN	2014	RTRN2014	

<u>NAD83(1996)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>				<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>						
2064467.553	1109807.894	769340.517	17141204.266	.033	C	GPS - STATIC	2023	HFELT	

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_AC-DQ1929-3E-11JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_AC-DQ1929-3E-11JUN2014.jpg</a>	E	Jun 11, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_AC-DQ1929-2-11JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_AC-DQ1929-2-11JUN2014.jpg</a>		Jun 11, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_AC-DQ1929-1-11JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_AC-DQ1929-1-11JUN2014.jpg</a>		Jun 11, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1410 B

NGS Name: 1410 B

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0734](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	16	140 N	46 W	465657.00	963018.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1947	2014	DESTROYED	Horz=NO Vert=NO	YES	6416	FLUSH	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	SURVEY DISK	MNDT

**Description:** (1982)                      **Stamping:** 1929 ADJ 1410 B 1947

6.2 MILES NORTHEAST OF GLYNDON, IN THE SOUTHEAST HEADWALL OF TRUNK HIGHWAY 9 BRIDGE NUMBER 6416 OVER A COUNTY DITCH 3, 0.3 MILE NORTH ALONG PARKE AVENUE SOUTH FROM THE JUNCTION OF PARKE AVENUE SOUTH AND 4TH STREET SOUTHEAST IN GLYNDON, THEN 3.5 MILES EAST ALONG TRUNK HIGHWAY 10 (STATE STREET NORTHEAST), THEN 5.0 MILES NORTH ALONG TRUNK HIGHWAY 9 NORTH (140TH STREET NORTH), 200.0 FEET EAST ALONG 70TH AVENUE NORTH, 93.0 FEET SOUTH AND 19.0 FEET EAST OF THE CROSSROADS, 19.8 FEET EAST OF TRUNK HIGHWAY 9.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
934.900	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
933.728	.033	3					VERTICAL CONTROL SURVEY	1964	USGS-VERT	
933.781	.033	3					VERTICAL CONTROL SURVEY	1947	CS1410	

Geoid Separations(ft): GEOID18 = -87.441 12B = -87.431 09 = -87.306 03 = -87.290

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1410 C

NGS Name: 1410 C

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	9	140 N	46 W	465748.00	963018.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1947	2014	DESTROYED	Horz=NO Vert=NO	NO	6415	FLUSH	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE ABUTMENT	SURVEY DISK	MNDT

Description: (1963)                      Stamping: 1410 C 1947

7.0 MILES NORTHEAST OF GLYNDON, IN THE SOUTHEAST CORNER OF TRUNK HIGHWAY 9 BRIDGE NUMBER 6415 OVER COUNTY DITCH 26, 3.5 MILES EAST ALONG TRUNK HIGHWAY 10 EAST (STATE STREET NORTHEAST) FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND PARKE AVENUE, THEN 6.0 MILES NORTH ON TRUNK HIGHWAY 9 NORTH (140TH STREET NORTH), 85.0 FEET SOUTH AND 16.0 FEET EAST OF THE CROSSROADS.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
934.070	.033	3				1964	USGS-VERT					

Geoid Separations(ft): GEOID18 = -87.355    12B = -87.359    09 = -87.231    03 = -87.205

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1410 D RESET

NGS Name: 1410 D RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [SL1180](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096234/  
 USGS Quad: ULEN NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	3	142 N	46 W	470900.00	963000.00	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1980	2014	GOOD	Horz=NO Vert=NO	YES	8779	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	VERTICAL CONTROL DISK	MNDT

Description: (1982)                      Stamping: 1410 D RESET

2.01 MILES SOUTHEAST OF BORUP, IN A CULVERT HEADWALL IN THE SOUTHEAST CORNER OF TRUNK HIGHWAY 9 DOUBLE BOX CULVERT NUMBER 8779, 2.0 MILES SOUTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 39 AT BORUP, AT TRUNK HIGHWAY 9 MILEPOINT 182.8, 41.4 FEET EAST OF TRUNK HIGHWAY 9, 59.0 FEET SOUTH OF 210TH AVENUE/NORMAN-CLAY COUNTY LINE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
911.005	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
911.173	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
910.280	.033	3					VERTICAL CONTROL SURVEY	1980	CS1410	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
911.137	.262			823.883	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.250 12B = -87.254 09 = -87.155 03 = -87.126

**Lat/Lon and County Coordinates (Feet)**

<u>NAVD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
47 09 04.05224	96 30 01.93519	549655.664	290144.546	.131	3	GPS - RTRN	2014	RTRN2014	

**State Plane and UTM Coordinates (Feet)**

<u>NAVD83(2011)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
2064744.166	1120490.385	769792.412	17151885.549	.131	3	GPS - RTRN	2014	RTRN2014	

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_D_RESET-SL1180-3E-02JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_D_RESET-SL1180-3E-02JUN2014.jpg</a>	E	Jun 2, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_D_RESET-SL1180-2-02JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_D_RESET-SL1180-2-02JUN2014.jpg</a>		Jun 2, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_D_RESET-SL1180-1-02JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_D_RESET-SL1180-1-02JUN2014.jpg</a>		Jun 2, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1410 E RESET

NGS Name: 1410 E RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [SL1178](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096234/  
 USGS Quad: ULEN NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	10	142 N	46 W	470806.00	963000.00	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1980	2014	GOOD	Horz=NO Vert=NO	YES	8778	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	VERTICAL CONTROL DISK	MNDT

**Description:** (1982)                      **Stamping:** 1410 E RESET

3.0 MILES SOUTH OF BORUP, IN A CULVERT HEADWALL IN THE SOUTHEAST CORNER OF TRUNK HIGHWAY 9 DOUBLE BOX CULVERT NUMBER 8778, 3.0 MILES SOUTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 39 IN BORUP, AT TRUNK HIGHWAY 9 MILEPOINT 181.8, 44.6 FEET EAST OF TRUNK HIGHWAY 9, 66.0 FEET SOUTH OF 200TH AVENUE NORTH.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
912.862	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
913.076	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
911.944	.033	3					VERTICAL CONTROL SURVEY	1980	CS1410	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
912.951	.262			825.746	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.208    12B = -87.208    09 = -87.113    03 = -87.083

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
47 08 11.31050	96 30 02.75804			549612.410	284800.512	.131	3	GPS - RTRN	2014	RTRN2014

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2064535.481	1115150.392			769496.056	17146547.327	.131	3	GPS - RTRN	2014	RTRN2014

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_E_RESET-SL1178-3E-29MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_E_RESET-SL1178-3E-29MAY2014.jpg</a>	E	May 29, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_E_RESET-SL1178-2-29MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_E_RESET-SL1178-2-29MAY2014.jpg</a>		May 29, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_E_RESET-SL1178-1-29MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_E_RESET-SL1178-1-29MAY2014.jpg</a>		May 29, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1410 F RESET

NGS Name: 1410 F RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [SL1177](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096233/  
 USGS Quad: ULEN SW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	15	142 N	46 W	470719.03	963002.27	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1980	2014	GOOD	Horz=NO Vert=NO	YES		FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	VERTICAL CONTROL DISK	MNDT

**Description:** (1982)                      **Stamping:** 1410 F RESET

2.85 MILES NORTH OF FELTON, IN A CULVERT HEADWALL IN THE SOUTHEAST CORNER OF A TRUNK HIGHWAY 9 DOUBLE BOX CULVERT, 3.05 MILES NORTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 34 AT FELTON, AT TRUNK HIGHWAY 9 MILEPOINT 180.8, 41.0 FEET EAST OF TRUNK HIGHWAY 9, 68.0 FEET SOUTH OF COUNTY ROAD 40 EAST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
912.905	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
913.079	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
912.242	.033	3					VERTICAL CONTROL SURVEY	1980	CS1410	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
913.085	.262			825.920	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.162    12B = -87.168    09 = -87.060    03 = -87.034

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
47 07 19.02958	96 30 02.26590			549659.945	279503.414	.131	3	GPS - RTRN	2014	RTRN2014

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2064418.996	1109854.519			769292.708	17141251.703	.131	3	GPS - RTRN	2014	RTRN2014

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_F_RESET-SL1177-3E-29MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_F_RESET-SL1177-3E-29MAY2014.jpg</a>	E	May 29, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_F_RESET-SL1177-2-29MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_F_RESET-SL1177-2-29MAY2014.jpg</a>		May 29, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_F_RESET-SL1177-1-29MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_F_RESET-SL1177-1-29MAY2014.jpg</a>		May 29, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1410 G RESET

NGS Name: 1410 G RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [SL1175](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096233/  
 USGS Quad: ULEN SW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	27	142 N	46 W	470530.00	963000.00	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1980	2014	GOOD	Horz=NO Vert=NO	YES	8776	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	VERTICAL CONTROL DISK	MNDT

**Description:** (1982)                      **Stamping:** 1410 G RESET

0.9 MILE NORTH OF FELTON, IN A CULVERT HEADWALL IN THE SOUTHEAST CORNER OF TRUNK HIGHWAY 9 DOUBLE BOX CULVERT NUMBER 8776, 1.0 MILE NORTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 34 IN FELTON, AT TRUNK HIGHWAY 9 MILEPOINT 178.75, 38.0 FEET EAST OF TRUNK HIGHWAY 9, 66.0 FEET SOUTH OF 170TH AVENUE NORTH.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
914.352	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
914.539	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
913.354	.033	3					VERTICAL CONTROL SURVEY	1980	CS1410	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
914.460	.262			827.344	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.100 12B = -87.116 09 = -86.985 03 = -86.965

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
47 05 34.61574	96 30 00.28407			549824.050	268924.431	.131	3	GPS - RTRN	2014	RTRN2014

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2064255.505	1099275.898			768955.894	17130672.377	.131	3	GPS - RTRN	2014	RTRN2014

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_G_RESET-SL1175-3N-29MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_G_RESET-SL1175-3N-29MAY2014.jpg</a>	N	May 29, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_G_RESET-SL1175-2-29MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_G_RESET-SL1175-2-29MAY2014.jpg</a>		May 29, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_G_RESET-SL1175-1-29MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_G_RESET-SL1175-1-29MAY2014.jpg</a>		May 29, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1410 H RESET

NGS Name: 1410 H RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [SL1173](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096233/  
 USGS Quad: ULEN SW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	3	141 N	46 W	470349.90	963002.10	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1980	2014	GOOD	Horz=NO Vert=NO	YES	8775	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	VERTICAL CONTROL DISK	MNDT

**Description:** (1982)                      **Stamping:** 1410 H RESET

1.2 MILES SOUTH OF FELTON, IN A CULVERT HEADWALL IN THE SOUTHEAST CORNER OF TRUNK HIGHWAY 9 DOUBLE BOX CULVERT NUMBER 8775, 1.05 MILES SOUTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 34 IN FELTON, AT TRUNK HIGHWAY 9 MILEPOINT 176.70, 36.0 FEET EAST OF TRUNK HIGHWAY 9, 85.0 FEET SOUTH OF THE SOUTHWEST CORNER OF THE FELTON CEMETERY, 28.0 FEET SOUTH OF A DITCH.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
918.994	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
919.230	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
918.118	.033	3					VERTICAL CONTROL SURVEY	1980	CS1410	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
919.217	.262			832.114	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.086    12B = -87.103    09 = -86.972    03 = -86.952

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
47 03 49.82081	96 30 02.09745			549725.634	258306.218	.131	3	GPS - RTRN	2014	RTRN2014

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2063828.429	1088666.265			768355.122	17120066.253	.131	3	GPS - RTRN	2014	RTRN2014

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_H_RESET-SL1173-3E-28MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_H_RESET-SL1173-3E-28MAY2014.jpg</a>	E	May 28, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_H_RESET-SL1173-2-28MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_H_RESET-SL1173-2-28MAY2014.jpg</a>		May 28, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_H_RESET-SL1173-1-28MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_H_RESET-SL1173-1-28MAY2014.jpg</a>		May 28, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1410 I RESET

NGS Name: 1410 I RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [SL1171](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096233/  
 USGS Quad: ULEN SW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	15	141 N	46 W	470154.00	963000.00	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1980	2014	GOOD	Horz=NO Vert=NO	YES	8774	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	VERTICAL CONTROL DISK	MNDT

**Description:** (1982)                      **Stamping:** 1410 I RESET

3.25 MILES SOUTHEAST OF FELTON, IN A CULVERT HEADWALL IN THE SOUTHEAST CORNER OF TRUNK HIGHWAY 9 DOUBLE BOX CULVERT NUMBER 8774 AT COUNTY DITCH 45, 3.1 MILES SOUTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 34 IN FELTON, AT TRUNK HIGHWAY 9 MILEPOINT 174.6, 36.0 FEET EAST OF TRUNK HIGHWAY 9, 12.0 FEET SOUTH OF A DITCH.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
925.018	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
925.192	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
924.030	.033	3					VERTICAL CONTROL SURVEY	1980	CS1410	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
925.225	.262			838.095	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.119    12B = -87.129    09 = -86.998    03 = -86.981

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
47 01 59.30947	96 29 59.10334			549961.570	247109.724	.131	3	GPS - RTRN	2014	RTRN2014

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2063717.644	1077468.376			768061.363	17108866.415	.131	3	GPS - RTRN	2014	RTRN2014

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_I_RESET-SL1171-3E-28MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_I_RESET-SL1171-3E-28MAY2014.jpg</a>	E	May 28, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_I_RESET-SL1171-2-28MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_I_RESET-SL1171-2-28MAY2014.jpg</a>		May 28, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_I_RESET-SL1171-1-28MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_I_RESET-SL1171-1-28MAY2014.jpg</a>		May 28, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1410 J RESET

NGS Name: 1410 J RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [SL1170](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096233/  
 USGS Quad: ULEN SW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	22	141 N	46 W	470112.00	963000.00	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1980	2014	GOOD	Horz=NO Vert=NO	YES	8773	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	VERTICAL CONTROL DISK	MNDT

**Description:** (1982)                      **Stamping:** 1410 J RESET

3.8 MILES SOUTHEAST OF FELTON, IN A CULVERT HEADWALL IN THE SOUTHEAST CORNER OF TRUNK HIGHWAY 9 DOUBLE BOX CULVERT NUMBER 8773 OVER COUNTY DITCH 10, 4.0 MILES SOUTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 34 IN FELTON, AT TRUNK HIGHWAY 9 MILEPOINT 173.7, 39.0 FEET EAST OF TRUNK HIGHWAY 9, 60.0 FEET SOUTH OF 120TH AVENUE NORTH.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
927.341	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
927.501	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
926.314	.033	3					VERTICAL CONTROL SURVEY	1980	CS1410	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
927.528	.262			840.372	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.142 12B = -87.152 09 = -87.018 03 = -86.998

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>			<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>									
47 01 13.70029	96 29 59.36525		549955.239	242488.567	.131	3	GPS - RTRN	2014	RTRN2014	

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>			<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>X</u>	<u>Y</u>									
2063568.270	1072849.875		767836.559	17104248.777	.131	3	GPS - RTRN	2014	RTRN2014	

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_J_RESET-SL1170-3E-28MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_J_RESET-SL1170-3E-28MAY2014.jpg</a>	E	May 28, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_J_RESET-SL1170-2-28MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_J_RESET-SL1170-2-28MAY2014.jpg</a>		May 28, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_J_RESET-SL1170-1-28MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_J_RESET-SL1170-1-28MAY2014.jpg</a>		May 28, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1410 K RESET

NGS Name: 1410 K RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0737](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096144/  
 USGS Quad: HAWLEY NW

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
				<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	34	141 N	46 W	465928.00	962959.00	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1980	2014	GOOD	Horz=NO Vert=NO	YES	8772	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	VERTICAL CONTROL DISK	MNDT

**Description:** (1982)                      **Stamping:** 1410 K RESET

5.8 MILES SOUTH OF FELTON, IN A CULVERT HEADWALL IN THE SOUTHEAST CORNER OF TRUNK HIGHWAY 9 TRIPLE BOX CULVERT NUMBER 8772, 6.0 MILES SOUTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 34 IN FELTON, AT TRUNK HIGHWAY 9 MILEPOINT 171.65, AT TRUNK HIGHWAY 9 STATION 1318+30, 42.0 FEET EAST OF TRUNK HIGHWAY 9, 69.0 FEET SOUTH OF 100TH AVENUE NORTH, 36.0 FEET EAST OF TRUNK HIGHWAY 9.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
931.717	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
931.911	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
930.667	.033	3					VERTICAL CONTROL SURVEY	1980	CS1410	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
931.924	.262			844.683	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.224    12B = -87.244    09 = -87.096    03 = -87.067

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 59 29.16693	96 30 00.11171	549930.555	231897.180	.131	3	GPS - RTRN	2014	RTRN2014	

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
2063215.754	1062264.936	767311.324	17093665.920	.131	3	GPS - RTRN	2014	RTRN2014	

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_K_RESET-RP0737-3E-28MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_K_RESET-RP0737-3E-28MAY2014.jpg</a>	E	May 28, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_K_RESET-RP0737-2-28MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_K_RESET-RP0737-2-28MAY2014.jpg</a>		May 28, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_K_RESET-RP0737-1-28MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_K_RESET-RP0737-1-28MAY2014.jpg</a>		May 28, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1410 L RESET

NGS Name: 1410 L RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ1939](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096144/  
 USGS Quad: HAWLEY NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	4	140 N	46 W	465837.49	963002.95	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1980	2014	GOOD	Horz=NO Vert=NO	YES		FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	VERTICAL CONTROL DISK	MNDT

**Description:** (1980)                      **Stamping:** 1410 L RESET

7.0 MILES SOUTH OF FELTON, IN A CULVERT HEADWALL IN THE SOUTHEAST CORNER OF A TRUNK HIGHWAY 9 BOX CULVERT, 7.0 MILES SOUTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 34 IN FELTON, AT TRUNK HIGHWAY 9 MILEPOINT 170.75, 41.0 FEET EAST OF TRUNK HIGHWAY 9, 70.0 FEET SOUTH OF COUNTY ROAD 26.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>							<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
			<u>Height</u>	<u>Acc</u>	<u>Adj</u>			
932.774	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941

  

<u>NGVD29</u>							<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
			<u>Height</u>	<u>Acc</u>	<u>Adj</u>			
931.868	.033	3				VERTICAL CONTROL SURVEY	1980	CS1410
932.019	.033	3				VERTICAL CONTROL SURVEY	1964	USGS-VERT

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>							<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
			<u>Height</u>	<u>Acc</u>	<u>Adj</u>			
933.062	.262		845.759	.197	2011	GPS - RTRN	2014	RTRN2014

Geoid Separations(ft): GEOID18 = -87.290 12B = -87.303 09 = -87.165 03 = -87.132

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>							<u>Project Info</u>	
<u>Geodetic Position</u>		<u>Clay County</u>			<u>Determination Method</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			
46 58 37.48789	96 30 02.94762	549747.258	226660.611	.131	3	GPS - RTRN	2014	RTRN2014

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>							<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			
2062870.470	1057036.874	766880.751	17088441.642	.131	3	GPS - RTRN	2014	RTRN2014

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_L_RESET-DQ1939-3E-28MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_L_RESET-DQ1939-3E-28MAY2014.jpg</a>	E	May 28, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_L_RESET-DQ1939-2-28MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_L_RESET-DQ1939-2-28MAY2014.jpg</a>		May 28, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_L_RESET-DQ1939-1-28MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_L_RESET-DQ1939-1-28MAY2014.jpg</a>		May 28, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1410 M  
 County: CLAY, MN (Sheet 1)

NGS Name: 1410 M

NGS ACRN: [DG7145](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				Reference	Reference	Vert	Horz
1/4	Sec	Twp	Rng	Latitude	Longitude	Order	Order
SW	4	139 N	46 W	465246.23	963018.91	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1979	2022	GOOD	Horz=NO Vert=NO	YES		FLUSH	NO MAG MATERIAL

Monument Type	Disk Type	Mon. Agency
BRIDGE ABUTMENT	VERTICAL CONTROL DISK	MNDT

Description: (2001)                      **Stamping:** 1410 M 1979

3.5 MILES EAST OF GLYNDON, IN A BRIDGE ABUTMENT IN THE SOUTHEAST CORNER OF TRUNK HIGHWAY 9 BRIDGE NUMBER 14005 OVER THE BUFFALO RIVER, 0.3 MILE NORTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND TRUNK HIGHWAY 10 (THE JUNCTION IS ABOUT 3.5 MILES EAST OF GLYNDON), AT TRUNK HIGHWAY 9 MILEPOINT 163.95, 26.0 FEET EAST OF TRUNK HIGHWAY 9.

**Station Notes**

THE SURVEY MARK HAS BEEN DEEMED UNSAFE DUE TO FALL RISK AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88				Orthometric Height				Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order/(Class)		Height	Acc	Adj		Year	Reference					
946.366	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941					
946.560	.016	2/1					VERTICAL ADJUSTMENT	2006	00000425-10					
946.560	.016	2/1					VERTICAL CONTROL SURVEY	2005	VPIET					
946.560	.016	2/1					VERTICAL ADJUSTMENT	2004	00000464					
946.560	.016	2/1					VERTICAL CONTROL SURVEY	2001	VHAWL					

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88				Orthometric Height				Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order/(Class)		Height	Acc	Adj		Year	Reference					
946.488	.262			858.791	.197	2011	GPS - RTRN	2014	RTRN2014					

Geoid Separations(ft): GEOID18 = -87.684 12B = -87.697 09 = -87.546 03 = -87.490

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)				Geodetic Position				Clay County			Determination Method		Project Info	
Latitude	Longitude	X	Y	Acc	Order			Year	Reference					
46 52 46.22854	96 30 18.91226	548728.543	191068.933	.131	3	GPS - RTRN		2014	RTRN2014					

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)				MN State Plane - Central Zone				UTM - Zone 15			Determination Method		Project Info	
X	Y	X	Y	Acc	Order			Year	Reference					
2060750.762	1021496.350	764182.725	17052922.544	.131	3	GPS - RTRN		2014	RTRN2014					

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_M-DG7145-3E-13APR2005.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_M-DG7145-3E-13APR2005.jpg</a>	E	Apr 13, 2005
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_M-DG7145-2-13APR2005.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_M-DG7145-2-13APR2005.jpg</a>		Apr 13, 2005
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_M-DG7145-1-13APR2005.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_M-DG7145-1-13APR2005.jpg</a>		Apr 13, 2005

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1410 N

NGS Name: 1410 N

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP7339](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	20	140 N	46 W	465513.20	963021.63	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2013	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 4 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 84 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2013) Stamping: 1410 N 2013

3.5 MILES NORTHEAST OF GLYNDON, 3.0 MILES NORTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND TRUNK HIGHWAY 10 (THE JUNCTION IS 3.5 MILES EAST OF GLYNDON), AT TRUNK HIGHWAY 9 MILEPOINT 166.75, 48.1 FEET WEST OF TRUNK HIGHWAY 9, 31.8 FEET NORTH OF EXTENDED COUNTY ROAD 86, 31.8 FEET NORTH OF A FIELD ENTRANCE, 3.0 FEET SOUTH OF A WITNESS POST.

Station Pair: DAVID - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
935.290	.016	2/1				VERTICAL ADJUSTMENT		2019	00000941

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
935.290			847.892	.017	2011	HORIZONTAL ADJUSTMENT		2023	GPS3618
935.290	.131		848.030	.066	1996	GPS - STATIC		2023	HFELT
935.290			847.892	.017	2011	GPS - STATIC		2023	HFELT
935.490			847.892	.022	2011	HORIZONTAL ADJUSTMENT		2015	GPS3084
935.477	.131		848.030	.066	1996	GPS - STATIC		2015	HCLAY
935.490			847.892	.022	2011	GPS - STATIC		2015	HCLAY
935.408	.262		847.840	.197	2011	GPS - RTRN		2014	RTRN2014
935.431	.262		847.862	.197	2011	GPS - RTRN		2013	RTRN2013

Geoid Separations(ft): GEOID18 = -87.582 12B = -87.569 09 = -87.441 03 = -87.418

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>								
46 55 13.19669	96 30 21.62754	548503.095	205958.912	.010		ADJUSTMENT		2023	GPS3618
46 55 13.19669	96 30 21.62754	548503.095	205958.912	.010	C	GPS - STATIC		2023	HFELT
46 55 13.19669	96 30 21.62754	548503.095	205958.912	.013		ADJUSTMENT		2015	GPS3084
46 55 13.19669	96 30 21.62754	548503.095	205958.912	.013	C	GPS - STATIC		2015	HCLAY
46 55 13.19670	96 30 21.62704	548503.130	205958.913	.131	3	GPS - RTRN		2014	RTRN2014
46 55 13.19685	96 30 21.62771	548503.083	205958.928	.131	3	GPS - RTRN		2013	RTRN2013

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>								
46 55 13.19619	96 30 21.62836	548503.038	205958.861	.033	C	GPS - STATIC		2023	HFELT
46 55 13.19619	96 30 21.62836	548503.038	205958.861	.033	C	GPS - STATIC		2015	HCLAY

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2060986.257	1036385.021	764659.952	17067812.961	.010		ADJUSTMENT	2023	GPS3618
2060986.257	1036385.021	764659.952	17067812.961	.010	C	GPS - STATIC	2023	HFELT
2060986.257	1036385.021	764659.952	17067812.961	.013		ADJUSTMENT	2015	GPS3084
2060986.257	1036385.021	764659.952	17067812.961	.013	C	GPS - STATIC	2015	HCLAY
2060986.292	1036385.021	764659.986	17067812.960	.131	3	GPS - RTRN	2014	RTRN2014
2060986.246	1036385.037	764659.941	17067812.977	.131	3	GPS - RTRN	2013	RTRN2013

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2060986.199	1036384.972	764659.893	17067812.913	.033	C	GPS - STATIC	2023	HFELT
2060986.199	1036384.972	764659.893	17067812.913	.033	C	GPS - STATIC	2015	HCLAY

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<b>Location:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_N-DP7339-3W-20AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_N-DP7339-3W-20AUG2013.jpg</a>	W	Aug 20, 2013
<b>Monument:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_N-DP7339-2-20AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_N-DP7339-2-20AUG2013.jpg</a>		Aug 20, 2013
<b>Disk:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_N-DP7339-1-20AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_N-DP7339-1-20AUG2013.jpg</a>		Aug 20, 2013

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1410 P

NGS Name: 1410 P

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP7340](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	9	140 N	46 W	465749.07	963017.33	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2013	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 98 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2013) Stamping: 1410 P 2013

6.5 MILES NORTHEAST OF GLYNDON, 6.0 MILES NORTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND TRUNK HIGHWAY 10 (THE JUNCTION IS 3.5 MILES EAST OF GLYNDON), AT TRUNK HIGHWAY 9 MILEPOINT 169.75, 153.1 FEET EAST OF TRUNK HIGHWAY 9, 43.8 FEET EAST OF A POWER POLE, 15.1 FEET SOUTH OF A FIELD ENTRANCE, 1.5 FEET WEST OF A WITNESS POST.

Station Pair: JUSTIN - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
932.810	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
932.810			845.651	.019	2011	HORIZONTAL ADJUSTMENT	2023	GPS3618
932.810	.131		845.796	.066	1996	GPS - STATIC	2023	HFELT
932.810			845.651	.019	2011	GPS - STATIC	2023	HFELT
933.033			845.651	.024	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084
933.017	.131		845.796	.066	1996	GPS - STATIC	2015	HCLAY
933.033			845.651	.024	2011	GPS - STATIC	2015	HCLAY
932.875	.262		845.517	.197	2011	GPS - RTRN	2014	RTRN2014
933.056	.262		845.700	.197	2011	GPS - RTRN	2013	RTRN2013

Geoid Separations(ft): GEOID18 = -87.355 12B = -87.355 09 = -87.228 03 = -87.205

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>							
46 57 49.06609	96 30 17.33380	548761.854	221752.065	.010		ADJUSTMENT	2023	GPS3618
46 57 49.06609	96 30 17.33380	548761.854	221752.065	.010	C	GPS - STATIC	2023	HFELT
46 57 49.06609	96 30 17.33380	548761.854	221752.065	.016		ADJUSTMENT	2015	GPS3084
46 57 49.06609	96 30 17.33380	548761.854	221752.065	.016	C	GPS - STATIC	2015	HCLAY
46 57 49.06603	96 30 17.33455	548761.802	221752.058	.131	3	GPS - RTRN	2014	RTRN2014
46 57 49.06580	96 30 17.33382	548761.852	221752.035	.131	3	GPS - RTRN	2013	RTRN2013

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>							
46 57 49.06558	96 30 17.33462	548761.797	221752.013	.033	C	GPS - STATIC	2023	HFELT
46 57 49.06558	96 30 17.33462	548761.797	221752.013	.033	C	GPS - STATIC	2015	HCLAY

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2061733.674	1052161.497	765664.175	17083583.033	.010		ADJUSTMENT	2023	GPS3618
2061733.674	1052161.497	765664.175	17083583.033	.010	C	GPS - STATIC	2023	HFELT
2061733.674	1052161.497	765664.175	17083583.033	.016		ADJUSTMENT	2015	GPS3084
2061733.674	1052161.497	765664.175	17083583.033	.016	C	GPS - STATIC	2015	HCLAY
2061733.621	1052161.492	765664.123	17083583.030	.131	3	GPS - RTRN	2014	RTRN2014
2061733.671	1052161.467	765664.172	17083583.004	.131	3	GPS - RTRN	2013	RTRN2013

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2061733.615	1052161.447	765664.116	17083582.984	.033	C	GPS - STATIC	2023	HFELT
2061733.615	1052161.447	765664.116	17083582.984	.033	C	GPS - STATIC	2015	HCLAY

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<b>Location:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_P-DP7340-3E-20AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_P-DP7340-3E-20AUG2013.jpg</a>	E	Aug 20, 2013
<b>Monument:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_P-DP7340-2-20AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_P-DP7340-2-20AUG2013.jpg</a>		Aug 20, 2013
<b>Disk:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_P-DP7340-1-20AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_P-DP7340-1-20AUG2013.jpg</a>		Aug 20, 2013

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1410 Q  
 County: CLAY, MN (Sheet 1)

NGS Name: 1410 Q

NGS ACRN: [DP7341](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	21	141 N	46 W	470022.68	963001.31	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2013	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 62 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2013)                      **Stamping:** 1410 Q 2013

4.5 MILES SOUTH OF FELTON, 4.95 MILES SOUTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 34 IN FELTON, AT TRUNK HIGHWAY 9 MILEPOINT 172.75, 87.5 FEET WEST OF TRUNK HIGHWAY 9, 53.0 FEET NORTH OF COUNTY ROAD 109 (110TH AVENUE NORTH), 1.5 FEET EAST OF A WITNESS POST.

Station Pair: JORDAN - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88			Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
925.218	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
925.218			838.286	.017	2011	HORIZONTAL ADJUSTMENT	2023	GPS3618
925.218	.131		838.427	.066	1996	GPS - STATIC	2023	HFELT
925.218			838.286	.017	2011	GPS - STATIC	2023	HFELT
925.507			838.286	.023	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084
925.464	.131		838.427	.066	1996	GPS - STATIC	2015	HCLAY
925.507			838.286	.023	2011	GPS - STATIC	2015	HCLAY
925.487	.262		838.296	.197	2011	GPS - RTRN	2014	RTRN2014
925.507	.262		838.319	.197	2011	GPS - RTRN	2013	RTRN2013

Geoid Separations(ft): GEOID18 = -87.172    12B = -87.191    09 = -87.047    03 = -87.021

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
47 00 22.67807	96 30 01.30992	549833.670	237318.677	.010		ADJUSTMENT	2023	GPS3618
47 00 22.67807	96 30 01.30992	549833.670	237318.677	.010	C	GPS - STATIC	2023	HFELT
47 00 22.67807	96 30 01.30992	549833.670	237318.677	.016		ADJUSTMENT	2015	GPS3084
47 00 22.67807	96 30 01.30992	549833.670	237318.677	.016	C	GPS - STATIC	2015	HCLAY
47 00 22.67865	96 30 01.30958	549833.694	237318.736	.131	3	GPS - RTRN	2014	RTRN2014
47 00 22.67844	96 30 01.31027	549833.646	237318.714	.131	3	GPS - RTRN	2013	RTRN2013

NAD83(1996)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
47 00 22.67756	96 30 01.31074	549833.614	237318.625	.033	C	GPS - STATIC	2023	HFELT
47 00 22.67756	96 30 01.31074	549833.614	237318.625	.033	C	GPS - STATIC	2015	HCLAY

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2063286.736	1067686.515	767470.707	17099088.229	.010		ADJUSTMENT	2023	GPS3618
2063286.736	1067686.515	767470.707	17099088.229	.010	C	GPS - STATIC	2023	HFELT
2063286.736	1067686.515	767470.707	17099088.229	.016		ADJUSTMENT	2015	GPS3084
2063286.736	1067686.515	767470.707	17099088.229	.016	C	GPS - STATIC	2015	HCLAY
2063286.761	1067686.573	767470.733	17099088.287	.131	3	GPS - RTRN	2014	RTRN2014
2063286.712	1067686.553	767470.684	17099088.268	.131	3	GPS - RTRN	2013	RTRN2013

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2063286.677	1067686.465	767470.647	17099088.180	.033	C	GPS - STATIC	2023	HFELT
2063286.677	1067686.465	767470.647	17099088.180	.033	C	GPS - STATIC	2015	HCLAY

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<b>Location:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_Q-DP7341-3W-20AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_Q-DP7341-3W-20AUG2013.jpg</a>	W	Aug 20, 2013
<b>Monument:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_Q-DP7341-2-20AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_Q-DP7341-2-20AUG2013.jpg</a>		Aug 20, 2013
<b>Disk:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_Q-DP7341-1-20AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_Q-DP7341-1-20AUG2013.jpg</a>		Aug 20, 2013

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1410 R

NGS Name: 1410 R

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP7342](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/  
 USGS Quad: FELTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	21	142 N	46 W	470535.61	963001.50	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2013	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 1 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 69 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2013) Stamping: 1410 R 2013

1.0 MILE NORTH OF FELTON, 1.0 MILE NORTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 34 IN FELTON, AT TRUNK HIGHWAY 9 MILEPOINT 178.75, 42.4 FEET WEST OF TRUNK HIGHWAY 9, 33.2 FEET NORTH OF 170TH AVENUE NORTH EXTENDED, 25.0 FEET NORTH OF A FIELD ENTRANCE, 3.0 FEET EAST OF A WITNESS POST.

Station Pair: BETH - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
914.204	.016	2/1				2019	00000941					

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
914.204			827.334	.016	2011	2023	GPS3618					
914.204	.131		827.475	.066	1996	2023	HFELT					
914.204			827.334	.016	2011	2023	HFELT					
914.480			827.334	.023	2011	2015	GPS3084					
914.457	.131		827.475	.066	1996	2015	HCLAY					
914.480			827.334	.023	2011	2015	HCLAY					
914.401	.262		827.285	.197	2011	2014	RTRN2014					
914.516	.262		827.400	.197	2011	2013	RTRN2013					

Geoid Separations(ft): GEOID18 = -87.096 12B = -87.116 09 = -86.985 03 = -86.965

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Acc</u>		<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>			
47 05 35.60520	96 30 01.50052	549739.621	269024.469	.010		ADJUSTMENT	2023	GPS3618			
47 05 35.60520	96 30 01.50052	549739.621	269024.469	.010	C	GPS - STATIC	2023	HFELT			
47 05 35.60520	96 30 01.50052	549739.621	269024.469	.016		ADJUSTMENT	2015	GPS3084			
47 05 35.60520	96 30 01.50052	549739.621	269024.469	.016	C	GPS - STATIC	2015	HCLAY			
47 05 35.60517	96 30 01.49954	549739.689	269024.466	.131	3	GPS - RTRN	2014	RTRN2014			
47 05 35.60547	96 30 01.49989	549739.664	269024.496	.131	3	GPS - RTRN	2013	RTRN2013			

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Acc</u>		<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>			
47 05 35.60468	96 30 01.50134	549739.564	269024.416	.033	C	GPS - STATIC	2023	HFELT			
47 05 35.60468	96 30 01.50134	549739.564	269024.416	.033	C	GPS - STATIC	2015	HCLAY			

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15						Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
2064174.216	1099378.497	768876.259	17130776.340	.010		ADJUSTMENT	2023	GPS3618	
2064174.216	1099378.497	768876.259	17130776.340	.010	C	GPS - STATIC	2023	HFELT	
2064174.216	1099378.497	768876.259	17130776.340	.016		ADJUSTMENT	2015	GPS3084	
2064174.216	1099378.497	768876.259	17130776.340	.016	C	GPS - STATIC	2015	HCLAY	
2064174.284	1099378.493	768876.327	17130776.334	.131	3	GPS - RTRN	2014	RTRN2014	
2064174.261	1099378.524	768876.304	17130776.366	.131	3	GPS - RTRN	2013	RTRN2013	

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15						Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
2064174.158	1099378.447	768876.200	17130776.290	.033	C	GPS - STATIC	2023	HFELT	
2064174.158	1099378.447	768876.200	17130776.290	.033	C	GPS - STATIC	2015	HCLAY	

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<b>Location:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_R-DP7342-3W-20AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_R-DP7342-3W-20AUG2013.jpg</a>	W	Aug 20, 2013
<b>Monument:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_R-DP7342-2-20AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_R-DP7342-2-20AUG2013.jpg</a>		Aug 20, 2013
<b>Disk:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_R-DP7342-1-20AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_R-DP7342-1-20AUG2013.jpg</a>		Aug 20, 2013

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1410 S

NGS Name: 1410 S

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP7343](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096321/  
 USGS Quad: BORUP

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	9	142 N	46 W	470810.58	963004.03	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2013	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 64 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2013)                      Stamping: 1410 S 2013

4.5 MILES NORTH OF FELTON, 4.0 MILES NORTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 34 IN FELTON, AT TRUNK HIGHWAY 9 MILEPOINT 181.75, 44.5 FEET WEST OF TRUNK HIGHWAY 9, 144.5 FEET SOUTH OF 200TH AVENUE NORTH, 19.3 FEET SOUTH OF A FIELD ENTRANCE, 3.0 FEET NORTH OF A WITNESS POST.

Station Pair:    DANE - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
911.366	.016	2/1				VERTICAL ADJUSTMENT		2019	00000941

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
911.366			824.365	.016	2011	HORIZONTAL ADJUSTMENT		2023	GPS3618
911.366	.131		824.503	.066	1996	GPS - STATIC		2023	HFELT
911.366			824.365	.016	2011	GPS - STATIC		2023	HFELT
911.599			824.365	.021	2011	HORIZONTAL ADJUSTMENT		2015	GPS3084
911.609	.131		824.503	.066	1996	GPS - STATIC		2015	HCLAY
911.599			824.365	.021	2011	GPS - STATIC		2015	HCLAY
911.491	.262		824.286	.197	2011	GPS - RTRN		2014	RTRN2014
911.524	.262		824.319	.197	2011	GPS - RTRN		2013	RTRN2013

Geoid Separations(ft): GEOID18 = -87.205    12B = -87.205    09 = -87.109    03 = -87.083

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>								
47 08 10.57631	96 30 04.03271	549524.469	284725.898	.010		ADJUSTMENT		2023	GPS3618
47 08 10.57631	96 30 04.03271	549524.469	284725.898	.010	C	GPS - STATIC		2023	HFELT
47 08 10.57631	96 30 04.03271	549524.469	284725.898	.013		ADJUSTMENT		2015	GPS3084
47 08 10.57631	96 30 04.03271	549524.469	284725.898	.013	C	GPS - STATIC		2015	HCLAY
47 08 10.57701	96 30 04.03254	549524.481	284725.969	.131	3	GPS - RTRN		2014	RTRN2014
47 08 10.57718	96 30 04.03203	549524.516	284725.986	.131	3	GPS - RTRN		2013	RTRN2013

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>								
47 08 10.57580	96 30 04.03353	549524.413	284725.846	.033	C	GPS - STATIC		2023	HFELT
47 08 10.57580	96 30 04.03353	549524.413	284725.846	.033	C	GPS - STATIC		2015	HCLAY

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2064445.275	1115078.539	769404.644	17146476.930	.010		ADJUSTMENT	2023	GPS3618
2064445.275	1115078.539	769404.644	17146476.930	.010	C	GPS - STATIC	2023	HFELT
2064445.275	1115078.539	769404.644	17146476.930	.013		ADJUSTMENT	2015	GPS3084
2064445.275	1115078.539	769404.644	17146476.930	.013	C	GPS - STATIC	2015	HCLAY
2064445.288	1115078.609	769404.659	17146477.001	.131	3	GPS - RTRN	2014	RTRN2014
2064445.324	1115078.625	769404.694	17146477.016	.131	3	GPS - RTRN	2013	RTRN2013

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2064445.217	1115078.488	769404.585	17146476.881	.033	C	GPS - STATIC	2023	HFELT
2064445.217	1115078.488	769404.585	17146476.881	.033	C	GPS - STATIC	2015	HCLAY

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<b>Location:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_S-DP7343-3W-20AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_S-DP7343-3W-20AUG2013.jpg</a>	W	Aug 20, 2013
<b>Monument:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_S-DP7343-2-20AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_S-DP7343-2-20AUG2013.jpg</a>		Aug 20, 2013
<b>Disk:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_S-DP7343-1-20AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_S-DP7343-1-20AUG2013.jpg</a>		Aug 20, 2013

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1410 T

NGS Name: 1410 T

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ1945](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	29	140 N	46 W	465421.65	963021.68	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 49 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014) Stamping: 1410 T 2014

4.0 MILES NORTHEAST OF GLYNDON, 2.0 MILES NORTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND TRUNK HIGHWAY 10 (THE JUNCTION IS 3.5 MILES EAST OF GLYNDON), AT TRUNK HIGHWAY 9 MILEPOINT 165.75, 106.6 FEET WEST OF TRUNK HIGHWAY 9, 64.5 FEET NORTH OF COUNTY ROAD 18 (28TH AVENUE NORTH), 21.0 FEET WEST OF ENTRANCE WITH FIRE NUMBER 13992, 1.5 FEET EAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
935.792	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
935.792				848.364	.018	2011	HORIZONTAL ADJUSTMENT	2024	GPS3719	
935.792	.131			848.496	.066	1996	GPS - STATIC	2024	HMOFA1	
935.792				848.364	.018	2011	GPS - STATIC	2024	HMOFA1	
935.792				848.364	.026	2011	HORIZONTAL ADJUSTMENT	2023	GPS3618	
935.792	.131			848.496	.066	1996	GPS - STATIC	2023	HFELT	
935.792				848.364	.026	2011	GPS - STATIC	2023	HFELT	
936.055	.262			848.423	.197	2011	GPS - RTRN	2022	RTRN2022	
935.913	.262			848.292	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.628 12B = -87.624 09 = -87.493 03 = -87.457

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>								
46 54 21.64542	96 30 21.67530	548512.694	200735.846	.010		ADJUSTMENT	2024	GPS3719	
46 54 21.64542	96 30 21.67530	548512.694	200735.846	.010	C	GPS - STATIC	2024	HMOFA1	
46 54 21.64542	96 30 21.67530	548512.694	200735.846	.016		ADJUSTMENT	2023	GPS3618	
46 54 21.64542	96 30 21.67530	548512.694	200735.846	.016	C	GPS - STATIC	2023	HFELT	
46 54 21.64564	96 30 21.67445	548512.753	200735.868	.131	3	GPS - RTRN	2022	RTRN2022	
46 54 21.64595	96 30 21.67544	548512.684	200735.899	.131	3	GPS - RTRN	2014	RTRN2014	

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>								
46 54 21.64510	96 30 21.67586	548512.655	200735.813	.033	C	GPS - STATIC	2024	HMOFA1	
46 54 21.64510	96 30 21.67586	548512.655	200735.813	.033	C	GPS - STATIC	2023	HFELT	

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2060834.204	1031164.552	764423.063	17062593.023	.010		ADJUSTMENT	2024	GPS3719
2060834.204	1031164.552	764423.063	17062593.023	.010	C	GPS - STATIC	2024	HMOFA1
2060834.204	1031164.552	764423.063	17062593.023	.016		ADJUSTMENT	2023	GPS3618
2060834.204	1031164.552	764423.063	17062593.023	.016	C	GPS - STATIC	2023	HFELT
2060834.263	1031164.573	764423.123	17062593.042	.131	3	GPS - RTRN	2022	RTRN2022
2060834.196	1031164.606	764423.055	17062593.077	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2060834.164	1031164.521	764423.022	17062592.992	.033	C	GPS - STATIC	2024	HMOFA1
2060834.164	1031164.521	764423.022	17062592.992	.033	C	GPS - STATIC	2023	HFELT

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<b>Location:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_T-DQ1945-3W-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_T-DQ1945-3W-05JUL2022.jpg</a>	W	Jul 5, 2022
<b>Monument:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_T-DQ1945-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_T-DQ1945-2-05JUL2022.jpg</a>		Jul 5, 2022
<b>Disk:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_T-DQ1945-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_T-DQ1945-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1410 U

NGS Name: 1410 U

County: CLAY, MN (Sheet 1)

NGS ACRN: <a href="#">DQ1942</a>	<a href="#">Get Map</a>
NGS Quad / Sta Num : 46096411/	
USGS Quad: GLYNDON NORTH	

		<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	16	465657.08	963019.71	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 79 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

**Description:** (2014)                      **Stamping:** 1410 U 2014

6.0 MILES NORTHEAST OF GLYNDON, 5.0 MILES NORTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND TRUNK HIGHWAY 10 (THE JUNCTION IS 3.5 MILES EAST OF GLYNDON), AT TRUNK HIGHWAY 9 MILEPOINT 168.75, 66.3 FEET EAST OF TRUNK HIGHWAY 9, 50.8 FEET SOUTH OF 70TH AVENUE NORTH, 1.5 FEET WEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
932.203	.016	2/1				VERTICAL ADJUSTMENT		2019	00000941

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
932.203			844.936	.026	2011	HORIZONTAL ADJUSTMENT		2023	GPS3618
932.203	.131		845.070	.066	1996	GPS - STATIC		2023	HFELT
932.203			844.936	.026	2011	GPS - STATIC		2023	HFELT
932.331	.262		844.903	.197	2011	GPS - RTRN		2014	RTRN2014

Geoid Separations(ft): GEOID18 = -87.441 12B = -87.428 09 = -87.306 03 = -87.287

**Lat/Lon and County Coordinates (Feet)**

<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
46 56 57.08236	96 30 19.71499	548609.755	216484.741	.016		ADJUSTMENT		2023	GPS3618
46 56 57.08236	96 30 19.71499	548609.755	216484.741	.016	C	GPS - STATIC		2023	HFELT
46 56 57.08226	96 30 19.71501	548609.754	216484.730	.131	3	GPS - RTRN		2014	RTRN2014

<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
46 56 57.08205	96 30 19.71556	548609.716	216484.709	.033	C	GPS - STATIC		2023	HFELT

**State Plane and UTM Coordinates (Feet)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Determination Method</u>			<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
2061418.630	1046901.757	765263.437	17078326.521	.016		ADJUSTMENT		2023	GPS3618
2061418.630	1046901.757	765263.437	17078326.521	.016	C	GPS - STATIC		2023	HFELT
2061418.629	1046901.747	765263.435	17078326.511	.131	3	GPS - RTRN		2014	RTRN2014

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Determination Method</u>			<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
2061418.590	1046901.727	765263.396	17078326.492	.033	C	GPS - STATIC		2023	HFELT

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_U-DQ1942-3E-10JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_U-DQ1942-3E-10JUN2014.jpg</a>	E	Jun 10, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_U-DQ1942-2-10JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_U-DQ1942-2-10JUN2014.jpg</a>		Jun 10, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_U-DQ1942-1-10JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_U-DQ1942-1-10JUN2014.jpg</a>		Jun 10, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1410 V

NGS Name: 1410 V

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ1940](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

		<u>Reference</u>		<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>
NW	4	140 N	46 W	465836.81	963002.52	2 C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 79 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: 1410 V 2014

7.0 MILES SOUTH OF FELTON, 7.0 MILES SOUTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 34 IN FELTON, AT TRUNK HIGHWAY 9 MILEPOINT 170.70, 73.0 FEET EAST OF TRUNK HIGHWAY 9, 140.0 FEET SOUTH OF COUNTY ROAD 26 (90TH AVENUE NORTH), 24.0 FEET NORTH OF A FIELD ENTRANCE, 1.5 FEET WEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
930.415	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
930.415				843.279	.026	2011	HORIZONTAL ADJUSTMENT	2023	GPS3618	
930.415	.131			843.414	.066	1996	GPS - STATIC	2023	HFELT	
930.415				843.279	.026	2011	GPS - STATIC	2023	HFELT	
930.638	.262			843.348	.197	2011	GPS - OPUS	2021	GPSBM	
930.684	.262			843.394	.197	2011	GPS - OPUS	2021	GPSBM	
930.543	.262			843.253	.197	2011	GPS - RTRN	2021	RTRN2021	
930.592	.262			843.286	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.290 12B = -87.303 09 = -87.165 03 = -87.136

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>							
46 58 36.80975	96 30 02.52258	549776.907	226591.978	.016		ADJUSTMENT	2023	GPS3618
46 58 36.80975	96 30 02.52258	549776.907	226591.978	.016	C	GPS - STATIC	2023	HFELT
46 58 36.80947	96 30 02.52274	549776.896	226591.949	.131	3	GPS - OPUS	2021	GPSBM
46 58 36.80980	96 30 02.52281	549776.891	226591.983	.131	3	GPS - OPUS	2021	GPSBM
46 58 36.80995	96 30 02.52244	549776.917	226591.998	.131	3	GPS - RTRN	2021	RTRN2021
46 58 36.80967	96 30 02.52120	549777.003	226591.970	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>							
46 58 36.80943	96 30 02.52315	549776.868	226591.945	.033	C	GPS - STATIC	2023	HFELT

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2062897.979	1056967.360	766907.138	17088371.655	.016		ADJUSTMENT	2023	GPS3618
2062897.979	1056967.360	766907.138	17088371.655	.016	C	GPS - STATIC	2023	HFELT
2062897.967	1056967.332	766907.126	17088371.627	.131	3	GPS - OPUS	2021	GPSBM
2062897.963	1056967.366	766907.122	17088371.661	.131	3	GPS - OPUS	2021	GPSBM
2062897.989	1056967.380	766907.149	17088371.675	.131	3	GPS - RTRN	2021	RTRN2021
2062898.075	1056967.349	766907.233	17088371.643	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2062897.939	1056967.329	766907.097	17088371.624	.033	C	GPS - STATIC	2023	HFELT

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_V-DQ1940-3E-13JUL2021.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_V-DQ1940-3E-13JUL2021.jpg</a>	E	Jul 13, 2021
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_V-DQ1940-2-13JUL2021.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_V-DQ1940-2-13JUL2021.jpg</a>		Jul 13, 2021
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_V-DQ1940-1-13JUL2021.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_V-DQ1940-1-13JUL2021.jpg</a>		Jul 13, 2021

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1410 W  
County: CLAY, MN (Sheet 1)

NGS Name: 1410 W

NGS ACRN: [DQ1938](#) [Get Map](#)  
NGS Quad / Sta Num : 46096411/  
USGS Quad: GLYNDON NORTH

1/4	Sec	Twp	Rng	Reference	Reference	Vert	Horz
				Latitude	Longitude	Order	Order
NE	33	141 N	46 W	465903.55	963002.68	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 1 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 85 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      **Stamping:** 1410 W 2014

6.5 MILES SOUTH OF FELTON, 6.5 MILES SOUTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 34 IN FELTON, AT TRUNK HIGHWAY 9 MILEPOINT 171.25, 40.6 FEET WEST OF TRUNK HIGHWAY 9, 22.5 FEET SOUTH OF DRIVEWAY NUMBER 9491, 1.5 FEET EAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
930.582	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
930.582			843.535	.022	2011	HORIZONTAL ADJUSTMENT	2023	GPS3618
930.582	.131		843.666	.066	1996	GPS - STATIC	2023	HFELT
930.582			843.535	.022	2011	GPS - STATIC	2023	HFELT
930.720	.262		843.450	.197	2011	GPS - RTRN	2014	RTRN2014

Geoid Separations(ft): GEOID18 = -87.254 12B = -87.270 09 = -87.126 03 = -87.093

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 59 03.55138	96 30 02.68371	549758.845	229301.382	.013		ADJUSTMENT	2023	GPS3618
46 59 03.55138	96 30 02.68371	549758.845	229301.382	.013	C	GPS - STATIC	2023	HFELT
46 59 03.55123	96 30 02.68381	549758.837	229301.367	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(1996)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 59 03.55106	96 30 02.68426	549758.807	229301.350	.033	C	GPS - STATIC	2023	HFELT

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone		X	Y	Acc	Order	Determination Method	Year	Reference
		767017.086	17091080.036	.013		ADJUSTMENT	2023	GPS3618
2062963.789	1059675.856	767017.086	17091080.036	.013	C	GPS - STATIC	2023	HFELT
2062963.782	1059675.842	767017.079	17091080.021	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(1996)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone		X	Y	Acc	Order	Determination Method	Year	Reference
2062963.750	1059675.825	767017.047	17091080.005	.033	C	GPS - STATIC	2023	HFELT

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_W-DQ1938-3W-10JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_W-DQ1938-3W-10JUN2014.jpg</a>	W	Jun 10, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_W-DQ1938-2-10JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_W-DQ1938-2-10JUN2014.jpg</a>		Jun 10, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_W-DQ1938-1-10JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_W-DQ1938-1-10JUN2014.jpg</a>		Jun 10, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1410 X  
 County: CLAY, MN (Sheet 1)

NGS Name: 1410 X

NGS ACRN: <a href="#">DQ1936</a>	<a href="#">Get Map</a>
NGS Quad / Sta Num : 47096322/	
USGS Quad: FELTON	

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	21	141 N	46 W	470113.46	963001.03	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 69 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: 1410 X 2014

4.0 MILES SOUTH OF FELTON, 4.0 MILES SOUTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 34 IN FELTON, AT TRUNK HIGHWAY 9 MILEPOINT 173.70, 73.4 FEET WEST OF TRUNK HIGHWAY 9, 85.9 FEET SOUTH OF 120TH AVENUE NORTH, 37.0 FEET NORTH OF A FIELD ENTRANCE, 1.5 FEET EAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
924.372	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
924.372			837.429	.023	2011	HORIZONTAL ADJUSTMENT	2023	GPS3618	
924.372	.131		837.561	.066	1996	GPS - STATIC	2023	HFELT	
924.372			837.429	.023	2011	GPS - STATIC	2023	HFELT	
924.614	.262		837.459	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.142 12B = -87.152 09 = -87.018 03 = -86.998

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>			<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 01 13.45679	96 30 01.03313		549839.736	242463.601	.016		ADJUSTMENT	2023	GPS3618
47 01 13.45679	96 30 01.03313		549839.736	242463.601	.016	C	GPS - STATIC	2023	HFELT
47 01 13.45698	96 30 01.03267		549839.767	242463.620	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>			<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 01 13.45646	96 30 01.03370		549839.696	242463.567	.033	C	GPS - STATIC	2023	HFELT

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
		767719.955	17104229.289	.016		ADJUSTMENT	2023	GPS3618
2063452.054	1072828.498	767719.955	17104229.289	.016	C	GPS - STATIC	2023	HFELT
2063452.087	1072828.516	767719.988	17104229.306	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2063452.014	1072828.465	767719.914	17104229.257	.033	C	GPS - STATIC	2023	HFELT

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_X-DQ1936-3W-10JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_X-DQ1936-3W-10JUN2014.jpg</a>	W	Jun 10, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_X-DQ1936-2-10JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_X-DQ1936-2-10JUN2014.jpg</a>		Jun 10, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_X-DQ1936-1-10JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_X-DQ1936-1-10JUN2014.jpg</a>		Jun 10, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1410 Y  
 County: CLAY, MN (Sheet 1)

NGS Name: 1410 Y

NGS ACRN: [DQ1935](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/  
 USGS Quad: FELTON

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	16	141 N	46 W	470159.02	963000.89	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 94 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: 1410 Y 2014

3.15 MILES SOUTH OF FELTON, 3.15 MILES SOUTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 34 IN FELTON, AT TRUNK HIGHWAY 9 MILEPOINT 174.54, 82.8 FEET WEST OF TRUNK HIGHWAY 9, 30.0 FEET NORTH OF 130TH AVENUE NORTH, 1.5 FEET EAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>		<u>Year</u>	<u>Reference</u>	
922.410	.016	2/1				VERTICAL ADJUSTMENT		2019	00000941	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>		<u>Year</u>	<u>Reference</u>	
922.410			835.458	.023	2011	HORIZONTAL ADJUSTMENT		2023	GPS3618	
922.410	.131		835.589	.066	1996	GPS - STATIC		2023	HFELT	
922.410			835.458	.023	2011	GPS - STATIC		2023	HFELT	
922.646	.262		835.520	.197	2011	GPS - RTRN		2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.119 12B = -87.126 09 = -86.998 03 = -86.981

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 01 59.01613	96 30 00.89333	549837.647	247079.686	.013		ADJUSTMENT	2023	GPS3618
47 01 59.01613	96 30 00.89333	549837.647	247079.686	.013	C	GPS - STATIC	2023	HFELT
47 01 59.01586	96 30 00.89339	549837.643	247079.659	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 01 59.01580	96 30 00.89390	549837.608	247079.652	.033	C	GPS - STATIC	2023	HFELT

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>				
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2063592.857	1077442.190	767936.107	17108842.258	.013		ADJUSTMENT	2023	GPS3618		
2063592.857	1077442.190	767936.107	17108842.258	.013	C	GPS - STATIC	2023	HFELT		
2063592.852	1077442.163	767936.101	17108842.231	.131	3	GPS - RTRN	2014	RTRN2014		

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>				
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2063592.817	1077442.158	767936.066	17108842.226	.033	C	GPS - STATIC	2023	HFELT		

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_Y-DQ1935-3W-11JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_Y-DQ1935-3W-11JUN2014.jpg</a>	W	Jun 11, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_Y-DQ1935-2-11JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_Y-DQ1935-2-11JUN2014.jpg</a>		Jun 11, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_Y-DQ1935-1-11JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_Y-DQ1935-1-11JUN2014.jpg</a>		Jun 11, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1410 Z

NGS Name: 1410 Z

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ1933](#) [Get Map](#)  
NGS Quad / Sta Num : 47096322/  
USGS Quad: FELTON

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	4	141 N	46 W	470350.24	963003.81	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 79 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014) Stamping: 1410 Z 2014

1.0 MILE SOUTH OF FELTON, 1.0 MILE SOUTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 34 IN FELTON, AT TRUNK HIGHWAY 9 MILEPOINT 176.7, 77.1 FEET WEST OF TRUNK HIGHWAY 9, 17.0 FEET SOUTH OF A FIELD ENTRANCE, 1.5 FEET EAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>		<u>Year</u>	<u>Reference</u>	
916.507	.016	2/1				VERTICAL ADJUSTMENT		2019	00000941	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>		<u>Year</u>	<u>Reference</u>	
916.507			829.605	.023	2011	HORIZONTAL ADJUSTMENT		2023	GPS3618	
916.507	.131		829.736	.066	1996	GPS - STATIC		2023	HFELT	
916.507			829.605	.023	2011	GPS - STATIC		2023	HFELT	
916.622	.262		829.523	.197	2011	GPS - RTRN		2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.086 12B = -87.100 09 = -86.972 03 = -86.952

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 03 50.24150	96 30 03.81454	549606.645	258348.540	.013		ADJUSTMENT	2023	GPS3618
47 03 50.24150	96 30 03.81454	549606.645	258348.540	.013	C	GPS - STATIC	2023	HFELT
47 03 50.24149	96 30 03.81520	549606.599	258348.539	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 03 50.24118	96 30 03.81511	549606.606	258348.508	.033	C	GPS - STATIC	2023	HFELT

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>				
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2063710.813	1088712.248	768238.219	17120114.175	.013		ADJUSTMENT			2023	GPS3618
2063710.813	1088712.248	768238.219	17120114.175	.013	C	GPS - STATIC			2023	HFELT
2063710.767	1088712.249	768238.173	17120114.176	.131	3	GPS - RTRN			2014	RTRN2014

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>				
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2063710.773	1088712.217	768238.178	17120114.144	.033	C	GPS - STATIC			2023	HFELT

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_Z-DQ1933-3W-11JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_Z-DQ1933-3W-11JUN2014.jpg</a>	W	Jun 11, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_Z-DQ1933-2-11JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_Z-DQ1933-2-11JUN2014.jpg</a>		Jun 11, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_Z-DQ1933-1-11JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1410_Z-DQ1933-1-11JUN2014.jpg</a>		Jun 11, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1411

NGS Name: 1411

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

	<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
<u>1/4</u> <u>Sec</u> <u>Twp</u> <u>Rng</u>	465836.00	963001.00		
NW 4 140 N 46 W				

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1947	2014	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE ABUTMENT	BENCH MARK DISK	USGS

Description: (2007)                      Stamping: 1411 1917

13.4 MILES NORTHEAST OF MOORHEAD, ON THE SOUTHEAST HEADWALL OF A CONCRETE CULVERT, 11.3 MILES EAST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND TRUNK HIGHWAY 75 IN MOORHEAD, THEN 6.9 MILES NORTH ON TRUNK HIGHWAY 9, 75.0 FEET SOUTH OF COUNTY ROAD 26, 17.0 FEET EAST TRUNK HIGHWAY 9.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.293    12B = -87.306    09 = -87.168    03 = -87.139



Mn/DOT Name: 1413 A

NGS Name: 1413 A

County: CLAY, MN (Sheet 1)

NGS ACRN: [DF8016](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096441/  
 USGS Quad: FARGO NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	8	139 N	48 W	465230.74	964630.05	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2000	2022	GOOD	Horz=YES Vert=YES	YES	5270	FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STRUCTURE (MASSIVE)	SURVEY DISK	MNDT

**Description:** (2001)                      **Stamping:** 1413 A 2000

IN THE WEST EDGE OF MOORHEAD, IN BRIDGE NUMBER 5270 WING WALL AT THE NORTHEAST CORNER OF CENTER AVENUE BRIDGE OVER THE RED RIVER, 0.3 MILE WEST ALONG TRUNK HIGHWAY 10 (MAIN AVENUE) FROM THE JUNCTION OF TRUNK HIGHWAY 10 (MAIN AVENUE) AND 499.0 FEET NORTH ALONG 4TH STREET SOUTH, 102.0 FEET WEST ALONG CENTER AVENUE, 49.0 FEET NORTH OF CENTER AVENUE, 25.7 FEET WEST-NORTHWEST OF A LIGHT STANDARD.

**Station Notes**

THE DISK WAS SET IN THE BRIDGE WHEN BUILT IN 1994 THEN STAMPED WHEN USED IN 2000.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
904.230	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941	
904.506	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699	
904.506	.016	2/1				VERTICAL CONTROL SURVEY	2010	VCOMS	
904.559	.016	2/1				VERTICAL ADJUSTMENT	2004	00000425-2	
904.572	.016	2/1				VERTICAL CONTROL SURVEY	2002	VMOOR	

Geoid Separations(ft): GEOID18 = -86.913    12B = -86.903    09 = -86.785    03 = -86.729

\* No Horizontal Positions in the Database \*

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1413_A-DF8016-3W-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1413_A-DF8016-3W-14JUN2022.jpg</a>	W	Jun 14, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1413_A-DF8016-2-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1413_A-DF8016-2-14JUN2022.jpg</a>		Jun 14, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1413_A-DF8016-1-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1413_A-DF8016-1-14JUN2022.jpg</a>		Jun 14, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1413 B

NGS Name: 1413 B

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM7598](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	8	139 N	48 W	465225.27	964631.44	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2003	2022	GOOD	Horz=NO Vert=NO	YES	14012	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE ABUTMENT	SURVEY DISK	MNDT

Description: (2003)                      Stamping: 1413 B 2009

IN MOORHEAD, IN THE ABUTMENT AT THE SOUTHEAST CORNER OF THE MAIN AVENUE BRIDGE OVER 3RD STREET SOUTH, 0.4 MILE WEST ALONG TRUNK HIGHWAY 10 (MAIN AVENUE) FROM THE JUNCTION OF TRUNK HIGHWAY 10 (MAIN AVENUE) AND 8TH STREET SOUTH IN MOORHEAD.

Station Notes

THE DISK WAS SET IN THE BRIDGE WHEN BUILT IN 2003 THEN STAMPED WHEN USED IN 2009.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Orthometric Height</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order</u>	<u>(/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>						
910.303	.016	2/1					2019	00000941						
910.572	.016	2/1					2011	00000699						
910.572	.016	2/1					2010	VCOMS						

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Orthometric Height</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order</u>	<u>(/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>						
910.576	.262			823.656	.197	2011	2022	RTRN2022						

Geoid Separations(ft): GEOID18 = -86.916    12B = -86.906    09 = -86.791    03 = -86.732

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Geodetic Position</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>							
46 52 25.27447	96 46 31.44385	481162.903	188894.566	.131	3	2022	RTRN2022							

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>				<u>MN State Plane - Central Zone</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>							
1993155.555	1021413.128	696555.895	17053936.539	.131	3	2022	RTRN2022							

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1413_B-DM7598-3W-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1413_B-DM7598-3W-14JUN2022.jpg</a>	W	Jun 14, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1413_B-DM7598-2-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1413_B-DM7598-2-14JUN2022.jpg</a>		Jun 14, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1413_B-DM7598-1-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1413_B-DM7598-1-14JUN2022.jpg</a>		Jun 14, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1414 A

NGS Name: 1414 A

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM4272](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

		<u>Reference</u>		<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>
NW	17	139 N	47 W	465143.00	963842.00	2 C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2000	2009	DESTROYED	Horz=NO Vert=NO	NO			MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 145 FT)	SURVEY DISK	MNDT

Description: (2000)                      Stamping: 1414 A 2000

5.7 MILES NORTH-NORTHEAST OF SABIN, 1.0 MILE SOUTH ALONG TRUNK HIGHWAY 336 FROM THE JUNCTION OF TRUNK HIGHWAY 336 AND TRUNK HIGHWAY 10 IN WATTS, THEN 0.35 MILE EAST ON 12TH AVENUE SOUTH, 19.0 FEET SOUTH OF 12TH AVENUE SOUTH, 20.0 FEET WEST OF AN ENTRANCE, 11.0 FEET NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
924.755	.016	2/1					VERTICAL ADJUSTMENT	2011	00000685		
924.759	.016	2/1					VERTICAL CONTROL SURVEY	2002	VMORE		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
				837.728	.066	1996	GPS - STATIC	2001	DIST 4		

Geoid Separations(ft): GEOID18 = -87.313    12B = -87.323    09 = -87.172    03 = -87.123

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(1996)</u>				<u>Geodetic Position</u>				<u>Clay County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>					
46 51 44.23028	96 38 41.98438	513783.579	184731.855	.033	C	GPS - STATIC	2001	DIST 4					

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(1996)</u>				<u>MN State Plane - Central Zone</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>					
2025629.288	1016243.984	728961.477	17048237.629	.033	C	GPS - STATIC	2001	DIST 4					



Mn/DOT Name: 1414 A RESET

NGS Name: 1414 A RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM1821](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	17	139 N	47 W	465144.23	963841.98	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2009	2022	DESTROYED	Horz=NO Vert=NO	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 145 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: 1414 A RESET 2009

2.0 MILES SOUTHEAST OF DILWORTH, 1.0 MILE SOUTH ALONG TRUNK HIGHWAY 336 FROM THE JUNCTION OF TRUNK HIGHWAY 336 AND TRUNK HIGHWAY 10 (THE JUNCTION IS 2.0 MILES EAST OF DILWORTH), TO TRUNK HIGHWAY 336 MILEPOINT 1.25, THEN 0.35 MILE EAST ON 12TH AVENUE SOUTH, 19.0 FEET SOUTH OF 12TH AVENUE SOUTH, 20.0 FEET WEST OF AN ENTRANCE, 11.0 FEET NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
924.375	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
924.657	.016	2/1					VERTICAL ADJUSTMENT	2011	00000699	
924.641	.016	2/1					VERTICAL CONTROL SURVEY	2010	VCOMS	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
924.575	.262			837.252	.197	2011	GPS - RTRN	2014	RTRN2014	
				837.318	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
924.637	.131			837.387	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2690	
924.637	.131			837.367	.066	1996	GPS - STATIC	2010	HCOMS	
924.637	.131			837.387	.066	2007	GPS - STATIC	2010	HCOMS	

Geoid Separations(ft): GEOID18 = -87.310 12B = -87.323 09 = -87.172 03 = -87.123

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 51 44.23105	96 38 41.98320			513783.661	184731.934	.131	3	GPS - RTRN	2014	RTRN2014
46 51 44.23074	96 38 41.98318			513783.662	184731.902	.007		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 51 44.23091	96 38 41.98430			513783.585	184731.919	.033	C	ADJUSTMENT	2011	GPS2690
46 51 44.23091	96 38 41.98430			513783.585	184731.919	.033	C	GPS - STATIC	2010	HCOMS

<u>NAD83(1996)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 51 44.23045	96 38 41.98413			513783.596	184731.873	.033	C	GPS - STATIC	2010	HCOMS



**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2025629.372	1016244.059	728961.562	17048237.703	.131	3	GPS - RTRN	2014	RTRN2014
2025629.373	1016244.028	728961.562	17048237.672	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2025629.296	1016244.047	728961.485	17048237.692	.033	C	ADJUSTMENT	2011	GPS2690
2025629.296	1016244.047	728961.485	17048237.692	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2025629.306	1016244.000	728961.495	17048237.645	.033	C	GPS - STATIC	2010	HCOMS

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1414_A_RESET-DM1821-3S-28MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1414_A_RESET-DM1821-3S-28MAY2014.jpg</a>	S	May 28, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1414_A_RESET-DM1821-2-28MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1414_A_RESET-DM1821-2-28MAY2014.jpg</a>		May 28, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1414_A_RESET-DM1821-1-28MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1414_A_RESET-DM1821-1-28MAY2014.jpg</a>		May 28, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1414 B

NGS Name: 1414 B

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM4273](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	17	139 N	47 W	465052.94	963836.03	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2000	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 10 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 110 FT)	SURVEY DISK	MNDT

Description: (2000)                      Stamping: 1414 B 2000

4.8 MILES NORTH-NORTHEAST OF SABIN, 2.0 MILES SOUTH ALONG TRUNK HIGHWAY 336 FROM THE JUNCTION OF TRUNK HIGHWAY 336 AND TRUNK HIGHWAY 10 IN WATTS, THEN 0.4 MILE EAST ON COUNTY ROAD 79, 68.0 FEET NORTH OF COUNTY ROAD 79, 27.0 FEET WEST OF AN ENTRANCE, 7.4 FEET EAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
923.272	.016	2/1				VERTICAL ADJUSTMENT	2024	0000941-3		
923.272	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA		
923.272	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941		
923.440	.016	2/1				VERTICAL ADJUSTMENT	2011	00000685		
923.469	.016	2/1				VERTICAL CONTROL SURVEY	2008	VCL94		
923.469	.016	2/1				VERTICAL CONTROL SURVEY	2002	VMORE		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
923.272			836.166	.020	2011	HORIZONTAL ADJUSTMENT	2024	GPS3715		
923.272			836.166	.020	2011	GPS - STATIC	2024	HMOFA2		
923.272	.131		836.271	.066	1996	GPS - STATIC	2024	HMOFA2		
923.532	.262		836.179	.197	2011	GPS - RTRN	2022	RTRN2022		

Geoid Separations(ft): GEOID18 = -87.352    12B = -87.365    09 = -87.214    03 = -87.155

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 50 52.94009	96 38 36.03126			514201.035	179535.595	.013		ADJUSTMENT	2024	GPS3715
46 50 52.94009	96 38 36.03126			514201.035	179535.595	.013	C	GPS - STATIC	2024	HMOFA2
46 50 52.94050	96 38 36.03135			514201.029	179535.637	.131	3	GPS - RTRN	2022	RTRN2022

<u>NAD83(1996)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 50 52.93992	96 38 36.03206			514200.979	179535.578	.033	C	GPS - STATIC	2024	HMOFA2

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2025885.784	1011037.725			729133.659	17043024.848	.013		ADJUSTMENT	2024	GPS3715
2025885.784	1011037.725			729133.659	17043024.848	.013	C	GPS - STATIC	2024	HMOFA2
2025885.779	1011037.767			729133.655	17043024.889	.131	3	GPS - RTRN	2022	RTRN2022

<u>NAD83(1996)</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2025885.728	1011037.709			729133.603	17043024.833	.033	C	GPS - STATIC	2024	HMOFA2



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1414_B-DM4273-3N-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1414_B-DM4273-3N-05JUL2022.jpg</a>	N	Jul 5, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1414_B-DM4273-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1414_B-DM4273-2-05JUL2022.jpg</a>		Jul 5, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1414_B-DM4273-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1414_B-DM4273-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1414 C

NGS Name: 1414 C

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM1822](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	19	139 N	47 W	465021.69	963918.71	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2000	2022	GOOD	Horz=NO Vert=NO	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 60 FT)	SURVEY DISK	MNDT

**Description:** (2000)                      **Stamping:** 1414 C 2000

4.6 MILES EAST-SOUTHEAST OF MOORHEAD, 0.4 MILE SOUTH ALONG COUNTY ROAD 11 FROM THE JUNCTION OF COUNTY ROAD 11 AND INTERSTATE HIGHWAY 94 IN MOORHEAD, THEN 0.15 MILE SOUTHWEST ALONG AIRPORT ENTRANCE ROAD, 61.8 FEET WEST OF AIRPORT ENTRANCE ROAD, 100.7 FEET NORTH OF THE NORTH CORNER OF A WEATHER TOWER.

**Station Notes**

THE SURVEY MARK IS ON AIRPORT PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE. THE AIRPORT MANAGER REQUESTED THAT THERE BE NO WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>							<u>Project Info</u>	
<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			
915.782	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941
916.071	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699
915.936	.016	2/1				VERTICAL ADJUSTMENT	2011	00000685
916.055	.016	2/1				VERTICAL CONTROL SURVEY	2010	VCOMS
915.969	.016	2/1				VERTICAL CONTROL SURVEY	2008	VCL94
915.969	.016	2/1				VERTICAL CONTROL SURVEY	2002	VMORE

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>							<u>Project Info</u>	
<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			
915.989	.262		828.653	.197	2011	GPS - RTRN	2022	RTRN2022
			828.735	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
916.041	.131		828.804	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2690
916.041	.131		828.791	.066	1996	GPS - STATIC	2010	HCOMS
916.041	.131		828.804	.066	2007	GPS - STATIC	2010	HCOMS

Geoid Separations(ft): GEOID18 = -87.336 12B = -87.359 09 = -87.208 03 = -87.139

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>			<u>Project Info</u>			
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 50 21.68806	96 39 18.70515			511236.473	176367.332	.131	3	GPS - RTRN	2022	RTRN2022
46 50 21.68766	96 39 18.70447			511236.520	176367.291	.007		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>				<u>Clay County</u>			<u>Project Info</u>			
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 50 21.68784	96 39 18.70560			511236.441	176367.309	.033	C	ADJUSTMENT	2011	GPS2690
46 50 21.68784	96 39 18.70560			511236.441	176367.309	.033	C	GPS - STATIC	2010	HCOMS

<u>NAD83(1996)</u>				<u>Clay County</u>			<u>Project Info</u>			
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 50 21.68738	96 39 18.70540			511236.456	176367.263	.033	C	GPS - STATIC	2010	HCOMS



**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2022824.894	1007962.939	726021.525	17039998.264	.131	3	GPS - RTRN	2022	RTRN2022
2022824.940	1007962.897	726021.570	17039998.222	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2022824.862	1007962.917	726021.493	17039998.244	.033	C	ADJUSTMENT	2011	GPS2690
2022824.862	1007962.917	726021.493	17039998.244	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2022824.875	1007962.870	726021.504	17039998.197	.033	C	GPS - STATIC	2010	HCOMS

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1414_C-DM1822-3S-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1414_C-DM1822-3S-05JUL2022.jpg</a>	S	Jul 5, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1414_C-DM1822-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1414_C-DM1822-2-05JUL2022.jpg</a>		Jul 5, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1414_C-DM1822-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1414_C-DM1822-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1414 D

NGS Name: 1414 D

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM1823](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	8	139 N	47 W	465144.53	963905.19	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2009	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 70 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2009)                      Stamping: 1414 D 2009

3.2 MILES SOUTHEAST OF DILWORTH, 1.0 MILE SOUTH ALONG TRUNK HIGHWAY 336 FROM THE JUNCTION OF TRUNK HIGHWAY 336 AND TRUNK 10 (THE JUNCTION IS 2.0 MILES EAST OF DILWORTH), AT TRUNK HIGHWAY 336 MILEPOINT 1.25, 81.0 FEET EAST OF NORTHBOUND TRUNK HIGHWAY 336, 26.8 FEET NORTH OF 12TH AVENUE SOUTH, 1.2 FEET SOUTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
923.525	.016	2/1				VERTICAL ADJUSTMENT	2024	00000941-3		
923.525	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA		
923.525	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941		
923.804	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699		
923.791	.016	2/1				VERTICAL CONTROL SURVEY	2010	VCOMS		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
923.525			836.494	.010	2011	HORIZONTAL ADJUSTMENT	2024	GPS3715		
923.525			836.494	.010	2011	GPS - STATIC	2024	HMOFA2		
923.525	.131		836.547	.066	1996	GPS - STATIC	2024	HMOFA2		
923.824	.262		836.530	.197	2011	GPS - RTRN	2022	RTRN2022		
923.706	.262		836.403	.197	2011	GPS - RTRN	2014	RTRN2014		
			836.494	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800		
923.784	.131		836.563	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2690		
923.784	.131		836.547	.066	1996	GPS - STATIC	2010	HCOMS		
923.784	.131		836.563	.066	2007	GPS - STATIC	2010	HCOMS		

Geoid Separations(ft): GEOID18 = -87.293 12B = -87.303 09 = -87.155 03 = -87.103

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 51 44.53031	96 39 05.18500	512171.254	184761.191	.007		ADJUSTMENT	2024	GPS3715
46 51 44.53031	96 39 05.18500	512171.254	184761.191	.007	C	GPS - STATIC	2024	HMOFA2
46 51 44.53042	96 39 05.18548	512171.220	184761.201	.131	3	GPS - RTRN	2022	RTRN2022
46 51 44.53048	96 39 05.18523	512171.238	184761.208	.131	3	GPS - RTRN	2014	RTRN2014
46 51 44.53031	96 39 05.18500	512171.254	184761.191	.007		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 51 44.53049	96 39 05.18613	512171.175	184761.209	.033	C	ADJUSTMENT	2011	GPS2690
46 51 44.53049	96 39 05.18613	512171.175	184761.209	.033	C	GPS - STATIC	2010	HCOMS

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 51 44.53002	96 39 05.18594	512171.188	184761.161	.033	C	GPS - STATIC	2024	HMOFA2
46 51 44.53002	96 39 05.18594	512171.188	184761.161	.033	C	GPS - STATIC	2010	HCOMS

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2024018.772	1016323.172	727351.514	17048342.981	.007		ADJUSTMENT	2024	GPS3715
2024018.772	1016323.172	727351.514	17048342.981	.007	C	GPS - STATIC	2024	HMOFA2
2024018.739	1016323.185	727351.481	17048342.994	.131	3	GPS - RTRN	2022	RTRN2022
2024018.757	1016323.190	727351.499	17048342.999	.131	3	GPS - RTRN	2014	RTRN2014
2024018.772	1016323.172	727351.514	17048342.981	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2024018.694	1016323.193	727351.436	17048343.003	.033	C	ADJUSTMENT	2011	GPS2690
2024018.694	1016323.193	727351.436	17048343.003	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2024018.706	1016323.145	727351.447	17048342.955	.033	C	GPS - STATIC	2024	HMOFA2
2024018.706	1016323.145	727351.447	17048342.955	.033	C	GPS - STATIC	2010	HCOMS

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1414_D-DM1823-3E-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1414_D-DM1823-3E-05JUL2022.jpg</a>	E	Jul 5, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1414_D-DM1823-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1414_D-DM1823-2-05JUL2022.jpg</a>		Jul 5, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1414_D-DM1823-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1414_D-DM1823-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1414 E

NGS Name: 1414 E

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM7606](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	8	139 N	47 W	465225.01	963858.40	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2002	2014	GOOD	Horz=NO Vert=NO	YES	14010	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE RAILING	SURVEY DISK	MNDT

**Description:** (2014)                      **Stamping:** 1414 E 2002

2.5 MILES EAST OF DILWORTH, IN A BRIDGE RAILING IN THE SOUTHEAST CORNER OF TRUNK HIGHWAY 336 BRIDGE NUMBER 14010 OVER THE RAILROAD TRACKS, 0.18 MILE SOUTH ALONG TRUNK HIGHWAY 336 FROM THE JUNCTION OF TRUNK HIGHWAY 336 AND TRUNK HIGHWAY 10, (THE JUNCTION IS 2.0 MILES EAST OF DILWORTH), AT TRUNK HIGHWAY 336 MILEPOINT 2.0, 25.3 FEET EAST OF NORTHBOUND TRUNK HIGHWAY 336.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
956.196	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
956.478	.016	2/1					VERTICAL ADJUSTMENT	2011	00000699	
956.468	.016	2/1					VERTICAL CONTROL SURVEY	2010	VCOMS	

**Geoid Separations(ft): GEOID18 = -87.260    12B = -87.267    09 = -87.116    03 = -87.077**

\* No Horizontal Positions in the Database \*

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<b>Location:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1414_E-DM7606-3E-12OCT2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1414_E-DM7606-3E-12OCT2009.jpg</a>	E	Oct 12, 2009
<b>Monument:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1414_E-DM7606-2-12OCT2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1414_E-DM7606-2-12OCT2009.jpg</a>		Oct 12, 2009
<b>Disk:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1414_E-DM7606-1-12OCT2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1414_E-DM7606-1-12OCT2009.jpg</a>		Oct 12, 2009

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1414 F

NGS Name: 1414 F

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM7605](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	8	139 N	47 W	465234.54	963858.34	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2002	2014	GOOD	Horz=NO Vert=NO	YES	14013	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE RAILING	SURVEY DISK	MNDT

**Description:** (2014)                      **Stamping:** 1414 F 2002

2.5 MILES EAST OF DILWORTH, IN A BRIDGE RAILING IN THE SOUTHEAST CORNER OF TRUNK HIGHWAY 336 BRIDGE NUMBER 14013 OVER TRUNK HIGHWAY 10, AT THE JUNCTION OF TRUNK HIGHWAY 336 AND TRUNK HIGHWAY 10 (THE JUNCTION IS 2.0 MILES EAST OF DILWORTH), AT TRUNK HIGHWAY 336 MILEPOINT 2.2, 28.7 FEET EAST OF NORTHBOUND TRUNK HIGHWAY 336.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
952.731	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
953.013	.016	2/1					VERTICAL ADJUSTMENT	2011	00000699	
953.003	.016	2/1					VERTICAL CONTROL SURVEY	2010	VCOMS	

Geoid Separations(ft): GEOID18 = -87.250 12B = -87.257 09 = -87.106 03 = -87.067

\* No Horizontal Positions in the Database \*

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1414_F-DM7605-3E-12OCT2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1414_F-DM7605-3E-12OCT2009.jpg</a>	E	Oct 12, 2009
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1414_F-DM7605-2-12OCT2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1414_F-DM7605-2-12OCT2009.jpg</a>		Oct 12, 2009
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1414_F-DM7605-1-12OCT2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1414_F-DM7605-1-12OCT2009.jpg</a>		Oct 12, 2009

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1414 G  
 County: CLAY, MN (Sheet 1)

NGS Name: 1414 G

NGS ACRN: <a href="#">DR9705</a>	<a href="#">Get Map</a>
NGS Quad / Sta Num : 46096413/	
USGS Quad: SABIN	

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	20	139 N	47 W	465051.60	963906.27	2	C

  

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2022	2023	GOOD	Horz=YES Vert=YES	NO		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 24 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2022)                      Stamping: 1414 G 2022

5.0 MILES EAST OF MOORHEAD, 0.15 MILE NORTH ALONG TRUNK HIGHWAY 336 FROM THE JUNCTION OF TRUNK HIGHWAY 336 AND INTERSTATE HIGHWAY 94 (THE JUNCTION IS 5.0 MILES EAST OF MOORHEAD), AT TRUNK HIGHWAY 336 MILEPOINT 0.15, 46.1 FEET EAST OF NORTHBOUND TRUNK HIGHWAY 336, 204.0 FEET NORTH OF THE EXIT RAMP FROM WESTBOUND INTERSTATE HIGHWAY 94 TO TRUNK HIGHWAY 336, 1.5 FEET WEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
936.340	.016	2/1				2024	0000941-3					
936.340	.016	2/1				2023	VMOFA					

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
936.340			849.280	.020	2011	2024	GPS3715					
936.340			849.280	.020	2011	2024	HMOFA2					
936.340	.131		849.385	.066	1996	2024	HMOFA2					
936.543	.262		849.214	.197	2011	2022	RTRN2022					

Geoid Separations(ft): GEOID18 = -87.329 03 = -87.132

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			
46 50 51.59664	96 39 06.26741	512099.328	179398.078	.013		2024	GPS3715			
46 50 51.59664	96 39 06.26741	512099.328	179398.078	.013	C	2024	HMOFA2			
46 50 51.59663	96 39 06.26729	512099.337	179398.077	.131	3	2022	RTRN2022			

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			
46 50 51.59647	96 39 06.26821	512099.273	179398.060	.033	C	2024	HMOFA2			

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			
2023781.005	1010965.291	727026.744	17042986.504	.013		2024	GPS3715			
2023781.005	1010965.291	727026.744	17042986.504	.013	C	2024	HMOFA2			
2023781.013	1010965.290	727026.752	17042986.502	.131	3	2022	RTRN2022			

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			
2023780.949	1010965.276	727026.687	17042986.489	.033	C	2024	HMOFA2			

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1414_G-DR9705-3E-27JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1414_G-DR9705-3E-27JUL2022.jpg</a>	E	Jul 27, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1414_G-DR9705-2-27JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1414_G-DR9705-2-27JUL2022.jpg</a>		Jul 27, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1414_G-DR9705-1-27JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1414_G-DR9705-1-27JUL2022.jpg</a>		Jul 27, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1480 A

NGS Name: 1480 A

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0424](#) [Get Map](#)  
NGS Quad / Sta Num : 46096442/  
USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	20	139 N	48 W	465048.01	964602.66	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1959	2023	GOOD	Horz=YES Vert=YES	YES		FLUSH	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	BENCH MARK DISK	MNDT

Description: (1959) Stamping: 1480 A 1959

IN MOORHEAD, AT THE JUNCTION OF TRUNK HIGHWAY 75 AND INTERSTATE HIGHWAY 94, 100.0 FEET EAST OF NORTHBOUND TRUNK HIGHWAY 75 BRIDGE OVER INTERSTATE HIGHWAY 94, 100.0 FEET SOUTH OF EASTBOUND INTERSTATE HIGHWAY 94, 1.0 FOOT NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
905.592	.016	2/1				VERTICAL ADJUSTMENT	2024	00000941-3
905.595	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA
905.595	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941
905.822	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699
905.822	.016	2/1				VERTICAL ADJUSTMENT	2011	00000685
905.832	.016	2/1				VERTICAL CONTROL SURVEY	2010	VCOMS
905.832	.016	2/1				VERTICAL ADJUSTMENT	2004	00000425-2
905.828	.016	2/1				VERTICAL CONTROL SURVEY	2002	VMORE
905.838	.016	2/1				VERTICAL CONTROL SURVEY	2002	VMOOR
905.953	.016	2				VERTICAL ADJUSTMENT	1991	00000025

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
905.018	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
905.018	.016	2				VERTICAL CONTROL SURVEY	1972	Q460964
905.018	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A
905.018	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
905.595			818.788	.009	2011	HORIZONTAL ADJUSTMENT	2024	GPS3715
905.595			818.788	.009	2011	GPS - STATIC	2024	HMOFA2
905.595	.131		818.922	.066	1996	GPS - STATIC	2024	HMOFA2
905.959	.262		818.893	.197	2011	GPS - RTRN	2022	RTRN2022
			818.788	.008	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
905.838	.131		818.860	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2690
905.838	.131		818.922	.066	1996	GPS - STATIC	2010	HCOMS
905.838	.131		818.860	.066	2007	GPS - STATIC	2010	HCOMS
905.704	.262		818.844	.197	1996	GPS - RTRN	2009	RTRN2009
			818.860	.022	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
905.838	.131		818.922	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1905
905.838	.131		818.922	.066	1996	GPS - STATIC	2003	HMOOR

Geoid Separations(ft): GEOID18 = -87.067 12B = -87.073 09 = -86.955 03 = -86.863

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 50 48.01140	96 46 02.65760	483154.495	179038.361	.007		ADJUSTMENT	2024	GPS3715
46 50 48.01140	96 46 02.65760	483154.495	179038.361	.007	C	GPS - STATIC	2024	HMOFA2
46 50 48.01131	96 46 02.65902	483154.397	179038.352	.131	3	GPS - RTRN	2022	RTRN2022
46 50 48.01140	96 46 02.65760	483154.495	179038.361	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 50 48.01221	96 46 02.65904	483154.395	179038.443	.033	C	ADJUSTMENT	2011	GPS2690
46 50 48.01221	96 46 02.65904	483154.395	179038.443	.033	C	GPS - STATIC	2010	HCOMS
46 50 48.01221	96 46 02.65904	483154.395	179038.443	.016		ADJUSTMENT	2007	GPS2300

**NAD83(1996)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 50 48.01164	96 46 02.65888	483154.406	179038.386	.033	C	GPS - STATIC	2024	HMOFA2
46 50 48.01164	96 46 02.65888	483154.406	179038.386	.033	C	GPS - STATIC	2010	HCOMS
46 50 48.01244	96 46 02.65798	483154.469	179038.467	.131	3	GPS - RTRN	2009	RTRN2009
46 50 48.01164	96 46 02.65888	483154.406	179038.386	.033	C	ADJUSTMENT	2003	GPS1905
46 50 48.01164	96 46 02.65888	483154.406	179038.386	.033	C	GPS - STATIC	2003	HMOOR

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1994841.307	1011500.866	698081.557	17043991.748	.007		ADJUSTMENT	2024	GPS3715
1994841.307	1011500.866	698081.557	17043991.748	.007	C	GPS - STATIC	2024	HMOFA2
1994841.207	1011500.860	698081.458	17043991.744	.131	3	GPS - RTRN	2022	RTRN2022
1994841.307	1011500.866	698081.557	17043991.748	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1994841.209	1011500.951	698081.460	17043991.835	.033	C	ADJUSTMENT	2011	GPS2690
1994841.209	1011500.951	698081.460	17043991.835	.033	C	GPS - STATIC	2010	HCOMS
1994841.209	1011500.951	698081.460	17043991.835	.016		ADJUSTMENT	2007	GPS2300

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1994841.218	1011500.893	698081.469	17043991.777	.033	C	GPS - STATIC	2024	HMOFA2
1994841.218	1011500.893	698081.469	17043991.777	.033	C	GPS - STATIC	2010	HCOMS
1994841.284	1011500.972	698081.535	17043991.855	.131	3	GPS - RTRN	2009	RTRN2009
1994841.218	1011500.893	698081.469	17043991.777	.033	C	ADJUSTMENT	2003	GPS1905
1994841.218	1011500.893	698081.469	17043991.777	.033	C	GPS - STATIC	2003	HMOOR

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_A-RP0424-3S-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_A-RP0424-3S-05JUL2022.jpg</a>	S	Jul 5, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_A-RP0424-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_A-RP0424-2-05JUL2022.jpg</a>		Jul 5, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_A-RP0424-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_A-RP0424-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1480 AA  
 County: CLAY, MN (Sheet 1)

NGS Name: 1480 AA

NGS ACRN: [RP0081](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

1/4	Sec	Twp	Rng	Reference	Reference	Vert	Horz
				Latitude	Longitude	Order	Order
SW	28	137 N	45 W	463845.65	962253.73	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1968	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 6 IN.	MARKER IS STEEL ROD

Monument Type	Disk Type	Mon. Agency
IRON ROD	METAL ROD	MNDT

Description: (2015)                      **Stamping:** 1480 AA 1968

1.0 MILE SOUTH-SOUTHEAST OF BARNESVILLE, 1.1 MILES SOUTHEAST ALONG INTERSTATE HIGHWAY 94 FROM THE JUNCTION OF INTERSTATE HIGHWAY 94 AND TRUNK HIGHWAY 34 (THE JUNCTION IS 1.0 MILE EAST OF BARNESVILLE), AT INTERSTATE HIGHWAY 94 MILEPOINT 25.72, 95.0 FEET NORTHEAST OF WEST BOUND INTERSTATE HIGHWAY 94, 32.0 FEET SOUTHWEST OF A FRONTAGE ROAD (200TH STREET), 1.0 FOOT NORTHWEST OF A WITNESS POST.

**Station Notes**

THE ROD DEPTH IS UNKNOWN.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

Orthometric Height			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj		Year	Reference	
1066.665	.016	2/1				VERTICAL ADJUSTMENT	2020	00000941-2	
1066.776	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941	
1066.914	.016	2/1				VERTICAL ADJUSTMENT	2017	00000911	
1066.920	.016	2/1				VERTICAL CONTROL SURVEY	2016	VI94D4	
1066.809	.016	2/1				VERTICAL ADJUSTMENT	2009	00000425-35	
1066.789	.016	2/1				VERTICAL CONTROL SURVEY	2006	V THER	
1066.789	.016	2				VERTICAL ADJUSTMENT	1991	00000025	

**NGVD29**

Orthometric Height			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj		Year	Reference	
1065.920	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD	
1065.920	.016	2				VERTICAL CONTROL SURVEY	1972	Q460961	
1065.920	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A	
1065.920	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

Orthometric Height			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj		Year	Reference	
1066.665			979.617	.010	2011	HORIZONTAL ADJUSTMENT	2025	GPS3805	
1066.665	.131		979.759	.066	1996	GPS - STATIC	2025	HTH94A	
1066.665			979.617	.010	2011	GPS - STATIC	2025	HTH94A	
1066.665			979.617	.018	2011	HORIZONTAL ADJUSTMENT	2024	GPS3671	
1066.665	.131		979.759	.066	1996	GPS - STATIC	2023	HTH9	
1066.665			979.617	.018	2011	GPS - STATIC	2023	HTH9	
1066.747	.262		979.601	.197	2011	GPS - RTRN	2023	RTRN2023	
1066.704	.262		979.558	.197	2011	GPS - RTRN	2022	RTRN2022	
1066.697	.262		979.552	.197	2011	GPS - OPUS	2021	GPSBM	
1066.789	.262		979.644	.197	2011	GPS - RTRN	2021	RTRN2021	
1066.792	.262		979.660	.197	2011	GPS - RTRN	2015	RTRN2015	
1066.809			979.617	.027	2011	HORIZONTAL ADJUSTMENT	2014	GPS2750	
1066.809			979.617	.027	2011	GPS - STATIC	2014	HBARN	
1066.796	.131		979.696	.066	2007	GPS - STATIC	2010	HBARN	
1066.809	.131		979.759	.066	1996	GPS - STATIC	2010	HBARN	
			979.827	.066	1996	GPS - STATIC	2001	DIST 4	

Geoid Separations(ft): GEOID18 = -87.145    12B = -87.132    09 = -87.037    03 = -86.988

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 38 45.65054	96 22 53.73151	580000.865	106006.864	.007		ADJUSTMENT	2025	GPS3805
46 38 45.65054	96 22 53.73151	580000.865	106006.864	.007	C	GPS - STATIC	2025	HTH94A
46 38 45.65054	96 22 53.73151	580000.865	106006.864	.010		ADJUSTMENT	2024	GPS3671
46 38 45.65054	96 22 53.73151	580000.865	106006.864	.010	C	GPS - STATIC	2023	HTH9
46 38 45.65036	96 22 53.73122	580000.885	106006.846	.131	3	GPS - RTRN	2023	RTRN2023
46 38 45.65064	96 22 53.73162	580000.857	106006.874	.131	3	GPS - RTRN	2022	RTRN2022
46 38 45.65080	96 22 53.73163	580000.857	106006.890	.131	3	GPS - OPUS	2021	GPSBM
46 38 45.65013	96 22 53.73095	580000.904	106006.823	.131	3	GPS - RTRN	2021	RTRN2021
46 38 45.65045	96 22 53.73096	580000.903	106006.855	.131	3	GPS - RTRN	2015	RTRN2015
46 38 45.65054	96 22 53.73151	580000.865	106006.864	.016		ADJUSTMENT	2014	GPS2750
46 38 45.65054	96 22 53.73151	580000.865	106006.864	.016	C	GPS - STATIC	2014	HBARN

NAD83(2007)

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 38 45.65073	96 22 53.73240	580000.803	106006.883	.033	C	GPS - STATIC	2010	HBARN

NAD83(1996)

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 38 45.65035	96 22 53.73213	580000.822	106006.845	.033	C	GPS - STATIC	2025	HTH94A
46 38 45.65035	96 22 53.73213	580000.822	106006.845	.033	C	GPS - STATIC	2023	HTH9
46 38 45.65035	96 22 53.73213	580000.822	106006.845	.033	C	GPS - STATIC	2010	HBARN
46 38 45.64996	96 22 53.73200	580000.831	106006.806	.033	C	GPS - STATIC	2001	DIST 4

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2089372.578	935515.711	791428.818	16966448.669	.007		ADJUSTMENT	2025	GPS3805
2089372.578	935515.711	791428.818	16966448.669	.007	C	GPS - STATIC	2025	HTH94A
2089372.578	935515.711	791428.818	16966448.669	.010		ADJUSTMENT	2024	GPS3671
2089372.578	935515.711	791428.818	16966448.669	.010	C	GPS - STATIC	2023	HTH9
2089372.598	935515.693	791428.838	16966448.649	.131	3	GPS - RTRN	2023	RTRN2023
2089372.571	935515.722	791428.811	16966448.679	.131	3	GPS - RTRN	2022	RTRN2022
2089372.570	935515.738	791428.811	16966448.695	.131	3	GPS - OPUS	2021	GPSBM
2089372.616	935515.669	791428.856	16966448.625	.131	3	GPS - RTRN	2021	RTRN2021
2089372.616	935515.701	791428.856	16966448.658	.131	3	GPS - RTRN	2015	RTRN2015
2089372.578	935515.711	791428.818	16966448.669	.016		ADJUSTMENT	2014	GPS2750
2089372.578	935515.711	791428.818	16966448.669	.016	C	GPS - STATIC	2014	HBARN

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2089372.516	935515.732	791428.757	16966448.690	.033	C	GPS - STATIC	2010	HBARN

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2089372.534	935515.693	791428.774	16966448.651	.033	C	GPS - STATIC	2025	HTH94A
2089372.534	935515.693	791428.774	16966448.651	.033	C	GPS - STATIC	2023	HTH9
2089372.534	935515.693	791428.774	16966448.651	.033	C	GPS - STATIC	2010	HBARN
2089372.542	935515.654	791428.782	16966448.611	.033	C	GPS - STATIC	2001	DIST 4

Station Photos

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AA-RP0081-3NE-14AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AA-RP0081-3NE-14AUG2023.jpg</a>	NE	Aug 14, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AA-RP0081-2-14AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AA-RP0081-2-14AUG2023.jpg</a>		Aug 14, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AA-RP0081-1-14AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AA-RP0081-1-14AUG2023.jpg</a>		Aug 14, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1480 AB

NGS Name: 1480 AB

County: CLAY, MN (Sheet 1)

NGS ACRN: [DF8000](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	20	139 N	48 W	465050.74	964630.61	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1994	2023	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MAT FOUNDATION (NON-PAVEMENT)	HORIZONTAL CONTROL DISK	MNDT

**Description:** (1994)                      **Stamping:** 1480 AB 1994

IN MOORHEAD, IN THE CONCRETE FOOTING OF A LIGHT POLE, 0.35 MILE WEST ALONG INTERSTATE HIGHWAY 94 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND INTERSTATE HIGHWAY 94 IN MOORHEAD, AT INTERSTATE HIGHWAY 94 MILEPOINT 0.1, 87.0 FEET NORTH OF WESTBOUND INTERSTATE HIGHWAY 94, ABOUT 600.0 FEET EAST OF A RED RIVER BRIDGE, 29.0 FEET NORTHEAST OF THE NORTH END OF A 18.0 INCH DIAMETER CULVERT, 14.1 FEET SOUTH OF A SOUND WALL, 4.0 FEET SOUTHEAST OF A LIGHT POLE, 0.6 FOOT NORTHWEST OF THE SOUTHEAST EDGE OF A CONCRETE FOOTING.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
904.680	.016	2/1				VERTICAL ADJUSTMENT	2024	0000941-3	
904.670	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA	
904.670	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941	
904.903	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699	
904.903	.016	2/1				VERTICAL CONTROL SURVEY	2010	VCOMS	
904.903	.016	2/1				VERTICAL ADJUSTMENT	2004	00000425-2	
904.913	.016	2/1				VERTICAL CONTROL SURVEY	2002	VMOOR	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
904.670			817.869	.012	2011	HORIZONTAL ADJUSTMENT	2024	GPS3715	
904.670			817.869	.012	2011	GPS - STATIC	2024	HMOFA2	
904.670	.131		818.004	.066	1996	GPS - STATIC	2024	HMOFA2	
904.670			817.869	.013	2011	HORIZONTAL ADJUSTMENT	2024	GPS3674	
904.670			817.869	.013	2011	GPS - STATIC	2023	HMOFA3	
904.670	.131		818.004	.066	1996	GPS - STATIC	2023	HMOFA3	
904.893	.262		817.853	.197	2011	GPS - RTRN	2022	RTRN2022	
			817.869	.011	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
904.919	.131		817.938	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2690	
904.887	.131		818.004	.066	1996	GPS - STATIC	2010	HCOMS	
904.887	.131		817.938	.066	2007	GPS - STATIC	2010	HCOMS	
904.782	.262		817.945	.197	1996	GPS - RTRN	2009	RTRN2009	

Geoid Separations(ft): GEOID18 = -87.041    12B = -87.044    09 = -86.932    03 = -86.837

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 50 50.74334	96 46 30.61073	481211.619	179316.916	.010		ADJUSTMENT	2024	GPS3715
46 50 50.74334	96 46 30.61073	481211.619	179316.916	.010	C	GPS - STATIC	2024	HMOFA2
46 50 50.74334	96 46 30.61073	481211.619	179316.916	.010		ADJUSTMENT	2024	GPS3674
46 50 50.74334	96 46 30.61073	481211.619	179316.916	.010	C	GPS - STATIC	2023	HMOFA3
46 50 50.74278	96 46 30.61159	481211.559	179316.859	.131	3	GPS - RTRN	2022	RTRN2022
46 50 50.74334	96 46 30.61073	481211.619	179316.916	.013		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 50 50.74410	96 46 30.61218	481211.518	179316.993	.033	C	ADJUSTMENT	2011	GPS2690
46 50 50.74410	96 46 30.61218	481211.518	179316.993	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 50 50.74355	96 46 30.61201	481211.530	179316.937	.033	C	GPS - STATIC	2024	HMOFA2
46 50 50.74355	96 46 30.61201	481211.530	179316.937	.033	C	GPS - STATIC	2023	HMOFA3
46 50 50.74355	96 46 30.61201	481211.530	179316.937	.033	C	GPS - STATIC	2010	HCOMS
46 50 50.74418	96 46 30.61271	481211.481	179317.001	.131	3	GPS - RTRN	2009	RTRN2009

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1992908.134	1011839.332	696152.867	17044361.765	.010		ADJUSTMENT	2024	GPS3715
1992908.134	1011839.332	696152.867	17044361.765	.010	C	GPS - STATIC	2024	HMOFA2
1992908.134	1011839.332	696152.867	17044361.765	.010		ADJUSTMENT	2024	GPS3674
1992908.134	1011839.332	696152.867	17044361.765	.010	C	GPS - STATIC	2023	HMOFA3
1992908.073	1011839.277	696152.804	17044361.711	.131	3	GPS - RTRN	2022	RTRN2022
1992908.134	1011839.332	696152.867	17044361.765	.013		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1992908.036	1011839.413	696152.770	17044361.847	.033	C	ADJUSTMENT	2011	GPS2690
1992908.036	1011839.413	696152.770	17044361.847	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1992908.046	1011839.357	696152.779	17044361.790	.033	C	GPS - STATIC	2024	HMOFA2
1992908.046	1011839.357	696152.779	17044361.790	.033	C	GPS - STATIC	2023	HMOFA3
1992908.046	1011839.357	696152.779	17044361.790	.033	C	GPS - STATIC	2010	HCOMS
1992907.999	1011839.422	696152.733	17044361.857	.131	3	GPS - RTRN	2009	RTRN2009

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AB-DF8000-3N-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AB-DF8000-3N-05JUL2022.jpg</a>	N	Jul 5, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AB-DF8000-2-16SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AB-DF8000-2-16SEP2009.jpg</a>		Sep 16, 2009
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AB-DF8000-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AB-DF8000-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1480 AC

NGS Name: 1480 AC

County: CLAY, MN (Sheet 1)

NGS ACRN: [DF8015](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	21	139 N	48 W	465048.70	964451.60	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1994	2009	GOOD	Horz=NO Vert=NO	YES	14811	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE RAILING	BENCH MARK DISK	MNDT

**Description:** (2010)                      **Stamping:** 1480 AC 1994

IN MOORHEAD, IN A RAILING AT THE SOUTHEAST CORNER OF 20TH STREET SOUTH BRIDGE NUMBER 14811 OVER INTERSTATE HIGHWAY 94, AT INTERSTATE HIGHWAY 94 MILEPOINT 1.55, 84.5 FEET SOUTH OF EASTBOUND INTERSTATE HIGHWAY 94, 26.9 FEET EAST OF 20TH STREET, 58.6 FEET NORTH-NORTHWEST OF A HIGH TENSION POLE, 0.6 FOOT WEST OF THE EAST EDGE OF A BRIDGE RAILING ABUTMENT.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
918.833	.016	2/1					VERTICAL ADJUSTMENT	2011	00000699	
918.824	.016	2/1					VERTICAL ADJUSTMENT	2011	00000685	
918.840	.016	2/1					VERTICAL CONTROL SURVEY	2010	VCOMS	
918.824	.016	2/1					VERTICAL ADJUSTMENT	2004	00000425-2	
918.827	.016	2/1					VERTICAL CONTROL SURVEY	2002	VMORE	
918.824	.016	2/1					VERTICAL CONTROL SURVEY	2002	VMOOR	

Geoid Separations(ft): GEOID18 = -87.116    12B = -87.129    09 = -87.008    03 = -86.916

\* No Horizontal Positions in the Database \*

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<b>Location:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AC-DF8015-3E-16NOV2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AC-DF8015-3E-16NOV2009.jpg</a>	E	Nov 16, 2009
<b>Monument:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AC-DF8015-2-16NOV2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AC-DF8015-2-16NOV2009.jpg</a>		Nov 16, 2009
<b>Disk:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AC-DF8015-1-16NOV2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AC-DF8015-1-16NOV2009.jpg</a>		Nov 16, 2009

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1480 AD

NGS Name: 1480 AD

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM4274](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	19	139 N	47 W	465047.00	964017.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2000	2008	UNKNOWN	Horz=? Vert=YES	NO			MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE)	SURVEY DISK	MNDT

**Description:** (2000)                      **Stamping:** 1480 AD

3.8 MILES EAST-SOUTHEAST OF MOORHEAD, 0.9 MILE WEST ALONG INTERSTATE HIGHWAY 94 FROM THE JUNCTION OF INTERSTATE HIGHWAY 94 AND TRUNK HIGHWAY 336 IN MOORHEAD, AT INTERSTATE HIGHWAY 94 MILEPOINT 5.2, 69.0 FEET SOUTH OF A SCALE EXIT ROAD, 27.70 FEET NORTH OF A RIGHT-OF-WAY FENCE, 55.1 FEET SOUTH OF A LIGHT POLE, 1.7 FEET NORTH OF A WITNESS POST.

**Station Notes**

1480 AD RESET DATE 4-14-2008, RECOVERED 10-1-2009.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
912.531	.016	2/1				VERTICAL ADJUSTMENT	2011	00000685	
912.570	.016	2/1				VERTICAL CONTROL SURVEY	2002	VMORE	

Geoid Separations(ft): GEOID18 = -87.287    12B = -87.306    09 = -87.162    03 = -87.086

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1480 AD RESET

NGS Name: 1480 AD RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM1824](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	19	139 N	47 W	465047.56	964020.17	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2008	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 45 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

**Description:** (2008)                      **Stamping:** 1480 AD RESET 2008

4.0 MILES EAST OF MOORHEAD, 0.9 MILE WEST ALONG INTERSTATE HIGHWAY 94 FROM THE JUNCTION OF INTERSTATE HIGHWAY 94 AND TRUNK HIGHWAY 336 (THE JUNCTION IS 3.0 MILES EAST OF MOORHEAD), AT INTERSTATE HIGHWAY MILEPOINT 5.20, 69.0 FEET SOUTH OF A SCALE EXIT ROAD, 55.1 FEET SOUTH OF A LIGHT POLE, 27.7 FEET NORTH OF A RIGHT-OF-WAY FENCE, 1.7 FEET NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
912.439	.016	2/1					VERTICAL ADJUSTMENT	2024	0000941-3	
912.439	.016	2/1					VERTICAL CONTROL SURVEY	2023	VMOFA	
912.419	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
912.695	.016	2/1					VERTICAL ADJUSTMENT	2011	00000699	
912.679	.016	2/1					VERTICAL CONTROL SURVEY	2010	VCOMS	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
912.439				825.412	.010	2011	HORIZONTAL ADJUSTMENT	2024	GPS3715	
912.439				825.412	.010	2011	GPS - STATIC	2024	HMOFA2	
912.439	.131			825.461	.066	1996	GPS - STATIC	2024	HMOFA2	
912.688	.262			825.402	.197	2011	GPS - RTRN	2022	RTRN2022	
912.715	.262			825.431	.197	2011	GPS - OPUS	2021	GPSBM	
912.702	.262			825.415	.197	2011	GPS - RTRN	2021	RTRN2021	
				825.412	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
912.662	.131			825.477	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2690	
912.662	.131			825.461	.066	1996	GPS - STATIC	2010	HCOMS	
912.662	.131			825.477	.066	2007	GPS - STATIC	2010	HCOMS	

**Geoid Separations(ft): GEOID18 = -87.283    12B = -87.303    09 = -87.159    03 = -87.086**

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 50 47.55775	96 40 20.16733	506962.470	178986.385	.007		ADJUSTMENT	2024	GPS3715	
46 50 47.55775	96 40 20.16733	506962.470	178986.385	.007	C	GPS - STATIC	2024	HMOFA2	
46 50 47.55793	96 40 20.16773	506962.442	178986.404	.131	3	GPS - RTRN	2022	RTRN2022	
46 50 47.55761	96 40 20.16768	506962.445	178986.371	.131	3	GPS - OPUS	2021	GPSBM	
46 50 47.55744	96 40 20.16782	506962.436	178986.354	.131	3	GPS - RTRN	2021	RTRN2021	
46 50 47.55775	96 40 20.16733	506962.470	178986.385	.007		ADJUSTMENT	2012	GPS2800	

<u>NAD83(2007)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 50 47.55794	96 40 20.16847	506962.390	178986.405	.033	C	ADJUSTMENT	2011	GPS2690	
46 50 47.55794	96 40 20.16847	506962.390	178986.405	.033	C	GPS - STATIC	2010	HCOMS	

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 50 47.55746	96 40 20.16827	506962.404	178986.356	.033	C	GPS - STATIC	2024	HMOFA2	
46 50 47.55746	96 40 20.16827	506962.404	178986.356	.033	C	GPS - STATIC	2010	HCOMS	

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2018634.299	1010712.709	721873.550	17042817.250	.007		ADJUSTMENT	2024	GPS3715
2018634.299	1010712.709	721873.550	17042817.250	.007	C	GPS - STATIC	2024	HMOFA2
2018634.272	1010712.728	721873.523	17042817.269	.131	3	GPS - RTRN	2022	RTRN2022
2018634.274	1010712.696	721873.525	17042817.237	.131	3	GPS - OPUS	2021	GPSBM
2018634.264	1010712.679	721873.515	17042817.220	.131	3	GPS - RTRN	2021	RTRN2021
2018634.299	1010712.709	721873.550	17042817.250	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2018634.221	1010712.731	721873.472	17042817.273	.033	C	ADJUSTMENT	2011	GPS2690
2018634.221	1010712.731	721873.472	17042817.273	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2018634.233	1010712.682	721873.484	17042817.223	.033	C	GPS - STATIC	2024	HMOFA2
2018634.233	1010712.682	721873.484	17042817.223	.033	C	GPS - STATIC	2010	HCOMS

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AD_RESET-DM1824-3S-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AD_RESET-DM1824-3S-05JUL2022.jpg</a>	S	Jul 5, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AD_RESET-DM1824-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AD_RESET-DM1824-2-05JUL2022.jpg</a>		Jul 5, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AD_RESET-DM1824-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AD_RESET-DM1824-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1480 AE

NGS Name: 1480 AE

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM4276](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	21	139 N	48 W	465046.00	964431.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2000	2009	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 60 FT)	SURVEY DISK	MNDT

Description: (2000)                      Stamping: 1480 AE

1.2 MILES SOUTH-SOUTHEAST OF MOORHEAD, 4.2 MILES WEST ALONG INTERSTATE HIGHWAY 94 FROM THE JUNCTION OF INTERSTATE HIGHWAY 94 AND TRUNK HIGHWAY 336 IN MOORHEAD, AT INTERSTATE HIGHWAY 94 MILEPOINT 1.85, 75.0 FEET SOUTH OF EASTBOUND INTERSTATE HIGHWAY 94, 20.0 FEET SOUTHWEST OF THE EAST END OF A CORRUGATED METAL PIPE, 28.5 FEET NORTHWEST OF A WATER MAIN, 36.7 FEET SOUTHEAST OF SOUTHEAST BRACE POST OF A SIGN.

**Station Notes**

THE DISK WAS TURNED IN TO THE OFFICE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
912.219	.016	2/1					VERTICAL ADJUSTMENT	2011	00000685	
912.226	.016	2/1					VERTICAL CONTROL SURVEY	2002	VMORE	

Geoid Separations(ft): GEOID18 = -87.132    12B = -87.145    09 = -87.024    03 = -86.932

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1480 AE RESET

NGS Name: 1480 AE RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM7603](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	21	139 N	48 W	465048.83	964429.06	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2009	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 60 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

**Description:** (2009)                      **Stamping:** 1480 AE RESET 2009

IN MOORHEAD, 4.2 MILES WEST ALONG INTERSTATE HIGHWAY 94 FROM THE JUNCTION OF INTERSTATE HIGHWAY 94 AND TRUNK HIGHWAY 336 IN MOORHEAD, AT INTERSTATE HIGHWAY 94 MILEPOINT 1.85, 75.0 FEET SOUTH OF EASTBOUND INTERSTATE HIGHWAY 94, 20.0 FEET SOUTHWEST OF THE EAST END OF A CORRUGATED METAL PIPE, 28.5 FEET NORTHWEST OF A WATER MAIN VALVE, 23.0 FEET NORTHEAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
911.698	.016	2/1				VERTICAL ADJUSTMENT	2024	0000941-3		
911.701	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA		
911.678	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941		
911.927	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699		
911.921	.016	2/1				VERTICAL CONTROL SURVEY	2010	VCOMS		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
911.701			824.824	.019	2011	HORIZONTAL ADJUSTMENT	2024	GPS3715		
911.701			824.824	.019	2011	GPS - STATIC	2024	HMOFA2		
911.701	.131		824.933	.066	1996	GPS - STATIC	2024	HMOFA2		
911.793	.262		824.664	.197	2011	GPS - RTRN	2022	RTRN2022		
911.963	.262		824.834	.197	2011	GPS - OPUS	2021	GPSBM		
911.947	.262		824.818	.197	2011	GPS - OPUS	2021	GPSBM		
911.917	.262		824.788	.197	2011	GPS - RTRN	2021	RTRN2021		
911.707	.262		824.775	.197	1996	GPS - RTRN	2009	RTRN2009		

Geoid Separations(ft): GEOID18 = -87.129    12B = -87.145    09 = -87.024    03 = -86.932

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 50 48.83394	96 44 29.06016			489660.896	179117.191	.013		ADJUSTMENT	2024	GPS3715
46 50 48.83394	96 44 29.06016			489660.896	179117.191	.013	C	GPS - STATIC	2024	HMOFA2
46 50 48.83408	96 44 29.06038			489660.881	179117.205	.131	3	GPS - RTRN	2022	RTRN2022
46 50 48.83392	96 44 29.06081			489660.851	179117.189	.131	3	GPS - OPUS	2021	GPSBM
46 50 48.83399	96 44 29.06092			489660.843	179117.196	.131	3	GPS - OPUS	2021	GPSBM
46 50 48.83401	96 44 29.06110			489660.831	179117.198	.131	3	GPS - RTRN	2021	RTRN2021

<u>NAD83(1996)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 50 48.83379	96 44 29.06096			489660.840	179117.176	.033	C	GPS - STATIC	2024	HMOFA2
46 50 48.83515	96 44 29.06108			489660.832	179117.314	.131	3	GPS - RTRN	2009	RTRN2009



**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2001346.489	1011378.479	704588.095	17043763.744	.013		ADJUSTMENT	2024	GPS3715
2001346.489	1011378.479	704588.095	17043763.744	.013	C	GPS - STATIC	2024	HMOFA2
2001346.475	1011378.494	704588.081	17043763.759	.131	3	GPS - RTRN	2022	RTRN2022
2001346.444	1011378.479	704588.050	17043763.744	.131	3	GPS - OPUS	2021	GPSBM
2001346.437	1011378.486	704588.043	17043763.752	.131	3	GPS - OPUS	2021	GPSBM
2001346.424	1011378.488	704588.030	17043763.754	.131	3	GPS - RTRN	2021	RTRN2021

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2001346.434	1011378.466	704588.039	17043763.732	.033	C	GPS - STATIC	2024	HMOFA2
2001346.429	1011378.604	704588.037	17043763.870	.131	3	GPS - RTRN	2009	RTRN2009

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<b>Location:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AE_RESET-DM7603-3S-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AE_RESET-DM7603-3S-05JUL2022.jpg</a>	S	Jul 5, 2022
<b>Monument:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AE_RESET-DM7603-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AE_RESET-DM7603-2-05JUL2022.jpg</a>		Jul 5, 2022
<b>Disk:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AE_RESET-DM7603-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AE_RESET-DM7603-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1480 AF  
County: CLAY, MN (Sheet 1)

NGS Name: 1480 AF

NGS ACRN: [DM4275](#) [Get Map](#)  
NGS Quad / Sta Num : 46096413/  
USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	22	139 N	48 W	465051.00	964328.00	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1992	2009	GOOD	Horz=NO Vert=YES	YES	9478	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE ABUTMENT	VERTICAL CONTROL DISK	MNDT

Description: (2005) Stamping: 1480 AF 2000

1.6 MILES SOUTHEAST OF MOORHEAD, IN AN ABUTMENT AT THE SOUTHEAST CORNER OF COUNTY ROAD 52 BRIDGE NUMBER 9478 OVER INTERSTATE HIGHWAY 94 IN MOORHEAD, 3.0 MILES EAST AND SOUTHEAST ALONG INTERSTATE HIGHWAY 94 (MAIN AVENUE) FROM THE JUNCTION OF INTERSTATE HIGHWAY 94 (MAIN AVENUE) AND 8TH STREET SOUTH IN MOORHEAD, AT INTERSTATE HIGHWAY 94 MILEPOINT 2.8.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
913.322	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941
913.578	.016	2/1					VERTICAL ADJUSTMENT	2011	00000699
913.545	.016	2/1					VERTICAL ADJUSTMENT	2011	00000685
913.545	.016	2/1					VERTICAL CONTROL SURVEY	2010	VCOMS
913.545	.016	2/1					VERTICAL CONTROL SURVEY	2002	VMORE

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
913.466	.262			826.494	.197	1996	GPS - RTRN	2009	RTRN2009

Geoid Separations(ft): GEOID18 = -87.175 12B = -87.191 09 = -87.060 03 = -86.972

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(1996)</u>				<u>Clay County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 50 48.85495	96 43 21.36038			494366.977	179117.402	.131	3	GPS - RTRN	2009	RTRN2009

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(1996)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2006049.934	1011233.171			709291.542	17043542.058	.131	3	GPS - RTRN	2009	RTRN2009

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AF-DM4275-3W-16SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AF-DM4275-3W-16SEP2009.jpg</a>	W	Sep 16, 2009
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AF-DM4275-2-16SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AF-DM4275-2-16SEP2009.jpg</a>		Sep 16, 2009
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AF-DM4275-1-16SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AF-DM4275-1-16SEP2009.jpg</a>		Sep 16, 2009

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1480 AG  
County: CLAY, MN (Sheet 1)

NGS Name: 1480 AG

NGS ACRN: [DK7704](#) [Get Map](#)  
NGS Quad / Sta Num : 46096131/  
USGS Quad: BIG SLOUGH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	33	137 N	45 W	463800.26	962200.45	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2005	2023	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 17 FT)	SURVEY DISK	MNDT

Description: (2015) Stamping: 1480 AG 2005

2.5 MILES SOUTHEAST OF BARNESVILLE, 2.2 MILES SOUTHEAST ALONG INTERSTATE HIGHWAY 94 FROM THE JUNCTION OF INTERSTATE HIGHWAY 94 AND TRUNK HIGHWAY 34 (THE JUNCTION IS 1.0 MILE EAST OF BARNESVILLE), AT INTERSTATE HIGHWAY 94 MILEPOINT 26.85, 96.7 FEET NORTHEAST OF WESTBOUND INTERSTATE HIGHWAY 94, 2.2 FEET SOUTHWEST OF A RIGHT-OF-WAY FENCE, 1.3 FEET SOUTHWEST OF A WITNESS POST.

Station Pair: VALENCIA - WILKIN, MN

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1098.915	.016	2/1				VERTICAL ADJUSTMENT	2020	00000941-2
1098.915	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941
1099.040	.016	2/1				VERTICAL ADJUSTMENT	2017	00000911
1099.056	.016	2/1				VERTICAL CONTROL SURVEY	2016	VI94D4
1099.056	.016	2/1				VERTICAL ADJUSTMENT	2009	00000425-35
1099.046	.016	2/1				VERTICAL CONTROL SURVEY	2006	V THER

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1099.037	.262		1011.829	.197	2011	GPS - RTRN	2023	RTRN2023
1099.040	.262		1011.855	.197	2011	GPS - RTRN	2015	RTRN2015

Geoid Separations(ft): GEOID18 = -87.208 12B = -87.185 09 = -87.096 03 = -87.047

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 38 00.25885	96 22 00.44577	583738.196	101423.477	.131	3	GPS - RTRN	2023	RTRN2023
46 38 00.25777	96 22 00.44501	583738.249	101423.368	.131	3	GPS - RTRN	2015	RTRN2015

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2092965.850	930819.404	794948.093	16961693.100	.131	3	GPS - RTRN	2023	RTRN2023
2092965.900	930819.293	794948.142	16961692.988	.131	3	GPS - RTRN	2015	RTRN2015

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AG-DK7704-3NE-14AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AG-DK7704-3NE-14AUG2023.jpg</a>	NE	Aug 14, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AG-DK7704-2-14AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AG-DK7704-2-14AUG2023.jpg</a>		Aug 14, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AG-DK7704-1-14AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AG-DK7704-1-14AUG2023.jpg</a>		Aug 14, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1480 AJ

NGS Name: 1480 AJ

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM4541](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
				<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	21	139 N	47 W	465044.80	963906.60	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2002	2009	GOOD	Horz=YES Vert=YES	YES	14815	FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE RAILING	SURVEY DISK	MNDT

**Description:** (2002)                      **Stamping:** 1480 AJ 2008

3.2 MILES EAST OF MOORHEAD, IN A RAIL IN THE SOUTHEAST CORNER OF TRUNK HIGHWAY 336 BRIDGE NUMBER 14815 OVER INTERSTATE HIGHWAY 94, AT THE JUNCTION OF INTERSTATE HIGHWAY 94 AND TRUNK HIGHWAY 336, AT INTERSTATE HIGHWAY 94 MILEPOINT 6.1, 25.0 FEET EAST OF NORTHBOUND TRUNK HIGHWAY 336 (COUNTY ROAD 11), 23.5 FEET NORTH OF THE SOUTH END OF A RAIL.

**Station Notes**

THE DISK WAS SET IN THE BRIDGE WHEN BUILT IN 2002 THEN STAMPED WHEN USED IN 2008.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
945.763	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941	
946.045	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699	
945.923	.016	2/1				VERTICAL ADJUSTMENT	2011	00000685	
946.028	.016	2/1				VERTICAL CONTROL SURVEY	2010	VCOMS	
945.956	.016	2/1				VERTICAL CONTROL SURVEY	2008	VCL94	

Geoid Separations(ft): GEOID18 = -87.333    12B = -87.352    09 = -87.201    03 = -87.136

\* No Horizontal Positions in the Database \*

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AJ-DM4541-3E-09APR2008.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AJ-DM4541-3E-09APR2008.jpg</a>	E	Apr 9, 2008
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AJ-DM4541-2-09APR2008.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AJ-DM4541-2-09APR2008.jpg</a>		Apr 9, 2008
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AJ-DM4541-1-09APR2008.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AJ-DM4541-1-09APR2008.jpg</a>		Apr 9, 2008

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1480 AK  
County: CLAY, MN (Sheet 1)

NGS Name: 1480 AK

NGS ACRN: [DM4542](#) [Get Map](#)  
NGS Quad / Sta Num : 46096413/  
USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	20	139 N	47 W	465032.80	963756.69	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2008	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 1 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 40 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2008)                      Stamping: 1480 AK 2008

4.2 MILES EAST AND SOUTHEAST OF MOORHEAD, 1.0 MILE EAST AND SOUTHEAST ALONG INTERSTATE HIGHWAY 94 FROM THE JUNCTION OF INTERSTATE HIGHWAY 94 AND TRUNK HIGHWAY 336, AT INTERSTATE HIGHWAY 94 MILEPOINT 7.1, 95.0 FEET SOUTHWEST OF EASTBOUND INTERSTATE HIGHWAY 94, 3.0 FEET NORTHEAST OF A RIGHT-OF-WAY FENCE, 2.5 FEET NORTHEAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
921.032	.016	2/1				VERTICAL ADJUSTMENT	2024	00000941-3		
921.032	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA		
921.032	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941		
921.215	.016	2/1				VERTICAL ADJUSTMENT	2011	00000685		
921.228	.016	2/1				VERTICAL CONTROL SURVEY	2008	VCL94		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
921.032			833.893	.020	2011	HORIZONTAL ADJUSTMENT	2024	GPS3715		
921.032			833.893	.020	2011	GPS - STATIC	2024	HMOFA2		
921.032	.131		833.998	.066	1996	GPS - STATIC	2024	HMOFA2		
921.291	.262		833.899	.197	2011	GPS - RTRN	2022	RTRN2022		
921.301	.262		833.909	.197	2011	GPS - OPUS	2021	GPSBM		
921.251	.262		833.860	.197	2011	GPS - OPUS	2021	GPSBM		
921.199	.262		833.811	.197	2011	GPS - RTRN	2021	RTRN2021		

Geoid Separations(ft): GEOID18 = -87.392    12B = -87.408    09 = -87.257    03 = -87.195

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 50 32.80369	96 37 56.69166			516937.384	177497.607	.013		ADJUSTMENT	2024	GPS3715
46 50 32.80369	96 37 56.69166			516937.384	177497.607	.013	C	GPS - STATIC	2024	HMOFA2
46 50 32.80346	96 37 56.69227			516937.342	177497.584	.131	3	GPS - RTRN	2022	RTRN2022
46 50 32.80366	96 37 56.69188			516937.369	177497.604	.131	3	GPS - OPUS	2021	GPSBM
46 50 32.80394	96 37 56.69166			516937.384	177497.633	.131	3	GPS - OPUS	2021	GPSBM
46 50 32.80439	96 37 56.69226			516937.343	177497.678	.131	3	GPS - RTRN	2021	RTRN2021

<u>NAD83(1996)</u>				<u>Clay County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 50 32.80352	96 37 56.69246			516937.329	177497.590	.033	C	GPS - STATIC	2024	HMOFA2



**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2028557.556	1008916.244	731772.254	17040859.100	.013		ADJUSTMENT	2024	GPS3715
2028557.556	1008916.244	731772.254	17040859.100	.013	C	GPS - STATIC	2024	HMOFA2
2028557.513	1008916.222	731772.211	17040859.079	.131	3	GPS - RTRN	2022	RTRN2022
2028557.541	1008916.241	731772.239	17040859.098	.131	3	GPS - OPUS	2021	GPSBM
2028557.557	1008916.269	731772.256	17040859.126	.131	3	GPS - OPUS	2021	GPSBM
2028557.517	1008916.316	731772.216	17040859.173	.131	3	GPS - RTRN	2021	RTRN2021

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2028557.500	1008916.228	731772.198	17040859.086	.033	C	GPS - STATIC	2024	HMOFA2

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AK-DM4542-3SW-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AK-DM4542-3SW-05JUL2022.jpg</a>	SW	Jul 5, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AK-DM4542-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AK-DM4542-2-05JUL2022.jpg</a>		Jul 5, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AK-DM4542-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AK-DM4542-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1480 AL

NGS Name: 1480 AL

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM4543](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	27	139 N	47 W	464921.65	963627.76	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2008	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 0 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 65 FT)	SURVEY DISK	MNDT

Description: (2008)                      Stamping: 1480 AL 2008

5.6 MILES SOUTHEAST OF MOORHEAD, 2.8 MILES SOUTHEAST ALONG INTERSTATE HIGHWAY 94 FROM THE JUNCTION OF INTERSTATE HIGHWAY 94 AND TRUNK HIGHWAY 336, AT INTERSTATE HIGHWAY 94 MILEPOINT 8.9, 89.2 FEET WEST OF EASTBOUND INTERSTATE HIGHWAY 94, 5.0 FEET NORTHEAST OF A RIGHT-OF-WAY FENCE, 7.6 FEET NORTHEAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
920.021	.016	2/1					VERTICAL ADJUSTMENT	2024	00000941-3	
920.021	.016	2/1					VERTICAL CONTROL SURVEY	2023	VMOFA	
920.021	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
920.208	.016	2/1					VERTICAL ADJUSTMENT	2011	00000685	
920.208	.016	2/1					VERTICAL CONTROL SURVEY	2008	VCL94	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
920.021				832.836	.020	2011	HORIZONTAL ADJUSTMENT	2024	GPS3715	
920.021				832.836	.020	2011	GPS - STATIC	2024	HMOFA2	
920.021	.131			832.938	.066	1996	GPS - STATIC	2024	HMOFA2	
920.300	.262			832.826	.197	2011	GPS - RTRN	2022	RTRN2022	
920.264	.262			832.790	.197	2011	GPS - OPUS	2021	GPSBM	
920.257	.262			832.784	.197	2011	GPS - OPUS	2021	GPSBM	
920.225	.262			832.751	.197	2011	GPS - RTRN	2021	RTRN2021	

Geoid Separations(ft): GEOID18 = -87.474    12B = -87.483    09 = -87.349    03 = -87.283

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 49 21.64841	96 36 27.75508			523128.699	170294.708	.013		ADJUSTMENT	2024	GPS3715
46 49 21.64841	96 36 27.75508			523128.699	170294.708	.013	C	GPS - STATIC	2024	HMOFA2
46 49 21.64843	96 36 27.75592			523128.641	170294.710	.131	3	GPS - RTRN	2022	RTRN2022
46 49 21.64825	96 36 27.75539			523128.677	170294.692	.131	3	GPS - OPUS	2021	GPSBM
46 49 21.64843	96 36 27.75496			523128.707	170294.710	.131	3	GPS - OPUS	2021	GPSBM
46 49 21.64884	96 36 27.75512			523128.696	170294.752	.131	3	GPS - RTRN	2021	RTRN2021

<u>NAD83(1996)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 49 21.64824	96 36 27.75588			523128.643	170294.691	.033	C	GPS - STATIC	2024	HMOFA2



**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2034522.566	1001525.894	737620.226	17033368.841	.013		ADJUSTMENT	2024	GPS3715
2034522.566	1001525.894	737620.226	17033368.841	.013	C	GPS - STATIC	2024	HMOFA2
2034522.508	1001525.898	737620.167	17033368.846	.131	3	GPS - RTRN	2022	RTRN2022
2034522.544	1001525.879	737620.204	17033368.826	.131	3	GPS - OPUS	2021	GPSBM
2034522.575	1001525.896	737620.234	17033368.843	.131	3	GPS - OPUS	2021	GPSBM
2034522.565	1001525.938	737620.225	17033368.885	.131	3	GPS - RTRN	2021	RTRN2021

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2034522.510	1001525.879	737620.169	17033368.827	.033	C	GPS - STATIC	2024	HMOFA2

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AL-DM4543-3SW-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AL-DM4543-3SW-05JUL2022.jpg</a>	SW	Jul 5, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AL-DM4543-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AL-DM4543-2-05JUL2022.jpg</a>		Jul 5, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AL-DM4543-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AL-DM4543-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1480 AM  
County: CLAY, MN (Sheet 1)

NGS Name: 1480 AM

NGS ACRN: [DM4544](#) [Get Map](#)  
NGS Quad / Sta Num : 46096412/  
USGS Quad: GLYNDON SOUTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	34	139 N	47 W	464846.56	963543.45	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2008	2023	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 65 FT)	SURVEY DISK	MNDT

Description: (2008)                      Stamping: 1480 AM 2008

5.5 MILES SOUTHEAST OF MOORHEAD, 3.7 MILES EAST AND SOUTHEAST ALONG INTERSTATE HIGHWAY 94 FROM THE JUNCTION OF INTERSTATE HIGHWAY 94 AND TRUNK HIGHWAY 336, AT INTERSTATE HIGHWAY 94 MILEPOINT 9.8, 51.0 FEET SOUTHWEST OF EASTBOUND INTERSTATE HIGHWAY 94, 48.0 FEET NORTHEAST OF A RIGHT-OF-WAY FENCE, 69.9 FEET NORTHEAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
923.551	.016	2/1				VERTICAL ADJUSTMENT	2024	0000941-3		
923.551	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA		
923.551	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941		
923.732	.016	2/1				VERTICAL ADJUSTMENT	2011	00000685		
923.728	.016	2/1				VERTICAL CONTROL SURVEY	2008	VCL94		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
923.551			836.343	.020	2011	HORIZONTAL ADJUSTMENT	2024	GPS3715		
923.551			836.343	.020	2011	GPS - STATIC	2024	HMOFA2		
923.551	.131		836.448	.066	1996	GPS - STATIC	2024	HMOFA2		
923.686	.262		836.189	.197	2011	GPS - RTRN	2022	RTRN2022		

Geoid Separations(ft): GEOID18 = -87.500    12B = -87.506    09 = -87.378    03 = -87.306

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>			<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>									
46 48 46.55931	96 35 43.44889		526214.714	166743.480	.013		ADJUSTMENT	2024	GPS3715	
46 48 46.55931	96 35 43.44889		526214.714	166743.480	.013	C	GPS - STATIC	2024	HMOFA2	
46 48 46.55885	96 35 43.44955		526214.668	166743.433	.131	3	GPS - RTRN	2022	RTRN2022	

<u>NAD83(1996)</u>			<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>									
46 48 46.55915	96 35 43.44969		526214.659	166743.463	.033	C	GPS - STATIC	2024	HMOFA2	

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>X</u>	<u>Y</u>								
2037496.975	997881.214	740536.959	17029674.425	.013		ADJUSTMENT	2024	GPS3715	
2037496.975	997881.214	740536.959	17029674.425	.013	C	GPS - STATIC	2024	HMOFA2	
2037496.928	997881.169	740536.911	17029674.380	.131	3	GPS - RTRN	2022	RTRN2022	

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>X</u>	<u>Y</u>								
2037496.919	997881.200	740536.903	17029674.411	.033	C	GPS - STATIC	2024	HMOFA2	



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AM-DM4544-3SW-29JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AM-DM4544-3SW-29JUN2022.jpg</a>	SW	Jun 29, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AM-DM4544-2-29JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AM-DM4544-2-29JUN2022.jpg</a>		Jun 29, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AM-DM4544-1-29JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AM-DM4544-1-29JUN2022.jpg</a>		Jun 29, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1480 AN

NGS Name: 1480 AN

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM4545](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	2	138 N	47 W	464743.24	963425.65	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2008	2023	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 80 FT)	SURVEY DISK	MNDT

**Description:** (2008)                      **Stamping:** 1480 AN 2008

4.8 MILES NORTHWEST OF DOWNER, 3.9 MILES NORTHWEST ALONG INTERSTATE HIGHWAY 94 FROM THE JUNCTION OF INTERSTATE HIGHWAY 94 AND COUNTY ROAD 10 WEST OF DOWNER, AT INTERSTATE HIGHWAY 94 MILEPOINT 11.4, 88.8 FEET SOUTHWEST OF EASTBOUND INTERSTATE HIGHWAY 94, 8.8 FEET NORTHEAST OF A RIGHT-OF-WAY FENCE, 7.4 FEET NORTHEAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>	
928.020	.016	2/1						VERTICAL ADJUSTMENT	2019	00000941	
928.184	.016	2/1						VERTICAL ADJUSTMENT	2011	00000685	
928.181	.016	2/1						VERTICAL CONTROL SURVEY	2008	VCL94	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>	
928.020				840.743	.019	2011		HORIZONTAL ADJUSTMENT	2025	GPS3805	
928.020	.131			840.858	.066	1996		GPS - STATIC	2025	HTH94A	
928.020				840.743	.019	2011		GPS - STATIC	2025	HTH94A	
928.249	.262			840.740	.197	2011		GPS - RTRN	2023	RTRN2023	

Geoid Separations(ft): GEOID18 = -87.510 12B = -87.510 09 = -87.395 03 = -87.323

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>			<u>Determination Method</u>			<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>					<u>Acc</u>	<u>Order</u>				
46 47 43.24444	96 34 25.65223			531636.377	160336.629	.020		ADJUSTMENT	2025	GPS3805	
46 47 43.24444	96 34 25.65223			531636.377	160336.629	.020	C	GPS - STATIC	2025	HTH94A	
46 47 43.24436	96 34 25.65146			531636.430	160336.621	.131	3	GPS - RTRN	2023	RTRN2023	

<u>NAD83(1996)</u>				<u>Clay County</u>			<u>Determination Method</u>			<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>					<u>Acc</u>	<u>Order</u>				
46 47 43.24424	96 34 25.65258			531636.353	160336.608	.033	C	GPS - STATIC	2025	HTH94A	

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>			<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>	
<u>X</u>	<u>Y</u>					<u>Acc</u>	<u>Order</u>				
2042717.348	991310.287			745653.338	17023016.233	.020		ADJUSTMENT	2025	GPS3805	
2042717.348	991310.287			745653.338	17023016.233	.020	C	GPS - STATIC	2025	HTH94A	
2042717.401	991310.277			745653.391	17023016.222	.131	3	GPS - RTRN	2023	RTRN2023	

<u>NAD83(1996)</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>			<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>	
<u>X</u>	<u>Y</u>					<u>Acc</u>	<u>Order</u>				
2042717.323	991310.267			745653.312	17023016.213	.033	C	GPS - STATIC	2025	HTH94A	



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AN-DM4545-3SW-14AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AN-DM4545-3SW-14AUG2023.jpg</a>	SW	Aug 14, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AN-DM4545-2-14AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AN-DM4545-2-14AUG2023.jpg</a>		Aug 14, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AN-DM4545-1-14AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AN-DM4545-1-14AUG2023.jpg</a>		Aug 14, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1480 AP

NGS Name: 1480 AP

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM4546](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

1/4	Sec	Twp	Rng	Reference	Reference	Vert	Horz
				Latitude	Longitude	Order	Order
NW	12	138 N	47 W	464700.55	963320.13	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2008	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 40 FT)	SURVEY DISK	MNDT

**Description:** (2008)                      **Stamping:** 1480 AP 2008

3.5 MILES NORTHWEST OF DOWNER, 2.75 MILES NORTHWEST ALONG INTERSTATE HIGHWAY 94 FROM THE JUNCTION OF INTERSTATE HIGHWAY 94 AND COUNTY ROAD 10 WEST OF DOWNER, AT INTERSTATE HIGHWAY 94 MILEPOINT 12.45, 47.0 FEET SOUTHWEST OF EASTBOUND INTERSTATE HIGHWAY 94, 51.0 FEET NORTHEAST OF A RIGHT-OF-WAY FENCE, 4.1 FEET NORTHEAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88			Orthometric Height				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference			
930.428	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941			
930.582	.016	2/1				VERTICAL ADJUSTMENT	2011	00000685			
930.582	.016	2/1				VERTICAL CONTROL SURVEY	2008	VCL94			

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Orthometric Height				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference			
930.428			843.128	.026	2011	HORIZONTAL ADJUSTMENT	2025	GPS3805			
930.428	.131		843.243	.066	1996	GPS - STATIC	2025	HTH94A			
930.428			843.128	.026	2011	GPS - STATIC	2025	HTH94A			
930.717	.262		843.217	.197	2011	GPS - RTRN	2023	RTRN2023			

Geoid Separations(ft): GEOID18 = -87.500 12B = -87.497 09 = -87.382 03 = -87.316

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Geodetic Position				Clay County			Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference		
46 47 00.54843	96 33 20.12992	536203.394	156018.707	.023		ADJUSTMENT	2025	GPS3805		
46 47 00.54843	96 33 20.12992	536203.394	156018.707	.023	C	GPS - STATIC	2025	HTH94A		
46 47 00.54848	96 33 20.13119	536203.306	156018.712	.131	3	GPS - RTRN	2023	RTRN2023		

NAD83(1996)		Geodetic Position				Clay County			Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference		
46 47 00.54825	96 33 20.13027	536203.370	156018.689	.033	C	GPS - STATIC	2025	HTH94A		

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		MN State Plane - Central Zone				UTM - Zone 15			Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference		
2047148.167	986853.542	750014.036	17018486.000	.023		ADJUSTMENT	2025	GPS3805		
2047148.167	986853.542	750014.036	17018486.000	.023	C	GPS - STATIC	2025	HTH94A		
2047148.079	986853.550	750013.948	17018486.009	.131	3	GPS - RTRN	2023	RTRN2023		

NAD83(1996)		MN State Plane - Central Zone				UTM - Zone 15			Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference		
2047148.142	986853.524	750014.011	17018485.983	.033	C	GPS - STATIC	2025	HTH94A		



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AP-DM4546-3SW-14AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AP-DM4546-3SW-14AUG2023.jpg</a>	SW	Aug 14, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AP-DM4546-2-14AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AP-DM4546-2-14AUG2023.jpg</a>		Aug 14, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AP-DM4546-1-14AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AP-DM4546-1-14AUG2023.jpg</a>		Aug 14, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1480 AQ  
County: CLAY, MN (Sheet 1)

NGS Name: 1480 AQ

NGS ACRN: [DM4547](#) [Get Map](#)  
NGS Quad / Sta Num : 46096412/  
USGS Quad: GLYNDON SOUTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	18	138 N	46 W	464633.08	963234.47	2	C

  

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2008	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 1 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 63 FT)	SURVEY DISK	MNDT

**Description:** (2008)                      **Stamping:** 1480 AQ 2008

2.5 MILES NORTHWEST OF DOWNER, 1.95 MILES NORTHWEST ALONG INTERSTATE HIGHWAY 94 FROM THE JUNCTION OF INTERSTATE HIGHWAY 94 AND COUNTY ROAD 10, WEST OF DOWNER, AT INTERSTATE HIGHWAY 94 MILEPOINT 13.45, 91.5 FEET WEST OF EASTBOUND INTERSTATE HIGHWAY 94, 6.5 FEET NORTHEAST OF A RIGHT-OF-WAY FENCE, 5.6 FEET NORTHEAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
934.929	.016	2/1				2019	00000941					
935.077	.016	2/1				2011	00000685					
935.077	.016	2/1				2008	VCL94					

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
934.929			847.639	.031	2011	2025	GPS3805					
934.929	.131		847.754	.066	1996	2025	HTH94A					
934.929			847.639	.031	2011	2025	HTH94A					
935.156	.262		847.669	.197	2011	2023	RTRN2023					

Geoid Separations(ft): GEOID18 = -87.487 12B = -87.480 09 = -87.372 03 = -87.306

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			
46 46 33.08107	96 32 34.46835	539386.804	153241.934	.026		2025	GPS3805			
46 46 33.08107	96 32 34.46835	539386.804	153241.934	.026	C	2025	HTH94A			
46 46 33.08130	96 32 34.46872	539386.778	153241.958	.131	3	2023	RTRN2023			

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			
46 46 33.08089	96 32 34.46870	539386.779	153241.916	.033	C	2025	HTH94A			

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			
2050243.841	983979.872	753064.606	17015561.134	.026		2025	GPS3805			
2050243.841	983979.872	753064.606	17015561.134	.026	C	2025	HTH94A			
2050243.816	983979.896	753064.581	17015561.158	.131	3	2023	RTRN2023			

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			
2050243.816	983979.854	753064.580	17015561.117	.033	C	2025	HTH94A			



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AQ-DM4547-3SW-14AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AQ-DM4547-3SW-14AUG2023.jpg</a>	SW	Aug 14, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AQ-DM4547-2-14AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AQ-DM4547-2-14AUG2023.jpg</a>		Aug 14, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AQ-DM4547-1-14AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AQ-DM4547-1-14AUG2023.jpg</a>		Aug 14, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1480 AR

NGS Name: 1480 AR

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM7862](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	20	137 N	45 W	464004.42	962403.60	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2010	2024	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 30 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2015)                      Stamping: 1480 AR 2010

1.0 MILE NORTH OF BARNESVILLE, 0.7 MILE NORTHWEST ALONG INTERSTATE HIGHWAY 94 FROM THE JUNCTION OF INTERSTATE HIGHWAY 94 AND TRUNK HIGHWAY 34 (THE JUNCTION IS 1.0 MILE EAST OF BARNESVILLE), AT INTERSTATE HIGHWAY 94 MILEPOINT 23.9, 95.0 FEET NORTHEAST OF WESTBOUND INTERSTATE HIGHWAY 94, 3.5 FEET SOUTHWEST OF A RIGHT-OF-WAY FENCE, 1.3 FEET SOUTHWEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1037.931	.016	2/1					VERTICAL CONTROL SURVEY	2024	V THER2	
1037.931	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
1038.079	.016	2/1					VERTICAL ADJUSTMENT	2017	00000911	
1038.079	.016	2/1					VERTICAL CONTROL SURVEY	2016	VI94D4	
1038.079	.016	2/1					VERTICAL ADJUSTMENT	2012	00000717	
1038.079	.016	2/1					VERTICAL CONTROL SURVEY	2010	VBARN	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1037.931				950.950	.010	2011	HORIZONTAL ADJUSTMENT	2025	GPS3805	
1037.931	.131			951.081	.066	1996	GPS - STATIC	2025	HTH94A	
1037.931				950.950	.010	2011	GPS - STATIC	2025	HTH94A	
1037.931				950.950	.015	2011	HORIZONTAL ADJUSTMENT	2024	GPS3671	
1037.931	.131			951.081	.066	1996	GPS - STATIC	2023	HTH9	
1037.931				950.950	.015	2011	GPS - STATIC	2023	HTH9	
1038.046	.262			950.959	.197	2011	GPS - RTRN	2023	RTRN2023	
1038.108	.262			951.022	.197	2011	GPS - RTRN	2023	RTRN2023	
1038.026	.262			950.940	.197	2011	GPS - RTRN	2022	RTRN2022	
1038.049	.262			950.963	.197	2011	GPS - OPUS	2021	GPSBM	
1038.052	.262			950.966	.197	2011	GPS - RTRN	2021	RTRN2021	
1037.924	.262			950.848	.197	2011	GPS - RTRN	2015	RTRN2015	
1038.079				950.950	.021	2011	HORIZONTAL ADJUSTMENT	2014	GPS2750	
1038.079				950.950	.021	2011	GPS - STATIC	2014	HBARN	
1037.957	.262			950.877	.197	2011	GPS - RTRN	2014	RTRN2014	
1038.088	.131			951.022	.066	2007	GPS - STATIC	2010	HBARN	
1038.079	.131			951.081	.066	1996	GPS - STATIC	2010	HBARN	

Geoid Separations(ft): GEOID18 = -87.086    12B = -87.077    09 = -86.981    03 = -86.929

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 40 04.41825	96 24 03.60235	575095.506	113967.969	.007		ADJUSTMENT	2025	GPS3805
46 40 04.41825	96 24 03.60235	575095.506	113967.969	.007	C	GPS - STATIC	2025	HTH94A
46 40 04.41825	96 24 03.60235	575095.506	113967.969	.010		ADJUSTMENT	2024	GPS3671
46 40 04.41825	96 24 03.60235	575095.506	113967.969	.010	C	GPS - STATIC	2023	HTH9
46 40 04.41868	96 24 03.60285	575095.471	113968.012	.131	3	GPS - RTRN	2023	RTRN2023
46 40 04.41791	96 24 03.60215	575095.520	113967.934	.131	3	GPS - RTRN	2023	RTRN2023
46 40 04.41760	96 24 03.60179	575095.545	113967.903	.131	3	GPS - RTRN	2022	RTRN2022
46 40 04.41793	96 24 03.60238	575095.504	113967.936	.131	3	GPS - OPUS	2021	GPSBM
46 40 04.41809	96 24 03.60158	575095.560	113967.953	.131	3	GPS - RTRN	2021	RTRN2021
46 40 04.41783	96 24 03.60177	575095.547	113967.926	.131	3	GPS - RTRN	2015	RTRN2015
46 40 04.41825	96 24 03.60235	575095.506	113967.969	.013		ADJUSTMENT	2014	GPS2750
46 40 04.41825	96 24 03.60235	575095.506	113967.969	.013	C	GPS - STATIC	2014	HBARN
46 40 04.41810	96 24 03.60237	575095.505	113967.953	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(2007)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 40 04.41838	96 24 03.60332	575095.438	113967.982	.033	C	GPS - STATIC	2010	HBARN

**NAD83(1996)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 40 04.41799	96 24 03.60305	575095.457	113967.942	.033	C	GPS - STATIC	2025	HTH94A
46 40 04.41799	96 24 03.60305	575095.457	113967.942	.033	C	GPS - STATIC	2023	HTH9
46 40 04.41799	96 24 03.60305	575095.457	113967.942	.033	C	GPS - STATIC	2010	HBARN

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2084716.485	943623.888	786901.115	16974634.467	.007		ADJUSTMENT	2025	GPS3805
2084716.485	943623.888	786901.115	16974634.467	.007	C	GPS - STATIC	2025	HTH94A
2084716.485	943623.888	786901.115	16974634.467	.010		ADJUSTMENT	2024	GPS3671
2084716.485	943623.888	786901.115	16974634.467	.010	C	GPS - STATIC	2023	HTH9
2084716.451	943623.933	786901.082	16974634.512	.131	3	GPS - RTRN	2023	RTRN2023
2084716.498	943623.853	786901.127	16974634.432	.131	3	GPS - RTRN	2023	RTRN2023
2084716.522	943623.821	786901.151	16974634.399	.131	3	GPS - RTRN	2022	RTRN2022
2084716.482	943623.856	786901.112	16974634.434	.131	3	GPS - OPUS	2021	GPSBM
2084716.538	943623.870	786901.168	16974634.448	.131	3	GPS - RTRN	2021	RTRN2021
2084716.524	943623.844	786901.154	16974634.422	.131	3	GPS - RTRN	2015	RTRN2015
2084716.485	943623.888	786901.115	16974634.467	.013		ADJUSTMENT	2014	GPS2750
2084716.485	943623.888	786901.115	16974634.467	.013	C	GPS - STATIC	2014	HBARN
2084716.483	943623.873	786901.113	16974634.452	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2084716.418	943623.903	786901.048	16974634.483	.033	C	GPS - STATIC	2010	HBARN

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2084716.436	943623.863	786901.065	16974634.442	.033	C	GPS - STATIC	2025	HTH94A
2084716.436	943623.863	786901.065	16974634.442	.033	C	GPS - STATIC	2023	HTH9
2084716.436	943623.863	786901.065	16974634.442	.033	C	GPS - STATIC	2010	HBARN

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AR-DM7862-3NE-14AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AR-DM7862-3NE-14AUG2023.jpg</a>	NE	Aug 14, 2023
Moment:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AR-DM7862-2-14AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AR-DM7862-2-14AUG2023.jpg</a>		Aug 14, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AR-DM7862-1-14AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AR-DM7862-1-14AUG2023.jpg</a>		Aug 14, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1480 AS

NGS Name: 1480 AS

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM7863](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	18	137 N	45 W	464038.81	962454.30	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2010	2024	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 23 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2015)                      Stamping: 1480 AS 2010

1.8 MILES NORTH OF BARNESVILLE, 1.65 MILES NORTHWEST ALONG INTERSTATE HIGHWAY 94 FROM THE JUNCTION OF INTERSTATE HIGHWAY 94 AND TRUNK HIGHWAY 34 (THE JUNCTION IS 1.0 MILE EAST OF BARNESVILLE), AT INTERSTATE HIGHWAY 94 MILEPOINT 22.95, 122.5 FEET NORTHEAST OF WESTBOUND INTERSTATE HIGHWAY 94, 2.7 FEET SOUTHWEST OF A RIGHT-OF-WAY FENCE, 1.1 FEET SOUTHWEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1017.235	.016	2/1					VERTICAL CONTROL SURVEY	2024	VOTHER2	
1017.235	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
1017.383	.016	2/1					VERTICAL ADJUSTMENT	2012	00000717	
1017.386	.016	2/1					VERTICAL CONTROL SURVEY	2010	VBARN	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1017.235				930.287	.011	2011	HORIZONTAL ADJUSTMENT	2025	GPS3805	
1017.235	.131			930.425	.066	1996	GPS - STATIC	2025	HTH94A	
1017.235				930.287	.011	2011	GPS - STATIC	2025	HTH94A	
1017.393	.262			930.320	.197	2011	GPS - RTRN	2023	RTRN2023	
1017.403	.262			930.330	.197	2011	GPS - RTRN	2023	RTRN2023	
1017.373	.262			930.300	.197	2011	GPS - RTRN	2022	RTRN2022	
1017.373	.262			930.303	.197	2011	GPS - OPUS	2021	GPSBM	
1017.354	.262			930.280	.197	2011	GPS - RTRN	2021	RTRN2021	
1017.295	.262			930.225	.197	2011	GPS - RTRN	2015	RTRN2015	
1017.383				930.287	.020	2011	HORIZONTAL ADJUSTMENT	2014	GPS2750	
1017.383				930.287	.020	2011	GPS - STATIC	2014	HBARN	
1017.308	.262			930.238	.197	2011	GPS - RTRN	2014	RTRN2014	
1017.386	.131			930.366	.066	2007	GPS - STATIC	2010	HBARN	
1017.386	.131			930.425	.066	1996	GPS - STATIC	2010	HBARN	

Geoid Separations(ft): GEOID18 = -87.070    12B = -87.070    09 = -86.965    03 = -86.909

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 40 38.81415	96 24 54.30318	571546.797	117439.628	.010		ADJUSTMENT	2025	GPS3805
46 40 38.81415	96 24 54.30318	571546.797	117439.628	.010	C	GPS - STATIC	2025	HTH94A
46 40 38.81415	96 24 54.30383	571546.751	117439.628	.131	3	GPS - RTRN	2023	RTRN2023
46 40 38.81457	96 24 54.30344	571546.778	117439.671	.131	3	GPS - RTRN	2023	RTRN2023
46 40 38.81439	96 24 54.30349	571546.775	117439.653	.131	3	GPS - RTRN	2022	RTRN2022
46 40 38.81392	96 24 54.30319	571546.796	117439.605	.131	3	GPS - OPUS	2021	GPSBM
46 40 38.81392	96 24 54.30203	571546.877	117439.605	.131	3	GPS - RTRN	2021	RTRN2021
46 40 38.81428	96 24 54.30318	571546.797	117439.641	.131	3	GPS - RTRN	2015	RTRN2015
46 40 38.81415	96 24 54.30318	571546.797	117439.628	.013		ADJUSTMENT	2014	GPS2750
46 40 38.81415	96 24 54.30318	571546.797	117439.628	.013	C	GPS - STATIC	2014	HBARN
46 40 38.81394	96 24 54.30270	571546.830	117439.607	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(2007)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 40 38.81431	96 24 54.30421	571546.725	117439.644	.033	C	GPS - STATIC	2010	HBARN

**NAD83(1996)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 40 38.81392	96 24 54.30394	571546.744	117439.605	.033	C	GPS - STATIC	2025	HTH94A
46 40 38.81392	96 24 54.30394	571546.744	117439.605	.033	C	GPS - STATIC	2010	HBARN

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2081277.302	947203.310	783518.137	16978270.418	.010		ADJUSTMENT	2025	GPS3805
2081277.302	947203.310	783518.137	16978270.418	.010	C	GPS - STATIC	2025	HTH94A
2081277.257	947203.311	783518.091	16978270.420	.131	3	GPS - RTRN	2023	RTRN2023
2081277.285	947203.353	783518.120	16978270.461	.131	3	GPS - RTRN	2023	RTRN2023
2081277.281	947203.335	783518.116	16978270.443	.131	3	GPS - RTRN	2022	RTRN2022
2081277.301	947203.286	783518.135	16978270.394	.131	3	GPS - OPUS	2021	GPSBM
2081277.382	947203.284	783518.216	16978270.391	.131	3	GPS - RTRN	2021	RTRN2021
2081277.303	947203.323	783518.137	16978270.431	.131	3	GPS - RTRN	2015	RTRN2015
2081277.302	947203.310	783518.137	16978270.418	.013		ADJUSTMENT	2014	GPS2750
2081277.302	947203.310	783518.137	16978270.418	.013	C	GPS - STATIC	2014	HBARN
2081277.335	947203.288	783518.169	16978270.395	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2081277.231	947203.328	783518.066	16978270.437	.033	C	GPS - STATIC	2010	HBARN

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2081277.249	947203.288	783518.083	16978270.397	.033	C	GPS - STATIC	2025	HTH94A
2081277.249	947203.288	783518.083	16978270.397	.033	C	GPS - STATIC	2010	HBARN

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AS-DM7863-3NE-14AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AS-DM7863-3NE-14AUG2023.jpg</a>	NE	Aug 14, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AS-DM7863-2-14AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AS-DM7863-2-14AUG2023.jpg</a>		Aug 14, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AS-DM7863-1-14AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AS-DM7863-1-14AUG2023.jpg</a>		Aug 14, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1480 AT

NGS Name: 1480 AT

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM7864](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	13	137 N	46 W	464054.00	962600.00	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2010	2014	GOOD	Horz=NO Vert=NO	YES	14809	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE ABUTMENT	SURVEY DISK	MNDT

Description: (2014)                      Stamping: 1480 AT 2010

2.2 MILES NORTHWEST OF BARNESVILLE, IN A BRIDGE ABUTMENT IN THE NORTHWEST CORNER OF WESTBOUND INTERSTATE HIGHWAY 94 BRIDGE NUMBER 14809 OVER THE RAILROAD TRACKS, 2.5 MILES NORTHWEST ALONG INTERSTATE HIGHWAY 94 FROM THE JUNCTION OF INTERSTATE HIGHWAY 94 AND TRUNK HIGHWAY 34 (THE JUNCTION IS 1.0 MILES EAST OF BARNESVILLE), AT INTERSTATE HIGHWAY 94 MILEPOINT 22.05, 24.5 FEET NORTH OF WESTBOUND INTERSTATE HIGHWAY 94.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1019.033	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941
1019.181	.016	2/1					VERTICAL ADJUSTMENT	2012	00000717
1019.181	.016	2/1					VERTICAL CONTROL SURVEY	2010	VBARN

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1019.115	.262			932.059	.197	2011	GPS - RTRN	2014	RTRN2014

Geoid Separations(ft): GEOID18 = -87.057 12B = -87.057 09 = -86.952 03 = -86.896

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 40 53.96972	96 26 02.70283			566771.953	118958.413	.131	3	GPS - RTRN	2014	RTRN2014

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2076552.271	948868.952			778818.090	16980012.573	.131	3	GPS - RTRN	2014	RTRN2014

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AT-DM7864-2-01JUN2010.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AT-DM7864-2-01JUN2010.jpg</a>		Jun 1, 2010
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AT-DM7864-1-01JUN2010.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AT-DM7864-1-01JUN2010.jpg</a>		Jun 1, 2010
Disk:			

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1480 AU  
County: CLAY, MN (Sheet 1)

NGS Name: 1480 AU

NGS ACRN: [DM7865](#) [Get Map](#)  
NGS Quad / Sta Num : 46096134/  
USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	11	137 N	46 W	464200.88	962730.79	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2010	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 24 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2010)                      Stamping: 1480 AU 2010

4.0 MILES NORTHWEST OF BARNESVILLE, 2.5 MILES NORTHWEST ALONG INTERSTATE HIGHWAY 94 FROM THE JUNCTION OF INTERSTATE HIGHWAY 94 AND TRUNK HIGHWAY 9 IN BARNESVILLE, AT INTERSTATE HIGHWAY 94 MILEPOINT 20.2, 97.1 FEET NORTHEAST OF WESTBOUND INTERSTATE HIGHWAY 94, 1.8 FEET SOUTHWEST OF A RIGHT-OF-WAY FENCE, 1.5 FEET SOUTHWEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>						
961.176	.016	2/1				2019	00000941						
961.333	.016	2/1				2012	00000717						
961.330	.016	2/1				2010	VBARN						

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>						
961.176			874.257	.013	2011	2025	GPS3805						
961.176	.131		874.391	.066	1996	2025	HTH94A						
961.176			874.257	.013	2011	2025	HTH94A						
961.301	.262		874.208	.197	2011	2023	RTRN2023						
961.333			874.257	.018	2011	2014	GPS2750						
961.333			874.257	.018	2011	2014	HBARN						
961.317	.131		874.336	.066	2007	2010	HBARN						
961.330	.131		874.391	.066	1996	2010	HBARN						

Geoid Separations(ft): GEOID18 = -87.093    12B = -87.100    09 = -86.988    03 = -86.929

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>					
46 42 00.87580	96 27 30.78892	560609.206	125717.135	.010		2025	GPS3805					
46 42 00.87580	96 27 30.78892	560609.206	125717.135	.010	C	2025	HTH94A					
46 42 00.87567	96 27 30.78965	560609.155	125717.122	.131	3	2023	RTRN2023					
46 42 00.87580	96 27 30.78892	560609.206	125717.135	.013		2014	GPS2750					
46 42 00.87580	96 27 30.78892	560609.206	125717.135	.013	C	2014	HBARN					

<u>NAD83(2007)</u>		<u>Geodetic Position</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>					
46 42 00.87590	96 27 30.78997	560609.133	125717.145	.033	C	2010	HBARN					

<u>NAD83(1996)</u>		<u>Geodetic Position</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>					
46 42 00.87549	96 27 30.78970	560609.152	125717.104	.033	C	2025	HTH94A					
46 42 00.87549	96 27 30.78970	560609.152	125717.104	.033	C	2010	HBARN					



State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2070602.281	955814.397	772977.445	16987056.307	.010		ADJUSTMENT	2025	GPS3805
2070602.281	955814.397	772977.445	16987056.307	.010	C	GPS - STATIC	2025	HTH94A
2070602.230	955814.386	772977.394	16987056.296	.131	3	GPS - RTRN	2023	RTRN2023
2070602.281	955814.397	772977.445	16987056.307	.013		ADJUSTMENT	2014	GPS2750
2070602.281	955814.397	772977.445	16987056.307	.013	C	GPS - STATIC	2014	HBARN

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2070602.208	955814.410	772977.372	16987056.320	.033	C	GPS - STATIC	2010	HBARN

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2070602.226	955814.368	772977.389	16987056.277	.033	C	GPS - STATIC	2025	HTH94A
2070602.226	955814.368	772977.389	16987056.277	.033	C	GPS - STATIC	2010	HBARN

Station Photos

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AU-DM7865-3NE-14AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AU-DM7865-3NE-14AUG2023.jpg</a>	NE	Aug 14, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AU-DM7865-2-14AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AU-DM7865-2-14AUG2023.jpg</a>		Aug 14, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AU-DM7865-1-14AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AU-DM7865-1-14AUG2023.jpg</a>		Aug 14, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1480 AV

NGS Name: 1480 AV

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM7866](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	3	137 N	46 W	464302.23	962856.54	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2010	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 30 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2010)                      **Stamping:** 1480 AV 2010

5.5 MILES NORTHWEST OF BARNESVILLE, 4.1 MILES NORTHWEST ALONG INTERSTATE HIGHWAY 94 FROM THE JUNCTION OF INTERSTATE HIGHWAY 94 AND TRUNK HIGHWAY 9 IN BARNESVILLE, AT INTERSTATE HIGHWAY 94 MILEPOINT 18.6, 97.0 FEET NORTHEAST OF WESTBOUND INTERSTATE HIGHWAY 94, 2.0 FEET SOUTHWEST OF A RIGHT-OF-WAY FENCE, 1.5 FEET SOUTHWEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88			Orthometric Height			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Year	Reference					
952.649	.016	2/1				2019	00000941	VERTICAL ADJUSTMENT				
952.810	.016	2/1				2012	00000717	VERTICAL ADJUSTMENT				
952.810	.016	2/1				2010	VBARN	VERTICAL CONTROL SURVEY				

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Orthometric Height			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Year	Reference					
952.649			865.622	.012	2011	2025	GPS3805	HORIZONTAL ADJUSTMENT				
952.649	.131		865.753	.066	1996	2025	HTH94A	GPS - STATIC				
952.649			865.622	.012	2011	2025	HTH94A	GPS - STATIC				
952.836	.262		865.658	.197	2011	2023	RTRN2023	GPS - RTRN				
952.761	.262		865.582	.197	2011	2021	GPSBM	GPS - OPUS				
952.793	.262		865.615	.197	2011	2021	RTRN2021	GPS - RTRN				
952.810			865.622	.018	2011	2014	GPS2750	HORIZONTAL ADJUSTMENT				
952.810			865.622	.018	2011	2014	HBARN	GPS - STATIC				
952.820	.131		865.697	.066	2007	2010	HBARN	GPS - STATIC				
952.810	.131		865.753	.066	1996	2010	HBARN	GPS - STATIC				

Geoid Separations(ft): GEOID18 = -87.178    12B = -87.172    09 = -87.063    03 = -87.018

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Geodetic Position		Clay County		Determination Method		Project Info	
Latitude	Longitude	X	Y	Acc	Order	Year	Reference		
46 43 02.23251	96 28 56.53711	554615.122	131916.008	.010		2025	GPS3805	ADJUSTMENT	
46 43 02.23251	96 28 56.53711	554615.122	131916.008	.010	C	2025	HTH94A	GPS - STATIC	
46 43 02.23263	96 28 56.53754	554615.092	131916.020	.131	3	2023	RTRN2023	GPS - RTRN	
46 43 02.23226	96 28 56.53744	554615.099	131915.983	.131	3	2021	GPSBM	GPS - OPUS	
46 43 02.23248	96 28 56.53730	554615.109	131916.005	.131	3	2021	RTRN2021	GPS - RTRN	
46 43 02.23251	96 28 56.53711	554615.122	131916.008	.013		2014	GPS2750	ADJUSTMENT	
46 43 02.23251	96 28 56.53711	554615.122	131916.008	.013	C	2014	HBARN	GPS - STATIC	

NAD83(2007)		Geodetic Position		Clay County		Determination Method		Project Info	
Latitude	Longitude	X	Y	Acc	Order	Year	Reference		
46 43 02.23256	96 28 56.53819	554615.047	131916.013	.033	C	2010	HBARN	GPS - STATIC	

NAD83(1996)		Geodetic Position		Clay County		Determination Method		Project Info	
Latitude	Longitude	X	Y	Acc	Order	Year	Reference		
46 43 02.23216	96 28 56.53793	554615.065	131915.972	.033	C	2025	HTH94A	GPS - STATIC	
46 43 02.23216	96 28 56.53793	554615.065	131915.972	.033	C	2010	HBARN	GPS - STATIC	

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2064803.509	962195.117	767279.045	16993532.815	.010		ADJUSTMENT	2025	GPS3805
2064803.509	962195.117	767279.045	16993532.815	.010	C	GPS - STATIC	2025	HTH94A
2064803.480	962195.129	767279.016	16993532.828	.131	3	GPS - RTRN	2023	RTRN2023
2064803.486	962195.092	767279.022	16993532.790	.131	3	GPS - OPUS	2021	GPSBM
2064803.496	962195.114	767279.032	16993532.812	.131	3	GPS - RTRN	2021	RTRN2021
2064803.509	962195.117	767279.045	16993532.815	.013		ADJUSTMENT	2014	GPS2750
2064803.509	962195.117	767279.045	16993532.815	.013	C	GPS - STATIC	2014	HBARN

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2064803.434	962195.124	767278.970	16993532.823	.033	C	GPS - STATIC	2010	HBARN

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2064803.451	962195.082	767278.987	16993532.782	.033	C	GPS - STATIC	2025	HTH94A
2064803.451	962195.082	767278.987	16993532.782	.033	C	GPS - STATIC	2010	HBARN

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AV-DM7866-3NE-14AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AV-DM7866-3NE-14AUG2023.jpg</a>	NE	Aug 14, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AV-DM7866-2-14AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AV-DM7866-2-14AUG2023.jpg</a>		Aug 14, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AV-DM7866-1-14AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AV-DM7866-1-14AUG2023.jpg</a>		Aug 14, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1480 AW  
County: CLAY, MN (Sheet 1)

NGS Name: 1480 AW

NGS ACRN: [DM7867](#) [Get Map](#)  
NGS Quad / Sta Num : 46096421/  
USGS Quad: BAKER

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	33	138 N	46 W	464355.97	963014.99	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2010	2023	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 42 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2013)                      Stamping: 1480 AW 2010

7.0 MILES NORTHWEST OF BARNESVILLE, 5.65 MILES NORTHWEST ALONG INTERSTATE HIGHWAY 94 FROM THE JUNCTION OF INTERSTATE HIGHWAY 94 AND TRUNK HIGHWAY 9 IN BARNESVILLE, 97.0 FEET NORTHEAST OF WESTBOUND INTERSTATE HIGHWAY 94, AT INTERSTATE 94 MILEPOINT 17.15, 1.8 FEET SOUTHWEST OF A RIGHT-OF-WAY FENCE, 1.5 FEET SOUTHWEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj		Year	Reference	
946.924	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941	
947.068	.016	2/1				VERTICAL ADJUSTMENT	2012	00000717	
947.068	.016	2/1				VERTICAL CONTROL SURVEY	2010	VBARN	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj		Year	Reference	
946.924			859.788	.010	2011	HORIZONTAL ADJUSTMENT	2025	GPS3805	
946.924	.131		859.926	.066	1996	GPS - STATIC	2025	HTH94A	
946.924			859.788	.010	2011	GPS - STATIC	2025	HTH94A	
946.908	.262		859.631	.197	2011	GPS - RTRN	2023	RTRN2023	
947.068			859.788	.015	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084	
947.068	.131		859.926	.066	1996	GPS - STATIC	2015	HCLAY	
947.068			859.805	.015	2011	GPS - STATIC	2015	HCLAY	
947.068			859.788	.019	2011	HORIZONTAL ADJUSTMENT	2014	GPS2750	
947.068			859.788	.019	2011	GPS - STATIC	2014	HBARN	
947.078	.131		859.874	.066	2007	GPS - STATIC	2010	HBARN	
947.068	.131		859.926	.066	1996	GPS - STATIC	2010	HBARN	

Geoid Separations(ft): GEOID18 = -87.277 12B = -87.247 09 = -87.145 03 = -87.119

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 43 55.97410	96 30 14.99288	549134.699	137346.444	.010		ADJUSTMENT	2025	GPS3805
46 43 55.97410	96 30 14.99288	549134.699	137346.444	.010	C	GPS - STATIC	2025	HTH94A
46 43 55.97451	96 30 14.99441	549134.592	137346.486	.131	3	GPS - RTRN	2023	RTRN2023
46 43 55.97410	96 30 14.99288	549134.699	137346.444	.010		ADJUSTMENT	2015	GPS3084
46 43 55.97411	96 30 14.99305	549134.687	137346.445	.010	C	GPS - STATIC	2015	HCLAY
46 43 55.97410	96 30 14.99288	549134.699	137346.444	.013		ADJUSTMENT	2014	GPS2750
46 43 55.97410	96 30 14.99288	549134.699	137346.444	.013	C	GPS - STATIC	2014	HBARN

NAD83(2007)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 43 55.97423	96 30 14.99386	549134.631	137346.458	.033	C	GPS - STATIC	2010	HBARN

NAD83(1996)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 43 55.97383	96 30 14.99361	549134.648	137346.417	.033	C	GPS - STATIC	2025	HTH94A
46 43 55.97383	96 30 14.99361	549134.648	137346.417	.033	C	GPS - STATIC	2015	HCLAY
46 43 55.97383	96 30 14.99361	549134.648	137346.417	.033	C	GPS - STATIC	2010	HBARN

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2059494.301	967791.963	762057.823	16999217.392	.010		ADJUSTMENT	2025	GPS3805
2059494.301	967791.963	762057.823	16999217.392	.010	C	GPS - STATIC	2025	HTH94A
2059494.195	967792.008	762057.718	16999217.438	.131	3	GPS - RTRN	2023	RTRN2023
2059494.301	967791.963	762057.823	16999217.392	.010		ADJUSTMENT	2015	GPS3084
2059494.289	967791.964	762057.811	16999217.393	.010	C	GPS - STATIC	2015	HCLAY
2059494.301	967791.963	762057.823	16999217.392	.013		ADJUSTMENT	2014	GPS2750
2059494.301	967791.963	762057.823	16999217.392	.013	C	GPS - STATIC	2014	HBARN

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2059494.233	967791.978	762057.755	16999217.408	.033	C	GPS - STATIC	2010	HBARN

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2059494.249	967791.937	762057.771	16999217.366	.033	C	GPS - STATIC	2025	HTH94A
2059494.249	967791.937	762057.771	16999217.366	.033	C	GPS - STATIC	2015	HCLAY
2059494.249	967791.937	762057.771	16999217.366	.033	C	GPS - STATIC	2010	HBARN

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AW-DM7867-3NE-14AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AW-DM7867-3NE-14AUG2023.jpg</a>	NE	Aug 14, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AW-DM7867-2-14AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AW-DM7867-2-14AUG2023.jpg</a>		Aug 14, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AW-DM7867-1-14AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AW-DM7867-1-14AUG2023.jpg</a>		Aug 14, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1480 AX  
County: CLAY, MN (Sheet 1)

NGS Name: 1480 AX

NGS ACRN: [DQ2735](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	33	137 N	45 W	463823.14	962232.37	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2015	2022	GOOD	Horz=YES Vert=YES	YES		RECESSED 1 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 23 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2015) Stamping: 1480 AX 2015

1.9 MILES EAST SOUTHEAST OF BARNESVILLE, 1.7 MILES SOUTHEAST ALONG INTERSTATE HIGHWAY 94 FROM THE JUNCTION OF INTERSTATE HIGHWAY 94 AND TRUNK HIGHWAY 34 (THE JUNCTION IS 1.0 MILE EAST OF BARNESVILLE), AT INTERSTATE HIGHWAY 94 MILEPOINT 26.2, 95.5 FEET SOUTHWEST OF EASTBOUND INTERSTATE HIGHWAY 94, 4.6 FEET NORTHEAST OF A RIGHT-OF-WAY FENCE, 1.5 FEET NORTHEAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>							<u>Project Info</u>	
<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			
1078.256	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941
1078.390	.016	2/1				VERTICAL ADJUSTMENT	2017	00000911
1078.400	.016	2/1				VERTICAL CONTROL SURVEY	2016	VI94D4

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>							<u>Project Info</u>	
<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			
1078.400	.262		991.225	.197	2011	GPS - RTRN	2022	RTRN2022
1078.328	.262		991.173	.197	2011	GPS - RTRN	2015	RTRN2015

Geoid Separations(ft): GEOID18 = -87.175 12B = -87.155 09 = -87.063 03 = -87.014

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>							<u>Project Info</u>		
<u>Geodetic Position</u>		<u>Clay County</u>			<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>						
46 38 23.13768	96 22 32.36932	581500.749	103732.101	.131	3	GPS - RTRN	2022	RTRN2022	
46 38 23.13771	96 22 32.36938	581500.745	103732.104	.131	3	GPS - RTRN	2015	RTRN2015	

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>					
2090801.177	933195.889	792820.739	16964105.116	.131	3	GPS - RTRN	2022	RTRN2022
2090801.173	933195.891	792820.735	16964105.119	.131	3	GPS - RTRN	2015	RTRN2015

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AX-DQ2735-3SW-13SEP2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AX-DQ2735-3SW-13SEP2022.jpg</a>	SW	Sep 13, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AX-DQ2735-2-13SEP2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AX-DQ2735-2-13SEP2022.jpg</a>		Sep 13, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AX-DQ2735-1-13SEP2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AX-DQ2735-1-13SEP2022.jpg</a>		Sep 13, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1480 AY  
County: CLAY, MN (Sheet 1)

NGS Name: 1480 AY

NGS ACRN: [DQ2736](#) [Get Map](#)  
NGS Quad / Sta Num : 46096134/  
USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	29	137 N	45 W	463922.68	962329.34	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2015	2024	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 18 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2015) Stamping: 1480 AY 2015

1.4 MILES EAST SOUTHEAST OF BARNESVILLE, 0.3 MILE SOUTHEAST ALONG INTERSTATE HIGHWAY 94 FROM THE JUNCTION OF INTERSTATE HIGHWAY 94 AND TRUNK HIGHWAY 34 (THE JUNCTION IS 1.0 MILE EAST OF BARNESVILLE), AT INTERSTATE HIGHWAY 94 MILEPOINT 24.85, 105.5 FEET NORTHEAST OF WESTBOUND INTERSTATE HIGHWAY 94, 96.7 FEET NORTHEAST OF THE RAMP FROM WESTBOUND INTERSTATE HIGHWAY 94 TO TRUNK HIGHWAY 34, 24.3 FEET SOUTHWEST OF A RIGHT-OF-WAY FENCE, 1.5 FEET SOUTHWEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1056.773	.016	2/1				VERTICAL CONTROL SURVEY	2024	VOTHER2		
1056.773	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941		
1056.917	.016	2/1				VERTICAL ADJUSTMENT	2017	00000911		
1056.917	.016	2/1				VERTICAL CONTROL SURVEY	2016	VI94D4		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1056.773			969.788	.022	2011	HORIZONTAL ADJUSTMENT	2024	GPS3671		
1056.773	.131		969.900	.066	1996	GPS - STATIC	2023	HTH9		
1056.773			969.788	.022	2011	GPS - STATIC	2023	HTH9		
1056.861	.262		969.749	.197	2011	GPS - RTRN	2023	RTRN2023		
1056.875	.262		969.762	.197	2011	GPS - RTRN	2023	RTRN2023		
1056.819	.262		969.709	.197	2011	GPS - RTRN	2022	RTRN2022		
1056.865	.262		969.768	.197	2011	GPS - RTRN	2015	RTRN2015		

Geoid Separations(ft): GEOID18 = -87.109 12B = -87.096 09 = -87.004 03 = -86.955

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 39 22.67740	96 23 29.33653	577501.920	109748.285	.013		ADJUSTMENT	2024	GPS3671	
46 39 22.67740	96 23 29.33653	577501.920	109748.285	.013	C	GPS - STATIC	2023	HTH9	
46 39 22.67748	96 23 29.33702	577501.886	109748.293	.131	3	GPS - RTRN	2023	RTRN2023	
46 39 22.67752	96 23 29.33644	577501.927	109748.297	.131	3	GPS - RTRN	2023	RTRN2023	
46 39 22.67719	96 23 29.33605	577501.954	109748.264	.131	3	GPS - RTRN	2022	RTRN2022	
46 39 22.67761	96 23 29.33718	577501.875	109748.306	.131	3	GPS - RTRN	2015	RTRN2015	

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 39 22.67716	96 23 29.33699	577501.888	109748.260	.033	C	GPS - STATIC	2023	HTH9	



**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15			Project Info			
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2086990.896	939332.238	789107.486	16970304.764	.013		ADJUSTMENT	2024	GPS3671
2086990.896	939332.238	789107.486	16970304.764	.013	C	GPS - STATIC	2023	HTH9
2086990.861	939332.248	789107.453	16970304.774	.131	3	GPS - RTRN	2023	RTRN2023
2086990.902	939332.251	789107.493	16970304.776	.131	3	GPS - RTRN	2023	RTRN2023
2086990.928	939332.216	789107.519	16970304.742	.131	3	GPS - RTRN	2022	RTRN2022
2086990.851	939332.261	789107.442	16970304.788	.131	3	GPS - RTRN	2015	RTRN2015

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15			Project Info			
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2086990.863	939332.215	789107.453	16970304.741	.033	C	GPS - STATIC	2023	HTH9

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AY-DQ2736-3NE-14AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AY-DQ2736-3NE-14AUG2023.jpg</a>	NE	Aug 14, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AY-DQ2736-2-14AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AY-DQ2736-2-14AUG2023.jpg</a>		Aug 14, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AY-DQ2736-1-14AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AY-DQ2736-1-14AUG2023.jpg</a>		Aug 14, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1480 AZ  
County: CLAY, MN (Sheet 1)

NGS Name: 1480 AZ

NGS ACRN: [DR9708](#) [Get Map](#)  
NGS Quad / Sta Num : 46096442/  
USGS Quad: FARGO SOUTH

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	21	139 N	48 W	465048.56	964501.15	2	C

  

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2022	2023	GOOD	Horz=YES Vert=YES	NO		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

**Monument Type**  
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 69 FT)

**Disk Type**  
METAL ROD (WITH REMOVABLE ID DISK)

**Mon. Agency**  
MNDDT

**Description:** (2022)                      **Stamping:** 1480 AZ 2022

IN MOORHEAD, 0.85 MILE EAST ALONG INTERSTATE HIGHWAY 94 FROM THE JUNCTION OF INTERSTATE HIGHWAY 94 AND TRUNK HIGHWAY 75 IN MOORHEAD, AT INTERSTATE HIGHWAY 94 MILEPOINT 1.45, 69.1 FEET SOUTH OF EASTBOUND INTERSTATE HIGHWAY 94 FOG LINE, 75.6 FEET NORTH OF THE EXIT RAMP FROM EASTBOUND INTERSTATE HIGHWAY 94 TO SOUTH 20TH STREET, 1.5 FEET NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88			Orthometric Height			Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method		Year	Reference	
908.108	.016	2/1				VERTICAL ADJUSTMENT		2024	00000941-3	
908.115	.016	2/1				VERTICAL CONTROL SURVEY		2023	VMOFA	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Orthometric Height			Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method		Year	Reference	
908.115			821.235	.021	2011	HORIZONTAL ADJUSTMENT		2024	GPS3715	
908.115			821.235	.021	2011	GPS - STATIC		2024	HMOFA2	
908.115	.131		821.344	.066	1996	GPS - STATIC		2024	HMOFA2	
908.473	.262		821.363	.197	2011	GPS - RTRN		2022	RTRN2022	

Geoid Separations(ft): GEOID18 = -87.109    03 = -86.909

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Geodetic Position		Clay County		Project Info			
Latitude	Longitude	X	Y	Acc	Order	Determination Method		Year	Reference
46 50 48.56083	96 45 01.15319	487429.964	179090.823	.013		ADJUSTMENT		2024	GPS3715
46 50 48.56083	96 45 01.15319	487429.964	179090.823	.013	C	GPS - STATIC		2024	HMOFA2
46 50 48.56073	96 45 01.15436	487429.883	179090.813	.131	3	GPS - RTRN		2022	RTRN2022

NAD83(1996)		Geodetic Position		Clay County		Project Info			
Latitude	Longitude	X	Y	Acc	Order	Determination Method		Year	Reference
46 50 48.56069	96 45 01.15399	487429.909	179090.809	.033	C	GPS - STATIC		2024	HMOFA2

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		MN State Plane - Central Zone		UTM - Zone 15		Project Info			
X	Y	X	Y	Acc	Order	Determination Method		Year	Reference
1999115.996	1011421.107	702357.158	17043842.583	.013		ADJUSTMENT		2024	GPS3715
1999115.996	1011421.107	702357.158	17043842.583	.013	C	GPS - STATIC		2024	HMOFA2
1999115.914	1011421.099	702357.076	17043842.577	.131	3	GPS - RTRN		2022	RTRN2022

NAD83(1996)		MN State Plane - Central Zone		UTM - Zone 15		Project Info			
X	Y	X	Y	Acc	Order	Determination Method		Year	Reference
1999115.940	1011421.094	702357.102	17043842.572	.033	C	GPS - STATIC		2024	HMOFA2

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AZ-DR9708-3N-26JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AZ-DR9708-3N-26JUL2022.jpg</a>	N	Jul 26, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AZ-DR9708-2-26JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AZ-DR9708-2-26JUL2022.jpg</a>		Jul 26, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AZ-DR9708-1-26JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_AZ-DR9708-1-26JUL2022.jpg</a>		Jul 26, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1480 B

NGS Name: 1480 B

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0423](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	20	139 N	48 W	465045.55	964557.80	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1959	2022	GOOD	Horz=YES Vert=YES	YES		FLUSH	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	BENCH MARK DISK	MNDT

Description: (1994) Stamping: 1480 B 1959

IN MOORHEAD, 0.1 MILE EAST ON THE EASTBOUND ENTRANCE RAMP TO INTERSTATE HIGHWAY 94 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND INTERSTATE HIGHWAY 94, AT INTERSTATE HIGHWAY 94 MILEPOINT 0.5, 105.0 FEET SOUTH-SOUTHEAST OF EASTBOUND INTERSTATE HIGHWAY 94 ACCESS RAMP, 128.5 FEET WEST-SOUTHWEST OF A TEE-FENCE JUNCTION, 96.0 FEET EAST-NORTHEAST OF A HIGH TENSION POWER POLE, 88.7 FEET WEST-SOUTHWEST OF A TELEPHONE CABLE PEDESTAL, 2.0 FEET NORTH-NORTHWEST OF A RIGHT-OF-WAY FENCE, 1.0 FOOT NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
905.782	.016	2/1				VERTICAL ADJUSTMENT	2024	0000941-3
905.789	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA
905.789	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941
906.015	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699
906.041	.016	2/1				VERTICAL ADJUSTMENT	2011	00000685
906.041	.016	2/1				VERTICAL CONTROL SURVEY	2010	VCOMS
906.041	.016	2/1				VERTICAL ADJUSTMENT	2004	00000425-2
906.048	.016	2/1				VERTICAL CONTROL SURVEY	2002	VMORE
906.048	.016	2/1				VERTICAL CONTROL SURVEY	2002	VMOOR
906.124	.016	2				VERTICAL ADJUSTMENT	1991	00000025

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
905.192	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
905.192	.016	2				VERTICAL CONTROL SURVEY	1972	Q460964
905.192	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A
905.192	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
906.019	.262		818.945	.197	2011	GPS - RTRN	2022	RTRN2022
			819.008	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
906.035	.131		819.070	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2690
906.035	.131		819.132	.066	1996	GPS - STATIC	2010	HCOMS
906.035	.131		819.070	.066	2007	GPS - STATIC	2010	HCOMS
905.917	.262		819.047	.197	1996	GPS - RTRN	2009	RTRN2009

Geoid Separations(ft): GEOID18 = -87.073 12B = -87.080 09 = -86.962 03 = -86.870

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 50 45.55036	96 45 57.79645	483492.205	178788.730	.131	3	GPS - RTRN	2022	RTRN2022
46 50 45.55015	96 45 57.79521	483492.291	178788.709	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 50 45.55090	96 45 57.79668	483492.189	178788.784	.033	C	ADJUSTMENT	2011	GPS2690
46 50 45.55090	96 45 57.79668	483492.189	178788.784	.033	C	GPS - STATIC	2010	HCOMS

NAD83(1996)

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 50 45.55036	96 45 57.79650	483492.201	178788.730	.033	C	GPS - STATIC	2010	HCOMS
46 50 45.55180	96 45 57.79737	483492.141	178788.876	.131	3	GPS - RTRN	2009	RTRN2009

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1995171.108	1011240.934	698407.312	17043726.329	.131	3	GPS - RTRN	2022	RTRN2022
1995171.194	1011240.910	698407.397	17043726.304	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1995171.094	1011240.989	698407.298	17043726.384	.033	C	ADJUSTMENT	2011	GPS2690
1995171.094	1011240.989	698407.298	17043726.384	.033	C	GPS - STATIC	2010	HCOMS

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1995171.105	1011240.934	698407.309	17043726.329	.033	C	GPS - STATIC	2010	HCOMS
1995171.049	1011241.082	698407.255	17043726.478	.131	3	GPS - RTRN	2009	RTRN2009

Station Photos

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_B-RP0423-3S-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_B-RP0423-3S-05JUL2022.jpg</a>	S	Jul 5, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_B-RP0423-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_B-RP0423-2-05JUL2022.jpg</a>		Jul 5, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_B-RP0423-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_B-RP0423-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1480 BA

NGS Name: 1480 BA

County: CLAY, MN (Sheet 1)

NGS ACRN: [DR9707](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	22	139 N	48 W	465048.59	964308.14	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2022	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 15 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2022) Stamping: 1480 BA 2022

IN MOORHEAD, 2.3 MILES EAST ALONG INTERSTATE HIGHWAY 94 FROM THE JUNCTION OF INTERSTATE HIGHWAY 94 AND TRUNK HIGHWAY 75 IN MOORHEAD, AT INTERSTATE HIGHWAY 94 MILEPOINT 2.95, 84.3 FEET SOUTH OF THE EASTBOUND INTERSTATE HIGHWAY 94 FOG LINE, 319.0 FEET EAST OF THE 34TH STREET FOG LINE, 1.5 FEET NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
911.498	.016	2/1				2024	00000941-3					
911.501	.016	2/1				2023	VMOFA					

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
911.501			824.565	.020	2011	2024	GPS3715					
911.501			824.565	.020	2011	2024	HMOFA2					
911.501	.131		824.674	.066	1996	2024	HMOFA2					

Geoid Separations(ft): GEOID18 = -87.185 03 = -86.981

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			
46 50 48.58819	96 43 08.13864	495286.066	179090.132	.013		2024	GPS3715			
46 50 48.58819	96 43 08.13864	495286.066	179090.132	.013	C	2024	HMOFA2			

  

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			
46 50 48.58802	96 43 08.13944	495286.010	179090.115	.033	C	2024	HMOFA2			

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			
2006967.663	1011177.495	710208.823	17043471.468	.013		2024	GPS3715			
2006967.663	1011177.495	710208.823	17043471.468	.013	C	2024	HMOFA2			

  

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			
2006967.607	1011177.480	710208.767	17043471.453	.033	C	2024	HMOFA2			

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_BA-DR9707-3S-25JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_BA-DR9707-3S-25JUL2022.jpg</a>	S	Jul 25, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_BA-DR9707-2-25JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_BA-DR9707-2-25JUL2022.jpg</a>		Jul 25, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_BA-DR9707-1-25JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_BA-DR9707-1-25JUL2022.jpg</a>		Jul 25, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1480 BB

NGS Name: 1480 BB

County: CLAY, MN (Sheet 1)

NGS ACRN:	<a href="#">DR9704</a>	<a href="#">Get Map</a>
NGS Quad / Sta Num :	46096412/	
USGS Quad:	GLYNDON SOUTH	

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	28	139 N	47 W	464957.42	963711.54	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2022	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 84 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

**Description:** (2022)      **Stamping:** 1480 BB 2022

7.0 MILES EAST OF MOORHEAD, 1.9 MILES EAST AND SOUTHEAST ALONG INTERSTATE HIGHWAY 94 FROM THE JUNCTION OF INTERSTATE HIGHWAY 94 AND TRUNK HIGHWAY 336 (THE JUNCTION IS 5.0 MILES EAST OF MOORHEAD), AT INTERSTATE HIGHWAY 94 MILEPOINT 8.0, 42.9 FEET SOUTHWEST OF THE EASTBOUND INTERSTATE HIGHWAY 94 FOG LINE, 23.9 FEET SOUTHWEST OF MILEPOST NUMBER 8, 1.5 FEET NORTHEAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88			Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
915.421	.016	2/1				VERTICAL ADJUSTMENT	2024	0000941-3
915.421	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
915.421			828.253	.020	2011	HORIZONTAL ADJUSTMENT	2024	GPS3715
915.421			828.253	.020	2011	GPS - STATIC	2024	HMOFA2
915.421	.131		828.358	.066	1996	GPS - STATIC	2024	HMOFA2
915.635	.262		828.197	.197	2011	GPS - RTRN	2022	RTRN2022

Geoid Separations(ft): GEOID18 = -87.437 03 = -87.241

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 49 57.42344	96 37 11.53672	520080.199	173915.959	.013		ADJUSTMENT	2024	GPS3715
46 49 57.42344	96 37 11.53672	520080.199	173915.959	.013	C	GPS - STATIC	2024	HMOFA2
46 49 57.42377	96 37 11.53754	520080.142	173915.992	.131	3	GPS - RTRN	2022	RTRN2022

NAD83(1996)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 49 57.42327	96 37 11.53752	520080.144	173915.942	.033	C	GPS - STATIC	2024	HMOFA2

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone		X	Y	Acc	Order	Determination Method	Year	Reference
2031587.809	1005239.399	734744.296	17037131.514	.013		ADJUSTMENT	2024	GPS3715
2031587.809	1005239.399	734744.296	17037131.514	.013	C	GPS - STATIC	2024	HMOFA2
2031587.753	1005239.434	734744.240	17037131.550	.131	3	GPS - RTRN	2022	RTRN2022

NAD83(1996)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone		X	Y	Acc	Order	Determination Method	Year	Reference
2031587.753	1005239.384	734744.239	17037131.499	.033	C	GPS - STATIC	2024	HMOFA2

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_BB-DR9704-3SW-27JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_BB-DR9704-3SW-27JUL2022.jpg</a>	SW	Jul 27, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_BB-DR9704-2-27JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_BB-DR9704-2-27JUL2022.jpg</a>		Jul 27, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_BB-DR9704-1-27JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_BB-DR9704-1-27JUL2022.jpg</a>		Jul 27, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1480 BC  
 County: CLAY, MN (Sheet 1)

NGS Name: 1480 BC

NGS ACRN: [DS3195](#) [Get Map](#)  
 NGS Quad / Sta Num : /

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SW	20	138 N	46 W	464510.19	963119.98		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2023	2023	GOOD	Horz=YES Vert=YES	NO		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 54 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2023) Stamping: 1480 BC 2023

8.2 MILES NORTHWEST OF BARNESVILLE, 7.4 MILES NORTHWEST ALONG INTERSTATE HIGHWAY 94 FROM THE JUNCTION OF INTERSTATE HIGHWAY 94 AND TRUNK HIGHWAY 9 (THE JUNCTION IS 1.5 MILES NORTH OF BARNESVILLE), AT INTERSTATE HIGHWAY 94 MILEPOINT 15.45, 38.2 FEET WEST OF EASTBOUND INTERSTATE HIGHWAY 94, 67.0 FEET EAST OF THE ENTRANCE RAMP FROM COUNTY ROAD 10 TO EASTBOUND INTERSTATE HIGHWAY 94, 1.5 FEET EAST-NORTHEAST OF A WITNESS POST.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>						
945.169			857.905	.024	2011	2025	GPS3805						
945.120	.131		858.023	.066	1996	2025	HTH94A						
945.169			857.905	.024	2011	2025	HTH94A						
946.629	.262		859.231	.197	2011	2023	RTRN2023						

Geoid Separations(ft): GEOID18 = -87.398 03 = -87.234

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>
46 45 10.18589	96 31 19.98262	544590.409	144854.442	.023		2025	GPS3805
46 45 10.18589	96 31 19.98262	544590.409	144854.442	.023	C	2025	HTH94A
46 45 10.18641	96 31 19.98343	544590.353	144854.494	.131	3	2023	RTRN2023

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>
46 45 10.18570	96 31 19.98298	544590.384	144854.423	.033	C	2025	HTH94A

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>
		757869.905	17006934.213	.023		2025	GPS3805
2055184.944	975436.213	757869.905	17006934.213	.023	C	2025	HTH94A
2055184.889	975436.267	757869.851	17006934.269	.131	3	2023	RTRN2023

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>
2055184.918	975436.194	757869.879	17006934.195	.033	C	2025	HTH94A

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_BC-DS3195-3W-22AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_BC-DS3195-3W-22AUG2023.jpg</a>	W	Aug 22, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_BC-DS3195-2-22AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_BC-DS3195-2-22AUG2023.jpg</a>		Aug 22, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_BC-DS3195-1-22AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_BC-DS3195-1-22AUG2023.jpg</a>		Aug 22, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1480 BD  
County: CLAY, MN (Sheet 1)

NGS Name: 1480 BD

NGS ACRN: [DS3196](#) [Get Map](#)  
NGS Quad / Sta Num : /

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SW	33	138 N	46 W	464330.30	962943.09		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2023	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 41 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2023) Stamping: 1480 BD 2023

6.2 MILES NORTHWEST OF BARNESVILLE, 5.05 MILES NORTHWEST ALONG INTERSTATE HIGHWAY 94 FROM THE JUNCTION OF INTERSTATE HIGHWAY 94 AND TRUNK HIGHWAY 9 (THE JUNCTION IS 1.5 MILES NORTH OF BARNESVILLE), AT INTERSTATE HIGHWAY 94 MILEPOINT 17.8, 94.0 FEET SOUTHWEST OF EASTBOUND INTERSTATE HIGHWAY 94, 6.0 FEET NORTHEAST OF A RIGHT-OF-WAY POST, 4.11 FEET NORTHEAST OF RIGHT-OF-WAY FENCE, 1.5 FEET SOUTHWEST OF A WITNESS POST.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>				<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>			
951.182			864.089	.015	2011	HORIZONTAL ADJUSTMENT	2025	GPS3805			
951.143	.131		864.208	.066	1996	GPS - STATIC	2025	HTH94A			
951.182			864.089	.015	2011	GPS - STATIC	2025	HTH94A			
952.656	.262		865.425	.197	2011	GPS - RTRN	2023	RTRN2023			

Geoid Separations(ft): GEOID18 = -87.228 03 = -87.070

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>				<u>Clay County</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
46 43 30.30401	96 29 43.08962	551363.901	134751.350	.013		ADJUSTMENT	2025	GPS3805		
46 43 30.30401	96 29 43.08962	551363.901	134751.350	.013	C	GPS - STATIC	2025	HTH94A		
46 43 30.30362	96 29 43.08994	551363.879	134751.310	.131	3	GPS - RTRN	2023	RTRN2023		

<u>NAD83(1996)</u>		<u>Geodetic Position</u>				<u>Clay County</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
46 43 30.30382	96 29 43.08997	551363.877	134751.331	.033	C	GPS - STATIC	2025	HTH94A		

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
2061641.912	965129.404	764163.421	16996519.170	.013		ADJUSTMENT	2025	GPS3805		
2061641.912	965129.404	764163.421	16996519.170	.013	C	GPS - STATIC	2025	HTH94A		
2061641.889	965129.365	764163.398	16996519.132	.131	3	GPS - RTRN	2023	RTRN2023		

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
2061641.887	965129.385	764163.396	16996519.152	.033	C	GPS - STATIC	2025	HTH94A		

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_BD-DS3196-3NE-22AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_BD-DS3196-3NE-22AUG2023.jpg</a>	NE	Aug 22, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_BD-DS3196-2-22AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_BD-DS3196-2-22AUG2023.jpg</a>		Aug 22, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_BD-DS3196-1-22AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_BD-DS3196-1-22AUG2023.jpg</a>		Aug 22, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1480 BE  
 County: CLAY, MN (Sheet 1)

NGS Name: 1480 BE

NGS ACRN: [DS3197](#) [Get Map](#)  
 NGS Quad / Sta Num : /

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	3	137 N	46 W	464235.37	962823.12		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2023	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 41 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2023)                      Stamping: 1480 BE 2023

4.7 MILES NORTHWEST OF BARNESVILLE, 3.40 MILES NORTHWEST ALONG INTERSTATE HIGHWAY 94 FROM THE JUNCTION OF INTERSTATE HIGHWAY 94 AND TRUNK HIGHWAY 9 (THE JUNCTION IS 1.5 MILES NORTH OF BARNESVILLE), AT INTERSTATE HIGHWAY 94 MILEPOINT 19.3, 103.4 FEET SOUTHWEST OF EASTBOUND INTERSTATE HIGHWAY 94, 1.5 FEET NORTHEAST OF A WITNESS POST.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Orthometric Height				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference			
955.802			868.778	.014	2011	HORIZONTAL ADJUSTMENT	2025	GPS3805			
955.854	.131		868.889	.066	1996	GPS - STATIC	2025	HTH94A			
955.802			868.778	.014	2011	GPS - STATIC	2025	HTH94A			
957.275	.262		870.139	.197	2011	GPS - RTRN	2023	RTRN2023			

Geoid Separations(ft): GEOID18 = -87.136 03 = -86.972

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 42 35.37056	96 28 23.11688	556951.722	129201.088	.013		ADJUSTMENT	2025	GPS3805
46 42 35.37056	96 28 23.11688	556951.722	129201.088	.013	C	GPS - STATIC	2025	HTH94A
46 42 35.37007	96 28 23.11761	556951.671	129201.039	.131	3	GPS - RTRN	2023	RTRN2023

NAD83(1996)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 42 35.37041	96 28 23.11702	556951.712	129201.073	.033	C	GPS - STATIC	2025	HTH94A

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2067054.740	959409.483	769486.341	16990709.855	.013		ADJUSTMENT	2025	GPS3805
2067054.740	959409.483	769486.341	16990709.855	.013	C	GPS - STATIC	2025	HTH94A
2067054.687	959409.435	769486.288	16990709.808	.131	3	GPS - RTRN	2023	RTRN2023

NAD83(1996)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2067054.729	959409.468	769486.330	16990709.840	.033	C	GPS - STATIC	2025	HTH94A

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_BE-DS3197-3SW-22AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_BE-DS3197-3SW-22AUG2023.jpg</a>	SW	Aug 22, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_BE-DS3197-2-22AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_BE-DS3197-2-22AUG2023.jpg</a>		Aug 22, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_BE-DS3197-1-22AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_BE-DS3197-1-22AUG2023.jpg</a>		Aug 22, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1480 BF  
 County: CLAY, MN (Sheet 1)

NGS Name: 1480 BF

NGS ACRN: [DS3198](#) [Get Map](#)  
 NGS Quad / Sta Num : /

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	13	137 N	46 W	464052.39	962550.80		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2023	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 1 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 17 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2023)                      Stamping: 1480 BF 2023

1.9 MILES NORTHWEST OF BARNESVILLE, 0.5 MILE NORTHWEST ALONG INTERSTATE HIGHWAY 94 FROM THE JUNCTION OF INTERSTATE HIGHWAY 94 AND TRUNK HIGHWAY 9 (THE JUNCTION IS 1.5 MILES NORTH OF BARNESVILLE), AT INTERSTATE HIGHWAY 94 MILEPOINT 22.2, 143.2 FEET NORTH OF WESTBOUND INTERSTATE HIGHWAY 94, 2.6 FEET SOUTH OF RIGHT-OF-WAY FENCE, 1.5 FEET SOUTHWEST OF A WITNESS POST.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Orthometric Height				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference			
997.006			910.061	.013	2011	HORIZONTAL ADJUSTMENT	2025	GPS3805			
997.062	.131		910.172	.066	1996	GPS - STATIC	2025	HTH94A			
997.006			910.061	.013	2011	GPS - STATIC	2025	HTH94A			
998.502	.262		911.442	.197	2011	GPS - RTRN	2023	RTRN2023			

Geoid Separations(ft): GEOID18 = -87.060 03 = -86.899

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 40 52.38862	96 25 50.79680	567602.670	118801.047	.013		ADJUSTMENT	2025	GPS3805
46 40 52.38862	96 25 50.79680	567602.670	118801.047	.013	C	GPS - STATIC	2025	HTH94A
46 40 52.38810	96 25 50.79631	567602.704	118800.994	.131	3	GPS - RTRN	2023	RTRN2023

NAD83(1996)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 40 52.38848	96 25 50.79695	567602.660	118801.033	.033	C	GPS - STATIC	2025	HTH94A

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2077377.630	948685.973	779640.821	16979816.267	.013		ADJUSTMENT	2025	GPS3805
2077377.630	948685.973	779640.821	16979816.267	.013	C	GPS - STATIC	2025	HTH94A
2077377.662	948685.920	779640.853	16979816.213	.131	3	GPS - RTRN	2023	RTRN2023

NAD83(1996)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2077377.619	948685.959	779640.810	16979816.254	.033	C	GPS - STATIC	2025	HTH94A

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_BF-DS3198-3NE-22AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_BF-DS3198-3NE-22AUG2023.jpg</a>	NE	Aug 22, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_BF-DS3198-2-22AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_BF-DS3198-2-22AUG2023.jpg</a>		Aug 22, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_BF-DS3198-1-22AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_BF-DS3198-1-22AUG2023.jpg</a>		Aug 22, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1480 C

NGS Name: 1480 C

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0422](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	20	139 N	48 W	465048.20	964528.14	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1959	2022	GOOD	Horz=NO Vert=NO	YES		RECESSED 2 IN.	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	BENCH MARK DISK	MNDT

Description: (1994) Stamping: 1480 C 1959

IN MOORHEAD, 0.5 MILE EAST ALONG INTERSTATE HIGHWAY 94 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND INTERSTATE HIGHWAY 94 IN MOORHEAD, AT INTERSTATE HIGHWAY 94 MILEPOINT 1.05, 100.0 FEET SOUTH OF EASTBOUND INTERSTATE HIGHWAY 94, 75.0 FEET WEST OF A DEAD END ROAD, 400.0 FEET EAST OF MILEPOST 1, 105.2 FEET WEST OF A HIGH TENSION POWER POLE, 40.3 FEET WEST-NORTHWEST OF THE NORTH POLE ON A BILLBOARD SIGN, 0.5 FOOT SOUTH OF A RIGHT-OF-WAY FENCE, 1.1 FEET SOUTH OF A WITNESS POST.

Station Notes

THE SURVEY MARK IS ON PRIVATE PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
906.547	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941	
906.776	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699	
906.803	.016	2/1				VERTICAL ADJUSTMENT	2011	00000685	
906.796	.016	2/1				VERTICAL CONTROL SURVEY	2010	VCOMS	
906.816	.016	2/1				VERTICAL ADJUSTMENT	2004	00000425-2	
906.809	.016	2/1				VERTICAL CONTROL SURVEY	2002	VMORE	
906.819	.016	2/1				VERTICAL CONTROL SURVEY	2002	VMOOR	
906.832	.016	2				VERTICAL ADJUSTMENT	1991	00000025	

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
905.900	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD	
905.900	.016	2				VERTICAL CONTROL SURVEY	1972	Q460964	
905.900	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A	
905.900	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
906.816	.262		819.723	.197	2011	GPS - RTRN	2022	RTRN2022	

Geoid Separations(ft): GEOID18 = -87.090 12B = -87.100 09 = -86.981 03 = -86.890

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 50 48.20422	96 45 28.13929	485554.024	179055.984	.131	3	GPS - RTRN	2022	RTRN2022	

State Plane and UTM Coordinates (Feet)

NAD83(2011)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
1997240.032	1011444.290	700480.607	17043896.218	.131	3	GPS - RTRN	2022	RTRN2022	



**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_C-RP0422-3S-16JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_C-RP0422-3S-16JUN2022.jpg</a>	S	Jun 16, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_C-RP0422-2-16JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_C-RP0422-2-16JUN2022.jpg</a>		Jun 16, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_C-RP0422-1-16JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_C-RP0422-1-16JUN2022.jpg</a>		Jun 16, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1480 D

NGS Name: 1480 D

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	23	139 N	48 W	465049.00	964252.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1961	2022	NOT FOUND	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

**Description:** (1994)                      **Stamping:**

1.9 MILES EAST-SOUTHEAST OF MOORHEAD, 2.9 MILES EAST AND SOUTHEAST ALONG INTERSTATE HIGHWAY 94 (MAIN AVENUE) FROM THE JUNCTION OF INTERSTATE HIGHWAY 94 (MAIN AVENUE) AND 8TH STREET SOUTH IN MOORHEAD, THEN 0.2 MILE NORTHEAST ALONG 34TH STREET SOUTH, THEN 0.4 MILE SOUTH-SOUTHEAST ALONG 34TH STREET SOUTH, 0.3 MILE NORTHEAST ALONG A RAMP, 98.0 FEET RIGHT OF INTERSTATE HIGHWAY 94, AT INTERSTATE HIGHWAY 94 STATION 464+00,

\* No Horizontal or Vertical Positions in the Database \*

**Geoid Separations(ft): GEOID18 = -87.195    12B = -87.208    09 = -87.077    03 = -86.991**



Mn/DOT Name: 1480 E

NGS Name: 1480 E

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0416](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	23	139 N	48 W	465050.00	964216.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1968	2022	NOT FOUND	Horz=NO Vert=NO	NO		PROJECTS 6 IN.	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	BENCH MARK DISK	MNDT

Description: (2004)                      Stamping: 1480 E 1968

1.5 MILES EAST OF MOORHEAD, 0.5 MILE EAST OF THE JUNCTION OF TRUNK HIGHWAY 52 AND INTERSTATE HIGHWAY 94, 98.0 FEET SOUTH OF EASTBOUND INTERSTATE HIGHWAY 94, 800.0 FEET SOUTHEAST OF THE KOA CAMPGROUND BUILDING, 1.0 FOOT NORTH OF A RIGHT-OF-WAY FENCE, 1.0 FOOT EAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
910.848	.016	2/0					VERTICAL ADJUSTMENT	1991	00000025	

  

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
909.933	.016	2/0					UNKNOWN/APPROXIMATE	1992	UNCHECKD	
909.933	.016	2					VERTICAL CONTROL SURVEY	1972	Q460964	
909.933	.016	2					VERTICAL CONTROL SURVEY	1972	L22167-A	
909.933	.016	2					VERTICAL CONTROL SURVEY	1971	L22167-A	

Geoid Separations(ft): GEOID18 = -87.214    12B = -87.228    09 = -87.100    03 = -87.014

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1480 F

NGS Name: 1480 F

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0415](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	23	139 N	48 W	465048.70	964139.30	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1968	2022	GOOD	Horz=NO Vert=YES	YES		RECESSED 3 IN.	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	BENCH MARK DISK	MNDT

**Description:** (2008)                      **Stamping:** 1480 F 1968

2.0 MILES EAST OF MOORHEAD, 1.0 MILE EAST ALONG INTERSTATE 94 FROM THE JUNCTION OF TRUNK HIGHWAY 52 AND INTERSTATE HIGHWAY 94, AT INTERSTATE HIGHWAY 94 MILEPOINT 4.1, 98.0 FEET SOUTH OF EASTBOUND INTERSTATE HIGHWAY 94, AT INTERSTATE HIGHWAY 94 STATION 1516+09, 100.0 FEET WEST OF COUNTY ROAD 78, 1.0 FOOT NORTH OF A RIGHT-OF-WAY FENCE, 1.0 FOOT SOUTH OF A WITNESS POST.

**Station Notes**

DUE TO TREE COVER, THIS SURVEY MARK HAS BEEN ABANDONED FOR MNDOT GEODETIC HORIZONTAL SURVEYS.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
910.654	.016	2/1				VERTICAL ADJUSTMENT	2024	0000941-3	
910.658	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA	
910.618	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941	
910.887	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699	
910.805	.016	2/1				VERTICAL ADJUSTMENT	2011	00000685	
910.864	.016	2/1				VERTICAL CONTROL SURVEY	2010	VCOMS	
910.845	.016	2/1				VERTICAL CONTROL SURVEY	2002	VMORE	
910.805	.016	2				VERTICAL ADJUSTMENT	1991	00000025	

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
909.893	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD	
909.893	.016	2				VERTICAL CONTROL SURVEY	1972	Q460964	
909.893	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A	
909.893	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A	

Geoid Separations(ft): GEOID18 = -87.237    12B = -87.250    09 = -87.119    03 = -87.037

\* No Horizontal Positions in the Database \*

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_F-RP0415-3S-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_F-RP0415-3S-05JUL2022.jpg</a>	S	Jul 5, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_F-RP0415-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_F-RP0415-2-05JUL2022.jpg</a>		Jul 5, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_F-RP0415-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_F-RP0415-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1480 G

NGS Name: 1480 G

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0421](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	21	139 N	48 W	465049.00	964448.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1968	2009	GOOD	Horz=NO Vert=NO	YES	9477	FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE ABUTMENT	BENCH MARK DISK	MNDT

**Description:** (1994)                      **Stamping:** 1480 G 1968

IN MOORHEAD, IN AN ABUTMENT AT THE SOUTHEAST CORNER OF RAILROAD BRIDGE NUMBER 9477 OVER INTERSTATE HIGHWAY 94, 1.0 MILE EAST ALONG INTERSTATE HIGHWAY 94 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND INTERSTATE HIGHWAY 94 IN MOORHEAD, 9.0 FEET EAST OF THE EAST RAIL OF A RAILROAD, 3.5 FEET NORTHWEST OF AN END RIGHT-OF-WAY FENCE POST, 2.8 FEET SOUTHEAST OF RAILROAD MILEPOST 41.0.

**Station Notes**

THE SURVEY MARK IS ON RAILROAD PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
913.427	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941
913.673	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699
913.686	.016	2/1				VERTICAL ADJUSTMENT	2011	00000685
913.679	.016	2/1				VERTICAL CONTROL SURVEY	2010	VCOMS
913.696	.016	2/1				VERTICAL ADJUSTMENT	2004	00000425-2
913.689	.016	2/1				VERTICAL CONTROL SURVEY	2002	VMORE
913.696	.016	2/1				VERTICAL CONTROL SURVEY	2002	VMOOR
913.791	.016	2				VERTICAL ADJUSTMENT	1991	00000025

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
912.862	.016	2				VERTICAL CONTROL SURVEY	1972	Q460964
912.862	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A
912.862	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A

Geoid Separations(ft): GEOID18 = -87.116    12B = -87.132    09 = -87.011    03 = -86.919

\* No Horizontal Positions in the Database \*

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_G-RP0421-3N-16NOV2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_G-RP0421-3N-16NOV2009.jpg</a>	N	Nov 16, 2009
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_G-RP0421-2-16NOV2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_G-RP0421-2-16NOV2009.jpg</a>		Nov 16, 2009
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_G-RP0421-1-16NOV2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_G-RP0421-1-16NOV2009.jpg</a>		Nov 16, 2009

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1480 H

NGS Name: 1480 H

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0420](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	22	139 N	48 W	465049.00	964320.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1968	2001	DESTROYED	Horz=NO Vert=NO	NO	9478		SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STRUCTURE (MASSIVE)	SURVEY DISK	MNDT

**Description:** (1968)                      **Stamping:** 1480 H 1968

IN MOORHEAD, IN THE SOUTHEAST ABUTMENT OF TRUNK HIGHWAY 52 BRIDGE NUMBER 9478 OVER INTERSTATE HIGHWAY 94, AT THE JUNCTION OF TRUNK HIGHWAY 52 AND INTERSTATE HIGHWAY 94.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
913.942	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025	

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
913.023	.016	2				VERTICAL CONTROL SURVEY	1972	Q460964	
913.023	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A	
913.023	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A	

**Geoid Separations(ft): GEOID18 = -87.178    12B = -87.191    09 = -87.063    03 = -86.975**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1480 I

NGS Name: 1480 I

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0419](#) [Get Map](#)  
NGS Quad / Sta Num : 46096413/  
USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	22	139 N	48 W	465049.00	964320.00	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1968	2009	GOOD	Horz=NO Vert=NO	YES	9479	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE ABUTMENT	BENCH MARK DISK	MNDT

Description: (2009) Stamping: 1480 I 1968

IN MOORHEAD, IN THE SOUTHEAST ABUTMENT OF RAILROAD BRIDGE NUMBER 9479 OVER INTERSTATE HIGHWAY 94, AT THE JUNCTION OF COUNTY ROAD 52 AND INTERSTATE HIGHWAY 94, AT INTERSTATE HIGHWAY 94 MILEPOINT 2.8.

Station Notes

THE SURVEY MARK IS ON RAILROAD PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
912.193	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941	
912.452	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699	
912.416	.016	2/1				VERTICAL ADJUSTMENT	2011	00000685	
912.416	.016	2/1				VERTICAL CONTROL SURVEY	2010	VCOMS	
912.416	.016	2/1				VERTICAL CONTROL SURVEY	2002	VMORE	
912.518	.016	2				VERTICAL ADJUSTMENT	1991	00000025	

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
911.599	.016	2				VERTICAL CONTROL SURVEY	1972	Q460964	
911.599	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A	
911.599	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
912.314	.262		825.340	.197	1996	GPS - RTRN	2009	RTRN2009	

Geoid Separations(ft): GEOID18 = -87.175 12B = -87.191 09 = -87.063 03 = -86.975

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
46 50 48.93412	96 43 20.19575	494447.937	179125.400	.131	3	GPS - RTRN	2009	RTRN2009

State Plane and UTM Coordinates (Feet)

NAD83(1996)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
2006131.096	1011238.661	709372.833	17043546.234	.131	3	GPS - RTRN	2009	RTRN2009

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_I-RP0419-3NE-17SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_I-RP0419-3NE-17SEP2009.jpg</a>	NE	Sep 17, 2009
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_I-RP0419-2-17SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_I-RP0419-2-17SEP2009.jpg</a>		Sep 17, 2009
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_I-RP0419-1-17SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_I-RP0419-1-17SEP2009.jpg</a>		Sep 17, 2009

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1480 J

NGS Name: 1480 J

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0427](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	20	139 N	48 W	465048.00	964604.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1968	2002	DESTROYED	Horz=NO Vert=NO	NO	9475		SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE ABUTMENT	SURVEY DISK	MNDT

Description: (2004)                      Stamping: 1480 J 1968

IN MOORHEAD, IN AN ABUTMENT AT THE SOUTHEAST CORNER OF SOUTHBOUND TRUNK HIGHWAY 75 BRIDGE NUMBER 9475 OVER INTERSTATE HIGHWAY 94, 1.9 MILES SOUTH ALONG TRUNK HIGHWAY 75 (8TH STREET SOUTH) FROM THE JUNCTION OF TRUNK HIGHWAY 75 (8TH STREET SOUTH) AND MAIN AVENUE IN MOORHEAD, THEN 377.0 FEET NORTH ALONG TRUNK HIGHWAY 75, AT TRUNK HIGHWAY 75 MILEPOINT 248.35, 19.3 FEET EAST OF SOUTHBOUND TRUNK HIGHWAY 75, 2.7 FEET EAST OF THE BACK OF A GUARDRAIL.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
923.975	.016	2/1					VERTICAL ADJUSTMENT	2011	00000685	
923.975	.016	2/1					VERTICAL ADJUSTMENT	2004	00000425-2	
923.984	.016	2/1					VERTICAL CONTROL SURVEY	2002	VMORE	
923.984	.016	2/1					VERTICAL CONTROL SURVEY	2002	VMOOR	
924.034	.016	2					VERTICAL ADJUSTMENT	1991	00000025	

  

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
923.099	.016	2					VERTICAL CONTROL SURVEY	1972	Q460964	
923.099	.016	2					VERTICAL CONTROL SURVEY	1972	L22167-A	
923.099	.016	2					VERTICAL CONTROL SURVEY	1971	L22167-A	

Geoid Separations(ft): GEOID18 = -87.063    12B = -87.070    09 = -86.955    03 = -86.863

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1480 K

NGS Name: 1480 K

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0414](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	19	139 N	48 W	465050.00	964021.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1968	2008	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	SURVEY DISK	MNDT

**Description:** (1968)                      **Stamping:** 1480 K 1968

3.0 MILES EAST OF MOORHEAD, IN THE SOUTHEAST CORNER OF INTERSTATE HIGHWAY 94 DOUBLE BOX CULVERT, 2.0 MILES EAST OF THE JUNCTION OF TRUNK HIGHWAY 52 AND INTERSTATE HIGHWAY 94, 30.0 FEET SOUTH OF INTERSTATE HIGHWAY 94, AT INTERSTATE HIGHWAY 94 STATION 570+50.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
914.496	.016	2/0					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
913.587	.016	2					VERTICAL CONTROL SURVEY	1972	Q460964	
913.587	.016	2					VERTICAL CONTROL SURVEY	1972	L22167-A	
913.587	.016	2					VERTICAL CONTROL SURVEY	1971	L22167-A	

**Geoid Separations(ft): GEOID18 = -87.283    12B = -87.303    09 = -87.159    03 = -87.083**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1480 L

NGS Name: 1480 L

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0413](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	20	139 N	47 W	465045.00	963904.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1968	2009	DESTROYED	Horz=NO Vert=NO	NO	14801	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE ABUTMENT	BENCH MARK DISK	MNDT

**Description:** (1994)                      **Stamping:** 1480 L 1968

4.0 MILES EAST OF MOORHEAD, IN AN ABUTMENT AT THE SOUTHEAST CORNER OF INTERSTATE HIGHWAY 94 BRIDGE NUMBER 14801 UNDER COUNTY ROAD 11, 2.9 MILES EAST AND SOUTHEAST ALONG INTERSTATE HIGHWAY 94 (MAIN AVENUE) FROM THE JUNCTION OF INTERSTATE HIGHWAY 94 (MAIN AVENUE) AND 8TH STREET SOUTH IN MOORHEAD, THEN 0.2 MILE NORTHEAST ALONG 34TH STREET SOUTH, THEN 0.4 MILE SOUTH-SOUTHEAST ALONG 34TH STREET SOUTH, THEN 3.2 MILES EAST ALONG INTERSTATE HIGHWAY 94 EAST, THEN 174.0 FEET EAST-SOUTHEAST ALONG TRUNK HIGHWAY 336 (COUNTY HIGHWAY 11), AT INTERSTATE HIGHWAY 94 MILEPOINT 6.1, 19.6 FEET EAST OF COUNTY ROAD 11, 3.2 FEET EAST OF THE BACK OF A GUARDRAIL.

**Station Notes**

NEW BRIDGE IN PLACE.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
939.998	.016	2/1				VERTICAL ADJUSTMENT	2011	00000685
940.041	.016	2/1				VERTICAL CONTROL SURVEY	2002	VMORE
940.087	.016	2				VERTICAL ADJUSTMENT	1991	00000025

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
939.184	.016	2				VERTICAL CONTROL SURVEY	1972	Q460964
939.184	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A
939.184	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A

Geoid Separations(ft): GEOID18 = -87.336    12B = -87.355    09 = -87.205    03 = -87.139

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1480 M

NGS Name: 1480 M

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0409](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	21	139 N	47 W	465003.00	963714.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1968	2008	GOOD	Horz=NO Vert=NO	YES	14804		NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE ABUTMENT	BENCH MARK DISK	MNDT

**Description:** (2008)                      **Stamping:** 1480 M 1968

2.5 MILES SOUTHWEST OF GLYNDON, IN THE SOUTHWEST ABUTMENT OF INTERSTATE HIGHWAY 94 BRIDGE NUMBER 14804 OVER THE SOUTH BRANCH OF THE BUFFALO RIVER, 0.3 MILE NORTH ALONG PARKE AVENUE SOUTH FROM THE JUNCTION OF PARKE AVENUE SOUTH AND 4TH STREET SOUTHEAST IN GLYNDON, THEN 3.5 MILES EAST ALONG TRUNK HIGHWAY 10 (STATE STREET NORTHEAST), THEN 8.7 MILES SOUTH ALONG TRUNK HIGHWAY 9 SOUTH (140TH STREET SOUTH), THEN 1.7 MILES WEST ALONG 90TH AVENUE SOUTH, THEN 7.4 MILES NORTHWEST ALONG INTERSTATE HIGHWAY 94 WEST, AT INTERSTATE HIGHWAY 94 MILEPOINT 7.9.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
923.226	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941
923.423	.016	2/1				VERTICAL ADJUSTMENT	2011	00000685
923.423	.016	2/1				VERTICAL CONTROL SURVEY	2008	VCL94
923.423	.016	2/1				VERTICAL ADJUSTMENT	1991	00000025

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
922.521	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
922.521	.016	2				VERTICAL CONTROL SURVEY	1972	Q460964
922.521	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A
922.521	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A

**Geoid Separations(ft):** GEOID18 = -87.434    12B = -87.451    09 = -87.303    03 = -87.237

\* No Horizontal Positions in the Database \*

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<b>Location:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_M-RP0409-3W-08APR2008.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_M-RP0409-3W-08APR2008.jpg</a>	W	Apr 8, 2008
<b>Monument:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_M-RP0409-2-08APR2008.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_M-RP0409-2-08APR2008.jpg</a>		Apr 8, 2008
<b>Disk:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_M-RP0409-1-08APR2008.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_M-RP0409-1-08APR2008.jpg</a>		Apr 8, 2008

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1480 N

NGS Name: 1480 N

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0408](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	27	139 N	47 W	464932.19	963635.74	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1968	2022	GOOD	Horz=NO Vert=YES	YES		RECESSED 8 IN.	MARK IS STEEL PIPE

Monument Type	Disk Type	Mon. Agency
METAL ROD DRIVEN IN GROUND (<10 FT)	METAL ROD	MNDT

**Description:** (2015) **Stamping:** 1480 N 1968

7.0 MILES EAST-SOUTHEAST OF MOORHEAD, 8.30 MILES EAST AND SOUTHEAST ALONG INTERSTATE HIGHWAY 94 FROM THE JUNCTION OF INTERSTATE HIGHWAY 94 AND TRUNK HIGHWAY 75 IN MOORHEAD, AT INTERSTATE HIGHWAY 94 MILEPOINT 8.7, 100.0 FEET NORTHEAST OF WESTBOUND INTERSTATE HIGHWAY 94, 12.0 FEET SOUTH OF THE EAST BARRICADE ACROSS COUNTY ROAD 68, 5.0 FEET WEST OF A WITNESS POST.

**Station Notes**

THE ROD DEPTH IS UNKNOWN.

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88			Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year Reference
922.623	.016	2/1				VERTICAL ADJUSTMENT	2024 00000941-3
922.623	.016	2/1				VERTICAL CONTROL SURVEY	2023 VMOFA
922.800	.016	2/0				VERTICAL ADJUSTMENT	1991 00000025

NGVD29			Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year Reference
921.898	.016	2/0				UNKNOWN/APPROXIMATE	1992 UNCHECKED
921.898	.016	2				VERTICAL CONTROL SURVEY	1972 Q460964
921.898	.016	2				VERTICAL CONTROL SURVEY	1972 L22167-A
921.898	.016	2				VERTICAL CONTROL SURVEY	1971 L22167-A

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year Reference
922.839	.262		835.372	.197	2011	GPS - RTRN	2022 RTRN2022
922.948	.262		835.471	.197	2011	GPS - RTRN	2015 RTRN2015

Geoid Separations(ft): GEOID18 = -87.467 12B = -87.480 09 = -87.342 03 = -87.273

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Clay County			Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year Reference
46 49 32.19025	96 36 35.74033	522572.139	171362.123	.131	3	GPS - RTRN	2022 RTRN2022
46 49 32.18988	96 36 35.73866	522572.255	171362.085	.131	3	GPS - RTRN	2015 RTRN2015

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		UTM - Zone 15			Project Info		
MN State Plane - Central Zone		X	Y	Acc	Order	Determination Method	Year Reference
X	Y	X	Y	Acc	Order	Determination Method	Year Reference
2033999.340	1002609.921	737114.318	17034461.818	.131	3	GPS - RTRN	2022 RTRN2022
2033999.456	1002609.880	737114.433	17034461.775	.131	3	GPS - RTRN	2015 RTRN2015

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_N-RP0408-3NE-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_N-RP0408-3NE-05JUL2022.jpg</a>	NE	Jul 5, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_N-RP0408-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_N-RP0408-2-05JUL2022.jpg</a>		Jul 5, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_N-RP0408-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_N-RP0408-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1480 P

NGS Name: 1480 P

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0407](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	35	139 N	47 W	464823.00	963517.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1969	2008	GOOD	Horz=NO Vert=YES	YES	14802	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE ABUTMENT	BENCH MARK DISK	MNDT

Description: (2008)                      Stamping: 1480 P 1969

4.0 MILES SOUTH OF GLYNDON, IN THE SOUTHEAST CORNER OF COUNTY ROAD 17 BRIDGE NUMBER 14802 OVER INTERSTATE HIGHWAY 94, 0.7 MILE SOUTH ALONG PARKE AVENUE SOUTH FROM THE JUNCTION OF PARKE AVENUE SOUTH AND 4TH STREET SOUTHEAST IN GLYNDON, THEN 0.4 MILE WEST ALONG COUNTY ROAD 72 (12TH STREET SOUTHEAST), THEN 3.9 MILES SOUTH ALONG 100TH STREET SOUTH, AT INTERSTATE HIGHWAY 94 MILEPOINT 10.2.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
948.571	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941
948.745	.016	2/1				VERTICAL ADJUSTMENT	2011	00000685
948.745	.016	2/1				VERTICAL CONTROL SURVEY	2008	VCL94
948.791	.016	2				VERTICAL ADJUSTMENT	1991	00000025

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
947.869	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
947.869	.016	2				VERTICAL CONTROL SURVEY	1972	Q460964
947.869	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A
947.869	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A

**Geoid Separations(ft): GEOID18 = -87.506    12B = -87.513    09 = -87.385    03 = -87.316**

**\* No Horizontal Positions in the Database \***

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<b>Location:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_P-RP0407-3S-08APR2008.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_P-RP0407-3S-08APR2008.jpg</a>	S	Apr 8, 2008
<b>Monument:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_P-RP0407-2-08APR2008.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_P-RP0407-2-08APR2008.jpg</a>		Apr 8, 2008
<b>Disk:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_P-RP0407-1-24APR2008.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_P-RP0407-1-24APR2008.jpg</a>		Apr 24, 2008

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1480 P 1

NGS Name: 1480 P 1

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0403](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
				<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	2	138 N	47 W	464814.00	963509.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1968	2008	GOOD	Horz=NO Vert=YES	YES		FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	BENCH MARK DISK	MNDT

**Description:** (2008) **Stamping:** 1480 P 1 1968

5.0 MILES SOUTH OF GLYNDON, IN THE SOUTHWEST HEADWALL OF AN INTERSTATE HIGHWAY 94 BOX CULVERT AT A DITCH, 0.3 MILE NORTH ALONG PARKE AVENUE SOUTH FROM THE JUNCTION OF PARKE AVENUE SOUTH AND 4TH STREET SOUTHEAST IN GLYNDON, THEN 3.3 MILES WEST ALONG TRUNK HIGHWAY 10 WEST (STATE STREET NORTHEAST), THEN 2.6 MILES SOUTH ALONG TRUNK HIGHWAY 336 SOUTH (70TH STREET NORTH), THEN 4.4 MILES SOUTHEAST ALONG INTERSTATE HIGHWAY 94 EAST, AT INTERSTATE HIGHWAY 94 MILEPOINT 10.55, 35.0 FEET WEST OF EASTBOUND INTERSTATE HIGHWAY 94, AT INTERSTATE HIGHWAY 94 STATION 856+80.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
931.045	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941
931.219	.016	2/1				VERTICAL ADJUSTMENT	2011	00000685
931.215	.016	2/1				VERTICAL CONTROL SURVEY	2008	VCL94
931.251	.016	2				VERTICAL ADJUSTMENT	1991	00000025

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
930.346	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
930.346	.016	2				VERTICAL CONTROL SURVEY	1972	Q460964
930.346	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A
930.346	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A

**Geoid Separations(ft): GEOID18 = -87.506 12B = -87.510 09 = -87.388 03 = -87.319**

**\* No Horizontal Positions in the Database \***

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<b>Location:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_P_1-RP0403-3W-08APR2008.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_P_1-RP0403-3W-08APR2008.jpg</a>	W	Apr 8, 2008
<b>Monument:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_P_1-RP0403-2-08APR2008.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_P_1-RP0403-2-08APR2008.jpg</a>		Apr 8, 2008
<b>Disk:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_P_1-RP0403-1-08APR2008.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_P_1-RP0403-1-08APR2008.jpg</a>		Apr 8, 2008

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1480 Q

NGS Name: 1480 Q

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0402](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	12	138 N	47 W	464724.00	963403.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1968	2008	GOOD	Horz=NO Vert=YES	YES			NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	BENCH MARK DISK	MNDT

**Description:** (2008)                      **Stamping:** 1480 Q 1968

4.0 MILES EAST-NORTHEAST OF SABIN, IN THE SOUTHWEST CORNER OF AN INTERSTATE HIGHWAY 94 BOX CULVERT, 0.7 MILE SOUTH ALONG PARKE AVENUE SOUTH FROM THE JUNCTION OF PARKE AVENUE AND 4TH STREET SOUTHEAST IN GLYNDON, THEN 0.4 MILE WEST ALONG COUNTY ROAD 72 (12TH STREET SOUTHEAST), THEN 5.0 MILES SOUTH ALONG 100TH STREET SOUTH, THEN 1.0 MILE EAST ALONG COUNTY ROAD 67 (70TH AVENUE SOUTH), THEN 141.0 FEET SOUTH COUNTY ROAD 69 (110TH STREET SOUTH), AT INTERSTATE HIGHWAY 94 MILEPOINT 11.85, 35.0 FEET WEST OF EASTBOUND INTERSTATE HIGHWAY 94, AT INTERSTATE HIGHWAY 94 STATION 925+25, NEAR COUNTY ROAD 71.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
932.721	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941
932.882	.016	2/1				VERTICAL ADJUSTMENT	2011	00000685
932.882	.016	2/1				VERTICAL CONTROL SURVEY	2008	VCL94
932.987	.016	2				VERTICAL ADJUSTMENT	1991	00000025

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
932.081	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
932.081	.016	2				VERTICAL CONTROL SURVEY	1972	Q460964
932.081	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A
932.081	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A

**Geoid Separations(ft): GEOID18 = -87.503    12B = -87.503    09 = -87.388    03 = -87.319**

**\* No Horizontal Positions in the Database \***

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<b>Location:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_Q-RP0402-3W-08APR2008.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_Q-RP0402-3W-08APR2008.jpg</a>	W	Apr 8, 2008
<b>Monument:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_Q-RP0402-2-08APR2008.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_Q-RP0402-2-08APR2008.jpg</a>		Apr 8, 2008
<b>Disk:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_Q-RP0402-1-08APR2008.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_Q-RP0402-1-08APR2008.jpg</a>		Apr 8, 2008

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1480 R

NGS Name: 1480 R

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0395](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	18	138 N	46 W	464608.00	963135.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1968	2001	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE FOOTING - SMALL	SURVEY DISK	MNDT

**Description:** (2004)                      **Stamping:** 1480 R 1968

2.0 MILES NORTHWEST OF DOWNER, 0.2 MILE EAST ALONG COUNTY ROAD 10 (90TH AVENUE SOUTH) FROM THE JUNCTION OF COUNTY ROAD 10 (90TH AVENUE SOUTH) AND 148TH STREET SOUTH IN DOWNER, THEN 1.1 MILES NORTH-NORTHWEST ALONG TRUNK HIGHWAY 9 NORTH, THEN 1.5 MILES WEST ALONG 85TH AVENUE SOUTH, THEN 148.0 FEET NORTH ALONG COUNTY ROAD 21 (130TH STREET SOUTH), 100.0 FEET NORTH OF WESTBOUND INTERSTATE HIGHWAY 94, AT INTERSTATE HIGHWAY 94 STATION 1058+10, 35.0 FEET SOUTH OF COUNTY ROAD 70, 3.0 FEET SOUTHEAST OF THE SOUTH END OF A ROAD BARRICADE, 2.0 FEET SOUTH OF A WITNESS POST.

**Station Notes**  
 THE SURVEY MARK WAS RESET.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>							<u>Project Info</u>	
<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			
942.439	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

  

<u>NGVD29</u>							<u>Project Info</u>	
<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			
941.540	.016	2				VERTICAL CONTROL SURVEY	1972	Q460964
941.540	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A
941.540	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A

**Geoid Separations(ft): GEOID18 = -87.477    12B = -87.460    09 = -87.355    03 = -87.300**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1480 R RESET

NGS Name: 1480 R RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0396](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	18	138 N	46 W	464601.26	963134.42	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1968	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 10 IN.	MARKER IS STEEL ROD

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
METAL ROD DRIVEN IN GROUND (<10 FT) (DEPTH 11 FT)	METAL ROD	MNDT

Description: (2015)                      Stamping: 1480 R 1968

2.0 MILES NORTHWEST OF DOWNER, 1.0 MILE NORTHWEST ALONG INTERSTATE HIGHWAY 94 FROM THE JUNCTION OF INTERSTATE HIGHWAY 94 AND COUNTY ROAD 10 (THE JUNCTION IS 1.0 MILE WEST OF DOWNER), AT INTERSTATE HIGHWAY 94 MILEPOINT 14.35, 98.0 FEET NORTHEAST OF WESTBOUND INTERSTATE HIGHWAY 94, 1.0 FOOT SOUTHEAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
940.461	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941
940.599	.016	2/1				VERTICAL ADJUSTMENT	2011	00000685
940.599	.016	2/1				VERTICAL CONTROL SURVEY	2008	VCL94
940.599	.016	2/1				VERTICAL ADJUSTMENT	2006	00000425-10
940.599	.016	2/1				VERTICAL CONTROL SURVEY	2005	VPIET
940.599	.016	2/1				VERTICAL ADJUSTMENT	1991	00000025

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
939.700	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
939.700	.016	2				VERTICAL CONTROL SURVEY	1972	Q460964
939.700	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A
939.700	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
940.461			853.164	.014	2011	HORIZONTAL ADJUSTMENT	2025	GPS3805
940.461	.131		853.302	.066	1996	GPS - STATIC	2025	HTH94A
940.461			853.164	.014	2011	GPS - STATIC	2025	HTH94A
940.644	.262		853.174	.197	2011	GPS - RTRN	2023	RTRN2023
940.553	.262		853.102	.197	2011	GPS - RTRN	2015	RTRN2015
940.599			853.164	.016	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084
940.599	.131		853.302	.066	1996	GPS - STATIC	2015	HCLAY
940.599			853.168	.016	2011	GPS - STATIC	2015	HCLAY
940.599			853.164	.020	2011	HORIZONTAL ADJUSTMENT	2014	GPS2750
940.599			853.164	.020	2011	GPS - STATIC	2014	HBARN
940.582	.131		853.250	.066	2007	GPS - STATIC	2010	HBARN
940.599	.131		853.302	.066	1996	GPS - STATIC	2010	HBARN

Geoid Separations(ft): GEOID18 = -87.467    12B = -87.451    09 = -87.346    03 = -87.293

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 46 01.26034	96 31 34.41673	543573.854	150026.805	.010		ADJUSTMENT	2025	GPS3805
46 46 01.26034	96 31 34.41673	543573.854	150026.805	.010	C	GPS - STATIC	2025	HTH94A
46 46 01.26077	96 31 34.41648	543573.871	150026.848	.131	3	GPS - RTRN	2023	RTRN2023
46 46 01.26154	96 31 34.41619	543573.891	150026.926	.131	3	GPS - RTRN	2015	RTRN2015
46 46 01.26034	96 31 34.41673	543573.854	150026.805	.013		ADJUSTMENT	2015	GPS3084
46 46 01.26057	96 31 34.41681	543573.848	150026.828	.013	C	GPS - STATIC	2015	HCLAY
46 46 01.26034	96 31 34.41673	543573.854	150026.805	.016		ADJUSTMENT	2014	GPS2750
46 46 01.26034	96 31 34.41673	543573.854	150026.805	.016	C	GPS - STATIC	2014	HBARN

**NAD83(2007)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 46 01.26046	96 31 34.41759	543573.794	150026.816	.033	C	GPS - STATIC	2010	HBARN

**NAD83(1996)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 46 01.25998	96 31 34.41761	543573.793	150026.768	.033	C	GPS - STATIC	2025	HTH94A
46 46 01.25998	96 31 34.41761	543573.793	150026.768	.033	C	GPS - STATIC	2015	HCLAY
46 46 01.25998	96 31 34.41761	543573.793	150026.768	.033	C	GPS - STATIC	2010	HBARN

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2054329.008	980637.045	757097.510	17012150.988	.010		ADJUSTMENT	2025	GPS3805
2054329.008	980637.045	757097.510	17012150.988	.010	C	GPS - STATIC	2025	HTH94A
2054329.027	980637.088	757097.529	17012151.031	.131	3	GPS - RTRN	2023	RTRN2023
2054329.049	980637.165	757097.553	17012151.108	.131	3	GPS - RTRN	2015	RTRN2015
2054329.008	980637.045	757097.510	17012150.988	.013		ADJUSTMENT	2015	GPS3084
2054329.004	980637.068	757097.506	17012151.011	.013	C	GPS - STATIC	2015	HCLAY
2054329.008	980637.045	757097.510	17012150.988	.016		ADJUSTMENT	2014	GPS2750
2054329.008	980637.045	757097.510	17012150.988	.016	C	GPS - STATIC	2014	HBARN

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2054328.949	980637.058	757097.451	17012151.003	.033	C	GPS - STATIC	2010	HBARN

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2054328.946	980637.010	757097.447	17012150.954	.033	C	GPS - STATIC	2025	HTH94A
2054328.946	980637.010	757097.447	17012150.954	.033	C	GPS - STATIC	2015	HCLAY
2054328.946	980637.010	757097.447	17012150.954	.033	C	GPS - STATIC	2010	HBARN

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_R_RESET-RP0396-3NE-14AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_R_RESET-RP0396-3NE-14AUG2023.jpg</a>	NE	Aug 14, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_R_RESET-RP0396-2-14AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_R_RESET-RP0396-2-14AUG2023.jpg</a>		Aug 14, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_R_RESET-RP0396-1-14AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_R_RESET-RP0396-1-14AUG2023.jpg</a>		Aug 14, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1480 S

NGS Name: 1480 S

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0394](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	20	138 N	46 W	464515.96	963116.43	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1968	2010	GOOD	Horz=NO Vert=YES	YES	14805	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE ABUTMENT	BENCH MARK DISK	MNDT

**Description:** (1968)                      **Stamping:** 1480 S 1968

1.9 MILES WEST OF DOWNER, IN THE SOUTHEAST ABUTMENT OF BRIDGE NUMBER 14805, AT THE JUNCTION OF COUNTY ROAD 10 AND INTERSTATE HIGHWAY 94 (THE JUNCTION IS 1.0 MILE WEST OF DOWNER), AT INTERSTATE HIGHWAY 94 MILEPOINT 15.20, 25.0 FEET SOUTH OF COUNTY ROAD 10.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
965.825	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941
965.959	.016	2/1				VERTICAL ADJUSTMENT	2012	00000717
965.959	.016	2/1				VERTICAL ADJUSTMENT	2011	00000685
965.959	.016	2/1				VERTICAL CONTROL SURVEY	2010	VBARN
965.959	.016	2/1				VERTICAL CONTROL SURVEY	2008	VCL94
965.959	.016	2/1				VERTICAL ADJUSTMENT	2006	00000425-10
965.959	.016	2/1				VERTICAL CONTROL SURVEY	2005	VPIET
966.015	.016	2				VERTICAL ADJUSTMENT	1991	00000025

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
965.119	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
965.119	.016	2				VERTICAL CONTROL SURVEY	1972	Q460964
965.119	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A
965.119	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A

Geoid Separations(ft): GEOID18 = -87.411    12B = -87.382    09 = -87.280    03 = -87.244

\* No Horizontal Positions in the Database \*

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_S-RP0394-3S-09APR2008.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_S-RP0394-3S-09APR2008.jpg</a>	S	Apr 9, 2008
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_S-RP0394-2-09APR2008.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_S-RP0394-2-09APR2008.jpg</a>		Apr 9, 2008
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_S-RP0394-1-09APR2008.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_S-RP0394-1-09APR2008.jpg</a>		Apr 9, 2008

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1480 T

NGS Name: 1480 T

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0393](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096421/  
 USGS Quad: BAKER

		<u>Reference</u>		<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>
SE	29	138 N	46 W	464420.85	963056.99	2 C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1968	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 8 IN.	MARKER IS STEEL ROD

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
METAL ROD DRIVEN IN GROUND (<10 FT) (DEPTH 11 FT)	METAL ROD	MNDT

Description: (2015) Stamping: 1480 T 1968

1.8 MILES WEST OF DOWNER, 1.1 MILES SOUTH ALONG EASTBOUND INTERSTATE HIGHWAY 94 FROM THE JUNCTION OF INTERSTATE HIGHWAY 94 AND COUNTY ROAD 10 (THE JUNCTION IS 1.0 MILES WEST OF DOWNER), AT INTERSTATE HIGHWAY 94 MILEPOINT 16.45, AT INTERSTATE HIGHWAY 94 STATION 1167+00, 98.0 FEET SOUTHWEST OF EASTBOUND INTERSTATE HIGHWAY 94, 1.0 FOOT SOUTHWEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
944.122	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941
944.253	.016	2/1				VERTICAL ADJUSTMENT	2012	00000717
944.253	.016	2/1				VERTICAL ADJUSTMENT	2011	00000685
944.253	.016	2/1				VERTICAL CONTROL SURVEY	2010	VBARN
944.253	.016	2/1				VERTICAL CONTROL SURVEY	2008	VCL94
944.253	.016	2/1				VERTICAL ADJUSTMENT	2006	00000425-10
944.253	.016	2/1				VERTICAL CONTROL SURVEY	2005	VPIET
944.253	.016	2/1				VERTICAL ADJUSTMENT	1991	00000025

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
943.361	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKED
943.361	.016	2				VERTICAL CONTROL SURVEY	1972	Q460964
943.361	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A
943.361	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
944.122			856.973	.017	2011	HORIZONTAL ADJUSTMENT	2025	GPS3805
944.122	.131		857.114	.066	1996	GPS - STATIC	2025	HTH94A
944.122			856.973	.017	2011	GPS - STATIC	2025	HTH94A
944.253	.262		856.941	.197	2011	GPS - RTRN	2023	RTRN2023
944.217	.262		856.901	.197	2011	GPS - OPUS	2021	GPSBM
944.247	.262		856.934	.197	2011	GPS - RTRN	2021	RTRN2021
944.201	.262		856.918	.197	2011	GPS - RTRN	2015	RTRN2015
944.253			856.973	.019	2011	HORIZONTAL ADJUSTMENT	2014	GPS2750
944.253			856.973	.019	2011	GPS - STATIC	2014	HBARN
944.257	.131		857.059	.066	2007	GPS - STATIC	2010	HBARN
944.253	.131		857.114	.066	1996	GPS - STATIC	2010	HBARN
			857.177	.066	1996	GPS - STATIC	2001	DIST 4

Geoid Separations(ft): GEOID18 = -87.316 12B = -87.283 09 = -87.185 03 = -87.155

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 44 20.85118	96 30 56.99403	546202.926	139859.790	.013		ADJUSTMENT	2025	GPS3805
46 44 20.85118	96 30 56.99403	546202.926	139859.790	.013	C	GPS - STATIC	2025	HTH94A
46 44 20.85157	96 30 56.99368	546202.950	139859.830	.131	3	GPS - RTRN	2023	RTRN2023
46 44 20.85137	96 30 56.99480	546202.872	139859.810	.131	3	GPS - OPUS	2021	GPSBM
46 44 20.85152	96 30 56.99576	546202.805	139859.825	.131	3	GPS - RTRN	2021	RTRN2021
46 44 20.85162	96 30 56.99550	546202.823	139859.835	.131	3	GPS - RTRN	2015	RTRN2015
46 44 20.85118	96 30 56.99403	546202.926	139859.790	.013		ADJUSTMENT	2014	GPS2750
46 44 20.85118	96 30 56.99403	546202.926	139859.790	.013	C	GPS - STATIC	2014	HBARN

**NAD83(2007)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 44 20.85131	96 30 56.99497	546202.860	139859.803	.033	C	GPS - STATIC	2010	HBARN

**NAD83(1996)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 44 20.85097	96 30 56.99456	546202.889	139859.769	.033	C	GPS - STATIC	2025	HTH94A
46 44 20.85097	96 30 56.99456	546202.889	139859.769	.033	C	GPS - STATIC	2010	HBARN
46 44 20.85080	96 30 56.99473	546202.877	139859.753	.033	C	GPS - STATIC	2001	DIST 4

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2056641.992	970394.561	759246.282	17001867.004	.013		ADJUSTMENT	2025	GPS3805
2056641.992	970394.561	759246.282	17001867.004	.013	C	GPS - STATIC	2025	HTH94A
2056642.018	970394.600	759246.309	17001867.042	.131	3	GPS - RTRN	2023	RTRN2023
2056641.940	970394.582	759246.230	17001867.026	.131	3	GPS - OPUS	2021	GPSBM
2056641.873	970394.599	759246.164	17001867.044	.131	3	GPS - RTRN	2021	RTRN2021
2056641.891	970394.608	759246.182	17001867.053	.131	3	GPS - RTRN	2015	RTRN2015
2056641.992	970394.561	759246.282	17001867.004	.013		ADJUSTMENT	2014	GPS2750
2056641.992	970394.561	759246.282	17001867.004	.013	C	GPS - STATIC	2014	HBARN

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2056641.927	970394.576	759246.217	17001867.020	.033	C	GPS - STATIC	2010	HBARN

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2056641.955	970394.541	759246.245	17001866.984	.033	C	GPS - STATIC	2025	HTH94A
2056641.955	970394.541	759246.245	17001866.984	.033	C	GPS - STATIC	2010	HBARN
2056641.943	970394.523	759246.232	17001866.968	.033	C	GPS - STATIC	2001	DIST 4

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_T-RP0393-3SW-14AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_T-RP0393-3SW-14AUG2023.jpg</a>	SW	Aug 14, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_T-RP0393-2-14AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_T-RP0393-2-14AUG2023.jpg</a>		Aug 14, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_T-RP0393-1-14AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_T-RP0393-1-14AUG2023.jpg</a>		Aug 14, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1480 U

NGS Name: 1480 U

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0102](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	33	138 N	46 W	464328.00	962920.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1968	2010	GOOD	Horz=NO Vert=YES	NO		FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	BENCH MARK DISK	MNDT

Description: (1968)                      Stamping: 1480 U 1968

2.0 MILES SOUTH OF DOWNER, IN THE SOUTHEAST HEADWALL OF A WESTBOUND INTERSTATE HIGHWAY 94 BOX CULVERT AT A DITCH, 1.8 MILES NORTH ALONG TRUNK HIGHWAY 9 NORTH (FRONT STREET NORTH) FROM THE JUNCTION OF TRUNK HIGHWAY 9 NORTH (FRONT STREET NORTH) AND MAIN AVENUE WEST IN BARNESVILLE, THEN 4.6 MILES NORTHWEST ON INTERSTATE HIGHWAY 94 WEST, AT INTERSTATE HIGHWAY 94 TO MILEPOINT 17.8, 35.0 FEET EAST OF WESTBOUND INTERSTATE HIGHWAY 94.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
953.581	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
953.732	.016	2/1					VERTICAL ADJUSTMENT	2012	00000717	
953.732	.016	2/1					VERTICAL CONTROL SURVEY	2010	VBARN	
953.873	.016	2					VERTICAL ADJUSTMENT	1991	00000025	

  

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
952.990	.016	2/0					UNKNOWN/APPROXIMATE	1992	UNCHECKD	
952.990	.016	2					VERTICAL CONTROL SURVEY	1972	Q460961	
952.990	.016	2					VERTICAL CONTROL SURVEY	1972	L22167-A	
952.990	.016	2					VERTICAL CONTROL SURVEY	1971	L22167-A	

**Geoid Separations(ft): GEOID18 = -87.231    12B = -87.211    09 = -87.106    03 = -87.070**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1480 V

NGS Name: 1480 V

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0101](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	3	137 N	46 W	464235.00	962816.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1968	2010	GOOD	Horz=NO Vert=YES	NO		FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	BENCH MARK DISK	MNDT

**Description:** (1968)                      **Stamping:** 1480 V 1968

3.5 MILES NORTHWEST OF BARNESVILLE, IN THE SOUTHEAST CORNER OF A WESTBOUND INTERSTATE HIGHWAY 94 DOUBLE BOX CULVERT AT STONEY CREEK, 1.8 MILES NORTH ALONG TRUNK HIGHWAY 9 NORTH (FRONT STREET NORTH) FROM THE JUNCTION OF TRUNK HIGHWAY 9 NORTH (FRONT STREET NORTH) AND MAIN AVENUE WEST IN BARNESVILLE, THEN 3.3 MILES NORTHWEST ALONG INTERSTATE HIGHWAY 94 WEST, AT INTERSTATE HIGHWAY 94 TRUNK HIGHWAY 94 MILEPOINT 19.35, 1.0 MILE WEST OF TRUNK HIGHWAY 9, 35.0 FEET NORTH OF WESTBOUND INTERSTATE HIGHWAY 94, AT INTERSTATE HIGHWAY 94 STATION 1321+80.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
959.906	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941
960.077	.016	2/1				VERTICAL ADJUSTMENT	2012	00000717
960.077	.016	2/1				VERTICAL CONTROL SURVEY	2010	VBARN
960.077	.016	2/1				VERTICAL ADJUSTMENT	1991	00000025

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
959.201	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
959.201	.016	2				VERTICAL CONTROL SURVEY	1972	Q460961
959.201	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A
959.201	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A

**Geoid Separations(ft): GEOID18 = -87.136 12B = -87.136 09 = -87.027 03 = -86.972**

**\* No Horizontal Positions in the Database \***



Mn/DOT Name: 1480 W

NGS Name: 1480 W

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0097](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	14	137 N	46 W	464119.59	962644.64	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1968	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 12 IN.	MARKER IS STEEL ROD

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
METAL ROD DRIVEN IN GROUND (<10 FT) (DEPTH 3 FT)	METAL ROD	MNDT

**Description:** (2015)                      **Stamping:** 1480 W 1968

2.0 MILES NORTHWEST OF BARNESVILLE, 1.5 MILES NORTHWEST ALONG INTERSTATE HIGHWAY 94 FROM THE JUNCTION OF INTERSTATE HIGHWAY 94 AND TRUNK HIGHWAY 9 (THE JUNCTION IS 1.5 MILES NORTH OF BARNESVILLE), AT INTERSTATE HIGHWAY 94 MILEPOINT 21.25, AT INTERSTATE HIGHWAY 94 STATION 1421+55, 97.0 FEET NORTHEAST OF WESTBOUND INTERSTATE HIGHWAY 94, 1.0 FOOT NORTHWEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
976.927	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941		
977.062	.016	2/1				VERTICAL ADJUSTMENT	2012	00000717		
977.062	.016	2/1				VERTICAL CONTROL SURVEY	2010	VBARN		
977.062	.016	2/1				VERTICAL ADJUSTMENT	1991	00000025		

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
976.196	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD		
976.196	.016	2				VERTICAL CONTROL SURVEY	1972	Q460961		
976.196	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A		
976.196	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
976.927			890.002	.014	2011	HORIZONTAL ADJUSTMENT	2025	GPS3805		
976.927	.131		890.159	.066	1996	GPS - STATIC	2025	HTH94A		
976.927			890.002	.014	2011	GPS - STATIC	2025	HTH94A		
977.035	.262		889.972	.197	2011	GPS - RTRN	2023	RTRN2023		
977.035	.262		889.972	.197	2011	GPS - RTRN	2015	RTRN2015		
977.065	.131		890.100	.066	2007	GPS - STATIC	2010	HBARN		
977.062	.131		890.159	.066	1996	GPS - STATIC	2010	HBARN		
			890.218	.066	1996	GPS - STATIC	2001	DIST 4		

Geoid Separations(ft): GEOID18 = -87.060    12B = -87.067    09 = -86.958    03 = -86.896

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 41 19.58555	96 26 44.63974	563839.447	121543.989	.013		ADJUSTMENT	2025	GPS3805
46 41 19.58555	96 26 44.63974	563839.447	121543.989	.013	C	GPS - STATIC	2025	HTH94A
46 41 19.58527	96 26 44.64026	563839.410	121543.961	.131	3	GPS - RTRN	2023	RTRN2023
46 41 19.58569	96 26 44.63942	563839.469	121544.003	.131	3	GPS - RTRN	2015	RTRN2015

**NAD83(2007)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 41 19.58555	96 26 44.64076	563839.376	121543.989	.033	C	GPS - STATIC	2010	HBARN

**NAD83(1996)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 41 19.58516	96 26 44.64050	563839.394	121543.949	.033	C	GPS - STATIC	2025	HTH94A
46 41 19.58516	96 26 44.64050	563839.394	121543.949	.033	C	GPS - STATIC	2010	HBARN
46 41 19.58525	96 26 44.64024	563839.410	121543.960	.033	C	GPS - STATIC	2001	DIST 4

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2073701.497	951543.748	776009.206	16982734.191	.013		ADJUSTMENT	2025	GPS3805
2073701.497	951543.748	776009.206	16982734.191	.013	C	GPS - STATIC	2025	HTH94A
2073701.460	951543.721	776009.168	16982734.164	.131	3	GPS - RTRN	2023	RTRN2023
2073701.520	951543.762	776009.228	16982734.204	.131	3	GPS - RTRN	2015	RTRN2015

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2073701.426	951543.750	776009.134	16982734.194	.033	C	GPS - STATIC	2010	HBARN

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2073701.443	951543.710	776009.151	16982734.154	.033	C	GPS - STATIC	2025	HTH94A
2073701.443	951543.710	776009.151	16982734.154	.033	C	GPS - STATIC	2010	HBARN
2073701.461	951543.719	776009.169	16982734.162	.033	C	GPS - STATIC	2001	DIST 4

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_W-RP0097-3NE-14AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_W-RP0097-3NE-14AUG2023.jpg</a>	NE	Aug 14, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_W-RP0097-2-14AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_W-RP0097-2-14AUG2023.jpg</a>		Aug 14, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_W-RP0097-1-14AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_W-RP0097-1-14AUG2023.jpg</a>		Aug 14, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1480 X  
County: CLAY, MN (Sheet 1)

NGS Name: 1480 X

NGS ACRN: [RP0096](#) [Get Map](#)  
NGS Quad / Sta Num : 46096134/  
USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	13	137 N	46 W	464052.00	962602.00	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1969	2022	GOOD	Horz=NO Vert=NO	YES	14810	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE ABUTMENT	BENCH MARK DISK	MNDT

**Description:** (2014)                      **Stamping:** 1480 X 1969

2.0 MILES NORTH OF BARNESVILLE, IN A BRIDGE ABUTMENT IN THE SOUTHEAST CORNER OF EASTBOUND INTERSTATE HIGHWAY 94 BRIDGE NUMBER 14810 OVER THE RAILROAD TRACKS, 2.45 MILES NORTHWEST ALONG INTERSTATE HIGHWAY 94 FROM THE JUNCTION OF INTERSTATE HIGHWAY 94 AND TRUNK HIGHWAY 34 (THE JUNCTION IS 1.0 MILE EAST OF BARNESVILLE), AT INTERSTATE HIGHWAY 94 MILEPOINT 22.1, 24.5 FEET SOUTH OF EASTBOUND INTERSTATE HIGHWAY 94.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1019.253	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
1019.401	.016	2/1					VERTICAL ADJUSTMENT	2012	00000717	
1019.401	.016	2/1					VERTICAL CONTROL SURVEY	2010	VBARN	
1019.421	.016	2					VERTICAL ADJUSTMENT	1991	00000025	

  

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1018.551	.016	2/0					UNKNOWN/APPROXIMATE	1992	UNCHECKD	
1018.551	.016	2					VERTICAL CONTROL SURVEY	1972	Q460961	
1018.551	.016	2					VERTICAL CONTROL SURVEY	1972	L22167-A	
1018.551	.016	2					VERTICAL CONTROL SURVEY	1971	L22167-A	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1019.417	.262			932.360	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.057 12B = -87.057 09 = -86.952 03 = -86.896

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>									
46 40 51.91827	96 25 59.93779			566965.454	118751.225	.131	3	2014	RTRN2014	

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	
<u>X</u>	<u>Y</u>									
2076739.248	948655.899			779001.715	16979796.436	.131	3	2014	RTRN2014	

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_X-RP0096-3S-13SEP2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_X-RP0096-3S-13SEP2022.jpg</a>	S	Sep 13, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_X-RP0096-2-13SEP2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_X-RP0096-2-13SEP2022.jpg</a>		Sep 13, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_X-RP0096-1-13SEP2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_X-RP0096-1-13SEP2022.jpg</a>		Sep 13, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1480 Y  
County: CLAY, MN (Sheet 1)

NGS Name: 1480 Y

NGS ACRN: [RP0091](#) [Get Map](#)  
NGS Quad / Sta Num : 46096134/  
USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	18	137 N	45 W	464039.92	962512.38	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1968	2023	GOOD	Horz=NO Vert=NO	YES	14807	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE ABUTMENT	BENCH MARK DISK	MNDT

**Description:** (2014) **Stamping:** 1480 Y 1968

1.6 MILES NORTH OF BARNESVILLE, IN A BRIDGE ABUTMENT IN THE SOUTHEAST CORNER OF TRUNK HIGHWAY 9 BRIDGE NUMBER 14807 OVER INTERSTATE HIGHWAY 94, 1.5 MILES NORTH ALONG TRUNK HIGHWAY 9 FROM BARNESVILLE, 25.0 FEET EAST OF TRUNK HIGHWAY 9.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
1032.052	.016	2/1				VERTICAL ADJUSTMENT		2019	00000941
1032.199	.016	2/1				VERTICAL ADJUSTMENT		2012	00000717
1032.203	.016	2/1				VERTICAL CONTROL SURVEY		2010	VBARN
1032.252	.016	2				VERTICAL ADJUSTMENT		1991	00000025

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
1031.382	.016	2/0				UNKNOWN/APPROXIMATE		1992	UNCHECKD
1031.382	.016	2				VERTICAL CONTROL SURVEY		1972	Q460961
1031.382	.016	2				VERTICAL CONTROL SURVEY		1972	L22167-A
1031.382	.016	2				VERTICAL CONTROL SURVEY		1971	L22167-A

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
1032.199	.262		945.133	.197	2011	GPS - RTRN		2023	RTRN2023
1032.255	.262		945.188	.197	2011	GPS - RTRN		2022	RTRN2022
1032.183	.262		945.120	.197	2011	GPS - RTRN		2014	RTRN2014

Geoid Separations(ft): GEOID18 = -87.067 12B = -87.067 09 = -86.962 03 = -86.906

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

<u>Geodetic Position</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 40 39.91687	96 25 12.37551	570286.176	117546.830	.131	3	GPS - RTRN	2023	RTRN2023
46 40 39.91757	96 25 12.37687	570286.081	117546.900	.131	3	GPS - RTRN	2022	RTRN2022
46 40 39.91625	96 25 12.37542	570286.183	117546.767	.131	3	GPS - RTRN	2014	RTRN2014

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2080020.743	947349.457	782263.458	16978436.799	.131	3	GPS - RTRN	2023	RTRN2023
2080020.650	947349.531	782263.366	16978436.873	.131	3	GPS - RTRN	2022	RTRN2022
2080020.747	947349.394	782263.462	16978436.736	.131	3	GPS - RTRN	2014	RTRN2014

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_Y-RP0091-3E-26JUL2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_Y-RP0091-3E-26JUL2023.jpg</a>	E	Jul 26, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_Y-RP0091-2-26JUL2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_Y-RP0091-2-26JUL2023.jpg</a>		Jul 26, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_Y-RP0091-1-26JUL2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_Y-RP0091-1-26JUL2023.jpg</a>		Jul 26, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 1480 Z

NGS Name: 1480 Z

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0082](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	29	137 N	45 W	463934.14	962339.01	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1968	2023	GOOD	Horz=NO Vert=NO	YES	14808	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE ABUTMENT	BENCH MARK DISK	MNDT

**Description:** (2015)                      **Stamping:** 1480 Z 1968

1.0 MILE EAST OF BARNESVILLE, AT THE JUNCTION OF TRUNK HIGHWAY 34 AND INTERSTATE HIGHWAY 94, (THE JUNCTION IS 1.0 MILE EAST OF BARNESVILLE), IN THE SOUTHEAST ABUTMENT OF TRUNK HIGHWAY 34 BRIDGE NUMBER 14808 OVER INTERSTATE HIGHWAY 94, 25.0 FEET SOUTH OF TRUNK HIGHWAY 34.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
1065.739	.016	2/1				VERTICAL ADJUSTMENT		2020	00000941-2
1065.739	.016	2/1				VERTICAL ADJUSTMENT		2019	00000941
1065.887	.016	2/1				VERTICAL ADJUSTMENT		2017	00000911
1065.887	.016	2/1				VERTICAL CONTROL SURVEY		2016	V194D4
1065.887	.016	2/1				VERTICAL ADJUSTMENT		2012	00000717
1065.887	.016	2/1				VERTICAL CONTROL SURVEY		2010	VBARN
1065.887	.016	2/1				VERTICAL ADJUSTMENT		2009	00000425-35
1065.887	.016	2/1				VERTICAL CONTROL SURVEY		2006	V THER
1065.887	.016	2/1				VERTICAL ADJUSTMENT		1991	00000025

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
1065.021	.016	2/0				UNKNOWN/APPROXIMATE		1992	UNCHECKED
1065.021	.016	2				VERTICAL CONTROL SURVEY		1972	Q460961
1065.021	.016	2				VERTICAL CONTROL SURVEY		1972	L22167-A
1065.021	.016	2				VERTICAL CONTROL SURVEY		1971	L22167-A

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
1065.871	.262		978.768	.197	2011	GPS - RTRN		2023	RTRN2023
1065.917	.262		978.814	.197	2011	GPS - RTRN		2022	RTRN2022
1065.739	.262		978.650	.197	2011	GPS - RTRN		2015	RTRN2015
1065.795	.262		978.705	.197	2011	GPS - RTRN		2014	RTRN2014

Geoid Separations(ft): GEOID18 = -87.100 12B = -87.090 09 = -86.998 03 = -86.949

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

<u>Geodetic Position</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 39 34.13774	96 23 39.00983	576822.609	110906.737	.131	3	GPS - RTRN	2023	RTRN2023
46 39 34.13810	96 23 39.01014	576822.587	110906.773	.131	3	GPS - RTRN	2022	RTRN2022
46 39 34.13851	96 23 39.01036	576822.572	110906.815	.131	3	GPS - RTRN	2015	RTRN2015
46 39 34.13773	96 23 39.00991	576822.604	110906.736	.131	3	GPS - RTRN	2014	RTRN2014

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>					<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2086347.835	940511.024	788483.105	16971494.293	.131	3	GPS - RTRN	2023	RTRN2023
2086347.815	940511.062	788483.085	16971494.331	.131	3	GPS - RTRN	2022	RTRN2022
2086347.801	940511.104	788483.071	16971494.373	.131	3	GPS - RTRN	2015	RTRN2015
2086347.830	940511.024	788483.099	16971494.293	.131	3	GPS - RTRN	2014	RTRN2014



**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_Z-RP0082-3W-26JUL2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_Z-RP0082-3W-26JUL2023.jpg</a>	W	Jul 26, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_Z-RP0082-2-26JUL2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_Z-RP0082-2-26JUL2023.jpg</a>		Jul 26, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_Z-RP0082-1-26JUL2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/1480_Z-RP0082-1-26JUL2023.jpg</a>		Jul 26, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 15 RWM

NGS Name: 15 RWM

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096424/  
 USGS Quad: COMSTOCK

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SE	32	138 N	47 W	464304.42	963821.59		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	2001	GOOD	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

**Description:** (2008)                      **Stamping:** 15 RWM 1964

6.45 MILES NORTHEAST OF COMSTOCK, 0.5 MILE EAST ALONG COUNTY ROAD 2 (SOUTH 160TH AVENUE/BROADWAY) FROM THE JUNCTION OF COUNTY ROAD 2 (SOUTH 160TH AVENUE/BROADWAY) AND 1ST STREET SOUTH/SOUTH 20TH STREET IN COMSTOCK, THEN 5.0 MILES NORTH ALONG TRUNK HIGHWAY 75 NORTH, THEN 5.0 MILES EAST ALONG COUNTY ROAD 8 (110TH AVENUE SOUTH), THEN 1.0 MILE SOUTH ALONG 70TH STREET SOUTH, THEN 0.7 MILE EAST ALONG COUNTY ROAD 4 (120TH AVENUE SOUTH), 66.0 FEET NORTH AND 40.0 FEET WEST OF A TEE-JUNCTION SOUTH, 33.0 FEET WEST OF THE CENTER OF A FIELD ROAD NORTH, 3.0 FEET SOUTH AND 6.0 FEET WEST OF A TELEPHONE POLE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
925.599	.033	3					VERTICAL CONTROL SURVEY	1964	USGS-VERT	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
				840.090	.066	1996	GPS - STATIC	2001	DIST 4	

Geoid Separations(ft): GEOID18 = -87.044    12B = -87.031    09 = -86.978    03 = -86.890

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(1996)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>									
46 43 04.42502	96 38 21.59713			515241.017	132068.529	.033	C	2001	DIST 4	

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>		<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>				<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				
2025457.006	963565.608	727937.434	16995537.523	.033	C	2001	DIST 4



Mn/DOT Name: 16 RWM

NGS Name: 16 RWM

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP7344](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096424/  
 USGS Quad: COMSTOCK

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	17	137 N	47 W	464044.01	963754.36		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	2015	GOOD	Horz=YES Vert=YES	YES		RECESSED 1 IN.	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	USGS

Description: (2013) Stamping: 16 RWM 1964

5.58 MILES NORTHEAST OF COMSTOCK, 5.4 MILES EAST ALONG COUNTY ROAD 2 (SOUTH 160TH AVENUE/BROADWAY) FROM THE JUNCTION OF 1ST STREET/SOUTH 20TH STREET IN COMSTOCK, THEN 1.3 MILES NORTH ALONG COUNTY ROAD 53 (80TH STREET SOUTH), 38.0 FEET WEST OF 80TH STREET SOUTH, 2.0 FEET SOUTH OF A 3.0 FEET PINK ROCK, 1.0 FOOT WEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
933.528	.033	3					VERTICAL CONTROL SURVEY	1964	USGS-VERT	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
934.555				847.941	.010	2011	HORIZONTAL ADJUSTMENT	2025	GPS3838	
934.775				847.941	.010	2011	HORIZONTAL ADJUSTMENT	2025	GPS3805	
934.627	.131			848.168	.066	1996	GPS - STATIC	2025	HTH94A	
934.775				847.941	.010	2011	GPS - STATIC	2025	HTH94A	
934.555				847.941	.010	2011	GPS - STATIC	2024	HENLOE	
934.778				847.941	.021	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084	
934.768	.131			848.168	.066	1996	GPS - STATIC	2015	HCLAY	
934.778				847.941	.021	2011	GPS - STATIC	2015	HCLAY	
				848.168	.066	1996	GPS - STATIC	2001	DIST 4	

Geoid Separations(ft): GEOID18 = -86.808 12B = -86.817 09 = -86.755 03 = -86.660

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 40 44.00572	96 37 54.36056			517151.196	117843.649	.007		ADJUSTMENT	2025	GPS3838
46 40 44.00572	96 37 54.36056			517151.196	117843.649	.007		ADJUSTMENT	2025	GPS3805
46 40 44.00572	96 37 54.36056			517151.196	117843.649	.007	C	GPS - STATIC	2025	HTH94A
46 40 44.00572	96 37 54.36056			517151.196	117843.649	.007	C	GPS - STATIC	2024	HENLOE
46 40 44.00572	96 37 54.36056			517151.196	117843.649	.016		ADJUSTMENT	2015	GPS3084
46 40 44.00572	96 37 54.36056			517151.196	117843.649	.016	C	GPS - STATIC	2015	HCLAY

<u>NAD83(1996)</u>				<u>Clay County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 40 44.00557	96 37 54.36160			517151.123	117843.634	.033	C	GPS - STATIC	2025	HTH94A
46 40 44.00528	96 37 54.36141			517151.137	117843.605	.066		NCAT	2024	HENLOE
46 40 44.00557	96 37 54.36160			517151.123	117843.634	.033	C	GPS - STATIC	2015	HCLAY
46 40 44.00557	96 37 54.36160			517151.124	117843.636	.033	C	GPS - STATIC	2001	DIST 4

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2026926.109	949289.926	729177.438	16981231.369	.007		ADJUSTMENT	2025	GPS3838
2026926.109	949289.926	729177.438	16981231.369	.007		ADJUSTMENT	2025	GPS3805
2026926.109	949289.926	729177.438	16981231.369	.007	C	GPS - STATIC	2025	HTH94A
2026926.109	949289.926	729177.438	16981231.369	.007	C	GPS - STATIC	2024	HENLOE
2026926.109	949289.926	729177.438	16981231.369	.016		ADJUSTMENT	2015	GPS3084
2026926.109	949289.926	729177.438	16981231.369	.016	C	GPS - STATIC	2015	HCLAY

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2026926.036	949289.913	729177.364	16981231.357	.033	C	GPS - STATIC	2025	HTH94A
2026926.049	949289.883	729177.376	16981231.327	.066		NCAT	2024	HENLOE
2026926.036	949289.913	729177.364	16981231.357	.033	C	GPS - STATIC	2015	HCLAY
2026926.036	949289.913	729177.364	16981231.357	.033	C	GPS - STATIC	2001	DIST 4

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/16_RWM-DP7344-3W-20AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/16_RWM-DP7344-3W-20AUG2013.jpg</a>	W	Aug 20, 2013
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/16_RWM-DP7344-2-20AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/16_RWM-DP7344-2-20AUG2013.jpg</a>		Aug 20, 2013
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/16_RWM-DP7344-1-20AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/16_RWM-DP7344-1-20AUG2013.jpg</a>		Aug 20, 2013

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 19

NGS Name: 19

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	17	139 N	46 W	465145.40	963018.10		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
	2014	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	BENCH MARK DISK	USGS

Description: Stamping: 19

3.3 MILES SOUTHEAST GLYNDON, 1.0 MILE SOUTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND TRUNK HIGHWAY 10 EAST OF GLYNDON, 76.0 FEET WEST TRUNK HIGHWAY 9, 76.0 FEET SOUTH COUNTY ROAD 76.

Station Notes  
 THE SET DATE IS UNKNOWN.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
938.653	.033	3				VERTICAL CONTROL SURVEY	1964	USGS-VERT	

Geoid Separations(ft): GEOID18 = -87.700    12B = -87.713    09 = -87.569    03 = -87.497

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 19 ERS

NGS Name: 19 ERS

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096131/  
 USGS Quad: BIG SLOUGH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SW	29	137 N	44 W	463907.00	961602.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1950	2014	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

**Description:** (1950)                      **Stamping:** 19 ERS 1950

7.5 MILES EAST OF BARNESVILLE, 0.4 MILE NORTH ALONG FRONT STREET NORTH FROM THE JUNCTION OF FRONT STREET NORTH AND MAIN AVENUE WEST IN BARNESVILLE, THEN 7.2 MILES EAST ALONG TRUNK HIGHWAY 34 EAST (160TH AVENUE SOUTH), THEN 0.5 MILE SOUTH ALONG 255TH STREET SOUTH, 38.0 FEET WEST OF A NORTH-SOUTH ROAD, 23.0 FEET SOUTH AND 15.0 FEET EAST OF THE SOUTHEAST CORNER OF SCHOOL 39.

**Station Notes**

2008--NEED A BRUSH TRIMMER TO SEARCH FOR.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1247.389	.033	3							VERTICAL CONTROL SURVEY	1974	USGS-VERT	

**Geoid Separations(ft):** GEOID18 = -87.244    12B = -87.221    09 = -87.116    03 = -87.054

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 1958+903

NGS Name: 1958+903

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	4	139 N	48 W	465236.00	964440.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1958	2008	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

Description: (1994)                      Stamping: BM 1958+903

2.0 MILES WEST OF DILWORTH, 65.0 FEET NORTH AND 160.0 FEET WEST OF THE JUNCTION OF WESTBOUND TRUNK HIGHWAY 10 AND SOUTHBOUND TRUNK HIGHWAY 75, 1.0 FOOT EAST OF AN ACCESS SIGN.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
902.813	.033	3				VERTICAL CONTROL SURVEY	1964	USGS-VERT	

Geoid Separations(ft): GEOID18 = -87.004    12B = -86.998    09 = -86.873    03 = -86.821

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 2 DHB

NGS Name: 2 DHB

County: CLAY, MN (Sheet 1)

NGS ACRN: [DI4114](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/  
 USGS Quad: FELTON

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SW	11	142 N	47 W	470722.41	963622.01		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1965	2021	GOOD	Horz=YES Vert=YES	YES		FLUSH	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	USGS

**Description:** (1965) **Stamping:** 2 DHB 1965

5.74 MILES NORTHEAST OF FELTON, 3.0 MILES NORTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 34 IN FELTON, THEN 5.0 MILES WEST ON 190TH AVENUE NORTH, 51.0 FEET EAST OF 90TH STREET NORTH, 48.0 FEET NORTH OF 190TH AVENUE NORTH, 3.0 FEET SOUTH OF A POWER POLE, 0.5 FOOT WEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			
893.528	.033	3				1965	USGS-VERT			

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>		
894.818	.262		807.856	.197	2011	2021	GPSBM	GPS - OPUS	
894.860	.262		807.902	.197	2011	2021	RTRN2021	GPS - RTRN	
			807.849	.026	2011	2012	GPS2800	HORIZONTAL ADJUSTMENT	
			807.945	.066	2007	2007	GPS2320-B	HORIZONTAL ADJUSTMENT	
894.782	.131		807.971	.066	1996	2007	GPS2320	HORIZONTAL ADJUSTMENT	
894.782	.131		807.971	.066	1996	2006	HNRMN	GPS - STATIC	
			808.253	.066	1996	2001	DIST 4	GPS - STATIC	

Geoid Separations(ft): GEOID18 = -86.962 12B = -86.972 09 = -86.857 03 = -86.827

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>							
47 07 22.40555	96 36 22.00720	523397.266	279796.221	.131	3	GPS - OPUS	2021	GPSBM
47 07 22.40515	96 36 22.00637	523397.323	279796.181	.131	3	GPS - RTRN	2021	RTRN2021
47 07 22.40591	96 36 22.00651	523397.313	279796.258	.013		ADJUSTMENT	2012	GPS2800

  

<u>NAD83(2007)</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>							
47 07 22.40590	96 36 22.00729	523397.260	279796.256	.033	C	ADJUSTMENT	2007	GPS2320-B

  

<u>NAD83(1996)</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>							
47 07 22.40548	96 36 22.00726	523397.262	279796.214	.033	C	ADJUSTMENT	2007	GPS2320
47 07 22.40548	96 36 22.00726	523397.262	279796.214	.033	C	GPS - STATIC	2006	HNRMN
47 07 22.40516	96 36 22.00728	523397.260	279796.183	.033	C	GPS - STATIC	2001	DIST 4

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2038178.756	1110960.026	743061.630	17142787.940	.131	3	GPS - OPUS	2021	GPSBM
2038178.812	1110959.984	743061.685	17142787.897	.131	3	GPS - RTRN	2021	RTRN2021
2038178.805	1110960.061	743061.679	17142787.974	.013		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2038178.751	1110960.062	743061.625	17142787.976	.033	C	ADJUSTMENT	2007	GPS2320-B

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2038178.752	1110960.019	743061.625	17142787.933	.033	C	ADJUSTMENT	2007	GPS2320
2038178.752	1110960.019	743061.625	17142787.933	.033	C	GPS - STATIC	2006	HNRMN
2038178.749	1110959.987	743061.622	17142787.901	.033	C	GPS - STATIC	2001	DIST 4

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/2_DHB-DI4114-3N-13JUL2021.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/2_DHB-DI4114-3N-13JUL2021.jpg</a>	N	Jul 13, 2021
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/2_DHB-DI4114-2-13JUL2021.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/2_DHB-DI4114-2-13JUL2021.jpg</a>		Jul 13, 2021
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/2_DHB-DI4114-1-13JUL2021.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/2_DHB-DI4114-1-13JUL2021.jpg</a>		Jul 13, 2021

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 2 DWE  
 County: CLAY, MN (Sheet 1)

NGS Name: 2 DWE

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 47096233/  
 USGS Quad: ULEN SW

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SW	22	141 N	45 W	470022.00	962254.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1963	2013	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

Description: (1963)                      Stamping: 2 DWE 1963 1133

6.0 MILES NORTHEAST OF HITTERDAL, 5.9 MILES EAST ALONG FRONT STREET/ 90TH AVENUE NORTH, THEN 2.0 MILES NORTH ALONG 500TH STREET NORTH, THEN 0.2 MILE WEST ALONG 110TH AVENUE NORTH, 63.0 FEET NORTH AND 38.0 FEET EAST OF A TEE-ROAD NORTH, 11.0 FEET SOUTHWEST OF A 30.0 INCH DIAMETER COTTONWOOD TREE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			
1132.859	.033	3				VERTICAL CONTROL SURVEY	1964	USGS-VERT		

**Geoid Separations(ft):** GEOID18 = -87.611    12B = -87.621    09 = -87.520    03 = -87.464

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 2 RWM

NGS Name: 2 RWM

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

	<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
<u>1/4</u> SW	<u>Sec</u> 9	<u>Twp</u> 140 N	<u>Rng</u> 47 W	
	465656.00	963754.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	1999	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

Description: (1964)                      Stamping: 2 RWM 1964

4.46 MILES NORTHWEST OF GLYNDON, 5.0 MILES NORTH ON COUNTY ROAD 11 FROM THE JUNCTION OF COUNTY ROAD 11 (70TH STREET NORTH) AND TRUNK HIGHWAY 10 WEST OF GLYNDON, THEN 0.9 MILE EAST ON 70TH AVENUE NORTH, 33.0 FEET NORTH AND 108.0 FEET EAST OF THE CROSSROADS, 4.5 FEET EAST OF A T-POLE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
906.671	.033	3				VERTICAL CONTROL SURVEY	1964	USGS-VERT	

Geoid Separations(ft): GEOID18 = -86.949   12B = -86.952   09 = -86.785   03 = -86.781

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 21 WHV

NGS Name: 21 WHV

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096421/  
 USGS Quad: BAKER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	29	137 N	46 W	463934.00	963016.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1950	1999	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

Description: (1950)                      Stamping: 21 WHV 1950

4.0 MILES NORTHWEST OF BARNESVILLE, 4.0 MILES WEST ALONG COUNTY ROAD 2 (160TH AVENUE SOUTH) FROM THE JUNCTION OF COUNTY ROAD 2 (160TH AVENUE SOUTH) AND TRUNK HIGHWAY 9, 52.0 FEET SOUTH AND 43.0 FEET WEST OF THE CROSSROADS, 3.0 FEET EAST OF A POWER POLE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
947.702	.033	3				VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -86.936    12B = -86.926    09 = -86.857    03 = -86.794

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 22 WHV

NGS Name: 22 WHV

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096421/  
 USGS Quad: BAKER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	9	137 N	46 W	464131.08	963014.70		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1950	1964	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	BENCH MARK DISK	USGS

**Description:** **Stamping:** 22 WHV 1950

4.5 MILES NORTHWEST OF BARNESVILLE, 4.5 MILES NORTHWEST ALONG COUNTY ROAD 52 FROM THE JUNCTION OF COUNTY ROAD 52 AND TRUNK HIGHWAY 9 IN BARNESVILLE, 148.0 FEET NORTH COUNTY ROAD 52, 81.0 FEET EAST 140TH STREET, 54.0 FEET NORTH OF THE CENTER OF THE GRAND NORTHERN RAILROAD TRACK, 3.0 FEET WEST OF TWIN TELEPHONE POLES.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
950.057	.033	3					VERTICAL CONTROL SURVEY	1974	USGS-VERT	

**Geoid Separations(ft): GEOID18 = -86.998 12B = -87.008 09 = -86.909 03 = -86.844**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 23 WHV

NGS Name: 23 WHV

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096421/  
 USGS Quad: BAKER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	32	138 N	46 W	464306.00	963018.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1950	1950	GOOD	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

Description: (1950)                      Stamping: 23 WHV 1950

6.2 MILES NORTHWEST OF BARNESVILLE, 4.6 MILES NORTHWEST ALONG COUNTY ROAD 52 FROM THE JUNCTION OF COUNTY ROAD 52 AND TRUNK HIGHWAY 9, THEN 1.8 MILES NORTH ON 140TH STREET SOUTH, 0.3 MILE NORTH OF A FARMHOUSE, 256.0 FEET NORTH OF THE CROSSROADS, 30.0 FEET WEST OF A TRAIL NORTH, 1.0 FOOT NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
947.140	.033	3							VERTICAL CONTROL SURVEY	1974	USGS-VERT	

**Geoid Separations(ft): GEOID18 = -87.162    12B = -87.155    09 = -87.054    03 = -87.008**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 24 DWE

NGS Name: 24 DWE

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 47096234/  
 USGS Quad: ULEN NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	3	142 N	45 W	470811.00	962308.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1963	1963	GOOD	Horz=? Vert=YES	YES			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

**Description:** (1963)                      **Stamping:** 24 DWE 1963

7.2 MILES NORTHWEST OF ULEN, 6.0 MILES WEST ALONG 160TH AVENUE NORTH FROM THE JUNCTION OF 160TH AVENUE NORTH AND TRUNK HIGHWAY 32, THEN 4.0 MILES NORTH ON COUNTY ROAD 27, 41.0 FEET SOUTH AND 54.0 FEET EAST OF A NORTH-SOUTH GRAVEL ROAD AT A FIELD ENTRANCE EAST, 3.0 FEET NORTHWEST OF A POWER POLE, 20.0 FEET SOUTHEAST OF A 24.0 INCH DIAMETER COTTONWOOD TREE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
979.637	.033	3					VERTICAL CONTROL SURVEY	1964	USGS-VERT	

**Geoid Separations(ft): GEOID18 = -87.293    12B = -87.316    09 = -87.201    03 = -87.175**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 24 RWM

NGS Name: 24 RWM

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096421/  
 USGS Quad: BAKER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	4	137 N	46 W	464212.00	963015.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	1964	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

**Description:** (1964)                      **Stamping:** 24 RWM 1964

5.5 MILES NORTHWEST OF BARNESVILLE, 4.5 MILES NORTHWEST ON COUNTY ROAD 52 FROM THE JUNCTION OF COUNTY ROAD 52 AND TRUNK HIGHWAY 9 IN BARNESVILLE, THEN 0.8 MILE NORTH ON 140TH STREET SOUTH, THEN 220.0 FEET EAST ON 130TH AVENUE SOUTH, 25.0 FEET NORTH AND 96.0 FEET EAST OF A TEE-JUNCTION TRAIL EAST, 3.0 FEET EAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
949.916	.033	3							VERTICAL CONTROL SURVEY	1974	USGS-VERT	

**Geoid Separations(ft): GEOID18 = -87.057    12B = -87.063    09 = -86.965    03 = -86.903**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 24 WHV  
County: CLAY, MN (Sheet 1)

NGS Name: 24 WHV

NGS ACRN: [RP1075](#) [Get Map](#)  
NGS Quad / Sta Num : 46096421/  
USGS Quad: BAKER

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	20	138 N	46 W	464451.44	963017.71		3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1950	1950	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE POST (PREFABRICATED)	TRAVERSE STATION DISK	USGS

Description: (2008)                      **Stamping:** 24 WHV 1950

7.8 MILES WEST OF BARNESVILLE, 7.5 MILES NORTH-NORTHWEST ALONG TRUNK HIGHWAY 9 NORTH FROM THE JUNCTION OF TRUNK HIGHWAY 9 NORTH AND 160TH AVENUE SOUTH, THEN 0.9 MILE WEST ON 90TH AVENUE SOUTH, THEN 0.5 MILE SOUTH ON 140TH STREET SOUTH, 243.0 FEET NORTH OF A CROSSROADS, 52.0 FEET NORTHEAST OF THE NORTHEAST CORNER OF A SCHOOLHOUSE, 28.0 FEET WEST OF THE CENTER OF A ROAD, 1.0 FOOT SOUTH AND 2.0 FEET WEST OF A FENCE CORNER.

**Leveling-Derived Orthometric Heights (Feet)**

NGVD29				Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj		Year	Reference		
947.761	.033	3				VERTICAL CONTROL SURVEY	1964	USGS-VERT		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88				Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj		Year	Reference		
948.686	.262		861.796	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648		

Geoid Separations(ft): GEOID18 = -87.385    12B = -87.352    09 = -87.250    03 = -87.221

**Lat/Lon and County Coordinates (Feet)**

NAD83(1996)				Clay County			Determination Method		Project Info	
Latitude	Longitude	X	Y	Acc	Order		Year	Reference		
46 44 51.44286	96 30 17.70594	548931.768	142965.773	.131	3	ADJUSTMENT	1999	17648		
46 44 51.44311	96 30 17.70610	548931.756	142965.798	.131	3	ADJUSTMENT	1998	17655		

NAD83(1986)				Clay County			Determination Method		Project Info	
Latitude	Longitude	X	Y	Acc	Order		Year	Reference		
46 44 51.44252	96 30 17.69770	548932.342	142965.740	.131	3	ADJUSTMENT	1986	17289		

NAD27							Determination Method		Project Info	
Latitude	Longitude	X	Y	Acc	Order		Year	Reference		
46 44 51.58168	96 30 16.44661			.100	3	CLASSICAL SURVEY	1980	16196		

**State Plane and UTM Coordinates (Feet)**

NAD83(1996)				UTM - Zone 15			Determination Method		Project Info	
MN State Plane - Central Zone				Acc	Order		Year	Reference		
X	Y	X	Y							
2059465.355	973414.312	762119.461	17004842.480	.131	3	ADJUSTMENT	1999	17648		
2059465.344	973414.338	762119.451	17004842.506	.131	3	ADJUSTMENT	1998	17655		

NAD83(1986)				UTM - Zone 15			Determination Method		Project Info	
MN State Plane - Central Zone				Acc	Order		Year	Reference		
X	Y	X	Y							
2059465.927	973414.261	762120.033	17004842.420	.131	3	ADJUSTMENT	1986	17289		

NAD27							Determination Method		Project Info	
MN State Plane - Central Zone				Acc	Order		Year	Reference		
X	Y	X	Y							
1434869.423	645338.764			.100	3	CLASSICAL SURVEY	1980	16196		



Mn/DOT Name: 25 WHV  
County: CLAY, MN (Sheet 1)

NGS Name: 25 WHV

NGS ACRN:  
NGS Quad / Sta Num : 46096134/  
USGS Quad: BARNESVILLE  
[Get Map](#)

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	26	138 N	46 W	464447.00	962739.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1950	1950	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

Description: (2008)                      Stamping: 25 WHV 1950

6.92 MILES NORTHWEST OF BARNESVILLE, 6.9 MILES NORTH-NORTHWEST ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND 160TH AVENUE SOUTH IN BARNESVILLE, THEN 0.9 MILE EAST ON COUNTY ROAD 21 (100TH AVENUE SOUTH), 450.0 FEET NORTH OF A FARMHOUSE, 38.0 FEET SOUTH OF THE CENTER OF A ROAD AND 333.0 FEET EAST OF A ROAD AT A TEE-ROAD NORTH, 85.0 FEET WEST OF A JOG IN A FENCE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>		
969.303	.033	3							VERTICAL CONTROL SURVEY	1964	USGS-VERT	

**Geoid Separations(ft): GEOID18 = -87.405    12B = -87.378    09 = -87.277    03 = -87.237**

**\* No Horizontal Positions in the Database \***



Mn/DOT Name: 26 WHV

NGS Name: 26 WHV

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	24	138 N	46 W	464447.00	962515.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1950	1950	GOOD	Horz=? Vert=YES	YES			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

**Description:** (1950)                      **Stamping:** 26 WHV 1950

7.0 MILES NORTH OF BARNESVILLE, 7.5 MILES NORTH-NORTHWEST ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND 160TH AVENUE SOUTH IN BARNESVILLE, THEN 3.3 MILES ON 90TH AVENUE SOUTH/160TH STREET SOUTH, THEN 1.0 MILE SOUTH ON 180TH STREET SOUTH, 45.0 FEET NORTH AND 142.0 FEET WEST OF THE CROSSROADS, 110.0 FEET WEST OF A FENCE CORNER.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
1046.924	.033	3				1964	USGS-VERT	VERTICAL CONTROL SURVEY				

**Geoid Separations(ft):** GEOID18 = -87.411    12B = -87.378    09 = -87.293    03 = -87.241

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 27 WHV

NGS Name: 27 WHV

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096131/  
 USGS Quad: BIG SLOUGH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	21	138 N	45 W	464447.00	962153.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1950	1950	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

Description: (2008)                      Stamping: 27 WHV 1950

5.8 MILES EAST OF DOWNER, 3.4 MILES EAST ON COUNTY ROAD 21 FROM THE JUNCTION OF COUNTY ROAD 21 AND TRUNK HIGHWAY 9 IN DOWNER, 2.0 MILES EAST ALONG 100TH AVENUE SOUTH, 25.0 FEET NORTH AND 36.0 FEET WEST OF THE CENTER OF 210TH STREET SOUTH.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>		
1101.874	.033	3							VERTICAL CONTROL SURVEY	1964	USGS-VERT	

Geoid Separations(ft): GEOID18 = -87.405    12B = -87.365    09 = -87.280    03 = -87.234

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 28 WHV

NGS Name: 28 WHV

County: CLAY, MN (Sheet 1)

NGS ACRN: NGS Quad / Sta Num : 46096131/ USGS Quad: BIG SLOUGH	<a href="#">Get Map</a>
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				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	26	138 N	45 W	464449.00	961925.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1950	1950	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

Description: (2008)    Stamping: 28 WHV 1950

8.0 MILES NORTHEAST OF BARNESVILLE, 4.2 MILES EAST ALONG TRUNK HIGHWAY 34 (160TH AVENUE SOUTH) FROM THE JUNCTION OF TRUNK HIGHWAY 34 AND TRUNK HIGHWAY 9 IN BARNESVILLE, THEN 6.4 MILES NORTH ON 230TH STREET SOUTH/130TH AVENUE SOUTH, THEN 253.0 FEET WEST ON COUNTY ROAD 21 (100TH AVENUE SOUTH), 304.0 FEET WEST OF COUNTY ROAD 7, 34.0 FEET SOUTH OF THE CENTER OF AN EAST-WEST ROAD, 15.0 FEET WEST OF A DIM ROAD SOUTH.

**Leveling-Derived Orthometric Heights (Feet)**

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1132.826	.033	3				VERTICAL CONTROL SURVEY	1964	USGS-VERT

**Geoid Separations(ft): GEOID18 = -87.382   12B = -87.349   09 = -87.254   03 = -87.211**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 29 WHV

NGS Name: 29 WHV

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096131/  
 USGS Quad: BIG SLOUGH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	30	138 N	44 W	464448.00	961652.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1950	1950	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

**Description:** (2008)                      **Stamping:** 29 WHV 1950

9.3 MILES NORTHEAST OF BARNESVILLE, 8.7 MILES EAST ALONG TRUNK HIGHWAY 34 EAST (160TH AVENUE SOUTH) FROM THE JUNCTION OF TRUNK HIGHWAY 34 AND TRUNK HIGHWAY 9 IN BARNESVILLE, THEN 7.4 MILES NORTH ON TRUNK HIGHWAY 32 NORTH (270TH STREET SOUTH), THEN 1.2 MILES WEST ON 90TH AVENUE SOUTH, THEN 1.0 MILE SOUTH ON COUNTY ROAD 127 (250TH STREET SOUTH), 237.0 FEET WEST OF THE CENTER OF A TEE-ROAD WEST, 200.0 FEET NORTH OF A FARMHOUSE, 20.0 FEET SOUTH AND 20.0 FEET EAST OF THE CENTER OF A ROAD AT A DRIVEWAY, ON THE NORTH SIDE OF A LARGE GROVE OF TREES.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1189.784	.033	3					VERTICAL CONTROL SURVEY	1964	USGS-VERT	

**Geoid Separations(ft): GEOID18 = -87.339    12B = -87.313    09 = -87.208    03 = -87.159**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 3 DHB

NGS Name: 3 DHB

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 47096322/  
 USGS Quad: FELTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	13	142 N	47 W	470720.00	963350.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1965	1965	GOOD	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

**Description:** (1965)                      **Stamping:** 3 DHB 1965

4.2 MILES NORTHWEST OF FELTON, 3.0 MILES NORTH ALONG TRUNK HIGHWAY 9 NORTH (140TH STREET NORTH) FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 34 IN FELTON, THEN 3.0 MILES WEST ON COUNTY ROAD 104 (190TH AVENUE NORTH), THEN 102.0 FEET SOUTH ON 110TH STREET NORTH, 77.0 FEET SOUTH AND 447.0 FEET WEST OF A GRAVEL ROAD EAST, 3.0 FEET EAST OF A POWER POLE, 1.0 FOOT NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
900.789	.033	3					VERTICAL CONTROL SURVEY	1965	USGS-VERT	

**Geoid Separations(ft): GEOID18 = -87.060    12B = -87.060    09 = -86.955    03 = -86.929**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 3 DWE

NGS Name: 3 DWE

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 47096232/  
 USGS Quad: ULEN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	30	141 N	44 W	470022.00	961838.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1963	1963	GOOD	Horz=? Vert=YES	YES			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

**Description:** (1963)                      **Stamping:** 3 DWE 1963

3.1 MILES NORTHWEST OF HITTERDAL, 1.9 MILES WEST ALONG 90TH AVENUE NORTH FROM THE JUNCTION ON 90TH AVENUE NORTH AND TRUNK HIGHWAY 32 IN HITTERDAL, THEN 2.0 MILES NORTH ON 240TH STREET, THEN 0.5 MILE WEST ON 110TH AVENUE NORTH, 72.0 FEET SOUTH AND 5.0 FEET EAST OF A ROAD AT A FIELD ENTRANCE NORTH, IN LINE WITH A FENCE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1223.288	.033	3				VERTICAL CONTROL SURVEY	1964	USGS-VERT	

**Geoid Separations(ft): GEOID18 = -87.792    12B = -87.789    09 = -87.680    03 = -87.641**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 3 RWM

NGS Name: 3 RWM

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	34	141 N	47 W	465928.00	963733.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	1997	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

**Description:** (2001)                      **Stamping:** 3 RWM 1964

6.0 MILES EAST OF KRAGNES, 1.9 MILES EAST ALONG TRUNK HIGHWAY 10 EAST (CENTER AVENUE EAST) FROM THE JUNCTION OF TRUNK HIGHWAY 10 EAST (CENTER AVENUE EAST) AND 4TH STREET SOUTHEAST IN DILWORTH, THEN 0.4 MILE NORTH ALONG TRUNK HIGHWAY 336 EXIT, THEN 125.0 FEET NORTH ALONG COUNTY HIGHWAY 11, THEN 8.2 MILES NORTH ALONG 70TH STREET SOUTH, THEN 1.0 MILE EAST ALONG 100TH AVENUE NORTH, 100.0 FEET SOUTH AND 57.0 FEET EAST OF THE CROSSROADS, 12.0 FEET SOUTH AND 16.0 FEET EAST OF A FENCE CORNER, 17.0 FEET SOUTHEAST OF A TELEPHONE POLE, 1.0 F00T NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
908.505	.033	3					VERTICAL CONTROL SURVEY	1965	USGS-VERT	

**Geoid Separations(ft): GEOID18 = -86.814    12B = -86.831    09 = -86.663    03 = -86.644**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 30 WHV

NGS Name: 30 WHV

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096131/  
 USGS Quad: BIG SLOUGH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SE	29	138 N	44 W	464422.13	961534.60		3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1950	2014	GOOD	Horz=NO Vert=YES	YES		FLUSH	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	USGS

**Description:** (2008)                      **Stamping:** 30 WHV 1950

8.9 MILES NORTHEAST OF BARNESVILLE, 7.6 MILES EAST ALONG TRUNK HIGHWAY 34 FROM THE JUNCTION OF TRUNK HIGHWAY 34 AND INTERSTATE HIGHWAY 94 (THE JUNCTION IS 1.0 MILE EAST OF BARNESVILLE), THEN 5.0 MILES NORTH ON TRUNK HIGHWAY 32, THEN 1.0 MILE WEST ON 110TH AVENUE, THEN 0.5 MILE NORTH ON COUNTY ROAD 124/260TH STREET SOUTH, 107.0 FEET WEST COUNTY ROAD 124, 5.0 FEET EAST OF A 12.0 INCH DIAMETER COTTONWOOD TREE, 8.8 FEET SOUTH OF AN ENTRANCE, 1.0 FOOT NORTH OF A FENCE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1215.290	.033	3					VERTICAL CONTROL SURVEY	1965	USGS-VERT	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1216.251	.262			1128.981	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.293    12B = -87.273    09 = -87.155    03 = -87.103

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 44 22.12692	96 15 34.60256	610449.360	140244.049	.131	3	GPS - RTRN	2014	RTRN2014	

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
2120862.740	968790.119	823463.498	16999228.065	.131	3	GPS - RTRN	2014	RTRN2014

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/30_WHV-3W-13MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/30_WHV-3W-13MAY2014.jpg</a>	W	May 13, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/30_WHV-2-13MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/30_WHV-2-13MAY2014.jpg</a>		May 13, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/30_WHV-1-13MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/30_WHV-1-13MAY2014.jpg</a>		May 13, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 31 WHV  
County: CLAY, MN (Sheet 1)

NGS Name: 31 WHV

NGS ACRN: [Get Map](#)  
NGS Quad / Sta Num : 46096131/  
USGS Quad: BIG SLOUGH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	8	137 N	44 W	464207.62	961525.05		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1950	2014	POOR	Horz=NO Vert=NO	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	USGS

Description: (2014)                      Stamping: 31 WHV TT 1950

8.5 MILES NORTHEAST OF BARNESVILLE, 8.7 MILES EAST ALONG TRUNK HIGHWAY 34 FROM THE JUNCTION OF TRUNK HIGHWAY 34 AND TRUNK HIGHWAY 9 IN BARNESVILLE, THEN 3.1 MILES NORTH ALONG TRUNK HIGHWAY 32, THEN 1.0 MILE WEST ALONG 130TH AVENUE SOUTH, THEN 315.0 FEET SOUTH ALONG 260TH STREET SOUTH, 316.0 FEET SOUTH OF 130TH AVENUE SOUTH, 30.0 FEET WEST OF 260TH STREET SOUTH, 5.0 FEET NORTH OF A FIELD ENTRANCE, ON THE TOP OF A SMALL HILL.

Station Notes  
MARK HAS BEEN HIT AND IS LEANING.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1415.568	.033	3					VERTICAL CONTROL SURVEY	1974	USGS-VERT	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1416.362	.262			1329.197	.197	2011	GPS - RTRN	2014	RTRN2014	
				1329.597	.066	1996	GPS - STATIC	2001	DIST 4	

Geoid Separations(ft): GEOID18 = -87.201    12B = -87.165    09 = -87.073    03 = -87.024

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 42 07.62002	96 15 25.04719			611191.630	126620.330	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>				<u>Clay County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 42 07.63196	96 15 25.04583			611191.717	126621.541	.033	C	GPS - STATIC	2001	DIST 4

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2121182.782	955151.513			823564.425	16985580.384	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2121182.908	955152.720			823564.570	16985581.589	.033	C	GPS - STATIC	2001	DIST 4

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/31_WHV-3W-13MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/31_WHV-3W-13MAY2014.jpg</a>	W	May 13, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/31_WHV-2-13MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/31_WHV-2-13MAY2014.jpg</a>		May 13, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/31_WHV-1-13MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/31_WHV-1-13MAY2014.jpg</a>		May 13, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 32 WHV

NGS Name: 32 WHV

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096131/  
 USGS Quad: BIG SLOUGH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	16	137 N	44 W	464032.00	961524.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1950	1973	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	USGS

**Description:** **Stamping:** 32 WHV 1950

7.7 MILES NORTHEAST OF BARNESVILLE, 7.8 MILES EAST ALONG TRUNK HIGHWAY 34 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND TRUNK HIGHWAY 34 IN BARNESVILLE, 1.3 MILES NORTH ALONG 260TH STREET SOUTH FROM THE JUNCTION OF TRUNK HIGHWAY 34 AND 260TH STREET SOUTH, 580.0 FEET NORTH OF 150TH AVENUE SOUTH AND 37.0 FEET EAST OF 260TH STREET SOUTH, ON THE WEST SIDE OF A SMALL HILL, IN A CONCRETE POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>		
1312.399	.033	3							VERTICAL CONTROL SURVEY	1974	USGS-VERT	

**Geoid Separations(ft):** GEOID18 = -87.214 12B = -87.172 09 = -87.090 03 = -87.034

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 4 DHB

NGS Name: 4 DHB

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 47096323/  
 USGS Quad: FELTON SW

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
				<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	15	141 N	47 W	470205.00	963734.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1965	2000	DESTROYED	Horz=NO Vert=NO	YES			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

Description: (1965)                      Stamping: 4 DHB 1965

7.18 MILES SOUTHWEST OF FELTON, 6.9 MILES WEST ALONG COUNTY ROAD 34 FROM THE JUNCTION OF COUNTY ROAD 34 AND TRUNK HIGHWAY 9 IN FELTON, THEN 3.0 MILES SOUTH ON 70TH STREET NORTH, THEN 1.0 MILE EAST ON 130TH AVENUE NORTH, 80.0 FEET SOUTH AND 54.0 FEET EAST OF A TEE-ROAD NORTH, 3.0 FEET WEST OF A POWER POLE, 1.0 FOOT NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
898.938	.033	3				1965	USGS-VERT	VERTICAL CONTROL SURVEY				

**Geoid Separations(ft): GEOID18 = -86.788    12B = -86.791    09 = -86.657    03 = -86.634**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 4 DWE

NGS Name: 4 DWE

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ2011](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096141/  
 USGS Quad: HAWLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	27	141 N	44 W	465936.28	961527.92	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1963	2022	GOOD	Horz=NO Vert=YES	YES		PROJECTS 2 IN.	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	USGS

**Description:** (1963)                      **Stamping:** 4 DWE 1963

1.1 MILES NORTH OF HITTERDAL, 1.1 MILES NORTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND COUNTY ROAD 26 IN HITTERDAL, AT TRUNK HIGHWAY 32 MILEPOINT 23.6, 97.0 FEET EAST OF TRUNK HIGHWAY 32, 50.0 FEET WEST OF THE RAILROAD TRACKS, 39.0 FEET NORTHWEST OF 100TH AVENUE NORTH, 1.0 FOOT NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>							<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1225.772	.016	2/1	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	VERTICAL ADJUSTMENT	2019	00000941

  

<u>NGVD29</u>							<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1224.765	.033	3	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	VERTICAL CONTROL SURVEY	1964	USGS-VERT

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>							<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1225.798	.262		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	GPS - RTRN	2022	RTRN2022
1225.769	.262		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	GPS - RTRN	2014	RTRN2014

Geoid Separations(ft): GEOID18 = -87.874    12B = -87.874    09 = -87.759    03 = -87.700

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>			<u>Project Info</u>			
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 59 36.27693	96 15 27.92496			610392.762	232865.363	.131	3	GPS - RTRN	2022	RTRN2022
46 59 36.27538	96 15 27.92525			610392.743	232865.206	.131	3	GPS - RTRN	2014	RTRN2014

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>			
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2123675.008	1061360.097			827773.462	17091776.780	.131	3	GPS - RTRN	2022	RTRN2022
2123674.984	1061359.941			827773.436	17091776.624	.131	3	GPS - RTRN	2014	RTRN2014

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<b>Location:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/4_DWE-DQ2011-3E-21MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/4_DWE-DQ2011-3E-21MAY2014.jpg</a>	E	May 21, 2014
<b>Monument:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/4_DWE-DQ2011-2-21MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/4_DWE-DQ2011-2-21MAY2014.jpg</a>		May 21, 2014
<b>Disk:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/4_DWE-DQ2011-1-21MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/4_DWE-DQ2011-1-21MAY2014.jpg</a>		May 21, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 4 RWM

NGS Name: 4 RWM

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SW	30	141 N	47 W	465930.00	964122.56		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	2001	GOOD	Horz=YES Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

**Description:** (1964)                      **Stamping:** 4 RWM 1964

3.0 MILES EAST OF KRAGNES, 1.0 MILE SOUTHEAST ON TRUNK HIGHWAY 75 SOUTH FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND 100TH AVENUE NORTH, THEN 2.7 MILES EAST ON 90TH AVENUE NORTH, THEN 1.0 MILE NORTH ON COUNTY ROAD 94 (50TH STREET NORTH), 42.0 FEET NORTH AND 48.0 FEET EAST OF THE CROSSROADS, 13.0 FEET NORTH AND 25.0 FEET WEST OF A TELEPHONE POLE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Orthometric Height</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			
899.755	.033	3							1965	USGS-VERT			

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			
			814.388	.066	1996				2001	DIST 4			

Geoid Separations(ft): GEOID18 = -86.604    12B = -86.614    09 = -86.457    03 = -86.450

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>Geodetic Position</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>					
46 59 30.00546	96 41 22.56628	502617.827	231918.624	.033	C	2001	DIST 4					

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>					
2015929.112	1063750.234	720030.099	17095923.128	.033	C	2001	DIST 4					



Mn/DOT Name: 45 A

NGS Name: 45 A

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096114/  
 USGS Quad: DALE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	36	140 N	44 W	465419.00	961036.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1934	1934	GOOD	Horz=? Vert=?	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	SEE DESCRIPTION	NGS

Description: (1934)

Stamping:

2.0 MILES EAST OF DALE, 0.2 MILE NORTH AND EAST ALONG 28TH AVENUE NORTH FROM THE JUNCTION OF 280TH STREET NORTH AND 28TH AVENUE NORTH IN DALE, THEN 184.0 FEET NORTH ALONG COUNTY ROAD 37 (280TH STREET NORTH), THEN 1.7 MILES EAST ALONG 28TH AVENUE NORTH/DALE, STATION 45 A IS THE SOUTHWEST ANCHOR BOLT OF THE NORTH SIGNAL TOWER AT MILEPOINT 226.5, ON THE NORTHERN PACIFIC RAILWAY.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.880 12B = -87.871 09 = -87.756 03 = -87.674



Mn/DOT Name: 46 A

NGS Name: 46 A

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096114/  
 USGS Quad: DALE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	35	140 N	44 W	465350.00	961205.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1934	1934	GOOD	Horz=? Vert=?	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	SEE DESCRIPTION	NGS

**Description:** (1934)

**Stamping:**

1.0 MILE SOUTHEAST OF DALE, 0.2 MILE SOUTHEAST ALONG COUNTY ROAD 37 (280TH STREET NORTH) FROM THE JUNCTION OF COUNTY ROAD 37 (280TH STREET NORTH) AND 28TH AVENUE NORTH IN DALE, THEN 0.3 MILE SOUTH ALONG COUNTY ROAD 37 (280TH STREET NORTH), THEN 0.7 MILE EAST ALONG COUNTY ROAD 115/COUNTY ROAD 15 (THE JUNCTION OF 15TH AVENUE NORTH), STATION 46 A IS THE SOUTHWEST ANCHOR BOLT ON THE CONCRETE BASE OF A SIGNAL TOWER AT MILEPOINT 228.3, ON THE NORTHERN PACIFIC RAILWAY.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.857 12B = -87.848 09 = -87.733 03 = -87.657



Mn/DOT Name: 47 A

NGS Name: 47 A

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096114/  
 USGS Quad: DALE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	35	140 N	44 W	465403.00	961239.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1934	1934	GOOD	Horz=? Vert=?	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	RIVET	NGS

Description: (1934)

Stamping:

0.5 MILE SOUTHEAST OF DALE ON OLD STATE HIGHWAY 2, IN THE SOUTHWEST CORNER OF AN OVERPASS ON THE OLD HIGHWAY, 0.2 MILE SOUTHEAST ALONG COUNTY ROAD 37 (280TH STREET NORTH) FROM THE JUNCTION OF COUNTY ROAD 37 (280TH STREET NORTH) AND 28TH AVENUE NORTH IN DALE, THEN 0.3 MILE SOUTH ALONG COUNTY ROAD 37 (280TH STREET NORTH), THEN 0.3 MILE EAST ALONG COUNTY ROAD 115/COUNTY ROAD 15 (THE JUNCTION OF 15TH AVENUE NORTH), 40.0 FEET NORTH OF A SIGNAL BLOCK AT MILEPOINT 228.8, ON THE NORTHERN PACIFIC RAILWAY.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.877 12B = -87.867 09 = -87.752 03 = -87.680



Mn/DOT Name: 49 A

NGS Name: 49 A

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096114/  
 USGS Quad: DALE

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	33	140 N	44 W	465411.00	961446.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1934	2014	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	SEE DESCRIPTION	NGS

Description: (1934)

Stamping:

1.2 MILES WEST-SOUTHWEST OF DALE, IN THE WEST END OF THE NORTH HEADWALL OF A CONCRETE CULVERT ON THE NORTH SIDE OF OLD STATE HIGHWAY 2, 1.3 MILES WEST AND SOUTH ALONG 280TH STREET NORTH FROM THE JUNCTION OF 28TH AVENUE NORTH AND 28TH AVENUE NORTH IN DALE, 0.5 MILE NORTH OF THE WINNIPEG JUNCTION, 1.0 MILE WEST OF AN UNDERPASS ON THE NORTHERN PACIFIC RAILWAY.

Station Notes

THE STATION IS A MONEL METAL RIVET.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.894 12B = -87.877 09 = -87.769 03 = -87.707



Mn/DOT Name: 5 DHB

NGS Name: 5 DHB

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 47096323/  
 USGS Quad: FELTON SW

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	34	142 N	47 W	470443.88	963737.74		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1965	2001	GOOD	Horz=YES Vert=YES	YES			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

**Description:** (2004)                      **Stamping:** 5 DHB 1965

6.0 MILES WEST OF FELTON, 5.7 MILES WEST ON 160TH AVENUE NORTH/7TH STREET FROM THE JUNCTION OF 160TH AVENUE NORTH AND ATLANTIC AVENUE IN FELTON, THEN 66.0 FEET SOUTH ON 80TH STREET NORTH, 55.0 FEET SOUTH AND 47.0 FEET EAST OF A CROSSROADS, 3.0 FEET WEST OF A POWER POLE, 1.0 FOOT NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			
893.122	.033	3				1965	USGS-VERT			

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			
			807.830	.066	1996	2001	DIST 4			

Geoid Separations(ft): GEOID18 = -86.814    12B = -86.824    09 = -86.696    03 = -86.663

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(1996)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>									
47 04 43.88236	96 37 37.74721			518174.265	263728.892	.033	C	2001	DIST 4	

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(1996)</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	
<u>X</u>	<u>Y</u>									
2032461.314	1095062.539			737081.349	17126978.163	.033	C	2001	DIST 4	



Mn/DOT Name: 5 DWE

NGS Name: 5 DWE

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096114/  
 USGS Quad: DALE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	25	141 N	44 W	465931.00	961140.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1963	1963	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

**Description:** (1963)                      **Stamping:** 5 DWE 1963 1210

3.26 MILES NORTHEAST OF HITTERDAL, 3.3 MILES EAST ALONG FRONT STREET/90TH AVENUE NORTH FROM THE JUNCTION OF FRONT STREET AND 260TH STREET NORTH, THEN 0.3 MILE WEST ON 290TH STREET/100TH AVENUE NORTH, 21.0 FEET NORTH AND 128.0 FEET WEST OF AN EAST-WEST GRAVEL ROAD AT A FIELD ROAD NORTH, 2.0 FEET EAST OF A TELEPHONE POLE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1209.811	.033	3				VERTICAL CONTROL SURVEY	1964	USGS-VERT	

**Geoid Separations(ft): GEOID18 = -88.002    12B = -87.985    09 = -87.890    03 = -87.815**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 5 RWM

NGS Name: 5 RWM

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	31	141 N	46 W	465929.00	963345.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	1999	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

Description: (1964)                      Stamping: 5 RWM 1964

9.0 MILES EAST OF KRAGNES, 8.6 MILES EAST ALONG 90TH AVENUE NORTH FROM THE JUNCTION OF 90TH AVENUE NORTH AND TRUNK HIGHWAY 75 IN KRAGNES, THEN 1.0 MILE NORTH ON 110TH STREET NORTH, THEN 230.0 FEET EAST ON 100TH AVENUE NORTH, 84.0 FEET SOUTH AND 60.0 FEET EAST OF THE CROSSROADS, 9.0 FEET SOUTH AND 48.0 FEET EAST OF THE SOUTHEAST CORNER OF A BRIDGE, 8.0 FEET EAST OF A TELEPHONE POLE, 0.7 FOOT NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
911.498	.033	3				VERTICAL CONTROL SURVEY	1965	USGS-VERT	

Geoid Separations(ft): GEOID18 = -87.018    12B = -87.041    09 = -86.876    03 = -86.850

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 50 A

NGS Name: 50 A

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096114/  
 USGS Quad: DALE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	33	140 N	44 W	465423.00	961442.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1934	2014	GOOD	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	SEE DESCRIPTION	NGS

**Description:** (1934)                      **Stamping:**

1.2 MILES WEST OF DALE, AT THE NORTH END OF THE EAST ABUTMENT OF A BRIDGE OVER THE BUFFALO RIVER, ON OLD STATE HIGHWAY 2, 1.4 MILES WEST AND SOUTH AND NORTH ALONG 28TH AVENUE NORTH FROM THE JUNCTION OF 280TH STREET NORTH AND 28TH AVENUE NORTH IN DALE, AT THE WINNIPEG JUNCTION ON THE NORTHERN PACIFIC RAILWAY.

**Station Notes**

THE SURVEY MARK IS ON RAILROAD PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.903    12B = -87.887    09 = -87.779    03 = -87.716



Mn/DOT Name: 51 A (BR 420)

NGS Name: 51 A (BR 420)

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096141/  
 USGS Quad: HAWLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	33	140 N	44 W	465334.00	961525.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1984	2014	DESTROYED	Horz=NO Vert=NO	NO	CO RD	FLUSH	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE ABUTMENT	SURVEY DISK	MNDT

Description: (1996)                      Stamping:

3.0 MILES EAST-NORTHEAST OF HAWLEY, 1.0 MILE NORTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND TRUNK HIGHWAY 10, AT TRUNK HIGHWAY 32 MILEPOINT 16.5, 466.0 FEET EAST OF THE JUNCTION OF TRUNK HIGHWAY 32 AND COUNTY ROAD 115.

**Station Notes**

THE MARK IS A BOLT IN THE NORTH END OF THE EAST ABUTMENT OF COUNTY ROAD 115 BRIDGE 420 OVER THE BUFFALO RIVER.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1163.840	.033	3					VERTICAL CONTROL SURVEY	1984	CS1403	

Geoid Separations(ft): GEOID18 = -87.861    12B = -87.844    09 = -87.736    03 = -87.677

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 51 A

NGS Name: 51 A

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096141/  
 USGS Quad: HAWLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	33	140 N	44 W	465421.00	961528.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1934	2014	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	SEE DESCRIPTION	NGS

**Description:** (1934)

**Stamping:**

1.8 MILES WEST OF DALE, AT THE NORTHWEST CORNER OF A BRIDGE SEAT, 2.1 MILES WEST ALONG 28TH AVENUE NORTH FROM THE JUNCTION OF 28TH AVENUE NORTH AND COUNTY ROAD 37 IN DALE, THEN 0.1 MILE NORTH ALONG TRUNK HIGHWAY 32 NORTH (260TH STREET NORTH), 1.0 MILE NORTHWEST OF WINNIPEG JUNCTION.

**Station Notes**

THE STATION IS AN ANCHOR BOLT.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.900 12B = -87.880 09 = -87.775 03 = -87.716



Mn/DOT Name: 51 A-1

NGS Name: 51 A 1

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096141/  
 USGS Quad: HAWLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	4	139 N	44 W	465237.00	962201.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1934	2022	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	SEE DESCRIPTION	NGS

Description: (1934)

Stamping:

2.5 MILES WEST OF HAWLEY ON TRUNK HIGHWAY 10, 0.1 MILE WEST-SOUTHWEST ALONG COUNTY ROAD 116 (MAIN STREET) FROM THE JUNCTION OF COUNTY ROAD 116 (MAIN STREET) AND 6TH STREET IN HAWLEY, THEN 0.2 MILE SOUTH-SOUTHEAST ALONG 8TH STREET, THEN 2.3 MILES WEST ALONG TRUNK HIGHWAY 10 WEST, IN A CONCRETE BASE OF EGLON TRIANGULATION.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.834 12B = -87.818 09 = -87.707 03 = -87.674



Mn/DOT Name: 54 A

NGS Name: 54 A

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096141/  
 USGS Quad: HAWLEY

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SE	1	139 N	45 W	465255.00	961835.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1934	1934	GOOD	Horz=YES Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	SEE DESCRIPTION	NGS

**Description:** (1934)

**Stamping:**

IN HAWLEY, 0.2 MILE SOUTH-SOUTHEAST ALONG 6TH STREET FROM THE JUNCTION OF 6TH STREET AND COUNTY ROAD 116 (MAIN STREET) IN HAWLEY, THEN 407.0 FEET EAST ALONG VALLEY STREET, THEN 0.4 MILE NORTH-NORTHEAST ALONG 5TH STREET, IN THE BASE OF A WATER STANDPIPE, 400.0 FEET EAST OF THE NORTHERN PACIFIC RAILWAY DEPOT.

**Station Notes**

THE STATION IS A MONEL METAL RIVET.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.844 12B = -87.825 09 = -87.716 03 = -87.674



Mn/DOT Name: 55 A

NGS Name: 55 A

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096141/  
 USGS Quad: HAWLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	12	139 N	45 W	465237.00	961855.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1934	1934	GOOD	Horz=YES Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	SEE DESCRIPTION	NGS

**Description:** (1934)

**Stamping:**

0.5 MILE SOUTHEAST OF HAWLEY, AT THE NORTH END OF THE WEST END OF A HIGHWAY BRIDGE EAST OF HAWLEY, 0.1 MILE WEST-SOUTHWEST ALONG COUNTY ROAD 116 (MAIN STREET) FROM THE JUNCTION OF COUNTY ROAD 116 (MAIN STREET) AND 6TH STREET IN HAWLEY, THEN 0.2 MILE SOUTH ALONG 8TH STREET, THEN 0.2 MILE EAST ALONG TRUNK HIGHWAY 10 EAST.

**Station Notes**

THE STATION IS A MONEL METAL RIVET.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.831 12B = -87.812 09 = -87.703 03 = -87.661



Mn/DOT Name: 57 KEE

NGS Name: 57 KEE

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096113/  
 USGS Quad: LAKE PARK SW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	23	138 N	44 W	464537.00	961259.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1963	2009	GOOD	Horz=YES Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

**Description:** (1963)                      **Stamping:** 57 KEE 1963

1.74 MILES NORTHEAST OF ROLLAG, 1.5 MILES NORTH-NORTHWEST ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND 102ND AVENUE SOUTH NORTH OF ROLLAG, THEN 1.8 MILES EAST ON 90TH AVENUE SOUTH AND COUNTY HIGHWAY 10, 3.0 FEET NORTHWEST OF THE 3RD TELEPHONE POLE EAST OF THE CROSSROADS, 57.0 FEET SOUTH AND 49.0 FEET WEST OF AN APPROACH SOUTH.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1342.442	.033	3					VERTICAL CONTROL SURVEY	1965	USGS-VERT	

**Geoid Separations(ft):** GEOID18 = -87.316    12B = -87.283    09 = -87.175    03 = -87.129

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 58 KEE

NGS Name: 58 KEE

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ1995](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096142/  
 USGS Quad: HAWLEY SE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	33	139 N	44 W	464822.63	961539.43	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1963	2023	GOOD	Horz=YES Vert=YES	YES		FLUSH	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	SURVEY DISK	USGS

**Description:** (1963) **Stamping:** 58 KEE 1963

4.4 MILES SOUTHEAST OF HAWLEY, 4.85 MILES SOUTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND TRUNK HIGHWAY 10 (THE JUNCTION IS 3.0 MILES EAST OF HAWLEY), AT TRUNK HIGHWAY 32 MILEPOINT 10.65, 76.5 FEET EAST OF TRUNK HIGHWAY 32, 1.5 FEET NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>							<u>Project Info</u>	
<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			
1305.572	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941

  

<u>NGVD29</u>							<u>Project Info</u>	
<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			
1304.499	.033	3				VERTICAL CONTROL SURVEY	1965	USGS-VERT

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>							<u>Project Info</u>	
<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			
1305.749	.262		1218.232	.197	2011	GPS - RTRN	2023	RTRN2023
1305.634	.262		1218.134	.197	2011	GPS - RTRN	2014	RTRN2014

Geoid Separations(ft): GEOID18 = -87.516 12B = -87.500 09 = -87.388 03 = -87.342

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>						<u>Project Info</u>		
<u>Geodetic Position</u>		<u>Clay County</u>		<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>					
46 48 22.62612	96 15 39.43006	609977.063	164608.369	.131	3	GPS - RTRN	2023	RTRN2023
46 48 22.62614	96 15 39.42944	609977.106	164608.371	.131	3	GPS - RTRN	2014	RTRN2014

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>				<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>					
2121145.151	993154.751	824138.457	17023594.985	.131	3	GPS - RTRN	2023	RTRN2023
2121145.194	993154.752	824138.500	17023594.985	.131	3	GPS - RTRN	2014	RTRN2014

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/58_KEE-DQ1995-3E-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/58_KEE-DQ1995-3E-18OCT2023.jpg</a>	E	Oct 18, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/58_KEE-DQ1995-2-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/58_KEE-DQ1995-2-18OCT2023.jpg</a>		Oct 18, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/58_KEE-DQ1995-1-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/58_KEE-DQ1995-1-18OCT2023.jpg</a>		Oct 18, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 6 WRM

NGS Name: 6 WRM

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0410](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	21	139 N	47 W	465052.22	963751.33	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	2022	POOR	Horz=NO Vert=NO	NO		PROJECTS 20 IN.	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	USGS

Description: (1964) Stamping: 6 RWM 1964

2.5 MILES SOUTHWEST OF GLYNDON, 2.0 MILES SOUTH ALONG 100TH STREET SOUTH FROM THE JUNCTION OF 100TH STREET SOUTH AND TRUNK HIGHWAY 10 IN GLYNDON, THEN 2.0 MILES WEST ON 28TH AVENUE SOUTH, 55.0 FEET EAST OF COUNTY ROAD 63, 40.0 FEET SOUTH OF COUNTY ROAD 79, 50.87 FEET EAST OF A FIELD ENTRANCE, 1.0 FOOT NORTHWEST OF A WITNESS POST.

Station Notes

THE CONCRETE BASE IS LOOSE AND MOVES EASILY.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
917.705	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941
917.879	.016	2/1				VERTICAL ADJUSTMENT	2011	00000685
917.902	.016	2/1				VERTICAL CONTROL SURVEY	2008	VCL94
917.793	.016	2				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
916.891	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
916.891	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A
916.606	.033	3				VERTICAL CONTROL SURVEY	1964	USGS-VERT

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
918.043	.262		830.658	.197	2011	GPS - RTRN	2022	RTRN2022

Geoid Separations(ft): GEOID18 = -87.388 12B = -87.401 09 = -87.250 03 = -87.191

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

<u>Geodetic Position</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 50 52.21590	96 37 51.32832	517308.513	179464.710	.131	3	GPS - RTRN	2022	RTRN2022

State Plane and UTM Coordinates (Feet)

NAD83(2011)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>					<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2028989.322	1010870.760	732235.893	17042807.497	.131	3	GPS - RTRN	2022	RTRN2022



Mn/DOT Name: 60 FWK

NGS Name: 60 FWK

County: CLAY, MN (Sheet 1)

NGS ACRN: [DR9632](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096441/  
 USGS Quad: FARGO NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	30	141 N	48 W	465929.93	964744.80		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1958	2023	GOOD	Horz=YES Vert=YES	NO		FLUSH	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	BENCH MARK DISK	USGS

**Description:** (1958)                      **Stamping:** 60 FWK 1958 885

2.0 MILES WEST OF KRAGNES, 2.0 MILES WEST ALONG 100TH AVENUE NORTHWEST FROM THE JUNCTION OF 100TH AVENUE NORTHWEST AND TRUNK HIGHWAY 75 IN KRAGNES, 40.5 FEET NORTH OF 100TH AVENUE NORTHWEST, 56.4 FEET WEST OF 10TH STREET NORTHWEST, 4.8 FEET EAST- NORTHEAST OF A POWER POLE WITH GUY WIRE, 0.5 FOOT SOUTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>							<u>Project Info</u>	
<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			
884.979	.033	3				VERTICAL CONTROL SURVEY	1963	USGS-VERT

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>							<u>Project Info</u>	
<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			
885.668			799.592	.024	2011	HORIZONTAL ADJUSTMENT	2024	GPS3674
885.668			799.592	.024	2011	GPS - STATIC	2023	HMOFA3
885.664	.131		799.687	.066	1996	GPS - STATIC	2023	HMOFA3

Geoid Separations(ft): GEOID18 = -86.296 12B = -86.315 09 = -86.168 03 = -86.148

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>							<u>Project Info</u>	
<u>Geodetic Position</u>		<u>Clay County</u>		<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>					
46 59 29.92773	96 47 44.80077	476118.652	231925.187	.010		ADJUSTMENT	2024	GPS3674
46 59 29.92773	96 47 44.80077	476118.652	231925.187	.010	C	GPS - STATIC	2023	HMOFA3

  

<u>NAD83(1996)</u>							<u>Project Info</u>	
<u>Geodetic Position</u>		<u>Clay County</u>		<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>					
46 59 29.92753	96 47 44.80141	476118.607	231925.167	.033	C	GPS - STATIC	2023	HMOFA3

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>							<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>					
1989444.342	1064576.145	693546.258	17097182.109	.010		ADJUSTMENT	2024	GPS3674
1989444.342	1064576.145	693546.258	17097182.109	.010	C	GPS - STATIC	2023	HMOFA3

  

<u>NAD83(1996)</u>							<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>					
1989444.297	1064576.126	693546.213	17097182.091	.033	C	GPS - STATIC	2023	HMOFA3

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/60_FWK-DR9632-3N-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/60_FWK-DR9632-3N-28JUN2022.jpg</a>	N	Jun 28, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/60_FWK-DR9632-2-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/60_FWK-DR9632-2-28JUN2022.jpg</a>		Jun 28, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/60_FWK-DR9632-1-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/60_FWK-DR9632-1-28JUN2022.jpg</a>		Jun 28, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 60 KEE

NGS Name: 60 KEE

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096141/  
 USGS Quad: HAWLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	9	140 N	44 W	465752.00	961531.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1963	2014	GOOD	Horz=NO Vert=NO	NO		RECESSED 2 IN.	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

**Description:** (1984)                      **Stamping:** 60 KEE 1963

1.0 MILE SOUTH OF HITTERDAL, 0.9 MILE SOUTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND COUNTY ROAD 26 IN HITTERDAL, THEN 230.0 FEET EAST ON 80TH AVENUE NORTH, 71.0 FEET SOUTH AND 47.5 FEET EAST OF A ROAD AT A RAILROAD CROSSING, 6.0 FEET NORTH-NORTHEAST OF A POWER POLE.

**Station Notes**

THE SURVEY MARK IS ON RAILROAD PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

**Leveling-Derived Orthometric Heights (Feet)**

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1245.368	.033	3				VERTICAL CONTROL SURVEY	1965	USGS-VERT	

**Geoid Separations(ft): GEOID18 = -87.913    12B = -87.916    09 = -87.798    03 = -87.733**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 61 KEE

NGS Name: 61 KEE

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	32	140 N	46 W	465420.00	963020.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1963	2014	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

Description: (1963)                      Stamping: 61 KEE 1963

4.0 MILES NORTHEAST OF GLYNDON, 3.5 MILES EAST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND PARKE AVENUE SOUTH IN GLYNDON, THEN 2.0 MILES NORTH ON TRUNK HIGHWAY 9 NORTH (140TH STREET NORTH), AT SPRING PRAIRIE TOWN HALL, 63.0 FEET SOUTH AND 27.0 FEET WEST OF THE CROSSROADS, 4.0 FEET WEST OF A POWER POLE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
935.379	.033	3					VERTICAL CONTROL SURVEY	1964	USGS-VERT	

**Geoid Separations(ft): GEOID18 = -87.631    12B = -87.628    09 = -87.493    03 = -87.457**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 62 KEE

NGS Name: 62 KEE

County: CLAY, MN (Sheet 1)

NGS ACRN: <a href="#">DQ1943</a>	<a href="#">Get Map</a>
NGS Quad / Sta Num : 46096411/	
USGS Quad: GLYNDON NORTH	

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	20	140 N	46 W	465601.39	963021.39	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1963	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	STEEL SPIKE IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	USGS

Description: (1963)                      Stamping: 62 KEE 1963

5.2 MILES NORTHEAST OF GLYNDON, 3.9 MILES NORTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND TRUNK HIGHWAY 10 (THE JUNCTION IS 3.5 MILES EAST OF GLYNDON), AT TRUNK HIGHWAY 9 MILEPOINT 167.65, 68.0 FEET WEST OF TRUNK HIGHWAY 9, 315.0 FEET SOUTH OF 57TH AVENUE NORTH, 4.0 FEET NORTHEAST OF A POWER POLE, 2.0 FEET EAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>							<u>Project Info</u>	
<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			
931.894	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941

  

<u>NGVD29</u>							<u>Project Info</u>	
<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			
930.517	.033	3				VERTICAL CONTROL SURVEY	1964	USGS-VERT

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>							<u>Project Info</u>	
<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			
931.894			844.513	.026	2011	HORIZONTAL ADJUSTMENT	2023	GPS3618
931.894	.131		844.644	.066	1996	GPS - STATIC	2023	HFELT
931.894			844.513	.026	2011	GPS - STATIC	2023	HFELT
931.937	.262		844.431	.197	2011	GPS - RTRN	2014	RTRN2014

Geoid Separations(ft): GEOID18 = -87.523    12B = -87.506    09 = -87.382    03 = -87.365

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>							<u>Project Info</u>	
<u>Geodetic Position</u>		<u>Clay County</u>		<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>					
46 56 01.39074	96 30 21.38542	548507.822	210841.877	.016		ADJUSTMENT	2023	GPS3618
46 56 01.39074	96 30 21.38542	548507.822	210841.877	.016	C	GPS - STATIC	2023	HFELT
46 56 01.39139	96 30 21.38481	548507.864	210841.943	.131	3	GPS - RTRN	2014	RTRN2014

  

<u>NAD83(1996)</u>							<u>Project Info</u>	
<u>Geodetic Position</u>		<u>Clay County</u>		<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>					
46 56 01.39043	96 30 21.38598	548507.783	210841.845	.033	C	GPS - STATIC	2023	HFELT

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>							<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>			<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>						
2061142.106	1041265.146	764895.159	17072692.351	.016		ADJUSTMENT	2023	GPS3618	
2061142.106	1041265.146	764895.159	17072692.351	.016	C	GPS - STATIC	2023	HFELT	
2061142.150	1041265.211	764895.204	17072692.415	.131	3	GPS - RTRN	2014	RTRN2014	

  

<u>NAD83(1996)</u>							<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>			<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>						
2061142.066	1041265.116	764895.119	17072692.321	.033	C	GPS - STATIC	2023	HFELT	



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/62_KEE-DQ1943-3S-28MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/62_KEE-DQ1943-3S-28MAY2014.jpg</a>	S	May 28, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/62_KEE-DQ1943-2-28MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/62_KEE-DQ1943-2-28MAY2014.jpg</a>		May 28, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/62_KEE-DQ1943-1-28MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/62_KEE-DQ1943-1-28MAY2014.jpg</a>		May 28, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 63 KEE

NGS Name: 63 KEE

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	9	138 N	46 W	464649.00	963016.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1963	2014	NOT FOUND	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

**Description:** (1963)                      **Stamping:** 63 KEE 1963

7.45 MILES SOUTHEAST OF GLYNDON, 3.5 MILES EAST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND PARKE AVENUE SOUTH IN GLYNDON, THEN 6.6 MILES SOUTH ON TRUNK HIGHWAY 9 SOUTH (140TH STREET SOUTH), THEN 0.1 MILE SOUTH ON 140TH STREET SOUTH, 194.0 FEET SOUTH AND 54.0 FEET EAST OF A RAILROAD CROSSING, 4.0 FEET NORTHEAST OF A POWER POLE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
952.833	.033	3					VERTICAL CONTROL SURVEY	1964	USGS-VERT	

**Geoid Separations(ft):** GEOID18 = -87.542    12B = -87.542    09 = -87.424    03 = -87.359

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 68 A

NGS Name: 68 A

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	8	139 N	46 W	465237.00	963116.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1934	2014	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	SEE DESCRIPTION	NGS

**Description:** (1934)

**Stamping:**

2.50 MILES EAST OF GLYNDON, AT THE SOUTH END OF THE WEST ABUTMENT NUMBER 3712 OF A HIGHWAY BRIDGE OVER THE BUFFALO RIVER, 0.3 MILE NORTH ALONG PARKE AVENUE SOUTH FROM THE JUNCTION OF PARKE AVENUE SOUTH AND 4TH STREET SOUTHEAST IN GLYNDON, THEN 2.8 MILES EAST ALONG TRUNK HIGHWAY 10 (STATE STREET NORTHEAST).

**Station Notes**

THE STATION IS A MONEL METAL RIVET.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.647 12B = -87.661 09 = -87.513 03 = -87.454



Mn/DOT Name: 7 DWE

NGS Name: 7 DWE

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 47096233/  
 USGS Quad: ULEN SW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	12	142 N	46 W	470720.00	962611.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1963	1963	GOOD	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

**Description:** (1963)                      **Stamping:** 7 DWE 1963

4.46 MILES NORTHEAST OF FELTON, 3.0 MILES NORTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 NORTH (140TH STREET NORTH) AND COUNTY ROAD 34 IN FELTON, THEN 3.0 MILES EAST ON 190TH AVENUE NORTH, 41.0 FEET NORTH AND 24.0 FEET WEST OF AN EAST-WEST GRAVEL ROAD AT A DRAIN CROSSING.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
929.129	.033	3				VERTICAL CONTROL SURVEY	1964	USGS-VERT	

**Geoid Separations(ft): GEOID18 = -87.250    12B = -87.260    09 = -87.145    03 = -87.126**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 7 RWM

NGS Name: 7 RWM

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	8	138 N	47 W	464723.00	963750.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	2013	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

Description: (1964)                      Stamping: 7 RWM 1964

6.4 MILES SOUTHWEST OF GLYNDON, 3.3 MILES WEST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND PARKE AVENUE SOUTH IN GLYNDON, THEN 6.3 MILES SOUTH ALONG TRUNK HIGHWAY 336 SOUTH/ 70TH STREET NORTH/ COUNTY ROAD 11, THEN 1.0 MILE EAST ALONG COUNTY ROAD 67/ 70TH AVENUE SOUTH, THEN 79.0 FEET SOUTH ALONG 80TH STREET SOUTH, 45.0 FEET SOUTH AND 40.0 FEET WEST OF A CROSSROADS, 9.0 FEET SOUTH OF A TELEPHONE POLE, 0.5 FOOT EAST OF A WITNESS POST.

Station Notes

FOUND BROKEN CONCRETE 8/20/2013.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
910.973	.033	3				VERTICAL CONTROL SURVEY	1964	USGS-VERT	

Geoid Separations(ft): GEOID18 = -87.405    12B = -87.405    09 = -87.303    03 = -87.218

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 73 A

NGS Name: 73 A

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	12	139 N	47 W	465238.00	963324.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1934	2014	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	SEE DESCRIPTION	NGS

Description: (1934)

Stamping:

1.0 MILE EAST OF GLYNDON, IN THE SOUTHEAST CORNER OF THE SOUTH END OF THE WEST ABUTMENT OF A BRIDGE ON TRUNK HIGHWAY 10, 0.3 MILE NORTH ALONG PARKE AVENUE SOUTH FROM THE JUNCTION OF PARKE AVENUE SOUTH AND 4TH STREET SOUTHEAST IN GLYNDON, THEN 1.2 MILES EAST ALONG TRUNK HIGHWAY 10 (STATE STREET NORTHEAST), THEN 0.1 MILE WEST ALONG TRUNK HIGHWAY 10.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.556 12B = -87.559 09 = -87.415 03 = -87.369



Mn/DOT Name: 75 1

NGS Name: 75 1

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0428](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	8	139 N	48 W	465152.00	964605.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1968	2022	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
WALL	CHISELED SQUARE	MNDT

Description: (1968)

Stamping:

IN MOORHEAD, IN THE SOUTHWEST CORNER OF A CONCRETE BOX CULVERT, 1.2 MILES NORTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND INTERSTATE HIGHWAY 94, 0.7 MILE SOUTH OF THE JUNCTION OF TRUNK HIGHWAY 75 AND TRUNK HIGHWAY 10 IN MOORHEAD, 35.0 FEET WEST OF TRUNK HIGHWAY 75, 400.0 FEET SOUTH OF 7TH AVENUE SOUTH, OPPOSITE A CEMETERY TO THE EAST.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
899.762	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
898.820	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD

Geoid Separations(ft): GEOID18 = -86.991 12B = -86.985 09 = -86.876 03 = -86.804

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 75 A

NGS Name: 75 A

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	11	139 N	47 W	465225.00	963456.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1934	1934	GOOD	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	SEE DESCRIPTION	NGS

Description: (1934)                      Stamping:

IN GLYNDON, THE SOUTHEAST ANCHOR BOLT ON THE FIRST GREAT NORTHERN RAILWAY SIGNAL TOWER NORTH OF THE NORTHERN PACIFIC RAILWAY JUNCTION.

Station Notes

THE SURVEY MARK IS ON RAILROAD PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.483    12B = -87.487    09 = -87.346    03 = -87.303



Mn/DOT Name: 79

NGS Name: 79

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0411](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	21	139 N	47 W	465052.54	963653.04	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1968	2022	GOOD	Horz=NO Vert=NO	NO		FLUSH	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STRUCTURE (MASSIVE)	SEE DESCRIPTION	MNDT

Description: (1968)

Stamping:

2.0 MILES SOUTHWEST OF GLYNDON, IN THE SOUTHEAST CORNER OF A BRIDGE CURB AT COUNTY ROAD 79 OVER THE SOUTH BRANCH RIVER, 0.7 MILE SOUTH ALONG PARKE AVENUE SOUTH FROM THE JUNCTION OF PARKE AVENUE SOUTH AND 4TH STREET SOUTHEAST IN GLYNDON, THEN 0.4 MILE WEST ALONG COUNTY ROAD 72 (12TH STREET SOUTHEAST), THEN 1.0 MILE SOUTH ALONG 100TH STREET SOUTH, THEN 1.2 MILES WEST ALONG 28TH AVENUE SOUTH. 3.0 FEET WEST OF THE SOUTHEAST CORNER OF A BRIDGE. STATION 79 IS THE TOP OF AN IRON RING SURROUNDED BY RUBBER ASPHALT.

Station Notes

THE YEAR SET IS UNKNOWN. THE SURVEY MARK IS INSIDE THE EXPANSION JOINT.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
916.143	.016	2/0					VERTICAL ADJUSTMENT	1991	00000025	

  

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
915.195	.016	2/0					UNKNOWN/APPROXIMATE	1992	UNCHECKD	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
916.081	.262			828.647	.197	2011	GPS - RTRN	2022	RTRN2022	

Geoid Separations(ft): GEOID18 = -87.434 12B = -87.447 09 = -87.300 03 = -87.241

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 50 52.53980	96 36 53.03801			521360.397	179501.508	.131	3	GPS - RTRN	2022	RTRN2022

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2033040.067	1010782.199			736287.002	17042653.240	.131	3	GPS - RTRN	2022	RTRN2022

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/79-RP0411-3S-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/79-RP0411-3S-05JUL2022.jpg</a>	S	Jul 5, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/79-RP0411-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/79-RP0411-2-05JUL2022.jpg</a>		Jul 5, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/79-RP0411-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/79-RP0411-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 8 DWE

NGS Name: 8 DWE

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 47096233/  
 USGS Quad: ULEN SW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	15	142 N	45 W	470719.12	962231.15		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1963	2013	GOOD	Horz=NO Vert=NO	YES		RECESSED 12 IN.	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	USGS

**Description:** (2013)                      **Stamping:** 8 DWE 1963

6.2 MILES NORTHWEST OF ULEN, 3.0 MILES NORTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND COUNTY ROAD 34 IN ULEN, THEN 5.5 MILES WEST ON 190TH AVENUE NORTH, 50.0 FEET SOUTH OF 190TH AVENUE NORTH, 2.0 FEET SOUTH OF AN EAST-WEST FENCE, 3.0 FEET EAST OF A NORTH-SOUTH FENCE, 3.0 FEET SOUTHEAST OF A FENCE CORNER, 2.0 FEET NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1013.781	.033	3					VERTICAL CONTROL SURVEY	1964	USGS-VERT

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
				927.761	.066	1996	GPS - STATIC	2001	DIST 4

Geoid Separations(ft): GEOID18 = -87.306    12B = -87.326    09 = -87.205    03 = -87.188

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(1996)</u>				<u>Clay County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
47 07 19.12763	96 22 31.15070			580858.254	279617.902	.033	C	GPS - STATIC	2001	DIST 4

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(1996)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2095604.833	1109002.752			800473.493	17139888.941	.033	C	GPS - STATIC	2001	DIST 4

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/8_DWE-3S-21AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/8_DWE-3S-21AUG2013.jpg</a>	S	Aug 21, 2013
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/8_DWE-2-21AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/8_DWE-2-21AUG2013.jpg</a>		Aug 21, 2013
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/8_DWE-1-21AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/8_DWE-1-21AUG2013.jpg</a>		Aug 21, 2013

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: 8 RWM

NGS Name: 8 RWM

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096424/  
 USGS Quad: COMSTOCK

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	28	138 N	47 W	464442.00	963753.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	1964	GOOD	Horz=NO Vert=NO	YES			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

**Description:** (1964)                      **Stamping:** 8 RWM 1964

2.0 MILES SOUTH AND 1.0 MILE EAST OF SABIN, 1.5 MILES SOUTHWEST ALONG COUNTY ROAD 52 (OSBORN AVENUE SOUTH/HOLLOWAY AVENUE SOUTH) FROM THE JUNCTION OF COUNTY ROAD 52 (OSBORN AVENUE SOUTH/HOLLOWAY AVENUE SOUTH) AND MAIN STREET, THEN 1.2 MILES SOUTH ON 80TH STREET SOUTH, 60.0 FEET SOUTH AND 90.0 FEET EAST OF A CROSSROAD, 13.0 FEET WEST OF A 36.0 INCH DIAMETER COTTONWOOD TREE (1 OF 3 TREES).

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>		
924.759	.033	3							VERTICAL CONTROL SURVEY	1964	USGS-VERT	

**Geoid Separations(ft): GEOID18 = -87.228    12B = -87.218    09 = -87.145    03 = -87.060**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 9 DWE

NGS Name: 9 DWE

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 47096232/  
 USGS Quad: ULEN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	13	142 N	45 W	470720.00	961919.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1963	2005	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	USGS

**Description:** (1963)                      **Stamping:** 9 DWE 1963

4.22 MILES NORTHWEST OF ULEN, 3.0 MILES NORTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND COUNTY ROAD 34 IN ULEN, THEN 3.0 MILES WEST ON 190TH AVENUE NORTH, 46.0 FEET SOUTH AND 56.0 FEET WEST OF THE GRAVEL CROSSROADS, 3.0 FEET NORTH OF A POWER POLE.

**Station Notes**

NORMAN COUNTY REPORTED THE DISK HAD BROKEN OFF (11-29-2005).

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1094.840	.033	3					VERTICAL CONTROL SURVEY	1964	USGS-VERT	

**Geoid Separations(ft):** GEOID18 = -87.355    12B = -87.369    09 = -87.257    03 = -87.247

\* No Horizontal Positions in the Database \*



Mn/DOT Name: 9 RWM

NGS Name: 9 RWM

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP4935](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096421/  
 USGS Quad: BAKER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	26	138 N	47 W	464449.38	963405.81		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	2010	GOOD	Horz=YES Vert=YES	YES		PROJECTS 4 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	USGS

**Description:** (2010)                      **Stamping:** 9 RWM 1964

3.9 MILES WEST OF DOWNER, 2.55 MILES WEST AND NORTH ALONG COUNTY ROAD 10 FROM THE JUNCTION OF COUNTY ROAD 10 AND INTERSTATE HIGHWAY 94 WEST OF DOWNER, THEN 1.0 MILE SOUTH ON COUNTY ROAD 69 (110TH STREET SOUTH), 50.8 FEET NORTH OF 100TH AVENUE SOUTH, 47.0 FEET EAST OF 110TH STREET SOUTH, 1.4 FEET NORTH OF A WOOD POST, 3.0 FEET NORTH AND 1.5 FEET WEST OF THE SOUTHWEST CORNER OF SECTION 24, 1.3 FEET SOUTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
932.879	.033	3				1964	USGS-VERT	VERTICAL CONTROL SURVEY				

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
934.618			847.347	.024	2011	2014	GPS2750	HORIZONTAL ADJUSTMENT				
934.644	.131		847.347	.024	2011	2014	HBARN	GPS - STATIC				
934.647	.131		847.449	.066	2007	2010	HBARN	GPS - STATIC				
			847.492	.066	1996	2010	HBARN	GPS - STATIC				
			847.518	.066	1996	2001	DIST 4	GPS - STATIC				

Geoid Separations(ft): GEOID18 = -87.296    12B = -87.287    09 = -87.198    03 = -87.136

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 44 49.38390	96 34 05.81213	533046.365	142724.173	.020		ADJUSTMENT	2014	GPS2750
46 44 49.38390	96 34 05.81213	533046.365	142724.173	.020	C	GPS - STATIC	2014	HBARN

  

<u>NAD83(2007)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 44 49.38406	96 34 05.81305	533046.301	142724.189	.033	C	GPS - STATIC	2010	HBARN

  

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 44 49.38362	96 34 05.81304	533046.302	142724.145	.033	C	GPS - STATIC	2010	HBARN
46 44 49.38355	96 34 05.81224	533046.358	142724.137	.033	C	GPS - STATIC	2001	DIST 4

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2043581.661	973664.324	746233.140	17005348.685	.020		ADJUSTMENT	2014	GPS2750
2043581.661	973664.324	746233.140	17005348.685	.020	C	GPS - STATIC	2014	HBARN

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2043581.598	973664.342	746233.077	17005348.704	.033	C	GPS - STATIC	2010	HBARN

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2043581.597	973664.297	746233.075	17005348.659	.033	C	GPS - STATIC	2010	HBARN
2043581.652	973664.288	746233.131	17005348.649	.033	C	GPS - STATIC	2001	DIST 4

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/9_RWM-DP4935-3S-30JUN2010.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/9_RWM-DP4935-3S-30JUN2010.jpg</a>	S	Jun 30, 2010
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/9_RWM-DP4935-2-30JUN2010.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/9_RWM-DP4935-2-30JUN2010.jpg</a>		Jun 30, 2010
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/9_RWM-DP4935-1-30JUN2010.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/9_RWM-DP4935-1-30JUN2010.jpg</a>		Jun 30, 2010

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: A 376

NGS Name: A 376

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0724](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	11	139 N	47 W	465236.65	963439.44	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1982	2022	GOOD	Horz=NO Vert=NO	YES		RECESSED 3 IN.	MARKER IS STEEL ROD

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STEEL ROD (IN SLEEVE) (DEPTH 72 FT)	METAL ROD	NGS

**Description:** (1982)                      **Stamping:** A 376 1982

IN GLYNDON, AT THE JUNCTION OF TRUNK HIGHWAY 10 AND EGLON AVENUE SOUTH, IN THE SOUTH LAWN OF THE CLAY COUNTY STATE BANK, 149.0 FEET SOUTH OF EASTBOUND TRUNK HIGHWAY 10, 89.0 FEET WEST OF EGLON AVENUE SOUTH, 53.0 FEET SOUTHWEST OF THE SOUTHEAST CORNER OF THE BANK, 36.0 FEET SOUTHEAST OF THE SOUTHWEST CORNER OF THE BANK, 34.0 FEET SOUTH-SOUTHWEST OF THE SOUTH FACE OF A DRIVE-IN WINDOW, 14.0 FEET NORTH OF THE NORTH EDGE OF A HEDGE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
924.421	.016	2/1					VERTICAL ADJUSTMENT	2024	00000941-3
924.421	.016	2/1					VERTICAL CONTROL SURVEY	2023	VMOFA
924.608	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
924.768	.262			837.279	.197	2011	GPS - RTRN	2022	RTRN2022

Geoid Separations(ft): GEOID18 = -87.490 12B = -87.493 09 = -87.349 03 = -87.310

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 52 36.65101	96 34 39.44193			530630.572	190062.005	.131	3	GPS - RTRN	2022	RTRN2022

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2042631.752	1021049.991			746049.288	17052769.888	.131	3	GPS - RTRN	2022	RTRN2022

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/A_376-RP0724-3N-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/A_376-RP0724-3N-05JUL2022.jpg</a>	N	Jul 5, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/A_376-RP0724-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/A_376-RP0724-2-05JUL2022.jpg</a>		Jul 5, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/A_376-RP0724-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/A_376-RP0724-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: A 377

NGS Name: A 377

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0729](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	4	139 N	46 W	465239.66	963016.75	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1982	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 6 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STEEL ROD (NO SLEEVE) (DEPTH 28 FT)	METAL ROD	NGS

**Description:** (2014)                      **Stamping:** A 377 1982

3.5 MILES EAST-NORTHEAST OF GLYNDON (THE JUNCTION IS 3.5 MILES EAST OF GLYNDON), AT TRUNK HIGHWAY 10 MILEPOINT 12.85, AT THE JUNCTION OF TRUNK HIGHWAY 10 AND TRUNK HIGHWAY 9, IN THE SOUTHWEST CORNER OF THE SPEEDWAY RACE TRACK PROPERTY, 200.0 FEET EAST OF TRUNK HIGHWAY 9, 122.4 FEET NORTH OF WESTBOUND TRUNK HIGHWAY 10, 92.0 FEET NORTHEAST OF THE NORTHEAST CORNER OF A LARGE DOUBLE CULVERT, 3.0 FEET WEST OF A POWER POLE WITH A GUY WIRE, 1.4 FEET WEST OF A WITNESS POST.

**Station Pair:** RUEDY - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
939.375	.016	2/1				2024	00000941-3	VERTICAL ADJUSTMENT				
939.375	.016	2/1				2023	VMOFA	VERTICAL CONTROL SURVEY				
939.375	.016	2/1				2019	00000941	VERTICAL ADJUSTMENT				
939.572	.016	2/1				2006	00000425-10	VERTICAL ADJUSTMENT				
939.572	.016	2/1				2005	VPIET	VERTICAL CONTROL SURVEY				
939.572	.007	1/2				2004	00000464	VERTICAL ADJUSTMENT				
939.572	.016	2/1				2001	VHAWL	VERTICAL CONTROL SURVEY				
939.572	.007	1/2				1991	00000025	VERTICAL ADJUSTMENT				

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
939.375			851.954	.012	2011	2024	GPS3762	HORIZONTAL ADJUSTMENT				
939.375	.131		852.082	.066	1996	2024	HTH32	GPS - STATIC				
939.375			851.954	.012	2011	2024	HTH32	GPS - STATIC				
939.375			851.954	.026	2011	2024	GPS3719	HORIZONTAL ADJUSTMENT				
939.375	.131		852.082	.066	1996	2024	HMOFA1	GPS - STATIC				
939.375			851.954	.026	2011	2024	HMOFA1	GPS - STATIC				
939.375			851.783	.027	2011	2023	GPS3618	HORIZONTAL ADJUSTMENT				
939.375	.131		851.914	.066	1996	2023	HFELT	GPS - STATIC				
939.375			851.783	.027	2011	2023	HFELT	GPS - STATIC				
939.470	.262		851.786	.197	2011	2022	RTRN2022	GPS - RTRN				
939.627	.262		851.927	.197	2011	2014	RTRN2014	GPS - RTRN				
			852.180	.066	1996	2001	DIST 4	GPS - STATIC				

**Geoid Separations(ft): GEOID18 = -87.687    12B = -87.700    09 = -87.552    03 = -87.493**

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 52 39.65987	96 30 16.74700	548880.623	190403.788	.007		ADJUSTMENT	2024	GPS3762
46 52 39.65987	96 30 16.74700	548880.623	190403.788	.007	C	GPS - STATIC	2024	HTH32
46 52 39.65987	96 30 16.74700	548880.623	190403.788	.013		ADJUSTMENT	2024	GPS3719
46 52 39.65987	96 30 16.74700	548880.623	190403.788	.013	C	GPS - STATIC	2024	HMOFA1
46 52 39.65993	96 30 16.74669	548880.645	190403.795	.016		ADJUSTMENT	2023	GPS3618
46 52 39.65993	96 30 16.74669	548880.645	190403.795	.016	C	GPS - STATIC	2023	HFELT
46 52 39.66005	96 30 16.74668	548880.646	190403.807	.131	3	GPS - RTRN	2022	RTRN2022
46 52 39.66036	96 30 16.74748	548880.590	190403.838	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(1996)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 52 39.65958	96 30 16.74751	548880.588	190403.759	.033	C	GPS - STATIC	2024	HTH32
46 52 39.65958	96 30 16.74751	548880.588	190403.759	.033	C	GPS - STATIC	2024	HMOFA1
46 52 39.65962	96 30 16.74725	548880.606	190403.763	.033	C	GPS - STATIC	2023	HFELT
46 52 39.65963	96 30 16.74771	548880.575	190403.763	.033	C	GPS - STATIC	2001	DIST 4

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2060882.174	1020826.871	764303.331	17052250.681	.007		ADJUSTMENT	2024	GPS3762
2060882.174	1020826.871	764303.331	17052250.681	.007	C	GPS - STATIC	2024	HTH32
2060882.174	1020826.871	764303.331	17052250.681	.013		ADJUSTMENT	2024	GPS3719
2060882.174	1020826.871	764303.331	17052250.681	.013	C	GPS - STATIC	2024	HMOFA1
2060882.195	1020826.877	764303.352	17052250.686	.016		ADJUSTMENT	2023	GPS3618
2060882.195	1020826.877	764303.352	17052250.686	.016	C	GPS - STATIC	2023	HFELT
2060882.196	1020826.889	764303.354	17052250.698	.131	3	GPS - RTRN	2022	RTRN2022
2060882.142	1020826.922	764303.299	17052250.732	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2060882.137	1020826.843	764303.294	17052250.653	.033	C	GPS - STATIC	2024	HTH32
2060882.137	1020826.843	764303.294	17052250.653	.033	C	GPS - STATIC	2024	HMOFA1
2060882.156	1020826.846	764303.312	17052250.656	.033	C	GPS - STATIC	2023	HFELT
2060882.124	1020826.848	764303.280	17052250.659	.033	C	GPS - STATIC	2001	DIST 4

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/A_377-RP0729-3N-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/A_377-RP0729-3N-05JUL2022.jpg</a>	N	Jul 5, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/A_377-RP0729-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/A_377-RP0729-2-05JUL2022.jpg</a>		Jul 5, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/A_377-RP0729-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/A_377-RP0729-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: A 5

NGS Name: A 5

County: CLAY, MN (Sheet 1)

NGS ACRN: [SL0167](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/  
 USGS Quad: FELTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	33	142 N	46 W	470438.00	963026.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1905	2005	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	DRILL HOLE	NGS

Description: (2004)

Stamping:

IN FELTON, 115.0 FEET WEST AND 17.0 FEET SOUTH OF THE SOUTH SIDE OF THE RAILROAD STATION, 33.0 FEET SOUTH OF RAILROAD MILEPOST 33, AT A FENCE CORNER.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
912.741	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025	

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
911.504	.007	1				VERTICAL CONTROL SURVEY	1941	Q470963	
911.504	.007	1				VERTICAL CONTROL SURVEY	1938	L45 MINN	

**GA1912**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
912.049	.007	1				VERTICAL ADJUSTMENT	1914	GA1912	

Geoid Separations(ft): GEOID18 = -87.073 12B = -87.086 09 = -86.958 03 = -86.939

\* No Horizontal Positions in the Database \*



Mn/DOT Name: AGNES

NGS Name: AGNES

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP7345](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096332/  
 USGS Quad: GEORGETOWN

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
				<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	31	142 N	48 W	470350.18	964856.65		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2013	2023	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 13 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2013) Stamping: AGNES 2013

1.0 MILES SOUTHWEST OF GEORGETOWN, 1.1 MILES WEST ALONG COUNTY ROAD 100 FROM THE JUNCTION OF COUNTY ROAD 100 AND TRUNK HIGHWAY 75 IN GEORGETOWN (THE JUNCTION TIE AT TRUNK HIGHWAY 75 MILEPOST 265.3), THEN 0.5 MILE SOUTH ON COUNTY ROAD 100, 38.7 FEET EAST OF COUNTY ROAD 100, 12.7 FEET NORTH OF 150TH AVENUE NORTHWEST, 8.0 FEET SOUTH OF A WITNESS POST.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
883.686			797.804	.021	2011	HORIZONTAL ADJUSTMENT	2024	GPS3674		
883.686			797.804	.021	2011	GPS - STATIC	2023	HMOFA3		
883.729	.131		797.945	.066	1996	GPS - STATIC	2023	HMOFA3		
883.939	.262		797.767	.197	2011	GPS - RTRN	2022	RTRN2022		
884.037			797.804	.023	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084		
884.011	.131		797.945	.066	1996	GPS - STATIC	2015	HCLAY		
884.037			797.804	.023	2011	GPS - STATIC	2015	HCLAY		
883.955	.262		797.754	.197	2011	GPS - RTRN	2013	RTRN2013		

Geoid Separations(ft): GEOID18 = -86.171 12B = -86.201 09 = -86.079 03 = -86.043

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>				<u>Clay County</u>			<u>Project Info</u>	
		<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 03	50.18530	96 48	56.64446	471176.917	258301.153	.010		ADJUSTMENT	2024	GPS3674
47 03	50.18530	96 48	56.64446	471176.917	258301.153	.010	C	GPS - STATIC	2023	HMOFA3
47 03	50.18608	96 48	56.64406	471176.944	258301.232	.131	3	GPS - RTRN	2022	RTRN2022
47 03	50.18530	96 48	56.64446	471176.917	258301.153	.013		ADJUSTMENT	2015	GPS3084
47 03	50.18530	96 48	56.64446	471176.917	258301.153	.013	C	GPS - STATIC	2015	HCLAY
47 03	50.18539	96 48	56.64377	471176.964	258301.162	.131	3	GPS - RTRN	2013	RTRN2013

<u>NAD83(1996)</u>		<u>Geodetic Position</u>				<u>Clay County</u>			<u>Project Info</u>	
		<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 03	50.18476	96 48	56.64524	471176.862	258301.099	.033	C	GPS - STATIC	2023	HMOFA3
47 03	50.18476	96 48	56.64524	471176.862	258301.099	.033	C	GPS - STATIC	2015	HCLAY

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>	
		<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1985320.518	1091090.918	689854.587	17123777.634	.010		ADJUSTMENT	2024	GPS3674		
1985320.518	1091090.918	689854.587	17123777.634	.010	C	GPS - STATIC	2023	HMOFA3		
1985320.548	1091090.996	689854.619	17123777.711	.131	3	GPS - RTRN	2022	RTRN2022		
1985320.518	1091090.918	689854.587	17123777.634	.013		ADJUSTMENT	2015	GPS3084		
1985320.518	1091090.918	689854.587	17123777.634	.013	C	GPS - STATIC	2015	HCLAY		
1985320.566	1091090.926	689854.635	17123777.640	.131	3	GPS - RTRN	2013	RTRN2013		

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>	
		<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1985320.462	1091090.865	689854.531	17123777.581	.033	C	GPS - STATIC	2023	HMOFA3		
1985320.462	1091090.865	689854.531	17123777.581	.033	C	GPS - STATIC	2015	HCLAY		



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/AGNES-DP7345-3E-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/AGNES-DP7345-3E-28JUN2022.jpg</a>	E	Jun 28, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/AGNES-DP7345-2-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/AGNES-DP7345-2-28JUN2022.jpg</a>		Jun 28, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/AGNES-DP7345-1-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/AGNES-DP7345-1-28JUN2022.jpg</a>		Jun 28, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: ALLIANCE

NGS Name: ALLIANCE

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP1081](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096424/1045  
 USGS Quad: COMSTOCK

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	6	137 N	47 W	464302.75	963917.32		2

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	1966	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	NGS

Description: (1966)                      Stamping: ALLIANCE 1954

4.29 MILES SOUTH OF SABIN, 4.0 MILES SOUTH ALONG 70TH STREET SOUTH FROM THE JUNCTION OF 70TH STREET SOUTH AND COUNTY ROAD 67 IN SABIN, THEN 397.0 FEET WEST ON 120TH AVENUE SOUTH.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>		
935.037	.197		848.551	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648	

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>		
935.005						RECIPROCAL VERTICAL ANGLE	1954	HORZ	

Geoid Separations(ft): GEOID18 = -87.034    12B = -87.018    09 = -86.972    03 = -86.883

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
46 43 02.74659	96 39 17.32030	511358.312	131895.868	.066	2	ADJUSTMENT	1999	17648	
46 43 02.74658	96 39 17.32031	511358.311	131895.867	.066	2	ADJUSTMENT	1998	17655	

<u>NAD83(1986)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
46 43 02.74528	96 39 17.31076	511358.977	131895.736	.066	2	ADJUSTMENT	1986	17289	

<u>NAD27</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
46 43 02.88000	96 39 16.03000			.100	2	CLASSICAL SURVEY	1956	11230	

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
2021571.212	963513.134	724048.926	16995547.637	.066	2	ADJUSTMENT	1999	17648	
2021571.212	963513.133	724048.925	16995547.636	.066	2	ADJUSTMENT	1998	17655	

<u>NAD83(1986)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
2021571.873	963512.981	724049.584	16995547.474	.066	2	ADJUSTMENT	1986	17289	

<u>NAD27</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
1396976.341	635436.889			.100	2	CLASSICAL SURVEY	1956	11230	



Mn/DOT Name: ALLIANCE 2  
County: CLAY, MN (Sheet 1)

NGS Name: ALLIANCE 2

NGS ACRN: [RP1083](#) [Get Map](#)  
NGS Quad / Sta Num : 46096424/1045  
USGS Quad: COMSTOCK

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	6	137 N	47 W	464302.74	963916.43		1

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	1966	GOOD	Horz=? Vert=YES	NO		FLUSH	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	NGS

**Description:** (1966)                      **Stamping:** ALLIANCE 2 1966

4.5 MILES SOUTH OF SABIN, 4.1 MILES WEST AND SOUTH ALONG COUNTY ROAD 11 FROM THE JUNCTION OF COUNTY ROAD 11 AND TRUNK HIGHWAY 52 IN SABIN, THEN 0.05 MILE WEST ON A GRAVEL ROAD TO STATION ALLIANCE 2, 103.0 FEET SOUTH OF 120TH AVENUE SOUTH, 41.0 FEET NORTH OF A LARGE COTTONWOOD TREE, 17.5 FEET EAST OF A LARGE COTTONWOOD TREE, 162.75 FEET WEST-NORTHWEST OF ALLIANCE 2 RM 1, 123.46 FEET EAST OF ALLIANCE 2 RM 3, 105.36 FEET SOUTHWEST OF ALLIANCE 2 RM A.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>		
934.709	.131		848.223	.066	1996	HORIZONTAL ADJUSTMENT	1999	17648	

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>		
933.988						RECIPROCAL VERTICAL ANGLE	1966	HORZ	

Geoid Separations(ft): GEOID18 = -87.034    12B = -87.018    09 = -86.972    03 = -86.883

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
46 43 02.74013	96 39 16.43217	511420.198	131895.250	.033	1	ADJUSTMENT	1999	17648	
46 43 02.74012	96 39 16.43218	511420.197	131895.249	.033	1	ADJUSTMENT	1998	17655	

<u>NAD83(1986)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
46 43 02.73881	96 39 16.42288	511420.845	131895.116	.033	1	ADJUSTMENT	1986	17289	

<u>NAD27</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
46 43 02.87356	96 39 15.14184			.100	1	CLASSICAL SURVEY	1977	15955	

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
2021633.043	963510.602	724110.746	16995544.108	.033	1	ADJUSTMENT	1999	17648	
2021633.043	963510.601	724110.745	16995544.107	.033	1	ADJUSTMENT	1998	17655	

<u>NAD83(1986)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
2021633.686	963510.449	724111.386	16995543.944	.033	1	ADJUSTMENT	1986	17289	

<u>NAD27</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
1397038.176	635434.359			.100	1	CLASSICAL SURVEY	1977	15955	



Mn/DOT Name: ALLIANCE 2 AZ MK

NGS Name: ALLIANCE 2 AZ MK

County: CLAY, MN (Sheet 1)

NGS ACRN: [CO9006](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096424/  
 USGS Quad: COMSTOCK

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	6	137 N	47 W	464237.00	963911.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	1966	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	NGS

**Description:** **Stamping:** ALLIANCE 1954

5.7 MILES NORTHEAST OF COMSTOCK, 4.4 MILES EAST ALONG SOUTH 160TH AVENUE/BROADWAY FROM THE JUNCTION OF SOUTH 160TH AVENUE/BROADWAY AND 1ST STREET/SOUTH 20TH STREET IN COMSTOCK, THEN 3.5 MILES NORTH ALONG 70TH STREET SOUTH, 55.0 FEET WEST OF THE CENTER OF COUNTY ROAD 11, 1.0 FOOT NORTH OF A TELEPHONE POLE, 2.0 FEET NORTHWEST OF A WOODEN WITNESS POST.

\* No Horizontal or Vertical Positions in the Database \*

**Geoid Separations(ft): GEOID18 = -86.981 12B = -86.972 09 = -86.922 03 = -86.834**



Mn/DOT Name: ALLIANCE 2 RM 1

NGS Name: ALLIANCE 2 RM 1

County: CLAY, MN (Sheet 1)

NGS ACRN: [CO9007](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096424/  
 USGS Quad: COMSTOCK

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	6	137 N	47 W	464302.02	963914.35		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	1966	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** **Stamping:** ALLIANCE NO 1 1954

4.5 MILES SOUTH OF SABIN, 0.1 MILE SOUTH-SOUTHEAST ALONG HOLLOWAY AVENUE NORTH FROM THE JUNCTION OF HOLLOWAY AVENUE NORTH AND 2ND STREET NORTH IN SABIN, THEN 177.0 FEET WEST ALONG MAIN STREET, THEN 4.1 MILES SOUTH ALONG KING TRAIL ROAD SOUTH/70TH STREET SOUTH, THEN 308.0 FEET WEST ALONG COUNTY ROAD 4 (120TH AVENUE SOUTH), 113.5 FEET NORTH-NORTHEAST OF THE NORTHEAST CORNER OF A SHED, 45.6 FEET NORTHWEST OF THE NORTHWEST CORNER OF A HOUSE, 46.0 FEET SOUTHEAST OF A LARGE COTTONWOOD TREE.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.034 12B = -87.018 09 = -86.972 03 = -86.883



Mn/DOT Name: ALLIANCE 2 RM 3

NGS Name: ALLIANCE 2 RM 3

County: CLAY, MN (Sheet 1)

NGS ACRN: [CO9008](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096424/  
 USGS Quad: COMSTOCK

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	6	137 N	47 W	464302.87	963918.19		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	1966	GOOD	Horz=? Vert=YES	YES			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** **Stamping:** ALLIANCE 2 NO 3 1954

4.5 MILES SOUTH OF SABIN, 0.5 MILE WEST ALONG SOUTH 160TH AVENUE/BROADWAY FROM THE JUNCTION OF SOUTH 160TH AVENUE/BROADWAY AND 1ST STREET/SOUTH 20TH STREET IN COMSTOCK, THEN 5.0 MILES NORTH ALONG TRUNK HIGHWAY 75 NORTH (14TH STREET SOUTH), THEN 5.0 MILES EAST ALONG 110TH AVENUE SOUTH, THEN 1.0 MILE SOUTH ALONG 70TH STREET SOUTH, THEN 388.0 FEET WEST ALONG COUNTY ROAD 4 (120TH AVENUE SOUTH), 90.0 FEET SOUTH OF THE CENTER OF THE GRAVEL ROAD, 13.0 FEET EAST OF A 6.0 INCH DIAMETER ASH TREE, 9.0 FEET NORTH OF A 6.0 INCH DIAMETER ASH TREE.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.034 12B = -87.018 09 = -86.972 03 = -86.883



Mn/DOT Name: ALLIANCE 2 RMA

NGS Name: ALLIANCE 2 RM A

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP1082](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096424/1045  
 USGS Quad: COMSTOCK

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	6	137 N	47 W	464303.23	963915.10		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2001	GOOD	Horz=YES Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	NGS

**Description:** (1966) **Stamping:** ALLIANCE 2 RM A 1966

4.78 MILES SOUTH OF SABIN, 4.0 MILES SOUTH ON 70TH STREET SOUTH FROM THE JUNCTION OF 70TH STREET SOUTH AND COUNTY ROAD 67 IN SABIN, THEN 243.0 FEET WEST ON 120TH AVENUE SOUTH, AT THE NORTH EDGE OF A FARMYARD, 52.0 FEET SOUTH OF 120TH AVENUE SOUTH, 105.36 FEET NORTHEAST OF STATION ALLIANCE 2.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
935.366	.131		852.180	.066	1996	GPS - STATIC	2001	DIST 4		
			848.880	.066	1996	HORIZONTAL ADJUSTMENT	1999	17648		

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
933.988						RECIPROCAL VERTICAL ANGLE	1966	HORZ		

Geoid Separations(ft): GEOID18 = -87.034 12B = -87.018 09 = -86.975 03 = -86.886

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>Geodetic Position</u>				<u>Clay County</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
46 43 03.23483	96 39 15.10369	511512.737	131945.425	.033	C	GPS - STATIC	2001	DIST 4		
46 43 03.23574	96 39 15.10289	511512.794	131945.516	.033	1	ADJUSTMENT	1999	17648		
46 43 03.23572	96 39 15.10290	511512.793	131945.514	.033	1	ADJUSTMENT	1998	17655		

<u>NAD83(1986)</u>		<u>Geodetic Position</u>				<u>Clay County</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
46 43 03.23444	96 39 15.09353	511513.446	131945.384	.033	1	ADJUSTMENT	1986	17289		

<u>NAD27</u>		<u>Geodetic Position</u>				<u>Project Info</u>				
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
46 43 03.36917	96 39 13.81257			.100	1	CLASSICAL SURVEY	1977	15955		

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
2021727.082	963557.885	724205.592	16995589.898	.033	C	GPS - STATIC	2001	DIST 4		
2021727.141	963557.975	724205.652	16995589.987	.033	1	ADJUSTMENT	1999	17648		
2021727.140	963557.973	724205.651	16995589.985	.033	1	ADJUSTMENT	1998	17655		

<u>NAD83(1986)</u>		<u>MN State Plane - Central Zone</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
2021727.788	963557.824	724206.298	16995589.825	.033	1	ADJUSTMENT	1986	17289		

<u>NAD27</u>		<u>MN State Plane - Central Zone</u>				<u>Project Info</u>				
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
1397132.275	635481.732			.100	1	CLASSICAL SURVEY	1977	15955		



Mn/DOT Name: ALLIANCE AZ MK

NGS Name: ALLIANCE AZ MK

County: CLAY, MN (Sheet 1)

NGS ACRN: [CO9003](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096424/  
 USGS Quad: COMSTOCK

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	6	137 N	47 W	464237.00	963911.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	1966	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	NGS

Description: Stamping: ALLIANCE 1954

4.5 MILES SOUTH OF SABIN, 4.5 MILES SOUTH ALONG 70TH STREET SOUTH FROM THE JUNCTION OF 70TH STREET SOUTH AND COUNTY ROAD 67 IN SABIN.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -86.981 12B = -86.972 09 = -86.922 03 = -86.834



Mn/DOT Name: ALLIANCE RM 1

NGS Name: ALLIANCE RM 1

County: CLAY, MN (Sheet 1)

NGS ACRN: [CO9004](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096424/  
 USGS Quad: COMSTOCK

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	6	137 N	47 W	464300.00	963907.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	1966	DESTROYED	Horz=NO Vert=NO	YES			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** **Stamping:** ALLIANCE NO 1 1954

4.1 MILES SOUTH OF SABIN, 4.1 MILES SOUTH ALONG COUNTY ROAD 11 (70TH STREET SOUTH) FROM THE JUNCTION OF COUNTY ROAD 11 (70TH STREET SOUTH) AND COUNTY ROAD 67.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.027 12B = -87.011 09 = -86.965 03 = -86.876



Mn/DOT Name: ALLIANCE RM 2

NGS Name: ALLIANCE RM 2

County: CLAY, MN (Sheet 1)

NGS ACRN: [CO9005](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096424/  
 USGS Quad: COMSTOCK

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	6	137 N	47 W	464302.00	963917.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	1966	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** **Stamping:** ALLIANCE NO 2 1954

4.0 MILES SOUTH OF SABIN, 4.0 MILES SOUTH ALONG 70TH STREET SOUTH FROM THE JUNCTION OF 70TH STREET SOUTH AND COUNTY ROAD 67 IN SABIN, THEN 377.0 FEET WEST OF 120TH AVENUE SOUTH.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.031 12B = -87.018 09 = -86.972 03 = -86.883



Mn/DOT Name: AMBLER  
 County: CLAY, MN (Sheet 1)

NGS Name: AMBLER

NGS ACRN: [DP7346](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096124/  
 USGS Quad: ROLLAG

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SE	36	138 N	44 W	464304.77	961029.48		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2013	2018	GOOD	Horz=YES Vert=YES	YES		RECESSED 4 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 39 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2013)                      Stamping: AMBLER 2013

13.0 MILES SOUTHEAST OF HAWLEY, 8.8 MILES SOUTH ALONG COUNTY ROAD 1 FROM THE JUNCTION OF COUNTY ROAD 1 AND TRUNK HIGHWAY 10 (THE JUNCTION IS 8.0 MILES EAST OF HAWLEY), THEN 2.95 MILES SOUTH ON COUNTY ROAD 145, THEN 1.0 MILE WEST ON COUNTY ROAD 2, 68.6 FEET WEST OF COUNTY ROAD 128, 51.4 FEET NORTH OF COUNTY ROAD 6, 1.5 FEET SOUTH OF A WITNESS POST.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>
1413.449			1326.241	.018	2011	2019	GPS3292		HORIZONTAL ADJUSTMENT	2019	GPS3292		
1413.376	.131		1326.382	.066	1996	2019	HBCKR		GPS - STATIC	2019	HBCKR		
1413.449			1326.241	.018	2011	2019	HBCKR		GPS - STATIC	2019	HBCKR		
1413.442			1326.241	.025	2011	2015	GPS3084		HORIZONTAL ADJUSTMENT	2015	GPS3084		
1413.393	.131		1326.382	.066	1996	2015	HCLAY		GPS - STATIC	2015	HCLAY		
1413.442			1326.241	.025	2011	2015	HCLAY		GPS - STATIC	2015	HCLAY		
1413.314	.262		1326.142	.197	2011	2013	RTRN2013		GPS - RTRN	2013	RTRN2013		

Geoid Separations(ft): GEOID18 = -87.191 12B = -87.172 09 = -87.054 03 = -86.978

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 43 04.76638	96 10 29.48485	631753.808	132536.733	.010		ADJUSTMENT	2019	GPS3292
46 43 04.76638	96 10 29.48485	631753.808	132536.733	.010	C	GPS - STATIC	2019	HBCKR
46 43 04.76638	96 10 29.48485	631753.808	132536.733	.016		ADJUSTMENT	2015	GPS3084
46 43 04.76638	96 10 29.48485	631753.808	132536.733	.016	C	GPS - STATIC	2015	HCLAY
46 43 04.76643	96 10 29.48454	631753.830	132536.738	.131	3	GPS - RTRN	2013	RTRN2013

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 43 04.76594	96 10 29.48563	631753.754	132536.688	.033	C	GPS - STATIC	2019	HBCKR
46 43 04.76594	96 10 29.48563	631753.754	132536.688	.033	C	GPS - STATIC	2015	HCLAY

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2141915.843	960427.730	844387.832	16990525.037	.010		ADJUSTMENT	2019	GPS3292
2141915.843	960427.730	844387.832	16990525.037	.010	C	GPS - STATIC	2019	HBCKR
2141915.843	960427.730	844387.832	16990525.037	.016		ADJUSTMENT	2015	GPS3084
2141915.843	960427.730	844387.832	16990525.037	.016	C	GPS - STATIC	2015	HCLAY
2141915.864	960427.734	844387.854	16990525.041	.131	3	GPS - RTRN	2013	RTRN2013

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2141915.787	960427.686	844387.776	16990524.995	.033	C	GPS - STATIC	2019	HBCKR
2141915.787	960427.686	844387.776	16990524.995	.033	C	GPS - STATIC	2015	HCLAY



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/AMBLER-DP7346-3W-01OCT2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/AMBLER-DP7346-3W-01OCT2013.jpg</a>	W	Oct 1, 2013
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/AMBLER-DP7346-2-01OCT2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/AMBLER-DP7346-2-01OCT2013.jpg</a>		Oct 1, 2013
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/AMBLER-DP7346-1-01OCT2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/AMBLER-DP7346-1-01OCT2013.jpg</a>		Oct 1, 2013

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: ANGELS LIFT

NGS Name: ANGELS LIFT

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM7594](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	20	139 N	48 W	465014.41	964621.87	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2009	2022	DESTROYED	Horz=NO Vert=NO	YES		FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MAT FOUNDATION (NON-PAVEMENT)	SURVEY DISK	MNDT

**Description:** (2009)                      **Stamping:** ANGELS LIFT 2009

IN MOORHEAD, 0.78 MILE SOUTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND INTERSTATE HIGHWAY 94 IN MOORHEAD, THEN 0.24 MILE WEST ON SOUTH 37TH AVENUE, 25.8 FEET SOUTH-SOUTHWEST OF A POWER POLE, 21.7 FEET NORTHEAST OF A LIGHT POLE, 19.0 FEET WEST-NORTHWEST OF AN ELECTRIC PEDESTAL.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
905.172	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
905.415	.016	2/1					VERTICAL ADJUSTMENT	2011	00000699	
905.412	.016	2/1					VERTICAL CONTROL SURVEY	2010	VCOMS	

Geoid Separations(ft): GEOID18 = -87.080    12B = -87.093    09 = -86.975    03 = -86.873

\* No Horizontal Positions in the Database \*

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ANGELS_LIFT-DM7594-3E-12NOV2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ANGELS_LIFT-DM7594-3E-12NOV2009.jpg</a>	E	Nov 12, 200
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ANGELS_LIFT-DM7594-2-12NOV2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ANGELS_LIFT-DM7594-2-12NOV2009.jpg</a>		Nov 12, 200
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ANGELS_LIFT-DM7594-1-12NOV2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ANGELS_LIFT-DM7594-1-12NOV2009.jpg</a>		Nov 12, 200

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: ANNABELLE

NGS Name: ANNABELLE

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ6738](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096332/  
 USGS Quad: GEORGETOWN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	9	141 N	48 W	470207.38	964628.34	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2015	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 34 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2015)                      Stamping: ANNABELLE 2015

3.0 MILES SOUTH OF GEORGETOWN, 3.10 MILES SOUTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND COUNTY ROAD 34 IN GEORGETOWN, AT TRUNK HIGHWAY 75 MILEPOINT 262.65, 73.0 FEET NORTHEAST OF TRUNK HIGHWAY 75, 85.5 FEET NORTHWEST OF 130TH AVENUE NORTH, 2.4 FEET SOUTHWEST OF A WITNESS POST.

Station Pair:    GEORGE - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
885.464	.016	2/1				2024	00000941-3	VERTICAL ADJUSTMENT				
885.494	.016	2/1				2023	VMOFA	VERTICAL CONTROL SURVEY				

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
885.494			799.332	.017	2011	2024	GPS3674	HORIZONTAL ADJUSTMENT				
885.494			799.332	.017	2011	2023	HMOFA3	GPS - STATIC				
885.494	.131		799.496	.066	1996	2023	HMOFA3	GPS - STATIC				
885.648	.262		799.303	.197	2011	2022	RTRN2022	GPS - RTRN				
885.704			799.332	.020	2011	2018	GPS3119	HORIZONTAL ADJUSTMENT				
885.730	.131		799.496	.066	1996	2017	HMNCORS07	GPS - STATIC				
885.704			799.332	.020	2011	2017	HMNPH	GPS - STATIC				
885.615	.262		799.277	.197	2011	2015	RTRN2015	GPS - RTRN				

Geoid Separations(ft): GEOID18 = -86.345    12B = -86.338    09 = -86.227    03 = -86.210

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Acc</u>		<u>Order</u>		<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>		
47 02 07.38052	96 46 28.34128	481434.541	247872.472	.010		2024	GPS3674	ADJUSTMENT					
47 02 07.38052	96 46 28.34128	481434.541	247872.472	.010	C	2023	HMOFA3	GPS - STATIC					
47 02 07.38140	96 46 28.34230	481434.471	247872.561	.131	3	2022	RTRN2022	GPS - RTRN					
47 02 07.38052	96 46 28.34128	481434.541	247872.472	.013		2018	GPS3119	ADJUSTMENT					
47 02 07.38052	96 46 28.34128	481434.541	247872.472	.013	C	2017	HMNPH	GPS - STATIC					
47 02 07.38042	96 46 28.34164	481434.516	247872.462	.131	3	2015	RTRN2015	GPS - RTRN					

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Acc</u>		<u>Order</u>		<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>		
47 02 07.38023	96 46 28.34182	481434.504	247872.442	.033	C	2023	HMOFA3	GPS - STATIC					
47 02 07.38023	96 46 28.34182	481434.504	247872.442	.033	C	2017	HMNCORS07	GPS - STATIC					



State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1995250.398	1080350.618	699613.256	17112869.338	.010		ADJUSTMENT	2024	GPS3674
1995250.398	1080350.618	699613.256	17112869.338	.010	C	GPS - STATIC	2023	HMOFA3
1995250.330	1080350.709	699613.190	17112869.430	.131	3	GPS - RTRN	2022	RTRN2022
1995250.398	1080350.618	699613.256	17112869.338	.013		ADJUSTMENT	2018	GPS3119
1995250.398	1080350.618	699613.256	17112869.338	.013	C	GPS - STATIC	2017	HMNPH
1995250.372	1080350.609	699613.231	17112869.329	.131	3	GPS - RTRN	2015	RTRN2015

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1995250.359	1080350.590	699613.217	17112869.310	.033	C	GPS - STATIC	2023	HMOFA3
1995250.359	1080350.590	699613.217	17112869.310	.033	C	GPS - STATIC	2017	HMNCORS07

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<b>Location:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ANNABELLE-DQ6738-3NE-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ANNABELLE-DQ6738-3NE-28JUN2022.jpg</a>	NE	Jun 28, 2022
<b>Monument:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ANNABELLE-DQ6738-2-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ANNABELLE-DQ6738-2-28JUN2022.jpg</a>		Jun 28, 2022
<b>Disk:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ANNABELLE-DQ6738-1-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ANNABELLE-DQ6738-1-28JUN2022.jpg</a>		Jun 28, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: ATHER

NGS Name: ATHER

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP7059](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096421/  
 USGS Quad: BAKER

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SE	35	137 N	47 W	463750.51	963421.15		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2013	2019	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 11 FT)	METAL ROD	MNDT

**Description:** (2013)                      **Stamping:** ATHER 2013

7.3 MILES SOUTHWEST OF BARNESVILLE, 6.0 MILES WEST ALONG COUNTY ROAD 2 (160TH AVENUE) FROM THE JUNCTION OF COUNTY ROAD 2 (160TH AVENUE) AND TRUNK HIGHWAY 9 IN BARNESVILLE, THEN 2.0 MILES SOUTH ON 120TH STREET SOUTH, THEN 1.2 MILES WEST ON 180TH AVENUE SOUTH (COUNTY ROAD 50), 25.5 FEET NORTH OF THE JUNCTION OF 180TH AVENUE SOUTH/COUNTY ROAD 50 AND TOWNSHIP ROAD 185 (TEE INTERSECTION), 18.0 FEET WEST OF A FIELD ENTRANCE, 13.7 FEET EAST-SOUTHEAST OF A WITNESS POST.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
942.528	.262		855.697	.197	2011	GPS - OPUS	2020	GPSBM
942.564	.262		855.733	.197	2011	GPS - OPUS	2020	GPSBM
942.524			855.691	.012	2011	HORIZONTAL ADJUSTMENT	2015	GPS3080
942.508	.131		855.825	.066	1996	GPS - STATIC	2015	HWILK
942.524			855.691	.012	2011	GPS - STATIC	2015	HWILK
942.341	.262		855.517	.197	2011	GPS - RTRN	2013	RTRN2013

Geoid Separations(ft): GEOID18 = -86.827    12B = -86.821    09 = -86.762    03 = -86.696

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>			<u>Clay County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>								
46 37 50.51449	96 34 21.14591		532047.174	100285.176	.131	3	GPS - OPUS	2020	GPSBM
46 37 50.51431	96 34 21.14566		532047.191	100285.158	.131	3	GPS - OPUS	2020	GPSBM
46 37 50.51477	96 34 21.14516		532047.226	100285.205	.010		ADJUSTMENT	2015	GPS3080
46 37 50.51477	96 34 21.14516		532047.226	100285.205	.010	C	GPS - STATIC	2015	HWILK
46 37 50.51512	96 34 21.14559		532047.196	100285.240	.131	3	GPS - RTRN	2013	RTRN2013

<u>NAD83(1996)</u>			<u>Clay County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>								
46 37 50.51438	96 34 21.14601		532047.167	100285.165	.033	C	GPS - STATIC	2015	HWILK

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>			<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>								
2041270.248	931281.015		743239.036	16962983.661	.131	3	GPS - OPUS	2020	GPSBM
2041270.265	931280.996		743239.053	16962983.642	.131	3	GPS - OPUS	2020	GPSBM
2041270.301	931281.042		743239.090	16962983.686	.010		ADJUSTMENT	2015	GPS3080
2041270.301	931281.042		743239.090	16962983.686	.010	C	GPS - STATIC	2015	HWILK
2041270.272	931281.078		743239.061	16962983.723	.131	3	GPS - RTRN	2013	RTRN2013

<u>NAD83(1996)</u>			<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>								
2041270.241	931281.004		743239.029	16962983.650	.033	C	GPS - STATIC	2015	HWILK



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ATHER-DP7059-3N-17JUL2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ATHER-DP7059-3N-17JUL2013.jpg</a>	N	Jul 17, 2013
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ATHER-DP7059-2-17JUL2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ATHER-DP7059-2-17JUL2013.jpg</a>		Jul 17, 2013
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ATHER-DP7059-1-17DEC2019.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ATHER-DP7059-1-17DEC2019.jpg</a>		Dec 17, 2019

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: AVERILL  
County: CLAY, MN (Sheet 1)

NGS Name: AVERILL

NGS ACRN: [RP1058](#) [Get Map](#)  
NGS Quad / Sta Num : 46096411/1046  
USGS Quad: GLYNDON NORTH

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	32	141 N	46 W	465838.46	963137.50		2

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	1997	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	NGS

Description: (1997)                      **Stamping:** AVERILL 1954

1.0 MILE NORTHEAST OF AVERILL, 0.3 MILE NORTH ALONG PARKE AVENUE SOUTH FROM THE JUNCTION OF PARKE AVENUE SOUTH AND 4TH STREET SOUTHEAST IN GLYNDON, THEN 3.5 MILES EAST ALONG TRUNK HIGHWAY 10 (STATE STREET NORTHEAST), THEN 7.0 MILES NORTH ALONG TRUNK HIGHWAY 9 NORTH (140TH STREET NORTH), THEN 1.2 MILES WEST ALONG 90TH AVENUE NORTH, 6.9 MILES NORTH OF TRUNK HIGHWAY 10, 1.2 MILES WEST OF TRUNK HIGHWAY 82, 65.0 FEET NORTH OF COUNTY HIGHWAY 26/90TH AVENUE NORTH, 5.0 FEET EAST-NORTHEAST OF A POWER POLE NUMBER 149, 84.60.0 FEET WEST OF AVERILL RM 1, 127.50 FEET NORTH-NORTHWEST OF AVERILL RM 2, 3.0 FEET WEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

NGVD29				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
920.359	.033	3				VERTICAL CONTROL SURVEY	1965	USGS-VERT

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
921.520	.197		834.841	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -87.198    12B = -87.218    09 = -87.067    03 = -87.037

**Lat/Lon and County Coordinates (Feet)**

NAD83(1996)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 58 38.45665	96 31 37.49940	543190.270	226743.199	.066	2	ADJUSTMENT	1999	17648
46 58 38.45641	96 31 37.49915	543190.288	226743.175	.066	2	ADJUSTMENT	1998	17655

  

NAD83(1986)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 58 38.45635	96 31 37.49166	543190.807	226743.170	.066	2	ADJUSTMENT	1986	17289

  

NAD27		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 58 38.59400	96 31 36.23100			.100	2	CLASSICAL SURVEY	1956	11230

**State Plane and UTM Coordinates (Feet)**

NAD83(1996)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2056319.592	1057322.360	760332.162	17088833.928	.066	2	ADJUSTMENT	1999	17648
2056319.609	1057322.335	760332.178	17088833.903	.066	2	ADJUSTMENT	1998	17655

  

NAD83(1986)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2056320.128	1057322.314	760332.697	17088833.873	.066	2	ADJUSTMENT	1986	17289

  

NAD27		Clay County				Project Info		
MN State Plane - Central Zone X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1431723.737	729246.272			.100	2	CLASSICAL SURVEY	1956	11230



Mn/DOT Name: AVERILL AZ MK

NGS Name: AVERILL AZ MK

County: CLAY, MN (Sheet 1)

NGS ACRN: [CO9052](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	31	141 N	46 W	465842.00	963237.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	1954	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	NGS

Description: (1954)                      Stamping: AVERILL 1954

0.5 MILE NORTH-NORTHEAST OF AVERILL, 0.5 MILE NORTH OF THE JUNCTION OF COUNTY ROAD 26 AND COUNTY ROAD 19, 0.8 MILE WEST OF STATION AVERILL, 57.0 FEET WEST OF COUNTY ROAD 19, 49.0 FEET EAST OF THE EAST RAIL OF A RAILROAD, 3.0 FEET NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>	
916.015	.033	3				VERTICAL CONTROL SURVEY		1965	USGS-VERT	

Geoid Separations(ft): GEOID18 = -87.136    12B = -87.155    09 = -86.998    03 = -86.968

\* No Horizontal Positions in the Database \*



Mn/DOT Name: AVERILL ELEVATOR

NGS Name: AVERILL ELEVATOR

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP1057](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/1061  
 USGS Quad: GLYNDON NORTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SE	1	140 N	47 W	465801.24	963255.90		4

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1906	1906	GOOD	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	GRAIN ELEVATOR	NGS

**Description:** (1906)

**Stamping:**

13.75 MILES WEST OF HITTERDAL, 13.4 MILES WEST ALONG FRONT STREET/90TH AVENUE NORTH FROM THE JUNCTION OF FRONT STREET AND TRUNK HIGHWAY 32 IN HITTERDAL, THEN 0.7 MILE SOUTH ON 120TH STREET NORTH.

\* No Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.185 12B = -87.191 09 = -87.041 03 = -87.018

**Lat/Lon and County Coordinates (Feet)**

**NAD83(1996)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 58 01.24135	96 32 55.89706	537761.018	222961.350	.328	4	ADJUSTMENT	1999	17648
46 58 01.24118	96 32 55.89705	537761.019	222961.333	.328	4	ADJUSTMENT	1998	17655

**NAD83(1986)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 58 01.24094	96 32 55.88859	537761.605	222961.310	.328	4	ADJUSTMENT	1986	17289

**NAD27**

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
46 58 01.37800	96 32 54.62900			.100	4	CLASSICAL SURVEY	1928	00155

**USSD**

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
46 58 01.59400	96 32 55.01400				3	CLASSICAL SURVEY		17389-73

**State Plane and UTM Coordinates (Feet)**

**NAD83(1996)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2050776.247	1053710.582	754727.917	17085311.089	.328	4	ADJUSTMENT	1999	17648
2050776.247	1053710.565	754727.917	17085311.072	.328	4	ADJUSTMENT	1998	17655

**NAD83(1986)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2050776.832	1053710.523	754728.502	17085311.021	.328	4	ADJUSTMENT	1986	17289

**NAD27**

<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1426180.219	725634.419			.100	4	CLASSICAL SURVEY	1928	00155



Mn/DOT Name: AVERILL RM 1

NGS Name: AVERILL RM 1

County: CLAY, MN (Sheet 1)

NGS ACRN: [CO9053](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	32	141 N	46 W	465838.00	963137.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	1954	GOOD	Horz=? Vert=YES	YES			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** (1954)                      **Stamping:** AVERILL NO 1 1954

1.0 MILE NORTHEAST OF AVERILL, 7.0 MILES NORTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 10, THEN 1.2 MILES WEST ON COUNTY ROAD 26, 84.6 FEET EAST OF STATION AVERILL, 62.0 FEET NORTH OF COUNTY ROAD 26, 4.0 FEET NORTH OF A GUYED TELEPHONE POLE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>		
921.232	.033	3							VERTICAL CONTROL SURVEY	1965	USGS-VERT	

Geoid Separations(ft): GEOID18 = -87.198    12B = -87.218    09 = -87.070    03 = -87.037

\* No Horizontal Positions in the Database \*



Mn/DOT Name: AVERILL RM 2

NGS Name: AVERILL RM 2

County: CLAY, MN (Sheet 1)

NGS ACRN: [CO9054](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	32	141 N	46 W	465838.00	963137.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	1954	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** (1954)                      **Stamping:** AVERILL NO 2 1954

1.1 MILES NORTHEAST OF AVERILL, 7.0 MILES NORTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 10, THEN 1.2 MILES WEST ON COUNTY ROAD 26, 127.5 FEET SOUTH-SOUTHEAST OF STATION AVERILL, 57.0 FEET SOUTH OF COUNTY ROAD 26, AND 2.0 FEET WEST OF A POWER POLE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>		
921.304	.033	3							VERTICAL CONTROL SURVEY	1965	USGS-VERT	

Geoid Separations(ft): GEOID18 = -87.198    12B = -87.218    09 = -87.070    03 = -87.037

\* No Horizontal Positions in the Database \*



Mn/DOT Name: AVERILL RM 3

NGS Name: AVERILL RM 3

County: CLAY, MN (Sheet 1)

NGS ACRN: [CO9055](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	32	141 N	46 W	465838.00	963137.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	2001	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** **Stamping:** AVERILL 1954 NO 3 1967

12.6 MILES WEST OF HITTERDAL, 12.6 MILES WEST ALONG FRONT STREET/90TH AVENUE NORTH FROM THE JUNCTION OF FRONT STREET AND TRUNK HIGHWAY 32 IN HITTERDAL, 45.0 FEET NORTH OF COUNTY ROAD 26 AND 11.0 FEET WEST OF A FIELD ENTRANCE.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.201 12B = -87.218 09 = -87.070 03 = -87.037



Mn/DOT Name: B 376

NGS Name: B 376

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0726](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	11	139 N	47 W	465228.00	963443.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1982	2022	DESTROYED	Horz=NO Vert=NO	NO		RECESSED 1 IN.	MARKER IS STEEL ROD

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STEEL ROD (IN SLEEVE) (DEPTH 72 FT)	METAL ROD	NGS

Description: (1982)                      Stamping: B 376 1982

IN GLYNDON, BETWEEN THE SOUTHWEST AND NORTHWEST LEG OF A CITY WATER TANK, NEAR THE JUNCTION OF PARTRIDGE STREET AND SECOND STREET, 101.0 FEET EAST OF PARTRIDGE STREET, 114.0 FEET NORTH OF SECOND STREET, 14.0 FEET NORTH OF THE SOUTHWEST LEG OF A TANK, 16.0 FEET SOUTH OF THE NORTHWEST LEG OF A TANK, 14.5 FEET WEST OF A STANDPIPE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
923.354	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

Geoid Separations(ft): GEOID18 = -87.493    12B = -87.497    09 = -87.355    03 = -87.313

\* No Horizontal Positions in the Database \*



Mn/DOT Name: B 377

NGS Name: B 377

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0730](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	5	139 N	46 W	465328.24	963021.02	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1982	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STEEL ROD (NO SLEEVE) (DEPTH 32 FT)	METAL ROD	NGS

**Description:** (2000)                      **Stamping:** B 377 1982

3.71 MILES NORTHEAST OF GLYNDON, 1.0 MILE NORTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND TRUNK HIGHWAY 10 (THE JUNCTION IS ABOUT 3.5 MILES EAST OF GLYNDON), AT TRUNK HIGHWAY 9 MILEPOINT 164.7, 92.0 FEET WEST OF TRUNK HIGHWAY 9, 48.0 FEET SOUTH OF 15TH AVENUE NORTH, 62.0 FEET SOUTHWEST OF A STOP SIGN, 1.0 FOOT SOUTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
936.639	.016	2/1				VERTICAL ADJUSTMENT		2024	00000941-3
936.639	.016	2/1				VERTICAL CONTROL SURVEY		2023	VMOFA
936.639	.016	2/1				VERTICAL ADJUSTMENT		2019	00000941
936.839	.007	1/2				VERTICAL ADJUSTMENT		2004	00000464
936.839	.016	2/1				VERTICAL CONTROL SURVEY		2001	VHAWL
936.839	.007	1/2				VERTICAL ADJUSTMENT		1991	00000025

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
936.639			849.149	.015	2011	HORIZONTAL ADJUSTMENT		2024	GPS3719
936.639	.131		849.283	.066	1996	GPS - STATIC		2024	HMOFA1
936.639			849.149	.015	2011	GPS - STATIC		2024	HMOFA1
936.639			849.149	.017	2011	HORIZONTAL ADJUSTMENT		2023	GPS3618
936.639	.131		849.283	.066	1996	GPS - STATIC		2023	HFELT
936.639			849.149	.017	2011	GPS - STATIC		2023	HFELT
936.878	.262		849.217	.197	2011	GPS - RTRN		2022	RTRN2022
936.839			849.149	.021	2011	HORIZONTAL ADJUSTMENT		2015	GPS3084
936.839	.131		849.283	.066	1996	GPS - STATIC		2015	HCLAY
936.839			849.149	.021	2011	GPS - STATIC		2015	HCLAY
936.766	.262		849.099	.197	2011	GPS - RTRN		2014	RTRN2014

Geoid Separations(ft): GEOID18 = -87.664    12B = -87.670    09 = -87.526    03 = -87.480

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
46 53 28.23713	96 30 21.02422	548571.292	195324.764	.010		ADJUSTMENT		2024	GPS3719
46 53 28.23713	96 30 21.02422	548571.292	195324.764	.010	C	GPS - STATIC		2024	HMOFA1
46 53 28.23713	96 30 21.02422	548571.292	195324.764	.010		ADJUSTMENT		2023	GPS3618
46 53 28.23713	96 30 21.02422	548571.292	195324.764	.010	C	GPS - STATIC		2023	HFELT
46 53 28.23667	96 30 21.02515	548571.228	195324.718	.131	3	GPS - RTRN		2022	RTRN2022
46 53 28.23713	96 30 21.02422	548571.292	195324.764	.013		ADJUSTMENT		2015	GPS3084
46 53 28.23713	96 30 21.02422	548571.292	195324.764	.013	C	GPS - STATIC		2015	HCLAY
46 53 28.23693	96 30 21.02496	548571.241	195324.744	.131	3	GPS - RTRN		2014	RTRN2014

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
46 53 28.23668	96 30 21.02506	548571.234	195324.719	.033	C	GPS - STATIC		2024	HMOFA1
46 53 28.23668	96 30 21.02506	548571.234	195324.719	.033	C	GPS - STATIC		2023	HFELT
46 53 28.23668	96 30 21.02506	548571.234	195324.719	.033	C	GPS - STATIC		2015	HCLAY

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2060725.307	1025754.669	764226.328	17057182.881	.010		ADJUSTMENT	2024	GPS3719
2060725.307	1025754.669	764226.328	17057182.881	.010	C	GPS - STATIC	2024	HMOFA1
2060725.307	1025754.669	764226.328	17057182.881	.010		ADJUSTMENT	2023	GPS3618
2060725.307	1025754.669	764226.328	17057182.881	.010	C	GPS - STATIC	2023	HFELT
2060725.241	1025754.624	764226.261	17057182.838	.131	3	GPS - RTRN	2022	RTRN2022
2060725.307	1025754.669	764226.328	17057182.881	.013		ADJUSTMENT	2015	GPS3084
2060725.307	1025754.669	764226.328	17057182.881	.013	C	GPS - STATIC	2015	HCLAY
2060725.255	1025754.650	764226.275	17057182.863	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2060725.247	1025754.625	764226.267	17057182.838	.033	C	GPS - STATIC	2024	HMOFA1
2060725.247	1025754.625	764226.267	17057182.838	.033	C	GPS - STATIC	2023	HFELT
2060725.247	1025754.625	764226.267	17057182.838	.033	C	GPS - STATIC	2015	HCLAY

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/B_377-RP0730-3W-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/B_377-RP0730-3W-05JUL2022.jpg</a>	W	Jul 5, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/B_377-RP0730-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/B_377-RP0730-2-05JUL2022.jpg</a>		Jul 5, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/B_377-RP0730-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/B_377-RP0730-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: B 5

NGS Name: B 5

County: CLAY, MN (Sheet 1)

NGS ACRN: [SL1238](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/  
 USGS Quad: FELTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	28	142 N	46 W	470444.00	963027.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1905	1905	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE FOOTING - LARGE	BOLT	NGS

**Description:**

**Stamping:**

IN FELTON, 0.2 FOOT NORTH ALONG ATLANTIC AVENUE FROM THE JUNCTION OF ATLANTIC AVENUE AND 4TH STREET IN FELTON, THEN 233.0 FEET WEST ALONG COUNTY ROAD 34 (160TH AVENUE NORTH/7TH STREET), AT THE SOUTHWEST CORNER OF THE ELEVATOR, IN THE HORIZONTAL SURFACE OF THE FOUNDATION STONE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>GA1912</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
911.662	.007	1					VERTICAL ADJUSTMENT	1914	GA1912	

Geoid Separations(ft): GEOID18 = -87.073 12B = -87.086 09 = -86.958 03 = -86.939

\* No Horizontal Positions in the Database \*



Mn/DOT Name: BAKER

NGS Name: BAKER

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP1073](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096421/1047  
 USGS Quad: BAKER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	1	137 N	47 W	464247.29	963256.06		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	2015	GOOD	Horz=YES Vert=YES	YES		FLUSH	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	NGS

**Description:** (2010)                      **Stamping:** BAKER 1954

IN BAKER, 7.3 MILES NORTHWEST ALONG COUNTY ROAD 52 FROM THE JUNCTION OF COUNTY ROAD 52 AND TRUNK HIGHWAY 9 IN BARNESVILLE, THEN 0.25 MILE NORTH AND EAST ON 123RD AVENUE SOUTH, 64.0 FEET NORTH OF 123RD AVENUE SOUTH, 161.0 FEET NORTH-NORTHEAST OF THE NORTHEAST CORNER OF A CHURCH, 113.55 FEET EAST-SOUTHEAST OF BAKER RM 2, 84.47 FEET SOUTH-SOUTHWEST OF BAKER RM 1, 24.8 FEET SOUTHWEST OF A POWER POLE WITH A GUYWIRE, 24.8 FEET SOUTHWEST OF A WITNESS POST.

**Station Notes**

THE MARK IS TIPPED TO THE NORTHEAST.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
938.302			851.215	.022	2011	HORIZONTAL ADJUSTMENT		2015	GPS3084
938.289	.131		851.353	.066	1996	GPS - STATIC		2015	HCLAY
938.302			851.215	.022	2011	GPS - STATIC		2015	HCLAY
938.023			850.946	.022	2011	HORIZONTAL ADJUSTMENT		2014	GPS2750
938.023			850.946	.022	2011	GPS - STATIC		2014	HBARN
937.990	.131		851.015	.066	2007	GPS - STATIC		2010	HBARN
937.990	.131		851.071	.066	1996	GPS - STATIC		2010	HBARN
935.037	.262		848.469	.197	1996	HORIZONTAL ADJUSTMENT		1999	17648

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
935.005						RECIPROCAL VERTICAL ANGLE		1954	HORZ

Geoid Separations(ft): GEOID18 = -87.067    12B = -87.070    09 = -86.981    03 = -86.913

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 42 47.29312	96 32 56.06376	537927.579	130363.339	.010		ADJUSTMENT	2015	GPS3084
46 42 47.29324	96 32 56.06393	537927.567	130363.351	.010	C	GPS - STATIC	2015	HCLAY
46 42 47.29312	96 32 56.06376	537927.579	130363.339	.016		ADJUSTMENT	2014	GPS2750
46 42 47.29312	96 32 56.06376	537927.579	130363.339	.016	C	GPS - STATIC	2014	HBARN

**NAD83(2007)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 42 47.29323	96 32 56.06487	537927.501	130363.350	.033	C	GPS - STATIC	2010	HBARN

**NAD83(1996)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 42 47.29280	96 32 56.06469	537927.514	130363.307	.033	C	GPS - STATIC	2015	HCLAY
46 42 47.29280	96 32 56.06469	537927.514	130363.307	.033	C	GPS - STATIC	2010	HBARN
46 42 47.29114	96 32 56.06603	537927.421	130363.138	.131	3	ADJUSTMENT	1999	17648
46 42 47.29109	96 32 56.06614	537927.413	130363.133	.131	3	ADJUSTMENT	1998	17655

**NAD83(1986)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 42 47.28984	96 32 56.05759	537928.009	130363.007	.131	3	ADJUSTMENT	1986	17289

**NAD27**

Geodetic Position						Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 42 47.42700	96 32 54.79700			.100	3	CLASSICAL SURVEY	1956	11230

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2048077.649	961159.649	750529.593	16992766.150	.010		ADJUSTMENT	2015	GPS3084
2048077.637	961159.661	750529.582	16992766.163	.010	C	GPS - STATIC	2015	HCLAY
2048077.649	961159.649	750529.593	16992766.150	.016		ADJUSTMENT	2014	GPS2750
2048077.649	961159.649	750529.593	16992766.150	.016	C	GPS - STATIC	2014	HBARN

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2048077.571	961159.662	750529.516	16992766.165	.033	C	GPS - STATIC	2010	HBARN

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2048077.583	961159.618	750529.527	16992766.121	.033	C	GPS - STATIC	2015	HCLAY
2048077.583	961159.618	750529.527	16992766.121	.033	C	GPS - STATIC	2010	HBARN
2048077.485	961159.453	750529.426	16992765.957	.131	3	ADJUSTMENT	1999	17648
2048077.477	961159.448	750529.418	16992765.952	.131	3	ADJUSTMENT	1998	17655

**NAD83(1986)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2048078.069	961159.304	750530.008	16992765.799	.131	3	ADJUSTMENT	1986	17289

**NAD27**

MN State Plane - Central Zone						Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1423481.945	633083.602			.100	3	CLASSICAL SURVEY	1956	11230

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BAKER-RP1073-3NE-30JUN2010.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BAKER-RP1073-3NE-30JUN2010.jpg</a>	NE	Jun 30, 2010
Moment:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BAKER-RP1073-2-30JUN2010.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BAKER-RP1073-2-30JUN2010.jpg</a>		Jun 30, 2010
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BAKER-RP1073-1-30JUN2010.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BAKER-RP1073-1-30JUN2010.jpg</a>		Jun 30, 2010

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: BAKER AZ MK

NGS Name: BAKER AZ MK

County: CLAY, MN (Sheet 1)

NGS ACRN: [CO9069](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096421/  
 USGS Quad: BAKER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	1	137 N	47 W	464232.01	963256.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	2010	NOT FOUND	Horz=YES Vert=YES	NO			SEE DESCRIPTION

**Monument Type**

UNKNOWN

**Disk Type**

AZIMUTH MARK DISK

**Mon. Agency**

NGS

**Description:** (2010)

**Stamping:** BAKER 1954

0.4 MILE SOUTHEAST OF BAKER, AT THE NORTHWEST JUNCTION OF TRUNK HIGHWAY 52 SOUTH AND 120TH STREET SOUTH, 0.3 MILE SOUTH-SOUTHEAST OF STATION BAKER, 390.0 FEET SOUTH OF TRUNK HIGHWAY 52, 40.0 FEET WEST OF THE CENTER OF A GRAVEL ROAD

**Station Notes**

THE WITNESS POST AND THE TELEPHONE POLE WERE REMOVED.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.037 12B = -87.044 09 = -86.955 03 = -86.883



Mn/DOT Name: BAKER CHURCH SPIRE

NGS Name: BAKER CHURCH SPIRE

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP1072](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096421/1062  
 USGS Quad: BAKER

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SE	35	138 N	47 W	464308.30	963416.67		4

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1906	1906	GOOD	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	CHURCH SPIRE	NGS

Description: (1906)

Stamping:

1.0 MILE NORTHWEST OF BAKER, 0.3 MILE SOUTHEAST ON COUNTY ROAD 52 FROM THE JUNCTION OF COUNTY ROAD 52 AND 123RD AVENUE SOUTH IN BAKER, THEN 0.4 MILE SOUTH ON 120TH AVENUE SOUTH, THEN 1.0 MILE WEST ON COUNTY ROAD 60 (130TH AVENUE), THEN 1.0 MILE NORTH ON COUNTY ROAD 69 (110TH STREET SOUTH), THEN 0.1 MILE WEST ON COUNTY ROAD 4 (120TH AVENUE SOUTH).

\* No Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.083 12B = -87.086 09 = -87.001 03 = -86.926

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 43 08.29662	96 34 16.66825	532307.069	132481.309	.328	4	ADJUSTMENT	1999	17648
46 43 08.29613	96 34 16.66838	532307.059	132481.260	.328	4	ADJUSTMENT	1998	17655

NAD83(1986)

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 43 08.29517	96 34 16.65693	532307.858	132481.164	.328	4	ADJUSTMENT	1986	17289

NAD27

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
46 43 08.44000	96 34 15.38000			.100	4	CLASSICAL SURVEY	1928	00155

USSD

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
46 43 08.65000	96 34 15.77000				3	CLASSICAL SURVEY		17389-73

State Plane and UTM Coordinates (Feet)

NAD83(1996)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2042525.926	963450.261	745012.332	16995147.158	.328	4	ADJUSTMENT	1999	17648
2042525.916	963450.212	745012.321	16995147.109	.328	4	ADJUSTMENT	1998	17655

NAD83(1986)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2042526.710	963450.091	745013.114	16995146.975	.328	4	ADJUSTMENT	1986	17289

NAD27

<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1417931.569	635375.103			.100	4	CLASSICAL SURVEY	1928	00155



Mn/DOT Name: BAKER RM 1

NGS Name: BAKER RM 1

County: CLAY, MN (Sheet 1)

NGS ACRN: [CO9070](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096421/  
 USGS Quad: BAKER

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
				<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	1	137 N	47 W	464247.99	963255.40		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	2010	NOT FOUND	Horz=NO Vert=NO	NO			SEE DESCRIPTION

**Monument Type**

UNKNOWN

**Disk Type**

REFERENCE MARK DISK

**Mon. Agency**

NGS

**Description:**

**Stamping:** BAKER NO 1 1954

IN BAKER, AT THE EAST JUNCTION OF MAIN AVENUE AND 119TH STREET SOUTH, 159.0 FEET NORTH OF A POWER POLE, 1.0 INCH BELOW THE SURFACE OF THE GROUND.

**Station Notes**

PULLED TIE FROM STATION BAKER BUT DID NOT FIND THE MARK.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.067 12B = -87.070 09 = -86.981 03 = -86.913



Mn/DOT Name: BAKER RM 2

NGS Name: BAKER RM 2

County: CLAY, MN (Sheet 1)

NGS ACRN: [CO9071](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096421/  
 USGS Quad: BAKER

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
				<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	1	137 N	47 W	464247.74	963257.56		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	2010	NOT FOUND	Horz=NO Vert=NO	NO			SEE DESCRIPTION

**Monument Type**

UNKNOWN

**Disk Type**

REFERENCE MARK DISK

**Mon. Agency**

NGS

**Description:** (2010)

**Stamping:** BAKER NO 2 1954

IN BAKER, AT THE EAST JUNCTION OF MAIN AVENUE AND 119TH STREET SOUTH, WEST-NORTHWEST OF STATION BAKER.

**Station Notes**

THE SCHOOL IS NO LONGER ON SITE, PULLED THE TIE FROM STATION BAKER BUT DID NOT FIND THE MARK.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.067 12B = -87.070 09 = -86.981 03 = -86.913



Mn/DOT Name: BAKKUM MNDT

NGS Name: BAKKUM

County: CLAY, MN (Sheet 1)

NGS ACRN: [DF7610](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	16	140 N	48 W	465654.78	964410.27	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1993	2023	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 50 FT)	SURVEY DISK	MNDT

Description: (2009)                      Stamping: BAKKUM 1993

5.0 MILES NORTH OF MOORHEAD, 5.0 MILES NORTH ALONG TRUNK HIGHWAY 75 FROM THE EAST JUNCTION OF TRUNK HIGHWAY 75 AND TRUNK HIGHWAY 10 IN MOORHEAD TO TRUNK HIGHWAY 75 MILEPOINT 256.5, THEN 0.45 MILE EAST ALONG COUNTY ROAD 93 (70TH AVENUE NORTH), 72.0 FEET SOUTH OF COUNTY ROAD 93, 20.5 FEET WEST OF 28TH STREET NORTH, 9.0 FEET NORTH OF AN ENTRANCE, 34.0 FEET SOUTH OF THE WEST END OF A 56.0 INCH DIAMETER METAL CULVERT, 8.7 FEET SOUTHEAST OF A WITNESS POST. STATION BAKKUM MNDT IS A LOCAL PROJECT CONTROL POINT (LPCP) FOR HARWOOD LEVEE PROJECT AND THE LOCAL REFERENCE POINT FOR RIVER GAUGE 05060400. STATION BAKKUM MNDT IS 98.51 FEET ABOVE ZERO GAGE REFERENCE POINT AT SHEYENNE RIVER AT HARWOOD, NORTH DAKOTA. STATION BAKKUM MNDT IS 0.18 FOOT ABOVE NGVD29 AT SHEYENNE RIVER AT HARWOOD, NORTH DAKOTA. STATION BAKKUM MNDT IS 1.03 FEET ABOVE RM 1, (BASE) BOLT IN DOWNSTREAM MIDDLE BRIDGE RAIL. STATION BAKKUM MNDT IS 2.23 FEET ABOVE RM 2, BOLT IN LEFT UPSTREAM BRIDGE RAIL. STATION BAKKUM MNDT IS 1.95 FEET ABOVE RM 3, BOLT IN LEFT DOWNSTREAM BRIDGE RAIL. STATION BAKKUM MNDT IS 2.53 FEET ABOVE RM 4, NORTH BOLT IN MANHOLE COVER BY DIKE EAST OF BRIDGE. THE STATION IS 5.88 FEET ABOVE RM 5, LAG SCREW IN GREEN ASH TREE, 25 FEET NORTH OF GAGE HOUSE. THE STATION IS 7.06 FEET ABOVE RM 6, HEAD OF SOUTHWEST BOLT ON TOP OF COLLAR OF FIRE PLUG 50 FEET EAST OF GAGE HOUSE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
898.233	.016	2/1				VERTICAL ADJUSTMENT		2024	00000941-3
898.253	.016	2/1				VERTICAL CONTROL SURVEY		2023	VMOFA
898.213	.016	2/1				VERTICAL ADJUSTMENT		2019	00000941
898.509	.016	2/1				VERTICAL ADJUSTMENT		2004	00000425-2
898.542	.016	2/1				VERTICAL CONTROL SURVEY		2002	V1407

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
898.253			811.937	.023	2011	HORIZONTAL ADJUSTMENT		2024	GPS3674
898.253			811.937	.023	2011	GPS - STATIC		2023	HMOFA3
898.253	.131		812.029	.066	1996	GPS - STATIC		2023	HMOFA3
898.341	.262		811.763	.197	2011	GPS - RTRN		2022	RTRN2022
898.355	.262		811.928	.197	2007	GPS - RTRN		2012	RTRN2012
			811.911	.009	2011	HORIZONTAL ADJUSTMENT		2012	GPS2800
898.522	.131		811.964	.066	2007	HORIZONTAL ADJUSTMENT		2011	GPS2690
898.522	.131		812.046	.066	1996	GPS - STATIC		2010	HCOMS
898.522	.131		811.964	.066	2007	GPS - STATIC		2010	HCOMS
898.338	.262		811.921	.197	1996	GPS - RTRN		2009	RTRN2009
			812.065	.017	2007	HORIZONTAL ADJUSTMENT		2007	GPS2300
898.555	.131		812.128	.066	1996	HORIZONTAL ADJUSTMENT		2003	GPS1905
898.555	.131		812.128	.066	1996	GPS - STATIC		2003	HMOOR

Geoid Separations(ft): GEOID18 = -86.578    12B = -86.598    09 = -86.427    03 = -86.414

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 56 54.77507	96 44 10.26816	490984.299	216192.784	.010		ADJUSTMENT	2024	GPS3674
46 56 54.77507	96 44 10.26816	490984.299	216192.784	.010	C	GPS - STATIC	2023	HMOFA3
46 56 54.77441	96 44 10.26774	490984.328	216192.717	.131	3	GPS - RTRN	2022	RTRN2022
46 56 54.77470	96 44 10.26747	490984.347	216192.747	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 56 54.77530	96 44 10.26841	490984.281	216192.807	.131	3	GPS - RTRN	2012	RTRN2012
46 56 54.77478	96 44 10.26844	490984.280	216192.755	.033	C	ADJUSTMENT	2011	GPS2690
46 56 54.77478	96 44 10.26844	490984.280	216192.755	.033	C	GPS - STATIC	2010	HCOMS
46 56 54.77364	96 44 10.26659	490984.408	216192.639	.013		ADJUSTMENT	2007	GPS2300

**NAD83(1996)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 56 54.77493	96 44 10.26894	490984.245	216192.770	.033	C	GPS - STATIC	2023	HMOFA3
46 56 54.77432	96 44 10.26845	490984.279	216192.708	.033	C	GPS - STATIC	2010	HCOMS
46 56 54.77470	96 44 10.26838	490984.284	216192.747	.131	3	GPS - RTRN	2009	RTRN2009
46 56 54.77305	96 44 10.26642	490984.420	216192.579	.033	C	ADJUSTMENT	2003	GPS1905
46 56 54.77305	96 44 10.26642	490984.420	216192.579	.033	C	GPS - STATIC	2003	HMOOR

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2003815.563	1048392.641	707660.368	17080756.046	.010		ADJUSTMENT	2024	GPS3674
2003815.563	1048392.641	707660.368	17080756.046	.010	C	GPS - STATIC	2023	HMOFA3
2003815.590	1048392.573	707660.394	17080755.978	.131	3	GPS - RTRN	2022	RTRN2022
2003815.609	1048392.602	707660.414	17080756.006	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2003815.546	1048392.665	707660.352	17080756.070	.131	3	GPS - RTRN	2012	RTRN2012
2003815.543	1048392.613	707660.348	17080756.018	.033	C	ADJUSTMENT	2011	GPS2690
2003815.543	1048392.613	707660.348	17080756.018	.033	C	GPS - STATIC	2010	HCOMS
2003815.667	1048392.493	707660.471	17080755.896	.013		ADJUSTMENT	2007	GPS2300

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2003815.508	1048392.629	707660.314	17080756.035	.033	C	GPS - STATIC	2023	HMOFA3
2003815.541	1048392.566	707660.345	17080755.971	.033	C	GPS - STATIC	2010	HCOMS
2003815.546	1048392.604	707660.351	17080756.009	.131	3	GPS - RTRN	2009	RTRN2009
2003815.677	1048392.433	707660.479	17080755.836	.033	C	ADJUSTMENT	2003	GPS1905
2003815.677	1048392.433	707660.479	17080755.836	.033	C	GPS - STATIC	2003	HMOOR

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BAKKUM-DF7610-3W-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BAKKUM-DF7610-3W-28JUN2022.jpg</a>	W	Jun 28, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BAKKUM-DF7610-2-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BAKKUM-DF7610-2-28JUN2022.jpg</a>		Jun 28, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BAKKUM-DF7610-1-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BAKKUM-DF7610-1-28JUN2022.jpg</a>		Jun 28, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: BAR MNDT

NGS Name: BAR

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0099](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/1033  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	3	137 N	46 W	464211.26	962829.41	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1961	2010	GOOD	Horz=YES Vert=YES	YES		FLUSH	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	TRAVERSE STATION DISK	MNDT

**Description:** (1969)                      **Stamping:** BAR 1961

4.7 MILES NORTH-NORTHWEST OF BARNESVILLE, 0.6 MILE NORTH ALONG TRUNK HIGHWAY 9 NORTH (FRONT STREET NORTH) FROM THE JUNCTION OF TRUNK HIGHWAY 9 NORTH (FRONT STREET NORTH) AND MAIN AVENUE WEST IN BARNESVILLE, THEN 3.4 MILES NORTHWEST ALONG COUNTY ROAD 52, THEN 1.3 MILES NORTH ALONG 150TH STREET SOUTH, THEN 0.4 MILE EAST ALONG 130TH AVENUE SOUTH, 0.2 MILE WEST OF THE WEST EDGE OF A MACHINE SHED, 19.0 FEET NORTH OF AN EAST-WEST ROAD, 40.51 FEET NORTH OF BAR RM 1, 100.41 FEET EAST OF BAR RM 3, 1.0 FOOT WEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
955.389	.016	2/0				1991	00000025					

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
954.516	.016	2/0				1992	UNCHECKD					
954.516	.016	2				1972	Q460961					
954.516	.016	2				1972	L22167-A					
954.516	.016	2				1971	L22167-A					

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
955.379	.197		868.525	.066	1996	2001	DIST 4					
			868.752	.131	1996	1999	17648					

Geoid Separations(ft): GEOID18 = -87.090    12B = -87.096    09 = -86.988    03 = -86.929

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 42 11.25736	96 28 29.40807	556520.275	126756.823	.033	C	GPS - STATIC	2001	DIST 4
46 42 11.25337	96 28 29.40777	556520.295	126756.419	.066	2	ADJUSTMENT	1999	17648
46 42 11.25321	96 28 29.40770	556520.300	126756.403	.066	2	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 42 11.25222	96 28 29.39928	556520.887	126756.304	.066	2	ADJUSTMENT	1986	17289

<u>NAD27</u>		<u>Geodetic Position</u>		<u>Project Info</u>				
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 42 11.39290	96 28 28.15080			.100	2	CLASSICAL SURVEY	1962	12924



**State Plane and UTM Coordinates (Feet)**

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2066547.913	956979.997	768940.234	16988287.564	.033	C	GPS - STATIC	2001	DIST 4
2066547.923	956979.593	768940.237	16988287.159	.066	2	ADJUSTMENT	1999	17648
2066547.927	956979.577	768940.241	16988287.142	.066	2	ADJUSTMENT	1998	17655

**NAD83(1986)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2066548.511	956979.460	768940.823	16988287.016	.066	2	ADJUSTMENT	1986	17289

**NAD27**

MN State Plane - Central Zone		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	Project Info	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1441952.129	628904.221			.100	2	CLASSICAL SURVEY	1962	12924

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BAR-RP0099-3N-25MAY2010.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BAR-RP0099-3N-25MAY2010.jpg</a>	N	May 25, 2010
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BAR-RP0099-2-25MAY2010.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BAR-RP0099-2-25MAY2010.jpg</a>		May 25, 2010
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BAR-RP0099-1-25MAY2010.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BAR-RP0099-1-25MAY2010.jpg</a>		May 25, 2010

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: BAR MNDT AZ MK

NGS Name: BAR AZ MK

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0098](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/1033  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	3	137 N	46 W	464211.21	962801.97	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1961	2015	GOOD	Horz=YES Vert=YES	YES		RECESSED 6 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	MNDT

**Description:** (2013)                      **Stamping:** BAR 1961

4.5 MILES NORTH-NORTHWEST OF BARNESVILLE, 0.1 MILE NORTH ALONG TRUNK HIGHWAY 9 NORTH FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND 160TH AVENUE IN BARNESVILLE, THEN 3.4 MILES NORTHWEST ON COUNTY ROAD 52, THEN 1.25 MILES NORTH ON 150TH STREET SOUTH, THEN 0.7 MILE EAST ON A FIELD ROAD (130TH AVENUE SOUTH), 16.0 FEET NORTH OF A ROAD, 6.4 FEET SOUTH OF A WITNESS POST.

**Station Notes**

MAY BE HARD TO REACH DEPENDING ON THE CONDITIONS.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
958.653	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941	
958.814	.016	2/1				VERTICAL ADJUSTMENT	2012	00000717	
958.814	.016	2/1				VERTICAL CONTROL SURVEY	2010	VBARN	
958.814	.016	2/1				VERTICAL ADJUSTMENT	1991	00000025	

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
957.941	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD	
957.941	.016	2				VERTICAL CONTROL SURVEY	1972	Q460961	
957.941	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A	
957.941	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
958.814			871.734	.014	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084	
958.814	.131		871.865	.066	1996	GPS - STATIC	2015	HCLAY	
958.814			871.740	.014	2011	GPS - STATIC	2015	HCLAY	
958.814			871.734	.017	2011	HORIZONTAL ADJUSTMENT	2014	GPS2750	
958.814			871.734	.017	2011	GPS - STATIC	2014	HBARN	
958.824	.131		871.813	.066	2007	GPS - STATIC	2010	HBARN	
958.814	.131		871.865	.066	1996	GPS - STATIC	2010	HBARN	
958.824	.197		872.167	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648	

Geoid Separations(ft): GEOID18 = -87.100    12B = -87.106    09 = -86.995    03 = -86.936

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 42 11.20605	96 28 01.97091	558432.636	126757.187	.010		ADJUSTMENT	2015	GPS3084
46 42 11.20608	96 28 01.97091	558432.636	126757.190	.010	C	GPS - STATIC	2015	HCLAY
46 42 11.20605	96 28 01.97091	558432.636	126757.187	.010		ADJUSTMENT	2014	GPS2750
46 42 11.20605	96 28 01.97091	558432.636	126757.187	.010	C	GPS - STATIC	2014	HBARN

**NAD83(2007)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 42 11.20612	96 28 01.97195	558432.564	126757.194	.033	C	GPS - STATIC	2010	HBARN

**NAD83(1996)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 42 11.20570	96 28 01.97169	558432.582	126757.152	.033	C	GPS - STATIC	2015	HCLAY
46 42 11.20570	96 28 01.97169	558432.582	126757.152	.033	C	GPS - STATIC	2010	HBARN
46 42 11.20237	96 28 01.96681	558432.923	126756.815	.066	2	ADJUSTMENT	1999	17648
46 42 11.20221	96 28 01.96669	558432.931	126756.799	.066	2	ADJUSTMENT	1998	17655

**NAD83(1986)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 42 11.20120	96 28 01.95835	558433.513	126756.699	.066	2	ADJUSTMENT	1986	17289

**NAD27**

Geodetic Position						Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 42 11.34180	96 28 00.71090			.100	2	CLASSICAL SURVEY	1962	12924

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2068459.168	956921.189	770851.296	16988197.993	.010		ADJUSTMENT	2015	GPS3084
2068459.168	956921.192	770851.296	16988197.996	.010	C	GPS - STATIC	2015	HCLAY
2068459.168	956921.189	770851.296	16988197.993	.010		ADJUSTMENT	2014	GPS2750
2068459.168	956921.189	770851.296	16988197.993	.010	C	GPS - STATIC	2014	HBARN

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2068459.096	956921.198	770851.223	16988198.004	.033	C	GPS - STATIC	2010	HBARN

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2068459.113	956921.155	770851.239	16988197.960	.033	C	GPS - STATIC	2015	HCLAY
2068459.113	956921.155	770851.239	16988197.960	.033	C	GPS - STATIC	2010	HBARN
2068459.443	956920.808	770851.565	16988197.608	.066	2	ADJUSTMENT	1999	17648
2068459.451	956920.792	770851.572	16988197.591	.066	2	ADJUSTMENT	1998	17655

**NAD83(1986)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2068460.029	956920.673	770852.149	16988197.463	.066	2	ADJUSTMENT	1986	17289

**NAD27**

MN State Plane - Central Zone						Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1443863.633	628845.435			.100	2	CLASSICAL SURVEY	1962	12924

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BAR_AZ_MK-RP0098-3N-20AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BAR_AZ_MK-RP0098-3N-20AUG2013.jpg</a>	N	Aug 20, 2013
Moment:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BAR_AZ_MK-RP0098-2-07JUN2010.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BAR_AZ_MK-RP0098-2-07JUN2010.jpg</a>		Jun 7, 2010
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BAR_AZ_MK-RP0098-1-07JUN2010.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BAR_AZ_MK-RP0098-1-07JUN2010.jpg</a>		Jun 7, 2010

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: BAR RM 1  
 County: CLAY, MN (Sheet 1)

NGS Name: BAR RM 1

NGS ACRN: [RP0100](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	10	137 N	46 W	464210.85	962829.41	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1961	2010	GOOD	Horz=? Vert=YES	YES		FLUSH	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	MNDT

**Description:** (1961)                      **Stamping:** BAR NO. 1 1961

4.7 MILES NORTH-NORTHWEST OF BARNESVILLE, 0.1 MILE NORTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND 160TH AVENUE SOUTH, THEN 3.4 MILES NORTHWEST ON COUNTY ROAD 52, THEN 1.3 MILES NORTH ON 150TH STREET SOUTH, THEN 0.4 MILE EAST ON 130TH AVENUE SOUTH, 0.4 MILE WEST OF INTERSTATE HIGHWAY 94, 0.2 MILE WEST-SOUTHWEST OF THE WEST EDGE OF A SHED, 20.0 FEET SOUTH OF AN UNIMPROVED TOWNSHIP ROAD, 40.5 FEET SOUTH OF STATION BAR MNDT.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
955.608	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
954.736	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD	
954.736	.016	2				VERTICAL CONTROL SURVEY	1972	Q460961	
954.736	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A	
954.736	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A	

**Geoid Separations(ft): GEOID18 = -87.090    12B = -87.096    09 = -86.988    03 = -86.929**

\* No Horizontal Positions in the Database \*

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BAR_RM_1-RP0100-3N-25MAY2010.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BAR_RM_1-RP0100-3N-25MAY2010.jpg</a>	N	May 25, 2010
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BAR_RM_1-RP0100-2-25MAY2010.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BAR_RM_1-RP0100-2-25MAY2010.jpg</a>		May 25, 2010
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BAR_RM_1-RP0100-1-25MAY2010.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BAR_RM_1-RP0100-1-25MAY2010.jpg</a>		May 25, 2010

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: BAR RM 2

NGS Name: BAR RM 2

County: CLAY, MN (Sheet 1)

NGS ACRN: [CO9083](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	10	137 N	46 W	464211.24	962830.86		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1961	1969	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	MNDT

**Description:** **Stamping:** BAR NO 2 1961

4.7 MILES NORTH-NORTHWEST OF BARNESVILLE, 0.1 MILE NORTH ALONG TRUNK HIGHWAY 9 NORTH FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND 160TH AVENUE SOUTH IN BARNESVILLE, THEN 2.3 MILES NORTHWEST ON COUNTY ROAD 52, THEN 1.7 MILES NORTH ON COUNTY ROAD 56 (160TH STREET SOUTH), THEN 0.6 MILE WEST ON 130TH AVENUE SOUTH.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.090 12B = -87.096 09 = -86.988 03 = -86.929



Mn/DOT Name: BAR RM 3  
 County: CLAY, MN (Sheet 1)

NGS Name: BAR RM 3

NGS ACRN: [CO9084](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	3	137 N	46 W	464211.21	962830.85		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1969	2010	GOOD	Horz=YES Vert=YES	YES			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	MNDT

**Description:** **Stamping:** BAR MHD 1961 NO 3 1969

4.7 MILES NORTH-NORTHWEST OF BARNESVILLE, 0.1 MILE NORTH ALONG TRUNK HIGHWAY 9 NORTH FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND 160TH AVENUE SOUTH IN BARNESVILLE, THEN 2.3 MILES NORTHWEST ON COUNTY ROAD 52, THEN 1.7 MILES NORTH ON COUNTY ROAD 56 (160TH STREET SOUTH), THEN 0.6 MILE WEST ON 130TH AVENUE SOUTH, 14.0 FEET NORTH OF 130TH AVENUE SOUTH, 1.0 FOOT EAST OF A WITNESS POST.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.090 12B = -87.096 09 = -86.988 03 = -86.929

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<b>Location:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BAR_RM_3-CO9084-3N-25MAY2010.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BAR_RM_3-CO9084-3N-25MAY2010.jpg</a>	N	May 25, 2010
<b>Monument:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BAR_RM_3-CO9084-2-25MAY2010.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BAR_RM_3-CO9084-2-25MAY2010.jpg</a>		May 25, 2010
<b>Disk:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BAR_RM_3-CO9084-1-25MAY2010.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BAR_RM_3-CO9084-1-25MAY2010.jpg</a>		May 25, 2010

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: BARN

NGS Name: BARN

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP7347](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	6	137 N	45 W	464301.79	962459.78		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2013	2013	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 38 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2013)                      Stamping: BARN 2013

4.5 MILES NORTH OF BARNESVILLE, 0.5 MILE EAST ALONG TRUNK HIGHWAY 34 FROM THE JUNCTION OF TRUNK HIGHWAY 34 AND INTERSTATE HIGHWAY 94 (THE JUNCTION IS 1.0 MILES EAST OF BARNESVILLE), TO TRUNK HIGHWAY 34 MILEPOST 1.7 THEN 3.95 MILES NORTH ON COUNTY ROAD 25, THEN 1.5 MILES WEST ON A 120TH AVENUE SOUTH, 47.2 FEET SOUTH OF 120TH AVENUE SOUTH, 0.15 MILE EAST OF 180TH STREET SOUTH, 14.3 FEET EAST OF A FIELD ENTRANCE, 1.5 FEET WEST OF A WITNESS POST.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>						
1050.569			963.341	.021	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084					
1050.552	.131		963.482	.066	1996	GPS - STATIC	2015	HCLAY					
1050.569			963.341	.021	2011	GPS - STATIC	2015	HCLAY					
1050.585	.262		963.377	.197	2011	GPS - RTRN	2013	RTRN2013					

Geoid Separations(ft): GEOID18 = -87.218    12B = -87.208    09 = -87.100    03 = -87.047

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>				<u>Clay County</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
46 43 01.78851	96 24 59.77683	571112.966	131923.536	.013		ADJUSTMENT	2015	GPS3084		
46 43 01.78851	96 24 59.77683	571112.966	131923.536	.013	C	GPS - STATIC	2015	HCLAY		
46 43 01.78905	96 24 59.77822	571112.869	131923.590	.131	3	GPS - RTRN	2013	RTRN2013		

<u>NAD83(1996)</u>		<u>Geodetic Position</u>				<u>Clay County</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
46 43 01.78810	96 24 59.77761	571112.912	131923.494	.033	C	GPS - STATIC	2015	HCLAY		

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
2081291.943	961692.125	783765.662	16992764.317	.013		ADJUSTMENT	2015	GPS3084		
2081291.943	961692.125	783765.662	16992764.317	.013	C	GPS - STATIC	2015	HCLAY		
2081291.847	961692.182	783765.567	16992764.376	.131	3	GPS - RTRN	2013	RTRN2013		

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
2081291.887	961692.084	783765.606	16992764.278	.033	C	GPS - STATIC	2015	HCLAY		

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BARN-DP7347-3S-10SEP2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BARN-DP7347-3S-10SEP2013.jpg</a>	S	Sep 10, 2013
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BARN-DP7347-2-10SEP2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BARN-DP7347-2-10SEP2013.jpg</a>		Sep 10, 2013
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BARN-DP7347-1-10SEP2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BARN-DP7347-1-10SEP2013.jpg</a>		Sep 10, 2013

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: BARNES  
 County: CLAY, MN (Sheet 1)

NGS Name: BARNES

NGS ACRN: [RP0915](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096131/1049  
 USGS Quad: BIG SLOUGH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SE	11	137 N	45 W	464126.39	961951.25		3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	2001	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	NGS

**Description:** (2000)                      **Stamping:** BARNES 1964

5.0 MILES NORTHEAST OF BARNESVILLE, 4.2 MILES EAST ALONG TRUNK HIGHWAY 34 EAST (160TH AVENUE SOUTH) FROM THE JUNCTION OF TRUNK HIGHWAY 34 AND FRONT STREET NORTH IN BARNESVILLE, THEN 2.1 MILES NORTH ON 230TH STREET SOUTH, 95.0 FEET EAST OF COUNTY ROAD 31, 58.0 FEET NORTHEAST OF A FENCE CORNER, 4.0 FEET WEST OF A FENCE LINE, 108.07 FEET WEST OF BARNES RM 1, 80.93 FEET NORTHWEST OF BARNES RM 2.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
1181.100	.262		1094.322	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648		

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
1181.100						RECIPROCAL VERTICAL ANGLE	1964	HORZ		

Geoid Separations(ft): GEOID18 = -87.152    12B = -87.142    09 = -87.034    03 = -86.981

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 41 26.39100	96 19 51.24730	592656.954	122347.556	.131	3	ADJUSTMENT	1999	17648
46 41 26.39046	96 19 51.24753	592656.939	122347.501	.131	3	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 41 26.38974	96 19 51.24080	592657.408	122347.430	.131	3	ADJUSTMENT	1986	17289

<u>NAD27</u>		<u>Geodetic Position</u>		<u>Project Info</u>				
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 41 26.53693	96 19 50.00189			.100	3	CLASSICAL SURVEY	1964	13522

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2102526.864	951455.016	804843.381	16982182.353	.131	3	ADJUSTMENT	1999	17648
2102526.846	951454.962	804843.363	16982182.299	.131	3	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2102527.313	951454.877	804843.828	16982182.206	.131	3	ADJUSTMENT	1986	17289

<u>NAD27</u>		<u>MN State Plane - Central Zone</u>		<u>Project Info</u>				
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1477931.386	623380.464			.100	3	CLASSICAL SURVEY	1964	13522



Mn/DOT Name: BARNES AZ MK

NGS Name: BARNES AZ MK

County: CLAY, MN (Sheet 1)

NGS ACRN: [CO9092](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096131/  
 USGS Quad: BIG SLOUGH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	11	137 N	45 W	464055.00	961952.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	2001	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	NGS

**Description:** **Stamping:** BARNES 1964

4.8 MILES NORTHEAST OF BARNESVILLE, 4.2 MILES EAST ALONG TRUNK HIGHWAY 34 EAST (160TH AVENUE SOUTH) FROM THE JUNCTION OF TRUNK HIGHWAY 34 AND FRONT STREET NORTH IN BARNESVILLE, THEN 1.5 MILES NORTH ON 230TH STREET SOUTH.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.145 12B = -87.132 09 = -87.031 03 = -86.981



Mn/DOT Name: BARNES RM 1

NGS Name: BARNES RM 1

County: CLAY, MN (Sheet 1)

NGS ACRN: [CO9093](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096131/  
 USGS Quad: BIG SLOUGH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	11	137 N	45 W	464126.00	961951.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	2001	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description: Stamping: BARNES NO 1 1964

4.5 MILES NORTHEAST OF BARNESVILLE, 4.2 MILES EAST ALONG TRUNK HIGHWAY 34 EAST (160TH AVENUE SOUTH) FROM THE JUNCTION OF TRUNK HIGHWAY 34 EAST AND FRONT STREET NORTH IN BARNESVILLE, THEN 2.1 MILES NORTH ON 230TH STREET SOUTH.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.152 12B = -87.142 09 = -87.034 03 = -86.981



Mn/DOT Name: BARNES RM 2

NGS Name: BARNES RM 2

County: CLAY, MN (Sheet 1)

NGS ACRN: [CO9094](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096131/  
 USGS Quad: BIG SLOUGH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	11	137 N	45 W	464126.00	961951.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	2001	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** **Stamping:** BARNES NO 2 1964

5.0 MILES NORTHEAST OF BARNESVILLE, 4.2 MILES EAST ALONG TRUNK HIGHWAY 34 EAST (160TH AVENUE SOUTH) FROM THE JUNCTION OF TRUNK HIGHWAY 34 EAST AND FRONT STREET NORTH IN BARNESVILLE, THEN 2.1 MILES NORTH ON 230TH STREET SOUTH.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.152 12B = -87.142 09 = -87.034 03 = -86.981



Mn/DOT Name: BARNESVILLE

NGS Name: BARNESVILLE

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0926](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/1002  
 USGS Quad: BARNESVILLE

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	15	137 N	46 W	464102.58	962755.39		1

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1906	1935	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
OBJECT SURROUNDED BY A MASS OF CONCRETE	NAIL	NGS

Description: (2011)

Stamping:

3.1 MILES NORTHWEST OF BARNESVILLE, 0.1 MILE NORTH ALONG TRUNK HIGHWAY 9 NORTH FROM THE JUNCTION OF TRUNK HIGHWAY 9 NORTH AND 160TH AVENUE SOUTH, THEN 2.3 MILES NORTHWEST ON COUNTY ROAD 52, THEN 0.5 MILE NORTH ON 160TH STREET SOUTH.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>		
974.736	.131		888.145	.066	1996	HORIZONTAL ADJUSTMENT	1999	17648	

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>		
974.014						RECIPROCAL VERTICAL ANGLE	1906	HORZ	

Geoid Separations(ft): GEOID18 = -87.024 12B = -87.027 09 = -86.922 03 = -86.863

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
46 41 02.57692	96 27 55.38534	558912.364	119805.471	.033	1	ADJUSTMENT	1999	17648	
46 41 02.57647	96 27 55.38545	558912.356	119805.425	.033	1	ADJUSTMENT	1998	17655	

<u>NAD83(1986)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
46 41 02.57612	96 27 55.37700	558912.946	119805.392	.033	1	ADJUSTMENT	1986	17289	

<u>NAD27</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
46 41 02.72300	96 27 54.12300			.100	1	CLASSICAL SURVEY	1928	00155	

<u>USSD</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
46 41 02.92700	96 27 54.51300				3	CLASSICAL SURVEY		17389-73	

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u> <u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
2068723.516	949958.706	771003.820	16981228.527	.033	1	ADJUSTMENT	1999	17648	
2068723.507	949958.661	771003.811	16981228.482	.033	1	ADJUSTMENT	1998	17655	

<u>NAD83(1986)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u> <u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
2068724.095	949958.609	771004.398	16981228.420	.033	1	ADJUSTMENT	1986	17289	

<u>NAD27</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u> <u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
1444128.217	621884.027			.100	1	CLASSICAL SURVEY	1928	00155	



Mn/DOT Name: BARNESVILLE 2

NGS Name: BARNESVILLE 2

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0932](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/1002  
 USGS Quad: BARNESVILLE

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	15	137 N	46 W	464103.65	962754.96		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	2010	GOOD	Horz=YES Vert=YES	YES		FLUSH	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	NGS

Description: (2010)                      Stamping: BARNESVILLE 2 1954

3.0 MILES NORTHWEST OF BARNESVILLE, 2.35 MILES NORTHWEST ALONG COUNTY ROAD 52 FROM THE JUNCTION OF COUNTY ROAD 52 AND COUNTY ROAD 9 IN BARNESVILLE, THEN 0.4 MILE NORTH ON COUNTY ROAD 56 (160TH STREET SOUTH), THEN 0.1 MILE WEST ON DRIVEWAY NUMBER 14283 TO THE MARK, 119.86 FEET EAST OF BARNESVILLE 2 RM 1, 93.14 FEET SOUTH OF BARNESVILLE 2 RM 2, 87.7 FEET SOUTHEAST OF A POWER POLE WITH 2 GUYWIRE, IN A BARN YARD, 65.0 FEET WEST OF THE SOUTHWEST CORNER OF A BARN, 45.0 FEET EAST-SOUTHEAST OF THE SOUTHEAST CORNER OF A RED SHED, 30.0 FEET NORTH OF A GRAIN SHED, 26.1 SOUTHEAST OF THE NORTHEAST CORNER OF A RED SHED, 4.0 FEET SOUTH OF A FENCE, 4.0 FEET SOUTHWEST OF A WITNESS POST.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
969.611			882.603	.018	2011	HORIZONTAL ADJUSTMENT	2014	GPS2750
969.611			882.603	.018	2011	GPS - STATIC	2014	HBARN
969.617	.131		882.675	.066	2007	GPS - STATIC	2010	HBARN
969.614	.131		882.731	.066	1996	GPS - STATIC	2010	HBARN
			878.771	.066	1996	GPS - STATIC	2001	DIST 4
974.407	.197		887.816	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
974.407						RECIPROCAL VERTICAL ANGLE	1954	HORZ

Geoid Separations(ft): GEOID18 = -87.024 12B = -87.027 09 = -86.926 03 = -86.867

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 41 03.64913	96 27 54.96171	558941.577	119914.188	.013		ADJUSTMENT	2014	GPS2750
46 41 03.64913	96 27 54.96171	558941.577	119914.188	.013	C	GPS - STATIC	2014	HBARN

**NAD83(2007)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 41 03.64923	96 27 54.96277	558941.503	119914.198	.033	C	GPS - STATIC	2010	HBARN

**NAD83(1996)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 41 03.64882	96 27 54.96251	558941.522	119914.157	.033	C	GPS - STATIC	2010	HBARN
46 41 03.64872	96 27 54.96223	558941.540	119914.147	.033	C	GPS - STATIC	2001	DIST 4
46 41 03.64800	96 27 54.95985	558941.707	119914.074	.066	2	ADJUSTMENT	1999	17648
46 41 03.64785	96 27 54.95980	558941.711	119914.059	.066	2	ADJUSTMENT	1998	17655

**NAD83(1986)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 41 03.64672	96 27 54.95143	558942.295	119913.946	.066	2	ADJUSTMENT	1986	17289

**NAD27**

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 41 03.78600	96 27 53.70500			.100	2	CLASSICAL SURVEY	1956	11230



**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2068756.076	950066.456	771038.125	16981335.796	.013		ADJUSTMENT	2014	GPS2750
2068756.076	950066.456	771038.125	16981335.796	.013	C	GPS - STATIC	2014	HBARN

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2068756.002	950066.468	771038.051	16981335.809	.033	C	GPS - STATIC	2010	HBARN

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2068756.019	950066.426	771038.067	16981335.767	.033	C	GPS - STATIC	2010	HBARN
2068756.039	950066.415	771038.087	16981335.756	.033	C	GPS - STATIC	2001	DIST 4
2068756.202	950066.338	771038.249	16981335.676	.066	2	ADJUSTMENT	1999	17648
2068756.205	950066.322	771038.252	16981335.660	.066	2	ADJUSTMENT	1998	17655

**NAD83(1986)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2068756.785	950066.192	771038.830	16981335.520	.066	2	ADJUSTMENT	1986	17289

**NAD27**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1444160.359	621990.855			.100	2	CLASSICAL SURVEY	1956	11230

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BARNESVILLE_2-RP0932-3W-30JUN2010.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BARNESVILLE_2-RP0932-3W-30JUN2010.jpg</a>	W	Jun 30, 2010
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BARNESVILLE_2-RP0932-2-30JUN2010.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BARNESVILLE_2-RP0932-2-30JUN2010.jpg</a>		Jun 30, 2010
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BARNESVILLE_2-RP0932-1-30JUN2010.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BARNESVILLE_2-RP0932-1-30JUN2010.jpg</a>		Jun 30, 2010

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: BARNESVILLE 2 AZ MK

NGS Name: BARNESVILLE 2 AZ MK

County: CLAY, MN (Sheet 1)

NGS ACRN: [CO9096](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	15	137 N	46 W	464038.00	962745.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	2010	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	AZIMUTH MARK DISK	NGS

**Description:** **Stamping:** BARNESVILLE 2 1954

3.5 MILES NORTHWEST OF BARNESVILLE, 0.6 MILE NORTH ALONG TRUNK HIGHWAY 9 NORTH (FRONT STREET NORTH) FROM THE JUNCTION OF TRUNK HIGHWAY 9 NORTH (FRONT STREET NORTH) AND MAIN AVENUE WEST IN BARNESVILLE, THEN 2.2 MILES NORTHWEST ALONG COUNTY ROAD 52, THEN 308.0 FEET SOUTHWEST ALONG COUNTY ROAD 56 (160TH STREET SOUTH), 0.5 MILE SOUTH OF STATION BARNESVILLE 2, 215.0 FEET WEST OF THE APPROXIMATE CENTER OF THE GRAVEL ROAD LEADING TO STATION BARNESVILLE 2 AZ MK, 50.0 FEET OF THE CENTERLINE OF TRUNK HIGHWAY 52, 3.0 FEET NORTH OF A POWER POLE, 3.0 FEET SOUTH OF A POWER POLE, 3.0 FEET NORTHEAST OF A WITNESS POST.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.014 12B = -87.014 09 = -86.919 03 = -86.860



Mn/DOT Name: BARNESVILLE 2 RM 1

NGS Name: BARNESVILLE 2 RM 1

County: CLAY, MN (Sheet 1)

NGS ACRN: [CO9097](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	15	137 N	46 W	464103.73	962756.67		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	2010	NOT FOUND	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	REFERENCE MARK DISK	NGS

**Description:** (2010) **Stamping:** BARNESVILLE 2 NO 1 1954

3.0 MILES NORTHWEST OF BARNESVILLE, 0.1 MILE NORTH ALONG TRUNK HIGHWAY 9 NORTH FROM THE JUNCTION OF TRUNK HIGHWAY 9 NORTH AND 160TH AVENUE SOUTH IN BARNESVILLE, THEN 2.3 MILES NORTHWEST ON COUNTY ROAD 52, THEN 0.5 MILE NORTH ON COUNTY ROAD 56 (160TH STREET SOUTH), IN A BARNYARD, 65.0 FEET WEST OF THE SOUTHWEST CORNER OF A BARN, WEST OF STATION BARNESVILLE 2, 29.0 FEET SOUTH OF THE GRAIN SHED.

**Station Notes**  
 COULD NOT LOCATE, THE FENCE IS GONE, NEW BUILDINGS NEARBY.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.024 12B = -87.027 09 = -86.926 03 = -86.867



Mn/DOT Name: BARNESVILLE 2 RM 2

NGS Name: BARNESVILLE 2 RM 2

County: CLAY, MN (Sheet 1)

NGS ACRN:	<a href="#">CO9098</a>	<a href="#">Get Map</a>
NGS Quad / Sta Num :	46096134/	
USGS Quad:	BARNESVILLE	

		<b><u>Reference</u></b>	<b><u>Reference</u></b>	<b><u>Vert</u></b>	<b><u>Horz</u></b>
<b><u>1/4</u></b>	<b><u>Sec</u></b>	<b><u>Twp</u></b>	<b><u>Rng</u></b>	<b><u>Latitude</u></b>	<b><u>Longitude</u></b>
NE	15	137 N	46 W	464104.57	962755.01

<b><u>Year Set</u></b>	<b><u>Last Recovery</u></b>	<b><u>Condition</u></b>	<b><u>Geodetic Usability</u></b>	<b><u>Photos</u></b>	<b><u>Bridge Num</u></b>	<b><u>F/P/R</u></b>	<b><u>Magnetic Properties</u></b>
1954	2010	GOOD	Horz=YES Vert=YES	NO			SEE DESCRIPTION

<b><u>Monument Type</u></b>	<b><u>Disk Type</u></b>	<b><u>Mon. Agency</u></b>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** (2010) **Stamping:** BARNESVILLE 2 NO 2 1954

3.0 MILES NORTHWEST OF BARNESVILLE, 0.1 MILE NORTH ALONG TRUNK HIGHWAY 9 NORTH FROM THE JUNCTION OF TRUNK HIGHWAY 9 NORTH AND 160TH AVENUE NORTH IN BARNESVILLE, THEN 2.3 MILES NORTHWEST ON COUNTY ROAD 52, THEN 0.5 MILE NORTH ON 160TH STREET SOUTH, 93.14 FEET NORTH OF STATION BARNESVILLE 2, 46.0 FEET NORTHEAST OF A POWER POLE, 24.3 FEET EAST OF THE SOUTHEAST CORNER OF A CONCRETE SLAB, 1.0 FOOT SOUTH OF A 6.0 INCH DIAMETER ASH TREE.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.024   12B = -87.027   09 = -86.926   03 = -86.867



Mn/DOT Name: BARNESVILLE CHURCH SPIRE

NGS Name: BARNESVILLE CHURCH SPIRE

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0928](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/1009  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	25	137 N	46 W	463921.95	962513.11		4

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1906	2011	GOOD	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BLANK	CHURCH SPIRE	NGS

Description: (1906)

Stamping:

IN BARNESVILLE, 0.2 MILE NORTH ALONG TRUNK HIGHWAY 9 (FRONT STREET NORTH) FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND MAIN AVENUE EAST.

\* No Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.067 12B = -87.060 09 = -86.962 03 = -86.916

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 39 21.95459	96 25 13.10874	570263.092	109648.031	.328	4	ADJUSTMENT	1999	17648
46 39 21.95411	96 25 13.10846	570263.112	109647.982	.328	4	ADJUSTMENT	1998	17655

NAD83(1986)

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 39 21.95362	96 25 13.10056	570263.664	109647.934	.328	4	ADJUSTMENT	1986	17289

NAD27

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 39 22.11500	96 25 11.87400			.100	4	CLASSICAL SURVEY	1928	00155

USSD

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 39 22.31700	96 25 12.26100				3	CLASSICAL SURVEY		17389-73

State Plane and UTM Coordinates (Feet)

NAD83(1996)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2079753.256	939456.041	781869.167	16970544.725	.328	4	ADJUSTMENT	1999	17648
2079753.275	939455.992	781869.185	16970544.675	.328	4	ADJUSTMENT	1998	17655

NAD83(1986)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2079753.824	939455.927	781869.733	16970544.602	.328	4	ADJUSTMENT	1986	17289

NAD27

<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1455156.459	611382.954			.100	4	CLASSICAL SURVEY	1928	00155



Mn/DOT Name: BARNESVILLE RM

NGS Name: BARNESVILLE RM

County: CLAY, MN (Sheet 1)

NGS ACRN: [CO9095](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	15	137 N	46 W	464102.00	962755.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1906	1935	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BLANK	REFERENCE MARK DISK	NGS

**Description:** (2011)

**Stamping:**

3.1 MILES NORTHWEST OF BARNESVILLE, 0.1 MILE NORTH ALONG TRUNK HIGHWAY 9 NORTH FROM THE JUNCTION OF TRUNK HIGHWAY 9 NORTH AND 160TH AVENUE SOUTH IN BARNESVILLE, THEN 2.3 MILES NORTHWEST ON COUNTY ROAD 52, THEN 0.5 MILE NORTH ON 160TH STREET SOUTH.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.024 12B = -87.027 09 = -86.922 03 = -86.863



Mn/DOT Name: BARNESVILLE STACK

NGS Name: BARNESVILLE STACK

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0924](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/1010  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	25	137 N	46 W	463904.66	962517.66		4

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1906	1906	GOOD	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	STACK	NGS

Description: (1906)

Stamping:

IN BARNESVILLE, BY THE JUNCTION OF FRONT STREET SOUTH AND 3RD AVENUE SOUTHEAST.

\* No Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.070 12B = -87.063 09 = -86.965 03 = -86.922

**Lat/Lon and County Coordinates (Feet)**

**NAD83(1996)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 39 04.66455	96 25 17.66261	569951.606	107895.198	.328	4	ADJUSTMENT	1999	17648
46 39 04.66399	96 25 17.66250	569951.614	107895.141	.328	4	ADJUSTMENT	1998	17655

**NAD83(1986)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 39 04.66365	96 25 17.65432	569952.185	107895.109	.328	4	ADJUSTMENT	1986	17289

**NAD27**

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
46 39 04.81300	96 25 16.41300			.100	4	CLASSICAL SURVEY	1928	00155

**USSD**

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
46 39 05.01500	96 25 16.80000				3	CLASSICAL SURVEY		17389-73

**State Plane and UTM Coordinates (Feet)**

**NAD83(1996)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2079387.717	937713.885	781475.542	16968807.778	.328	4	ADJUSTMENT	1999	17648
2079387.723	937713.828	781475.547	16968807.720	.328	4	ADJUSTMENT	1998	17655

**NAD83(1986)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2079388.293	937713.778	781476.116	16968807.661	.328	4	ADJUSTMENT	1986	17289

**NAD27**

<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1454791.922	609639.565			.100	4	CLASSICAL SURVEY	1928	00155



Mn/DOT Name: BARNESVILLE STANDPIPE

NGS Name: BARNESVILLE STANDPIPE

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0930](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/1011  
 USGS Quad: BARNESVILLE

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	25	137 N	46 W	463916.16	962514.41		4

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1906	2022	NOT FOUND	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	STANDPIPE TANK	NGS

Description: (1906)

Stamping:

IN BARNESVILLE, BY THE WEST JUNCTION OF FRONT STREET NORTH AND 2ND STREET SOUTHWEST

Station Notes

THE COORDINATES PUT THE SURVEY MARK UNDER PAVEMENT.

\* No Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.067 12B = -87.060 09 = -86.965 03 = -86.919

Lat/Lon and County Coordinates (Feet)

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 39 16.15710	96 25 14.40830	570174.518	109060.347	.328	4	ADJUSTMENT	1999	17648
46 39 16.15665	96 25 14.40832	570174.517	109060.302	.328	4	ADJUSTMENT	1998	17655

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 39 16.15642	96 25 14.40029	570175.077	109060.280	.328	4	ADJUSTMENT	1986	17289

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
46 39 16.30400	96 25 13.15500			.100	4	CLASSICAL SURVEY	1928	00155

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
46 39 16.50500	96 25 13.54200				3	CLASSICAL SURVEY		17389-73

State Plane and UTM Coordinates (Feet)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2079646.550	938871.446	781753.041	16969961.623	.328	4	ADJUSTMENT	1999	17648
2079646.547	938871.401	781753.038	16969961.577	.328	4	ADJUSTMENT	1998	17655

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2079647.106	938871.362	781753.597	16969961.529	.328	4	ADJUSTMENT	1986	17289

<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1455051.009	610796.958			.100	4	CLASSICAL SURVEY	1928	00155



Mn/DOT Name: BARNESVILLE TALL ELEVATOR

NGS Name: BARNESVILLE TALL ELEVATOR

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0927](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/1012  
 USGS Quad: BARNESVILLE

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	31	137 N	45 W	463837.27	962503.80		4

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1906	1906	GOOD	Horz=NO Vert=NO	NO			SEE DESCRIPTION

  

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	GRAIN ELEVATOR	NGS

Description: (1906)

Stamping:

IN BARNESVILLE, 0.6 MILE SOUTH ALONG FRONT STREET SOUTH FROM THE JUNCTION OF FRONT STREET SOUTH AND 2ND AVENUE SOUTHEAST.

\* No Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.090 12B = -87.083 09 = -86.985 03 = -86.939

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 38 37.27201	96 25 03.79760	570928.853	105123.420	.328	4	ADJUSTMENT	1999	17648
46 38 37.27146	96 25 03.79751	570928.859	105123.365	.328	4	ADJUSTMENT	1998	17655

NAD83(1986)

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 38 37.27113	96 25 03.78931	570929.432	105123.333	.328	4	ADJUSTMENT	1986	17289

NAD27

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
46 38 37.42100	96 25 02.54400			.100	4	CLASSICAL SURVEY	1928	00155

USSD

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
46 38 37.62300	96 25 02.93200				3	CLASSICAL SURVEY		17389-73

State Plane and UTM Coordinates (Feet)

NAD83(1996)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2080278.619	934913.512	782321.866	16965992.063	.328	4	ADJUSTMENT	1999	17648
2080278.623	934913.456	782321.870	16965992.007	.328	4	ADJUSTMENT	1998	17655

NAD83(1986)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2080279.194	934913.407	782322.441	16965991.949	.328	4	ADJUSTMENT	1986	17289

NAD27

<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1455683.144	606839.256			.100	4	CLASSICAL SURVEY	1928	00155



Mn/DOT Name: BARNESVILLE TANK

NGS Name: BARNESVILLE TANK

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0925](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/1031  
 USGS Quad: BARNESVILLE

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	30	137 N	45 W	463914.10	962508.80		4

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1961	2011	NOT FOUND	Horz=? Vert=?	NO			SEE DESCRIPTION

  

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BLANK	ELEVATED TANK	MNDT

**Description:** (1961)

**Stamping:**

1.0 MILE WEST OF BARNESVILLE, 397.0 FEET EAST ALONG 2ND AVENUE SOUTHWEST FROM THE JUNCTION OF 2ND AVENUE SOUTHWEST AND FRONT STREET SOUTH IN BARNESVILLE, THEN 0.1 MILE NORTH ALONG 2ND STREET SOUTHEAST, 75.0 FEET SOUTH OF TRUNK HIGHWAY 82.

\* No Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.070 12B = -87.063 09 = -86.965 03 = -86.922

**Lat/Lon and County Coordinates (Feet)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 39 14.10362	96 25 08.80220	570566.351	108853.693	.328	4	ADJUSTMENT	1999	17648
46 39 14.10327	96 25 08.80190	570566.372	108853.658	.328	4	ADJUSTMENT	1998	17655

  

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 39 14.10236	96 25 08.79396	570566.926	108853.568	.328	4	ADJUSTMENT	1986	17289

  

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 39 14.24600	96 25 07.54700			.100	4	CLASSICAL SURVEY	1962	12924

**State Plane and UTM Coordinates (Feet)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2080031.756	938652.790	782134.885	16969736.705	.328	4	ADJUSTMENT	1999	17648
2080031.776	938652.754	782134.904	16969736.668	.328	4	ADJUSTMENT	1998	17655

  

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2080032.327	938652.647	782135.454	16969736.552	.328	4	ADJUSTMENT	1986	17289

  

<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1455436.348	610577.843			.100	4	CLASSICAL SURVEY	1962	12924



Mn/DOT Name: BENCH MARK NEAR WINNIPEG

NGS Name: NEAR WINNIPEG

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0893](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096114/1048  
 USGS Quad: DALE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	9	139 N	44 W	465237.08	961440.94		3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1964	2014	GOOD	Horz=YES Vert=YES	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

**Description:** (1964)                      **Stamping:** 1401 Q 1956

3.5 MILES EAST OF HAWLEY, 0.7 MILE EAST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND TRUNK HIGHWAY 32 (THE JUNCTION IS 3.0 MILES EAST OF HAWLEY), AT TRUNK HIGHWAY 10 MILEPOINT 25.15, NEAR A RADIO TOWER, 81.7 FEET SOUTH OF EASTBOUND TRUNK HIGHWAY 10, 67.0 FEET WEST OF ENTRANCE NUMBER 26713 (DIRT ROAD TO A RADIO TOWER), 113.0 FEET NORTH AND 11.0 FEET EAST OF THE NORTHWEST CORNER OF A RADIO TOWER, 53.17 FEET EAST OF STATION WINNIPEG, 42.1 FEET WEST OF A WITNESS POST, 1.5 FEET EAST OF A WITNESS POST.

**Station Notes**

THE STATION BENCH MARK NEAR WINNIPEG (PID: RP0893) IS SAME AS STATION 1401 Q (PID: DG7110).

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

Orthometric Height			Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1315.614	.262		1228.236	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648

**NGVD29**

Orthometric Height			Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1315.614						RECIPROCAL VERTICAL ANGLE	1964	HORZ

Geoid Separations(ft): GEOID18 = -87.785    12B = -87.769    09 = -87.664    03 = -87.602

**Lat/Lon and County Coordinates (Feet)**

**NAD83(1996)**

Geodetic Position		Clay County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 52 37.07654	96 14 40.93954	613896.587	190411.496	.131	3	ADJUSTMENT	1999	17648
46 52 37.07599	96 14 40.93943	613896.594	190411.440	.131	3	ADJUSTMENT	1998	17655

**NAD83(1986)**

Geodetic Position		Clay County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 52 37.07680	96 14 40.93348	613897.007	190411.525	.131	3	ADJUSTMENT	1986	17289

**NAD27**

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 52 37.22271	96 14 39.71462			.100	3	CLASSICAL SURVEY	1964	13522

**State Plane and UTM Coordinates (Feet)**

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2125861.583	1018821.562	829270.748	17049192.399	.131	3	ADJUSTMENT	1999	17648
2125861.589	1018821.507	829270.753	17049192.343	.131	3	ADJUSTMENT	1998	17655

**NAD83(1986)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2125862.005	1018821.578	829271.170	17049192.408	.131	3	ADJUSTMENT	1986	17289

**NAD27**

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1501265.027	690746.850			.100	3	CLASSICAL SURVEY	1964	13522



Mn/DOT Name: BETA MNDT  
County: CLAY, MN (Sheet 1)

NGS Name: BETA

NGS ACRN: [DF7626](#) [Get Map](#)  
NGS Quad / Sta Num : 46096414/  
USGS Quad: DILWORTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SW	5	139 N	47 W	465302.99	963907.97		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1993	2014	DESTROYED	Horz=NO Vert=NO	YES			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE)	SURVEY DISK	MNDT

Description: (2000)                      Stamping: BETA 1993

2.5 MILES EAST-NORTHEAST OF DILWORTH, 0.5 MILE NORTH ALONG COUNTY ROAD 11 FROM THE JUNCTION OF COUNTY ROAD 11 AND TRUNK HIGHWAY 10, 37.6 FEET EAST OF COUNTY ROAD 11, 9.0 FEET SOUTH OF AN ENTRANCE, 7.7 FEET NORTH OF THE SOUTH END OF A 15.0 INCH DIAMETER CONCRETE CULVERT, 7.4 FEET NORTH OF A WITNESS POST.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>				<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>			
			833.210	.016	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800			
			833.387	.018	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300			
920.438	.131		833.443	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1905			
920.438	.131		833.443	.066	1996	GPS - STATIC	2003	HMOOR			

Geoid Separations(ft): GEOID18 = -87.211 12B = -87.214 09 = -87.060 03 = -87.027

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 53 02.99171	96 39 07.97258	511972.695	192710.550	.013		ADJUSTMENT	2012	GPS2800

  

<u>NAD83(2007)</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 53 02.99169	96 39 07.97354	511972.628	192710.548	.013		ADJUSTMENT	2007	GPS2300

  

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 53 02.99113	96 39 07.97336	511972.640	192710.491	.033	C	ADJUSTMENT	2003	GPS1905
46 53 02.99113	96 39 07.97336	511972.641	192710.491	.033	C	GPS - STATIC	2003	HMOOR

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>				<u>UTM - Zone 15</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
2024066.202	1024274.239	727528.026	17056296.888	.013		ADJUSTMENT	2012	GPS2800	

  

<u>NAD83(2007)</u>		<u>MN State Plane - Central Zone</u>				<u>UTM - Zone 15</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
2024066.135	1024274.239	727527.959	17056296.889	.013		ADJUSTMENT	2007	GPS2300	

  

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>				<u>UTM - Zone 15</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
2024066.146	1024274.182	727527.968	17056296.832	.033	C	ADJUSTMENT	2003	GPS1905	
2024066.146	1024274.182	727527.969	17056296.832	.033	C	GPS - STATIC	2003	HMOOR	



Mn/DOT Name: BETH

NGS Name: BETH

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ1931](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/  
 USGS Quad: FELTON

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	21	142 N	46 W	470554.70	963001.74	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 6 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 75 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: BETH 2014

3.85 MILES NORTH OF FELTON, 3.85 MILES NORTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 34 IN FELTON, AT TRUNK HIGHWAY 9 MILEPOINT 179.10, 38.4 FEET WEST OF TRUNK HIGHWAY 9, 1.5 FEET EAST OF A WITNESS POST.

Station Pair: 1410 R - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88			Orthometric Height			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Year	Reference			Year	Reference	
910.028	.016	2/1				2019	00000941	VERTICAL ADJUSTMENT				

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Orthometric Height			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Year	Reference			Year	Reference	
910.028			823.066	.023	2011	2023	GPS3618	HORIZONTAL ADJUSTMENT				
910.028	.131		823.200	.066	1996	2023	HFELT	GPS - STATIC				
910.028			823.066	.023	2011	2023	HFELT	GPS - STATIC				
910.290	.262		823.168	.197	2011	2014	RTRN2014	GPS - RTRN				

Geoid Separations(ft): GEOID18 = -87.106    12B = -87.123    09 = -86.995    03 = -86.975

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Geodetic Position		Clay County		Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
47 05 54.70403	96 30 01.74190	549717.983	270959.538	.016		ADJUSTMENT	2023	GPS3618
47 05 54.70403	96 30 01.74190	549717.983	270959.538	.016	C	GPS - STATIC	2023	HFELT
47 05 54.70400	96 30 01.74186	549717.985	270959.535	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(1996)		Geodetic Position		Clay County		Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
47 05 54.70370	96 30 01.74247	549717.943	270959.505	.033	C	GPS - STATIC	2023	HFELT

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		MN State Plane - Central Zone		UTM - Zone 15		Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2064212.495	1101313.236	768946.224	17132711.077	.016		ADJUSTMENT	2023	GPS3618
2064212.495	1101313.236	768946.224	17132711.077	.016	C	GPS - STATIC	2023	HFELT
2064212.498	1101313.233	768946.227	17132711.074	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(1996)		MN State Plane - Central Zone		UTM - Zone 15		Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2064212.455	1101313.204	768946.183	17132711.046	.033	C	GPS - STATIC	2023	HFELT

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BETH-DQ1931-3W-11JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BETH-DQ1931-3W-11JUN2014.jpg</a>	W	Jun 11, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BETH-DQ1931-2-11JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BETH-DQ1931-2-11JUN2014.jpg</a>		Jun 11, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BETH-DQ1931-1-11JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BETH-DQ1931-1-11JUN2014.jpg</a>		Jun 11, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: BIRD

NGS Name: BIRD

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM1826](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	20	138 N	48 W	464535.59	964604.79	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1999	2023	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 15 FT)	SURVEY DISK	MNDT

Description: (2009) Stamping: BIRD 1999

1.9 MILES NORTHWEST OF RUSTAD, 2.0 MILES NORTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND COUNTY ROAD 8 (THE JUNCTION IS 0.5 MILE SOUTHWEST OF RUSTAD), AT TRUNK HIGHWAY 75 MILEPOINT 242.35, 12.0 FEET SOUTHWEST OF A RIGHT-OF-WAY POST, 30.0 FEET SOUTHEAST OF THE SOUTHEAST CORNER OF THE HEADWALL OF A BOX CULVERT, 64.0 FEET EAST OF TRUNK HIGHWAY 75, 17.0 FEET NORTH OF A FIELD ENTRANCE, 100.0 FEET SOUTH OF 90TH AVENUE SOUTH, 5.0 FEET SOUTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
908.788	.016	2/1				VERTICAL ADJUSTMENT	2024	00000941-3		
908.788	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA		
908.817	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941		
909.060	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699		
909.057	.016	2/1				VERTICAL CONTROL SURVEY	2010	VCOMS		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
908.788			821.898	.022	2011	HORIZONTAL ADJUSTMENT	2024	GPS3715		
908.788			821.898	.022	2011	GPS - STATIC	2024	HMOFA2		
908.788	.131		821.990	.066	1996	GPS - STATIC	2024	HMOFA2		
908.978	.262		821.845	.197	2011	GPS - RTRN	2022	RTRN2022		
			821.891	.008	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800		
909.053	.131		821.888	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2690		
909.053	.131		821.970	.066	1996	GPS - STATIC	2010	HCOMS		
909.053	.131		821.888	.066	2007	GPS - STATIC	2010	HCOMS		
909.001	.262		822.049	.197	1996	GPS - RTRN	2009	RTRN2009		

Geoid Separations(ft): GEOID18 = -87.132 12B = -87.123 09 = -87.063 03 = -86.949

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 45 35.59278	96 46 04.79048	482978.844	147385.543	.013		ADJUSTMENT	2024	GPS3715
46 45 35.59278	96 46 04.79048	482978.844	147385.543	.013	C	GPS - STATIC	2024	HMOFA2
46 45 35.59221	96 46 04.79127	482978.790	147385.485	.131	3	GPS - RTRN	2022	RTRN2022
46 45 35.59198	96 46 04.79085	482978.819	147385.462	.007		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 45 35.59240	96 46 04.79204	482978.736	147385.504	.033	C	ADJUSTMENT	2011	GPS2690
46 45 35.59240	96 46 04.79204	482978.736	147385.504	.033	C	GPS - STATIC	2010	HCOMS

<u>NAD83(1996)</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 45 35.59273	96 46 04.79134	482978.785	147385.538	.033	C	GPS - STATIC	2024	HMOFA2
46 45 35.59200	96 46 04.79199	482978.739	147385.464	.033	C	GPS - STATIC	2010	HCOMS
46 45 35.59216	96 46 04.79443	482978.569	147385.480	.131	3	GPS - RTRN	2009	RTRN2009



**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1993687.110	979871.465	696414.539	17012364.295	.013		ADJUSTMENT	2024	GPS3715
1993687.110	979871.465	696414.539	17012364.295	.013	C	GPS - STATIC	2024	HMOFA2
1993687.053	979871.409	696414.482	17012364.240	.131	3	GPS - RTRN	2022	RTRN2022
1993687.081	979871.385	696414.510	17012364.215	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1993687.000	979871.430	696414.429	17012364.261	.033	C	ADJUSTMENT	2011	GPS2690
1993687.000	979871.430	696414.429	17012364.261	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1993687.050	979871.462	696414.479	17012364.292	.033	C	GPS - STATIC	2024	HMOFA2
1993687.002	979871.389	696414.430	17012364.221	.033	C	GPS - STATIC	2010	HCOMS
1993686.833	979871.411	696414.261	17012364.245	.131	3	GPS - RTRN	2009	RTRN2009

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BIRD-DM1826-3E-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BIRD-DM1826-3E-15JUN2022.jpg</a>	E	Jun 15, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BIRD-DM1826-2-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BIRD-DM1826-2-15JUN2022.jpg</a>		Jun 15, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BIRD-DM1826-1-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BIRD-DM1826-1-15JUN2022.jpg</a>		Jun 15, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: BONNIE

NGS Name: BONNIE

County: CLAY, MN (Sheet 1)

NGS ACRN: [DR9633](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	9	139 N	48 W	465229.36	964506.17	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2022	2023	GOOD	Horz=YES Vert=YES	NO		RECESSED 1 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 69 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2022)                      Stamping: BONNIE 2022

IN DILWORTH, 0.35 MILE WEST ALONG TRUNK HIGHWAY 10 FROM THE EAST JUNCTION OF TRUNK HIGHWAY 10 AND TRUNK HIGHWAY 75 IN DILWORTH, AT TRUNK HIGHWAY 10 MILEPOINT 1.1, 26.7 FEET SOUTH OF EASTBOUND TRUNK HIGHWAY 10/TRUNK HIGHWAY 75, 8.1 FEET SOUTHWEST OF A LIGHT POLE, 14.0 FEET NORTHWEST OF A POWER POLE WITH GUY WIRE, 1.5 FEET NORTH OF A WITNESS POST.

Station Pair: 1401 AK - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
902.643	.016	2/1				2024	00000941-3					
902.639	.016	2/1				2023	VMOFA					

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
902.639			815.901	.023	2011	2024	GPS3674					
902.639			815.901	.023	2011	2023	HMOFA3					
902.639	.131		815.996	.066	1996	2023	HMOFA3					
902.859	.262		815.868	.197	2011	2022	RTRN2022					

Geoid Separations(ft): GEOID18 = -86.991 03 = -86.808

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 52 29.36448	96 45 06.16721	487088.146	189304.156	.010		ADJUSTMENT	2024	GPS3674
46 52 29.36448	96 45 06.16721	487088.146	189304.156	.010	C	GPS - STATIC	2023	HMOFA3
46 52 29.36416	96 45 06.16744	487088.130	189304.124	.131	3	GPS - RTRN	2022	RTRN2022

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 52 29.36437	96 45 06.16804	487088.088	189304.145	.033	C	GPS - STATIC	2023	HMOFA3

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>				
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1999090.159	1021639.294	702497.217	17054066.390	.010		ADJUSTMENT	2024	GPS3674		
1999090.159	1021639.294	702497.217	17054066.390	.010	C	GPS - STATIC	2023	HMOFA3		
1999090.142	1021639.262	702497.200	17054066.359	.131	3	GPS - RTRN	2022	RTRN2022		

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1999090.101	1021639.285	702497.159	17054066.382	.033	C	GPS - STATIC	2023	HMOFA3



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BONNIE-DR9633-3S-26JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BONNIE-DR9633-3S-26JUL2022.jpg</a>	S	Jul 26, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BONNIE-DR9633-2-26JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BONNIE-DR9633-2-26JUL2022.jpg</a>		Jul 26, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BONNIE-DR9633-1-26JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BONNIE-DR9633-1-26JUL2022.jpg</a>		Jul 26, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: BR 14531 NE  
County: CLAY, MN (Sheet 1)

NGS Name: BR 14531 NE

NGS ACRN: [DM7600](#) [Get Map](#)  
NGS Quad / Sta Num : 46096414/  
USGS Quad: DILWORTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	10	139 N	48 W	465231.10	964331.90	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1997	2009	GOOD	Horz=YES Vert=YES	YES	14531	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE RAILING	SURVEY DISK	MNDT

**Description:** (2009)                      **Stamping:** BR 14531 NE 1997

IN MOORHEAD, IN THE CONCRETE RAILING AT THE NORTHEAST CORNER OF A 34TH STREET BRIDGE OVER A RAILROAD, 1.2 MILES WEST ALONG CENTER AVENUE EAST FROM THE JUNCTION OF CENTER AVENUE EAST AND 2ND STREET SOUTHEAST IN DILWORTH, THEN 0.5 MILE SOUTH ALONG 34TH STREET SOUTH, THEN 0.4 MILE NORTH ALONG 34TH STREET SOUTH, 0.1 MILE SOUTH OF TRUNK HIGHWAY 10, AT MILEPOINT 2.35 (IN DILWORTH), ALONG 34TH STREET, 16.0 FEET NORTH OF AN EXPANSION JOINT, 1.0 FOOT EAST OF A PILLAR, 18.0 FEET EAST OF 34TH STREET.

**Station Notes**

CONSTRUCTION ELEVATION 923.74 FEET MEASURED FROM A CHISELED SQUARE ON THE SOUTHWEST CORNER OF A RAILROAD LIGHT TOWER BY SRF CONSULTING GROUP.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
923.735	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941	
924.024	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699	
924.017	.016	2/1				VERTICAL CONTROL SURVEY	2010	VCOMS	

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
923.738	.033	3				LEVELING	1998	CS1400	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
923.896	.262		837.019	.197	1996	GPS - RTRN	2009	RTRN2009	

Geoid Separations(ft): GEOID18 = -87.063    12B = -87.057    09 = -86.929    03 = -86.880

**Lat/Lon and County Coordinates (Feet)**

**NAD83(1996)**

<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
46 52 31.13297	96 43 31.89320	493638.168	189480.113	.131	3	GPS - RTRN	2009	RTRN2009

**State Plane and UTM Coordinates (Feet)**

**NAD83(1996)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
2005641.972	1021612.621	709051.868	17053933.263	.131	3	GPS - RTRN	2009	RTRN2009

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BR_14531_NE-DM7600-3E-17SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BR_14531_NE-DM7600-3E-17SEP2009.jpg</a>	E	Sep 17, 2009
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BR_14531_NE-DM7600-2-17SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BR_14531_NE-DM7600-2-17SEP2009.jpg</a>		Sep 17, 2009
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BR_14531_NE-DM7600-1-17SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BR_14531_NE-DM7600-1-17SEP2009.jpg</a>		Sep 17, 2009

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: BR 14531 SE  
County: CLAY, MN (Sheet 1)

NGS Name: BR 14531 SE

NGS ACRN: [DM7601](#) [Get Map](#)  
NGS Quad / Sta Num : 46096413/  
USGS Quad: SABIN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	10	139 N	48 W	465220.60	964332.50	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1997	2009	GOOD	Horz=YES Vert=YES	YES	14531	FLUSH	NO MAG MATERIAL

Monument Type	Disk Type	Mon. Agency
BRIDGE RAILING	SURVEY DISK	MNDT

Description: (2009)                      Stamping: BR 14531 SE 1997

IN MOORHEAD, IN A RAIL IN THE SOUTHEAST CORNER OF A 34TH STREET BRIDGE OVER A RAILROAD, 1.2 MILES WEST ALONG CENTER AVENUE EAST FROM THE JUNCTION OF CENTER AVENUE EAST AND 2ND STREET SOUTHEAST IN DILWORTH, THEN 0.5 MILE SOUTH ALONG 34TH STREET SOUTH, THEN 0.2 MILE NORTH ALONG 34TH STREET SOUTH AT 4TH AVENUE SOUTH, 0.3 MILE SOUTH OF TRUNK HIGHWAY 10 AT MILEPOINT 2.35 (IN DILWORTH) ALONG 34TH STREET, 4.0 FEET SOUTH OF THE SOUTH EDGE OF A PILLAR, 23.0 FEET SOUTH OF A LIGHT POLE, 20.0 FEET SOUTH OF A BRIDGE PLATE, 17.5 FEET EAST OF 34TH STREET.

**Station Notes**

CONSTRUCTION ELEVATION (923.44 FEET) MEASURED FROM A CHISELED SQUARE ON THE SOUTHWEST CORNER OF A RAILROAD LIGHT TOWER BY SRF CONSULTING GROUP.

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
923.479	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941
923.761	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699
923.755	.016	2/1				VERTICAL CONTROL SURVEY	2010	VCOMS

  

NGVD29				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
923.440	.033	3				LEVELING	1998	CS1400

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
923.584	.262		836.695	.197	1996	GPS - RTRN	2009	RTRN2009

Geoid Separations(ft): GEOID18 = -87.077    12B = -87.070    09 = -86.945    03 = -86.890

**Lat/Lon and County Coordinates (Feet)**

NAD83(1996)			Clay County				Project Info		
Geodetic Position			X	Y	Acc	Order	Determination Method	Year	Reference
Latitude	Longitude								
46 52 20.78992	96 43 32.53376		493593.320	188432.200	.131	3	GPS - RTRN	2009	RTRN2009

**State Plane and UTM Coordinates (Feet)**

NAD83(1996)			UTM - Zone 15				Project Info		
MN State Plane - Central Zone			X	Y	Acc	Order	Determination Method	Year	Reference
X	Y								
2005564.746	1020566.679		708957.614	17052888.060	.131	3	GPS - RTRN	2009	RTRN2009

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BR_14531_SE-DM7601-3E-17SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BR_14531_SE-DM7601-3E-17SEP2009.jpg</a>	E	Sep 17, 2009
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BR_14531_SE-DM7601-2-17SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BR_14531_SE-DM7601-2-17SEP2009.jpg</a>		Sep 17, 2009
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BR_14531_SE-DM7601-1-17SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BR_14531_SE-DM7601-1-17SEP2009.jpg</a>		Sep 17, 2009

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: BR 14800  
 County: CLAY, MN (Sheet 1)

NGS Name: BR 14800

NGS ACRN: <a href="#">DQ2030</a>	<a href="#">Get Map</a>
NGS Quad / Sta Num : 46096144/	
USGS Quad: HAWLEY NW	

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	4	139 N	46 W	465237.10	962937.20	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2013	2015	GOOD	Horz=YES Vert=YES	YES	14800	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE ABUTMENT	SURVEY DISK	MNDT

**Description:** (2013)                      **Stamping:** BR 14800 2014

3.5 MILES EAST OF GLYNDON, IN AN ABUTMENT IN THE SOUTHEAST CORNER OF TRUNK HIGHWAY 10 EASTBOUND BRIDGE NUMBER 14800 OVER THE NORTH FORK OF THE BUFFALO RIVER, 0.5 MILE EAST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY AND TRUNK HIGHWAY 9 (THE JUNCTION IS 3.5 MILES EAST OF GLYNDON), AT TRUNK HIGHWAY 10 MILEPOINT 13.4, 26.2 FEET SOUTH OF TRUNK HIGHWAY 10 EASTBOUND.

**Station Notes**

THE DISK WAS SET IN THE BRIDGE WHEN BUILT IN 2013, THEN STAMPED WHEN FIRST USED IN 2014.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
952.957	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
953.121	.262			865.399	.197	2011	GPS - RTRN	2015	RTRN2015	

Geoid Separations(ft): GEOID18 = -87.713    12B = -87.723    09 = -87.579    03 = -87.516

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 52 37.09847	96 29 37.19500	551629.150	190151.305	.131	3	GPS - RTRN	2015	RTRN2015	

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
2063621.346	1020489.469	767038.061	17051868.742	.131	3	GPS - RTRN	2015	RTRN2015	

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BR_14800-DQ2030-3W-18NOV2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BR_14800-DQ2030-3W-18NOV2014.jpg</a>	W	Nov 18, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BR_14800-DQ2030-2-18NOV2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BR_14800-DQ2030-2-18NOV2014.jpg</a>		Nov 18, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BR_14800-DQ2030-1-18NOV2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BR_14800-DQ2030-1-18NOV2014.jpg</a>		Nov 18, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: BR 6502

NGS Name: BR 6502

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 47096232/  
 USGS Quad: ULEN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	27	142 N	44 W	470510.00	961527.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1949	2004	DESTROYED	Horz=NO Vert=NO	NO	6502		SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE ABUTMENT	SURVEY DISK	MNDT

**Description:** (1953)                      **Stamping:**

IN THE NORTH EDGE OF ULEN, IN THE SOUTHEAST CORNER OF A TRUNK HIGHWAY 32 BRIDGE NUMBER 6502 OVER THE WILD RICE RIVER, 0.5 MILE NORTH ALONG TRUNK HIGHWAY 32 NORTH (1ST STREET NORTHWEST) FROM THE JUNCTION OF TRUNK HIGHWAY 32 NORTH (1ST STREET NORTHWEST) AND COUNTY HIGHWAY 34 (160TH AVENUE NORTH) IN ULEN.

**Station Notes**

THE MARK IS A BRASS PLUG.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1133.610	.033	3					VERTICAL CONTROL SURVEY	1953	CS1403	

Geoid Separations(ft): GEOID18 = -87.556    12B = -87.559    09 = -87.441    03 = -87.434

\* No Horizontal Positions in the Database \*



Mn/DOT Name: BROOKDALE

NGS Name: BROOKDALE

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM7595](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	20	139 N	48 W	465039.16	964639.19	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2009	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 40 FT)	METAL ROD	MN4880

**Description:** (2009)                      **Stamping:** BROOKDALE 2009

IN MOORHEAD, 0.27 MILE SOUTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND INTERSTATE HIGHWAY 94 IN MOORHEAD, THEN 0.16 MILE WEST ALONG SOUTH 30TH AVENUE, THEN 0.29 MILE WEST ALONG VALLEY AVENUE SOUTH, 93.0 FEET WEST-NORTHWEST OF A FIRE HYDRANT, 54.5 FEET NORTH-NORTHEAST OF RIVER SHORE DRIVE SOUTH, 59.6 FEET SOUTH OF VALLEY AVENUE, 30.0 FEET SOUTH OF A FLOWERING CRAB TREE, 31.0 FEET NORTH-NORTHEAST OF A 4.0 INCH DIAMETER ASH TREE.

**Station Notes**

IN A GRASS ISLAND AT THE JUNCTION OF RIVERSHORE DRIVE SOUTH AND VALLEY AVENUE.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
901.438	.016	2/1				VERTICAL ADJUSTMENT	2024	0000941-3	
901.438	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA	
901.438	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941	
901.675	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699	
901.671	.016	2/1				VERTICAL CONTROL SURVEY	2010	VCOMS	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
901.438			814.644	.030	2011	HORIZONTAL ADJUSTMENT	2024	GPS3715	
901.438			814.644	.030	2011	GPS - STATIC	2024	HMOFA2	
901.438	.131		814.756	.066	1996	GPS - STATIC	2024	HMOFA2	
901.724	.262		814.680	.197	2011	GPS - RTRN	2022	RTRN2022	

Geoid Separations(ft): GEOID18 = -87.044    12B = -87.050    09 = -86.936    03 = -86.840

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 50 39.15818	96 46 39.19250	480613.913	178143.727	.016		ADJUSTMENT	2024	GPS3715	
46 50 39.15818	96 46 39.19250	480613.913	178143.727	.016	C	GPS - STATIC	2024	HMOFA2	
46 50 39.15836	96 46 39.19249	480613.914	178143.745	.131	3	GPS - RTRN	2022	RTRN2022	

**NAD83(1996)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 50 39.15804	96 46 39.19322	480613.863	178143.713	.033	C	GPS - STATIC	2024	HMOFA2	

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
1992274.493	1010685.282	695500.164	17043217.392	.016		ADJUSTMENT	2024	GPS3715	
1992274.493	1010685.282	695500.164	17043217.392	.016	C	GPS - STATIC	2024	HMOFA2	
1992274.494	1010685.300	695500.165	17043217.410	.131	3	GPS - RTRN	2022	RTRN2022	

**NAD83(1996)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
1992274.442	1010685.270	695500.113	17043217.380	.033	C	GPS - STATIC	2024	HMOFA2	



**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BROOKDALE-DM7595-3N-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BROOKDALE-DM7595-3N-15JUN2022.jpg</a>	N	Jun 15, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BROOKDALE-DM7595-2-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BROOKDALE-DM7595-2-15JUN2022.jpg</a>		Jun 15, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BROOKDALE-DM7595-1-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BROOKDALE-DM7595-1-15JUN2022.jpg</a>		Jun 15, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: BROWN

NGS Name: BROWN

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ2034](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SE	2	139 N	47 W	465238.69	963436.27	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 59 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014) Stamping: BROWN 2014

0.15 MILE EAST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 19 AND COUNTY ROAD 117 IN GLYNDON, AT TRUNK HIGHWAY 10 MILEPOINT 9.40, 27.1 FEET NORTH OF WESTBOUND TRUNK HIGHWAY 10, 130.5 FEET EAST OF EGLON AVENUE SOUTH EXTENDED, 84.5 FEET SOUTHEAST OF A FIRE HYDRANT, 10.0 FEET SOUTH OF A WITNESS POST.

Station Pair: SHARP - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
922.738	.016	2/1				2024	00000941-3					
922.738	.016	2/1				2023	VMOFA					
922.738	.016	2/1				2019	00000941					

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
922.738			835.481	.025	2011	2024	GPS3719					
922.738	.131		835.602	.066	1996	2024	HMOFA1					
922.738			835.481	.025	2011	2024	HMOFA1					
923.003	.262		835.513	.197	2011	2022	RTRN2022					
922.925	.262		835.431	.197	2011	2014	RTRN2014					

Geoid Separations(ft): GEOID18 = -87.490 12B = -87.493 09 = -87.349 03 = -87.310

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>
46 52 38.69075	96 34 36.27080	530850.562	190269.010	.013		ADJUSTMENT	2024
46 52 38.69075	96 34 36.27080	530850.562	190269.010	.013	C	GPS - STATIC	2024
46 52 38.69107	96 34 36.27123	530850.532	190269.042	.131	3	GPS - RTRN	2022
46 52 38.69031	96 34 36.27028	530850.598	190268.965	.131	3	GPS - RTRN	2014

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>
46 52 38.69052	96 34 36.27127	530850.530	190268.987	.033	C	GPS - STATIC	2024

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>
2042858.024	1021250.075	746278.900	17052966.384	.013		ADJUSTMENT	2024
2042858.024	1021250.075	746278.900	17052966.384	.013	C	GPS - STATIC	2024
2042857.995	1021250.108	746278.872	17052966.418	.131	3	GPS - RTRN	2022
2042858.059	1021250.029	746278.934	17052966.338	.131	3	GPS - RTRN	2014

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>
2042857.991	1021250.053	746278.866	17052966.362	.033	C	GPS - STATIC	2024



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BROWN-DQ2034-3N-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BROWN-DQ2034-3N-05JUL2022.jpg</a>	N	Jul 5, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BROWN-DQ2034-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BROWN-DQ2034-2-05JUL2022.jpg</a>		Jul 5, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BROWN-DQ2034-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BROWN-DQ2034-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: BUFF

NGS Name: BUFF

County: CLAY, MN (Sheet 1)

NGS ACRN: [SL1532](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096332/1011  
 USGS Quad: GEORGETOWN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	8	141 N	48 W	470207.33	964633.44	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	2022	GOOD	Horz=NO Vert=YES	YES		RECESSED 1 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	NGS

**Description:** (2009)                      **Stamping:** BUFF 1954

3.5 MILES SOUTH OF GEORGETOWN, 3.2 MILES SOUTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND COUNTY ROAD 34 IN GEORGETOWN, AT TRUNK HIGHWAY 75 MILEPOINT 262.75, 200.0 FEET WEST OF TRUNK HIGHWAY 75, 139.0 FEET WEST-SOUTHWEST OF THE WEST RAIL OF A RAILROAD, 90.0 FEET NORTHWEST OF A CROSSROAD, 53.0 FEET NORTH OF 130TH AVENUE NORTH, 2.0 FEET NORTH OF A POWER POLE, 7.2 FEET SOUTH OF A WITNESS POST.

**Station Notes**

DUE TO THE PROXIMITY TO A POWER POLE, THIS SURVEY MARK HAS BEEN ABANDONED FOR MNDOT GEODETIC HORIZONTAL SURVEYS.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
884.880	.016	2/1				VERTICAL ADJUSTMENT	2024	0000941-3
884.913	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA
884.900	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941
885.182	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699
885.182	.016	2/1				VERTICAL CONTROL SURVEY	2011	VFMA
885.215	.016	2/1				VERTICAL ADJUSTMENT	2004	00000425-2
885.254	.016	2/1				VERTICAL CONTROL SURVEY	2002	V1407

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
885.106	.262		798.768	.197	2011	GPS - RTRN	2022	RTRN2022
884.939	.262		798.716	.197	2007	GPS - RTRN	2012	RTRN2012
			798.863	.021	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
885.202	.131		798.922	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2690
885.202	.131		798.994	.066	1996	GPS - STATIC	2010	HCOMS
885.202	.131		798.922	.066	2007	GPS - STATIC	2010	HCOMS
885.002	.262		798.794	.197	1996	GPS - RTRN	2009	RTRN2009
			799.159	.093	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
885.202	.131		799.408	.066	1996	HORIZONTAL ADJUSTMENT	1999	17648
885.195	.131		799.195	.066	1996	GPS - STATIC	1997	GPS805-C

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
885.792						RECIPROCAL VERTICAL ANGLE	1954	HORZ

Geoid Separations(ft): GEOID18 = -86.342    12B = -86.335    09 = -86.224    03 = -86.207



**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County					Project Info	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 02 07.33283	96 46 33.43887	481081.424	247867.979	.131	3	GPS - RTRN	2022	RTRN2022
47 02 07.33324	96 46 33.43773	481081.503	247868.021	.010		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

Geodetic Position		Clay County					Project Info	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 02 07.33276	96 46 33.43807	481081.480	247867.972	.131	3	GPS - RTRN	2012	RTRN2012
47 02 07.33328	96 46 33.43864	481081.440	247868.025	.033	C	ADJUSTMENT	2011	GPS2690
47 02 07.33328	96 46 33.43864	481081.440	247868.025	.033	C	GPS - STATIC	2010	HCOMS
47 02 07.33411	96 46 33.43880	481081.429	247868.109	.059		ADJUSTMENT	2007	GPS2300

**NAD83(1996)**

Geodetic Position		Clay County					Project Info	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 02 07.33282	96 46 33.43863	481081.441	247867.978	.033	C	GPS - STATIC	2010	HCOMS
47 02 07.33348	96 46 33.43836	481081.460	247868.045	.131	3	GPS - RTRN	2009	RTRN2009
47 02 07.33368	96 46 33.43877	481081.432	247868.065	.033	C	ADJUSTMENT	1999	17648
47 02 07.33368	96 46 33.43877	481081.432	247868.065	.033	C	GPS - STATIC	1997	GPS805-C

**NAD83(1986)**

Geodetic Position		Clay County					Project Info	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 02 07.33483	96 46 33.43177	481081.916	247868.181	.066	2	ADJUSTMENT	1986	17289

**NAD27**

Geodetic Position							Project Info	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 02 07.46800	96 46 32.15000			.100	2	CLASSICAL SURVEY	1956	11230

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1994897.328	1080357.044	699260.122	17112881.549	.131	3	GPS - RTRN	2022	RTRN2022
1994897.408	1080357.083	699260.203	17112881.587	.010		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1994897.383	1080357.035	699260.177	17112881.540	.131	3	GPS - RTRN	2012	RTRN2012
1994897.345	1080357.089	699260.140	17112881.594	.033	C	ADJUSTMENT	2011	GPS2690
1994897.345	1080357.089	699260.140	17112881.594	.033	C	GPS - STATIC	2010	HCOMS
1994897.337	1080357.174	699260.133	17112881.679	.059		ADJUSTMENT	2007	GPS2300

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1994897.345	1080357.043	699260.139	17112881.547	.033	C	GPS - STATIC	2010	HCOMS
1994897.365	1080357.109	699260.161	17112881.613	.131	3	GPS - RTRN	2009	RTRN2009
1994897.338	1080357.130	699260.133	17112881.635	.033	C	ADJUSTMENT	1999	17648
1994897.338	1080357.130	699260.133	17112881.635	.033	C	GPS - STATIC	1997	GPS805-C

**NAD83(1986)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1994897.826	1080357.231	699260.623	17112881.728	.066	2	ADJUSTMENT	1986	17289

**NAD27**

MN State Plane - Central Zone							Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1370300.908	752280.387			.100	2	CLASSICAL SURVEY	1956	11230



**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BUFF-SL1532-3N-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BUFF-SL1532-3N-28JUN2022.jpg</a>	N	Jun 28, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BUFF-SL1532-2-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BUFF-SL1532-2-28JUN2022.jpg</a>		Jun 28, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BUFF-SL1532-1-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/BUFF-SL1532-1-28JUN2022.jpg</a>		Jun 28, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: BUFF AZ MK

NGS Name: BUFF AZ MK

County: CLAY, MN (Sheet 1)

NGS ACRN: [CO9990](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096332/  
 USGS Quad: GEORGETOWN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	8	141 N	48 W	470153.00	964624.90		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	2012	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	STEEL ROD IMBED IN MON

Monument Type  
 UNKNOWN

Disk Type  
 AZIMUTH MARK DISK

Mon. Agency  
 MNDT

Description: (2007)

Stamping: BUFF 1954

3.5 MILES SOUTH-SOUTHEAST OF GEORGETOWN, 3.5 MILES SOUTH-SOUTHEAST ALONG TRUNK HIGHWAY 75 SOUTH FROM THE JUNCTION OF TRUNK HIGHWAY 75 SOUTH AND 160TH AVENUE NORTHWEST IN GEORGETOWN, 0.3 MILE SOUTH OF STATION BUFF, 166.0 FEET WEST OF TRUNK HIGHWAY 75, 46.0 FEET EAST OF A PAVED ROAD, 39.0 FEET WEST OF THE WEST RAIL OF A RAILROAD TRACK, 2.0 FEET NORTH OF A TELEPHONE POLE, 2.0 FEET NORTHEAST OF A WHITE POST.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -86.348 12B = -86.345 09 = -86.227 03 = -86.214



Mn/DOT Name: BUFF RM 1

NGS Name: BUFF RM 1

County: CLAY, MN (Sheet 1)

NGS ACRN: [CO9991](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096332/  
 USGS Quad: GEORGETOWN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	8	141 N	48 W	470208.20	964633.83		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	MNDT

Description: Stamping: BUFF NO 1 1954

3.5 MILES SOUTH OF GEORGETOWN, 3.5 MILES SOUTH-SOUTHEAST ALONG TRUNK HIGHWAY 75 SOUTH FROM THE JUNCTION OF TRUNK HIGHWAY 75 SOUTH AND 160TH AVENUE NORTHWEST IN GEORGETOWN, THEN 279.0 FEET WEST ALONG 130TH AVENUE NORTHWEST, NORTH OF AND LEVEL WITH STATION BUFF, 28.0 FEET WEST OF A PAVED ROAD.

\* No Horizontal or Vertical Positions in the Database \*

**Geoid Separations(ft): GEOID18 = -86.342 12B = -86.335 09 = -86.224 03 = -86.207**



Mn/DOT Name: BUFF RM 2

NGS Name: BUFF RM 2

County: CLAY, MN (Sheet 1)

NGS ACRN: [CO9992](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096332/  
 USGS Quad: GEORGETOWN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	8	141 N	48 W	470207.68	964632.18		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	2012	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	MNDT

**Description:** (2011)                      **Stamping:** BUFF NO 2 1954

3.5 MILES SOUTH OF GEORGETOWN, 3.5 MILES SOUTH-SOUTHEAST ALONG TRUNK HIGHWAY 75 SOUTH FROM THE JUNCTION OF TRUNK HIGHWAY 75 SOUTH AND 160TH AVENUE NORTHWEST IN GEORGETOWN, THEN 279.0 FEET WEST ALONG 130TH AVENUE NORTHWEST, EAST OF AND LEVEL WITH STATION BUFF, 45.0 FEET EAST OF A PAVED ROAD, 43.0 FEET WEST OF THE WEST RAIL OF A RAILROAD TRACK.

\* No Horizontal or Vertical Positions in the Database \*

**Geoid Separations(ft):** GEOID18 = -86.342    12B = -86.335    09 = -86.224    03 = -86.207



Mn/DOT Name: C 376

NGS Name: C 376

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0736](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	33	141 N	46 W	465839.98	963005.22	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1982	2014	GOOD	Horz=NO Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STEEL ROD (IN SLEEVE) (DEPTH 88 FT)	METAL ROD	NGS

**Description:** (1982) **Stamping:** C 376 1982

7.0 MILES SOUTH OF FELTON, 7.2 MILES SOUTH ON TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 34 IN FELTON, AT TRUNK HIGHWAY 9 MILEPOINT 170.75, ON THE SOUTH SIDE OF A CHAIN LINK FENCE AROUND A NORTHERN STATES POWER SUB-STATION, 127.0 FEET WEST OF TRUNK HIGHWAY 9, 179.0 FEET NORTH OF COUNTY ROAD 26, 47.0 FEET WEST OF THE SOUTHEAST CORNER OF A FENCE, 19.0 FEET EAST OF THE SOUTHWEST CORNER OF A FENCE, 12.0 FEET WEST OF THE CENTER OF A GATE ON THE SOUTH SIDE OF A FENCE, 3.5 FEET SOUTH OF A FENCE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
930.599	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941
930.756	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
930.772	.262			843.473	.197	2011	GPS - RTRN	2014	RTRN2014

Geoid Separations(ft): GEOID18 = -87.283 12B = -87.296 09 = -87.159 03 = -87.129

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 58 39.97619	96 30 05.22485			549588.703	226912.322	.131	3	GPS - RTRN	2014	RTRN2014

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2062719.792	1057293.357			766734.197	17088700.668	.131	3	GPS - RTRN	2014	RTRN2014

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/C_376-RP0736-3N-28MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/C_376-RP0736-3N-28MAY2014.jpg</a>	N	May 28, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/C_376-RP0736-2-28MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/C_376-RP0736-2-28MAY2014.jpg</a>		May 28, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/C_376-RP0736-1-28MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/C_376-RP0736-1-28MAY2014.jpg</a>		May 28, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: C 377

NGS Name: C 377

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0731](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	32	140 N	46 W	465407.89	963020.10	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1982	2022	GOOD	Horz=NO Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STEEL ROD (NO SLEEVE) (DEPTH 24 FT)	METAL ROD	NGS

**Description:** (2000)                      **Stamping:** C 377 1982

3.9 MILES NORTHEAST OF GLYNDON, 1.75 MILES NORTH ON TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND TRUNK HIGHWAY 10 (THE JUNCTION IS 3.5 MILES EAST OF GLYNDON), AT TRUNK HIGHWAY 9 MILEPOINT 165.50, 71.6 FEET WEST OF TRUNK HIGHWAY 9, 48.0 FEET NORTH OF A PRIVATE DRIVE, 10.0 FEET NORTH OF A POWER POLE NUMBER 384, 9.0 FEET NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
937.554	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941
937.754	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
937.669	.262			850.031	.197	2011	GPS - RTRN	2022	RTRN2022
937.843	.262			850.202	.197	2011	GPS - RTRN	2014	RTRN2014

Geoid Separations(ft): GEOID18 = -87.641 12B = -87.638 09 = -87.503 03 = -87.464

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 54 07.89141	96 30 20.10239			548625.366	199342.593	.131	3	GPS - RTRN	2022	RTRN2022
46 54 07.89191	96 30 20.10117			548625.450	199342.644	.131	3	GPS - RTRN	2014	RTRN2014

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2060903.694	1029768.586			764469.918	17061195.408	.131	3	GPS - RTRN	2022	RTRN2022
2060903.780	1029768.635			764470.005	17061195.455	.131	3	GPS - RTRN	2014	RTRN2014

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/C_377-RP0731-3W-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/C_377-RP0731-3W-05JUL2022.jpg</a>	W	Jul 5, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/C_377-RP0731-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/C_377-RP0731-2-05JUL2022.jpg</a>		Jul 5, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/C_377-RP0731-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/C_377-RP0731-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: C 5

NGS Name: C 5

County: CLAY, MN (Sheet 1)

NGS ACRN: [SL0172](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096321/  
 USGS Quad: BORUP

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	4	142 N	46 W	470813.08	963025.84	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1905	2014	GOOD	Horz=YES Vert=YES	YES		PROJECTS 5 IN.	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
PIPE (CAPPED) DRIVEN IN GROUND (<10 FT)	BENCH MARK DISK	NGS

Description: (1905) Stamping: EL 908.420 FT

3.0 MILES SOUTH OF BORUP, 3.0 MILES SOUTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 39 IN BORUP, TO TRUNK HIGHWAY 9 MILEPOINT 181.75, THEN 0.3 MILE WEST ON 200TH AVENUE NORTH, 41.0 FEET NORTH OF 200TH AVENUE, 33.0 FEET EAST OF A FIELD ENTRANCE, 5.0 FEET EAST-NORTHEAST OF A CABLE BOX.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
909.244	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941		
909.312	.007	1				VERTICAL CONTROL SURVEY	1993	POSTED		

  

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
908.102	.007	1/2				UNKNOWN/APPROXIMATE	1992	UNCHECKD		
908.102	.007	1				VERTICAL CONTROL SURVEY	1941	Q470963		
908.102	.007	1				VERTICAL CONTROL SURVEY	1938	L45 MINN		

  

<u>GA1912</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
908.971	.007	1				VERTICAL ADJUSTMENT	1914	GA1912		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
909.404	.262		822.203	.197	2011	GPS - RTRN	2014	RTRN2014		

Geoid Separations(ft): GEOID18 = -87.198 12B = -87.201 09 = -87.103 03 = -87.073

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>			<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
47 08 13.08484	96 30 25.84136		548015.998	284976.289	.131	3	GPS - RTRN	2014	RTRN2014	

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>			<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
2062945.321	1115375.503		767909.090	17146798.589	.131	3	GPS - RTRN	2014	RTRN2014	

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/C_5-SL0172-3N-29MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/C_5-SL0172-3N-29MAY2014.jpg</a>	N	May 29, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/C_5-SL0172-2-29MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/C_5-SL0172-2-29MAY2014.jpg</a>		May 29, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/C_5-SL0172-1-29MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/C_5-SL0172-1-29MAY2014.jpg</a>		May 29, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: CASEY RESET

NGS Name: CASEY RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP4936](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SW	29	138 N	45 W	464403.09	962424.49		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2010	2010	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 33 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012)                      Stamping: CASEY 1999 2010

5.5 MILES NORTH OF BARNESVILLE, 0.5 MILE EAST ALONG TRUNK HIGHWAY 34 FROM THE JUNCTION OF TRUNK HIGHWAY 34 AND INTERSTATE HIGHWAY 94 (THE JUNCTION IS 1.0 MILE EAST OF BARNESVILLE) TO TRUNK HIGHWAY 34 MILEPOINT 1.75, THEN 1.0 MILE NORTH ON COUNTY ROAD 25, THEN 1.45 MILES WEST AND NORTH ON COUNTY ROAD 55 (200TH STREET SOUTH), THEN 3.6 MILES NORTH ON 190TH STREET SOUTH, 19.0 FEET WEST OF 190TH STREET SOUTH, 11.0 FEET SOUTH OF A FIELD ENTRANCE, 17.4 FEET EAST-NORTHEAST OF A WITNESS POST.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1074.214			986.898	.027	2011	HORIZONTAL ADJUSTMENT	2014	GPS2750
1074.214			986.898	.027	2011	GPS - STATIC	2014	HBARN
1074.210	.131		986.963	.066	2007	GPS - STATIC	2010	HBARN
1074.201	.131		987.016	.066	1996	GPS - STATIC	2010	HBARN

Geoid Separations(ft): GEOID18 = -87.333    12B = -87.306    09 = -87.218    03 = -87.165

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

<u>Geodetic Position</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 44 03.08662	96 24 24.48972	573548.672	138142.921	.016		ADJUSTMENT	2014	GPS2750
46 44 03.08662	96 24 24.48972	573548.672	138142.921	.016	C	GPS - STATIC	2014	HBARN

**NAD83(2007)**

<u>Geodetic Position</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 44 03.08675	96 24 24.49075	573548.600	138142.934	.033	C	GPS - STATIC	2010	HBARN

**NAD83(1996)**

<u>Geodetic Position</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 44 03.08634	96 24 24.49050	573548.618	138142.892	.033	C	GPS - STATIC	2010	HBARN

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>					<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2083918.700	967832.491	786492.183	16998864.627	.016		ADJUSTMENT	2014	GPS2750
2083918.700	967832.491	786492.183	16998864.627	.016	C	GPS - STATIC	2014	HBARN

**NAD83(2007)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>					<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2083918.629	967832.506	786492.111	16998864.644	.033	C	GPS - STATIC	2010	HBARN

**NAD83(1996)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>					<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2083918.645	967832.464	786492.127	16998864.601	.033	C	GPS - STATIC	2010	HBARN



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CASEY_RESET-DP4936-3W-30JUN2010.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CASEY_RESET-DP4936-3W-30JUN2010.jpg</a>	W	Jun 30, 2010
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CASEY_RESET-DP4936-2-30JUN2010.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CASEY_RESET-DP4936-2-30JUN2010.jpg</a>		Jun 30, 2010
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CASEY_RESET-DP4936-1-30JUN2010.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CASEY_RESET-DP4936-1-30JUN2010.jpg</a>		Jun 30, 2010

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: CHISELED SQUARE 1

NGS Name: CHISELED SQUARE 1

County: CLAY, MN (Sheet 1)

NGS ACRN: [SL0164](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/  
 USGS Quad: FELTON

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	9	141 N	46 W	470239.00	963104.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1938	1982	NOT FOUND	Horz=NO Vert=NO	YES			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE FOOTING - SMALL	CHISELED SQUARE	NGS

**Description:** (1982)

**Stamping:**

2.2 MILES SOUTH FROM FELTON, 0.3 MILE EAST ALONG 4TH STREET FROM THE JUNCTION OF 4TH STREET AND ATLANTIC AVENUE IN FELTON, THEN 1.6 MILES SOUTH ALONG TRUNK HIGHWAY 9 SOUTH (140TH STREET NORTH), THEN 0.8 MILE WEST ALONG COUNTY ROAD 108 (140TH AVENUE NORTH), 2.2 MILES SOUTH ALONG THE GREAT NORTHERN RAILWAY FROM THE STATION AT FELTON, CLAY COUNTY, 0.5 MILE SOUTH OF MILEPOST 31, 10.0 FEET NORTH OF A ROAD CROSSING, 10.0 FEET EAST OF THE EAST RAIL, ON THE TOP OF STEEL CULVERT 36-1. WITHIN THE RAILROAD RIGHT-OF-WAY.

**Station Notes**

THE SET DATE IS UNKNOWN. THE MARK IS A 1.0 INCH CHISELED SQUARE.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
915.251	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025	

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
914.034	.007	1/2				UNKNOWN/APPROXIMATE	1992	UNCHECKD	

Geoid Separations(ft): GEOID18 = -87.060 12B = -87.067 09 = -86.939 03 = -86.922

\* No Horizontal Positions in the Database \*

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CHISELED_SQUARE_1-SL0164-3S-16NOV2004.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CHISELED_SQUARE_1-SL0164-3S-16NOV2004.jpg</a>	S	Nov 16, 2004
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CHISELED_SQUARE_1-SL0164-2-16NOV2004.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CHISELED_SQUARE_1-SL0164-2-16NOV2004.jpg</a>		Nov 16, 2004
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CHISELED_SQUARE_1-SL0164-1-16NOV2004.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CHISELED_SQUARE_1-SL0164-1-16NOV2004.jpg</a>		Nov 16, 2004

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: CHISELED SQUARE 2

NGS Name: CHISELED SQUARE 2

County: CLAY, MN (Sheet 1)

NGS ACRN: [SL0165](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/  
 USGS Quad: FELTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	4	141 N	46 W	470323.00	963046.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1938	1982	NOT FOUND	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE FOOTING - SMALL	CHISELED SQUARE	NGS

Description: (1938)

Stamping:

1.3 MILES SOUTH FROM FELTON, 0.2 MILE NORTH ALONG ATLANTIC AVENUE FROM THE JUNCTION OF ATLANTIC AVENUE AND 4TH STREET IN FELTON, THEN 0.7 MILE WEST ALONG 160TH AVENUE NORTH/7TH STREET, THEN 1.6 MILES SOUTH ALONG 130TH STREET NORTH, 1.3 MILES SOUTH ALONG THE GREAT NORTHERN RAILWAY FROM THE STATION AT FELTON, CLAY COUNTY, 0.4 MILE NORTH OF MILEPOST 31, 10.0 FEET SOUTH OF A ROAD CROSSING, 15.0 FEET EAST OF THE EAST RAIL, ON THE TOP OF CONCRETE CULVERT 38.1. WITHIN THE RAILROAD RIGHT-OF-WAY.

Station Notes

THE SET DATE IS UNKNOWN. THE MARK IS A 1.0 INCH CHISELED SQUARE.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
914.303	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
913.079	.007	1/2				UNKNOWN/APPROXIMATE	1992	UNCHECKD

Geoid Separations(ft): GEOID18 = -87.063 12B = -87.073 09 = -86.945 03 = -86.929

\* No Horizontal Positions in the Database \*



Mn/DOT Name: CHURCH 2 MILES E OF STA EGLON

NGS Name: EGLON CHURCH 2 MI SOUTH

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0890](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096113/1014  
 USGS Quad: LAKE PARK SW

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SE	22	139 N	44 W	465004.05	961307.31		4

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1906	1906	GOOD	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BLANK	CHURCH SPIRE	NGS

Description: (1906)

Stamping:

6.9 MILES SOUTHWEST OF LAKE PARK, 0.6 MILE SOUTH ALONG 2ND STREET FROM THE JUNCTION OF 2ND STREET AND LAKE STREET IN LAKE PARK, THEN 1.8 MILES WEST ALONG TRUNK HIGHWAY 10 WEST, THEN 2.8 MILES SOUTH ALONG 247TH STREET, THEN 2.0 MILES WEST ALONG COUNTY ROAD 8, THEN 2.0 MILES WEST ALONG COUNTY ROAD 12 (40TH AVENUE SOUTH), THEN 161.0 FEET NORTH ALONG COUNTY ROAD 37 (280TH STREET SOUTH).

\* No Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.565 12B = -87.549 09 = -87.434 03 = -87.385

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 50 04.05135	96 13 07.31068	620496.482	174946.322	.328	4	ADJUSTMENT	1999	17648
46 50 04.05071	96 13 07.31048	620496.497	174946.258	.328	4	ADJUSTMENT	1998	17655

NAD83(1986)

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 50 04.05193	96 13 07.30338	620496.989	174946.384	.328	4	ADJUSTMENT	1986	17289

NAD27

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
46 50 04.19400	96 13 06.06400			.100	4	CLASSICAL SURVEY	1928	00155

USSD

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
46 50 04.40300	96 13 06.43600				3	CLASSICAL SURVEY		17389-73

State Plane and UTM Coordinates (Feet)

NAD83(1996)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2131978.624	1003160.885	835136.250	17033428.921	.328	4	ADJUSTMENT	1999	17648
2131978.636	1003160.820	835136.261	17033428.855	.328	4	ADJUSTMENT	1998	17655

NAD83(1986)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2131979.133	1003160.931	835136.760	17033428.959	.328	4	ADJUSTMENT	1986	17289

NAD27

<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1507383.835	675085.867			.100	4	CLASSICAL SURVEY	1928	00155



Mn/DOT Name: CHURCH SPIRE 3 MI NE STA KEENE

NGS Name: CHURCH SPIRE 3 MI NE STA KEENE

County: CLAY, MN (Sheet 1)

NGS ACRN: [SL1474](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096232/1009  
 USGS Quad: ULEN

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SE	10	141 N	45 W	470207.79	962152.41		4

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1906	1906	GOOD	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	CHURCH SPIRE	NGS

Description: (1906)

Stamping:

5.0 MILES SOUTHWEST OF ULEN, 3.0 MILES WEST ALONG 160TH AVENUE NORTH FROM THE JUNCTION OF 160TH AVENUE NORTH AND 1ST STREET NORTHWEST IN ULEN, THEN 2.0 MILES SOUTH ALONG 230TH STREET NORTH, THEN 2.0 MILES WEST ALONG COUNTY ROAD 112 (140TH AVENUE NORTH), THEN 1.0 MILE SOUTH ALONG COUNTY ROAD 112 (210TH STREET NORTH).

\* No Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.641 12B = -87.615 09 = -87.500 03 = -87.513

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 02 07.78994	96 21 52.41187	583672.606	248084.295	.328	4	ADJUSTMENT	1999	17648
47 02 07.78983	96 21 52.41073	583672.685	248084.284	.328	4	ADJUSTMENT	1998	17655

NAD83(1986)

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 02 07.78982	96 21 52.40535	583673.057	248084.284	.328	4	ADJUSTMENT	1986	17289

NAD27

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
47 02 07.92900	96 21 51.17600			.100	4	CLASSICAL SURVEY	1928	00155

USSD

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
47 02 08.14700	96 21 51.55300				3	CLASSICAL SURVEY		17389-73

State Plane and UTM Coordinates (Feet)

NAD83(1996)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2097440.874	1077398.563	801793.780	17108246.402	.328	4	ADJUSTMENT	1999	17648
2097440.952	1077398.550	801793.858	17108246.388	.328	4	ADJUSTMENT	1998	17655

NAD83(1986)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2097441.325	1077398.539	801794.231	17108246.371	.328	4	ADJUSTMENT	1986	17289

NAD27

<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1472843.900	749322.771			.100	4	CLASSICAL SURVEY	1928	00155



Mn/DOT Name: CHURCH SPIRE 8 MI NE OF FARGO

NGS Name: CHURCH SPIRE 8 MI NE OF FARGO

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP1070](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/1063  
 USGS Quad: DILWORTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	7	140 N	47 W	465745.75	963936.91		4

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1906	1906	GOOD	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BLANK	CHURCH SPIRE	NGS

Description: (1906)

Stamping:

5.4 MILES WEST-SOUTHWEST OF AVERILL, 0.4 MILE SOUTH ALONG 120TH STREET NORTH FROM THE JUNCTION OF 120TH STREET, THEN 5.3 MILES WEST ALONG COUNTY ROAD 93 (82ND AVENUE NORTH).

\* No Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -86.768 12B = -86.788 09 = -86.607 03 = -86.598

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 57 45.75032	96 39 36.90784	509948.164	221357.952	.328	4	ADJUSTMENT	1999	17648
46 57 45.75035	96 39 36.90809	509948.147	221357.955	.328	4	ADJUSTMENT	1998	17655

NAD83(1986)

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 57 45.74951	96 39 36.89784	509948.858	221357.870	.328	4	ADJUSTMENT	1986	17289

NAD27

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
46 57 45.88000	96 39 35.63000			.100	4	CLASSICAL SURVEY	1928	00155

USSD

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
46 57 46.10000	96 39 36.02000				3	CLASSICAL SURVEY		17389-73

State Plane and UTM Coordinates (Feet)

NAD83(1996)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2022928.869	1052968.532	726857.056	17085022.462	.328	4	ADJUSTMENT	1999	17648
2022928.851	1052968.535	726857.039	17085022.466	.328	4	ADJUSTMENT	1998	17655

NAD83(1986)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2022929.560	1052968.429	726857.745	17085022.347	.328	4	ADJUSTMENT	1986	17289

NAD27

<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1398332.664	724891.550			.100	4	CLASSICAL SURVEY	1928	00155



Mn/DOT Name: CHY DESERTED FRAME HOUSE

NGS Name: CHY DESERTED FRAME HOUSE

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP3530](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096233/  
 USGS Quad: ULEN SW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	20	141 N	45 W	470049.77	962517.34		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
	2010	UNKNOWN	Horz=? Vert=?	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	UNSPECIFIC DISK TYPE (SEE TEXT)	UNK

**Description:** 6.0 MILES SOUTHEAST OF FELTON, 0.3 MILE EAST ALONG 4TH STREET FROM THE JUNCTION OF 4TH STREET AND ATLANTIC AVENUE IN FELTON, THEN 1.8 MILES SOUTH ALONG TRUNK HIGHWAY 9 SOUTH (140TH STREET NORTH), THEN 2.9 MILES WEST EAST ALONG COUNTY ROAD 108 (140TH AVENUE NORTH), THEN 2.6 MILES SOUTH ALONG COUNTY ROAD 108 (180TH STREET NORTH).

**Stamping:**

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.424 12B = -87.447 09 = -87.333 03 = -87.287



Mn/DOT Name: CHY DESERTED LOG HOUSE

NGS Name: CHY DESERTED LOG HOUSE

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP3531](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096142/  
 USGS Quad: HAWLEY SE

	<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
<u>1/4</u>				
<u>Sec</u>				
<u>Twp</u>				
<u>Rng</u>				
NE	470047.30	962517.90		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
	1960	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	UNMONUMENTED	UNK

**Description:** **Stamping:**

THIS STATION HAS NO KNOWN LOCATION. USERS SHOULD NOT BOTHER TO ATTEMPT LOCATING OR RECOVERING THIS STATION. THE REFERENCE POSITION WAS INTENTIONALLY CHOSEN TO FALL IN AN OBVIOUSLY INCORRECT LOCATION. THE NATIONAL GEODETIC SURVEY CANNOT DELETE THIS RECORD FROM ITS DATABASE, SO IT MUST ALSO BE IN THE MINNESOTA DEPARTMENT OF TRANSPORTATION DATABASE FOR COMPLETENESS.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.424 12B = -87.451 09 = -87.333 03 = -87.287



Mn/DOT Name: CK PTA

NGS Name: CK PTA

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0406](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	35	139 N	47 W	464818.00	963506.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1968	1968	GOOD	Horz=YES Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE FOOTING - SMALL	SURVEY DISK	MNDT

Description: (1968)

Stamping:

4.0 MILES OF GLYNDON, 0.3 MILE NORTH ALONG PARKE AVENUE SOUTH FROM THE JUNCTION OF PARKE AVENUE SOUTH AND 4TH STREET SOUTHEAST IN GLYNDON, THEN 3.5 MILES EAST ALONG TRUNK HIGHWAY 10 (STATE STREET NORTHEAST), THEN 8.7 MILES SOUTH ALONG TRUNK HIGHWAY 9 SOUTH (140TH STREET SOUTH), THEN 1.7 MILES WEST ALONG 90TH AVENUE SOUTH, THEN 4.8 MILES NORTHWEST ALONG INTERSTATE HIGHWAY 94 WEST, NEAR A COUNTY ROAD 17 BRIDGE OVER INTERSTATE HIGHWAY 94, THE TOP OF A STEEL FENCE POST, 87.0 FEET WEST OF BRIDGE NUMBER 14802 COUNTY ROAD 17 OVER INTERSTATE HIGHWAY 94, 196.0 FEET WEST OF INTERSTATE HIGHWAY 94 EASTBOUND (STATION 842), 47.0 FEET EAST OF COUNTY ROAD 72, 1.0 FOOT SOUTH OF A STEEL WITNESS POST.

Station Notes

THE SET DATE IS UNKNOWN. THE CHECK POINT IS A CHISELED SQUARE IN THE TOP OF THE EAST END OF THE CULVERT. ESTABLISHED IN THE TOP OF A 30.0 INCH DIAMETER CONCRETE CULVERT.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
926.205	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
925.300	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD

Geoid Separations(ft): GEOID18 = -87.510 12B = -87.516 09 = -87.392 03 = -87.319

\* No Horizontal Positions in the Database \*



Mn/DOT Name: CLAY

NGS Name: CLAY

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP7348](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096331/  
 USGS Quad: PERLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	1	142 N	49 W	470901.08	964902.49		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2013	2013	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 14 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

**Description:** (2013) **Stamping:** CLAY 2013

5.0 MILES NORTH OF GEORGETOWN, 5.5 MILES NORTH AND WEST ALONG COUNTY ROAD 100 FROM THE NORTH JUNCTION OF COUNTY ROAD 100 AND TRUNK HIGHWAY 75 IN GEORGETOWN (THE JUNCTION TIE AT TRUNK HIGHWAY 75 MILEPOST 265.9), 43.9 FEET WEST OF COUNTY ROAD 100, 106.3 FEET SOUTH OF 210TH AVENUE NORTHWEST, 43.9 FEET WEST OF EXTENDED COUNTY ROAD 106, 15.9 FEET NORTH OF A FIELD ENTRANCE, 3.0 FEET SOUTH OF A WITNESS POST.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Orthometric Height				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference			
876.153			789.690	.024	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084			
876.176	.131		789.831	.066	1996	GPS - STATIC	2015	HCLAY			
876.153			789.690	.024	2011	GPS - STATIC	2015	HCLAY			
876.078	.262		789.647	.197	2011	GPS - RTRN	2013	RTRN2013			

Geoid Separations(ft): GEOID18 = -86.420 12B = -86.430 09 = -86.329 03 = -86.319

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
47 09 01.08305	96 49 02.49377	470819.219	289802.290	.016		ADJUSTMENT	2015	GPS3084
47 09 01.08305	96 49 02.49377	470819.219	289802.290	.016	C	GPS - STATIC	2015	HCLAY
47 09 01.08238	96 49 02.49578	470819.081	289802.223	.131	3	GPS - RTRN	2013	RTRN2013

NAD83(1996)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
47 09 01.08252	96 49 02.49456	470819.165	289802.237	.033	C	GPS - STATIC	2015	HCLAY

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1985936.632	1122587.015	690988.811	17155278.796	.016		ADJUSTMENT	2015	GPS3084
1985936.632	1122587.015	690988.811	17155278.796	.016	C	GPS - STATIC	2015	HCLAY
1985936.491	1122586.952	690988.669	17155278.735	.131	3	GPS - RTRN	2013	RTRN2013

NAD83(1996)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1985936.576	1122586.963	690988.754	17155278.745	.033	C	GPS - STATIC	2015	HCLAY

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CLAY-DP7348-3W-10SEP2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CLAY-DP7348-3W-10SEP2013.jpg</a>	W	Sep 10, 2013
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CLAY-DP7348-2-10SEP2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CLAY-DP7348-2-10SEP2013.jpg</a>		Sep 10, 2013
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CLAY-DP7348-1-10SEP2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CLAY-DP7348-1-10SEP2013.jpg</a>		Sep 10, 2013

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: COLE

NGS Name: COLE

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ1959](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	19	137 N	45 W	463952.68	962511.77	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2014	2024	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 29 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: COLE 2014

1.0 MILE NORTH OF BARNESVILLE, 0.4 MILE NORTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND TRUNK HIGHWAY 34 IN BARNESVILLE, AT TRUNK HIGHWAY 9 MILEPOINT 147.9, 46.3 FEET EAST OF TRUNK HIGHWAY 9, 20.2 FEET NORTH OF AN EXTENDED FIELD ENTRANCE, 1.5 FEET WEST OF A WITNESS POST.

Station Pair: KARSTEN - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88			Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1011.268	.016	2/1				VERTICAL CONTROL SURVEY	2024	VTH9R2
1011.264	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1011.264			924.355	.022	2011	HORIZONTAL ADJUSTMENT	2024	GPS3671
1011.264	.131		924.470	.066	1996	GPS - STATIC	2023	HTH9
1011.264			924.355	.022	2011	GPS - STATIC	2023	HTH9
1011.428	.262		924.368	.197	2011	GPS - RTRN	2023	RTRN2023
1011.422	.262		924.358	.197	2011	GPS - RTRN	2022	RTRN2022
1011.402	.262		924.345	.197	2011	GPS - RTRN	2014	RTRN2014

Geoid Separations(ft): GEOID18 = -87.063 12B = -87.057 09 = -86.962 03 = -86.913

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 39 52.68196	96 25 11.77056	570345.376	112761.451	.013		ADJUSTMENT	2024	GPS3671
46 39 52.68196	96 25 11.77056	570345.376	112761.451	.013	C	GPS - STATIC	2023	HTH9
46 39 52.68245	96 25 11.77077	570345.361	112761.500	.131	3	GPS - RTRN	2023	RTRN2023
46 39 52.68188	96 25 11.77044	570345.385	112761.442	.131	3	GPS - RTRN	2022	RTRN2022
46 39 52.68209	96 25 11.77052	570345.379	112761.464	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(1996)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 39 52.68172	96 25 11.77102	570345.344	112761.426	.033	C	GPS - STATIC	2023	HTH9

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone		X	Y	Acc	Order	Determination Method	Year	Reference
		782097.699	16973652.056	.013		ADJUSTMENT	2024	GPS3671
2079931.830	942565.073	782097.699	16973652.056	.013	C	GPS - STATIC	2023	HTH9
2079931.830	942565.073	782097.699	16973652.056	.013	C	GPS - STATIC	2023	HTH9
2079931.817	942565.122	782097.687	16973652.106	.131	3	GPS - RTRN	2023	RTRN2023
2079931.838	942565.064	782097.707	16973652.047	.131	3	GPS - RTRN	2022	RTRN2022
2079931.834	942565.086	782097.703	16973652.069	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(1996)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone		X	Y	Acc	Order	Determination Method	Year	Reference
2079931.797	942565.049	782097.666	16973652.033	.033	C	GPS - STATIC	2023	HTH9



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/COLE-DQ1959-3E-26JUL2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/COLE-DQ1959-3E-26JUL2023.jpg</a>	E	Jul 26, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/COLE-DQ1959-2-26JUL2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/COLE-DQ1959-2-26JUL2023.jpg</a>		Jul 26, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/COLE-DQ1959-1-26JUL2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/COLE-DQ1959-1-26JUL2023.jpg</a>		Jul 26, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: COPPER RIVET A

NGS Name: COPPER RIVET A

County: CLAY, MN (Sheet 1)

NGS ACRN: [SL0166](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/  
 USGS Quad: FELTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	4	141 N	46 W	470350.00	963036.30	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1905	2004	GOOD	Horz=NO Vert=NO	YES		FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE HEADWALL	RIVET	NGS

Description: (1905)

Stamping:

1.0 MILE SOUTH OF FELTON, IN THE SOUTHWEST CORNER OF THE WEST HEADWALL OF A RAILROAD BRIDGE, 0.7 MILE SOUTH OF THE RAILROAD STATION AT FELTON, 1.0 MILE SOUTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 34 IN FELTON, TO TRUNK HIGHWAY 9 MILEPOINT 176.65, THEN 0.40 MILE WEST TO THE RAILROAD TRACKS, 90.0 FEET SOUTH OF RAILROAD MILEPOST 32, 60.0 FEET SOUTH OF A ROAD, 5.0 FEET WEST OF THE WEST RAIL OF A RAILROAD. WITHIN THE RAILROAD RIGHT-OF-WAY.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
916.314	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
915.083	.007	1/2					UNKNOWN/APPROXIMATE	1992	UNCHECKD	
915.083	.007	1					VERTICAL CONTROL SURVEY	1941	Q470963	
915.083	.007	1					VERTICAL CONTROL SURVEY	1938	L45 MINN	

Geoid Separations(ft): GEOID18 = -87.063 12B = -87.077 09 = -86.952 03 = -86.932

\* No Horizontal Positions in the Database \*

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/COPPER_RIVET_A-SL0166-3N-16NOV2004.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/COPPER_RIVET_A-SL0166-3N-16NOV2004.jpg</a>	N	Nov 16, 2004
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/COPPER_RIVET_A-SL0166-2-16NOV2004.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/COPPER_RIVET_A-SL0166-2-16NOV2004.jpg</a>		Nov 16, 2004
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/COPPER_RIVET_A-SL0166-1-16NOV2004.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/COPPER_RIVET_A-SL0166-1-16NOV2004.jpg</a>		Nov 16, 2004

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: CORK

NGS Name: CORK

County: CLAY, MN (Sheet 1)

NGS ACRN: [DO9529](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096332/  
 USGS Quad: GEORGETOWN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	29	142 N	48 W	470508.79	964736.73	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2012	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 30 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012)                      Stamping: CORK 2012

0.5 MILE NORTH OF GEORGETOWN, 0.4 MILE NORTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND COUNTY ROAD 100/COUNTY ROAD 34 IN GEORGETOWN, AT TRUNK HIGHWAY 75 MILEPOINT 266.3, 76.7 FEET WEST OF TRUNK HIGHWAY 75, 14.8 FEET NORTH OF A FIELD ROAD, 1.5 FEET SOUTH OF A WITNESS POST.

Station Pair: MORK - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
880.126	.016	2/1				2024	00000941-3	VERTICAL ADJUSTMENT				
880.166	.016	2/1				2023	VMOFA	VERTICAL CONTROL SURVEY				
880.126	.016	2/1				2019	00000941	VERTICAL ADJUSTMENT				

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
880.166			794.063	.020	2011	2024	GPS3674	HORIZONTAL ADJUSTMENT				
880.166			794.063	.020	2011	2023	HMOFA3	GPS - STATIC				
880.166	.131		794.204	.066	1996	2023	HMOFA3	GPS - STATIC				
880.362	.262		794.093	.197	2011	2022	RTRN2022	GPS - RTRN				
880.402	.262		794.132	.197	2011	2021	RTRN2021	GPS - RTRN				
880.382			794.063	.024	2011	2013	GPS2963	HORIZONTAL ADJUSTMENT				
880.421	.131		794.273	.066	1996	2013	HGEOR	GPS - STATIC				
880.382			794.063	.024	2011	2013	HGEOR	GPS - STATIC				
880.244	.262		794.070	.197	2007	2012	RTRN2012	GPS - RTRN				

Geoid Separations(ft): GEOID18 = -86.270 12B = -86.302 09 = -86.174 03 = -86.148

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 05 08.79254	96 47 36.72866	476719.285	266258.291	.010		ADJUSTMENT	2024	GPS3674
47 05 08.79254	96 47 36.72866	476719.285	266258.291	.010	C	GPS - STATIC	2023	HMOFA3
47 05 08.79286	96 47 36.72832	476719.309	266258.324	.131	3	GPS - RTRN	2022	RTRN2022
47 05 08.79286	96 47 36.72908	476719.256	266258.324	.131	3	GPS - RTRN	2021	RTRN2021
47 05 08.79254	96 47 36.72866	476719.285	266258.291	.013		ADJUSTMENT	2013	GPS2963
47 05 08.79254	96 47 36.72866	476719.285	266258.291	.013	C	GPS - STATIC	2013	HGEOR

<u>NAD83(2007)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 05 08.79206	96 47 36.73003	476719.190	266258.243	.131	3	GPS - RTRN	2012	RTRN2012

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 05 08.79251	96 47 36.72902	476719.260	266258.288	.033	C	GPS - STATIC	2023	HMOFA3
47 05 08.79186	96 47 36.72924	476719.245	266258.222	.033	C	GPS - STATIC	2013	HGEOR

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1991105.969	1098872.616	695770.566	17131468.152	.010		ADJUSTMENT	2024	GPS3674
1991105.969	1098872.616	695770.566	17131468.152	.010	C	GPS - STATIC	2023	HMOFA3
1991105.994	1098872.647	695770.591	17131468.183	.131	3	GPS - RTRN	2022	RTRN2022
1991105.941	1098872.649	695770.539	17131468.185	.131	3	GPS - RTRN	2021	RTRN2021
1991105.969	1098872.616	695770.566	17131468.152	.013		ADJUSTMENT	2013	GPS2963
1991105.969	1098872.616	695770.566	17131468.152	.013	C	GPS - STATIC	2013	HGEOR

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1991105.873	1098872.570	695770.469	17131468.108	.131	3	GPS - RTRN	2012	RTRN2012

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1991105.944	1098872.614	695770.541	17131468.150	.033	C	GPS - STATIC	2023	HMOFA3
1991105.927	1098872.548	695770.523	17131468.085	.033	C	GPS - STATIC	2013	HGEOR

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CORK-DO9529-3W-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CORK-DO9529-3W-28JUN2022.jpg</a>	W	Jun 28, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CORK-DO9529-2-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CORK-DO9529-2-28JUN2022.jpg</a>		Jun 28, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CORK-DO9529-1-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CORK-DO9529-1-28JUN2022.jpg</a>		Jun 28, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: CORY MNDT  
County: CLAY, MN (Sheet 1)

NGS Name: CORY

NGS ACRN: [DF7611](#) [Get Map](#)  
NGS Quad / Sta Num : 46096414/  
USGS Quad: DILWORTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SE	3	139 N	48 W	465244.14	964254.34	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1993	2009	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 50 FT)	SURVEY DISK	MNDT

Description: (1993)                      Stamping: CORY 1993

0.5 MILE WEST OF DILWORTH, 0.15 MILE NORTH ALONG COUNTY ROAD 9 FROM THE JUNCTION OF COUNTY ROAD 9 AND TRUNK HIGHWAY 10, 52.0 FEET WEST OF COUNTY ROAD 9, 150.0 FEET NORTH OF AN ENTRANCE, 103.2 FEET NORTH OF A CABLE MARKER, 120.0 FEET WEST-NORTHWEST OF A POWER POLE, 3.3 FEET NORTH OF A WITNESS POST.

Station Notes

FOUND THE CAP LOOSE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
905.884	.016	2/1				2011	00000685	VERTICAL ADJUSTMENT		2011	00000685	
905.966	.016	2/1				2004	00000425-2	VERTICAL ADJUSTMENT		2004	00000425-2	
905.891	.016	2/1				2002	VMORE	VERTICAL CONTROL SURVEY		2002	VMORE	
905.976	.016	2/1				2002	VMOOR	VERTICAL CONTROL SURVEY		2002	VMOOR	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
			818.847	.010	2011	2012	GPS2800	HORIZONTAL ADJUSTMENT		2012	GPS2800	
			819.027	.015	2007	2007	GPS2300	HORIZONTAL ADJUSTMENT		2007	GPS2300	
905.904	.131		819.090	.066	1996	2003	GPS1905	HORIZONTAL ADJUSTMENT		2003	GPS1905	
905.904	.131		819.090	.066	1996	2003	HMOOR	GPS - STATIC		2003	HMOOR	

Geoid Separations(ft): GEOID18 = -87.073    12B = -87.067    09 = -86.936    03 = -86.890

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			
46 52 44.14509	96 42 54.33610	496247.787	190797.788	.007		2012	GPS2800	ADJUSTMENT		

  

<u>NAD83(2007)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			
46 52 44.14507	96 42 54.33705	496247.721	190797.786	.010		2007	GPS2300	ADJUSTMENT		

  

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			
46 52 44.14449	96 42 54.33688	496247.733	190797.727	.033	C	2003	GPS1905	ADJUSTMENT		
46 52 44.14449	96 42 54.33688	496247.733	190797.727	.033	C	2003	HMOOR	GPS - STATIC		



**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2008290.885	1022848.866	711722.159	17055127.082	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2008290.818	1022848.866	711722.093	17055127.083	.010		ADJUSTMENT	2007	GPS2300

**NAD83(1996)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2008290.829	1022848.807	711722.102	17055127.024	.033	C	ADJUSTMENT	2003	GPS1905
2008290.829	1022848.807	711722.101	17055127.024	.033	C	GPS - STATIC	2003	HMOOR



Mn/DOT Name: CORY MNDT RESET

NGS Name: CORY RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM1827](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	3	139 N	48 W	465244.15	964254.34	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2009	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 4 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 50 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2009)                      Stamping: CORY 1993 2009

0.5 MILE WEST OF DILWORTH, 0.15 MILE NORTH ALONG COUNTY ROAD 9 FROM THE JUNCTION OF COUNTY ROAD 9 AND TRUNK HIGHWAY 10 IN DILWORTH, 52.0 FEET WEST OF COUNTY ROAD 9, 150.0 FEET NORTH OF AN ENTRANCE, 103.2 FEET NORTH OF A CABLE MARKER, 120.0 FEET WEST-NORTHWEST OF A POWER POLE, 3.3 FEET NORTH OF A WITNESS POST.

Station Pair: WEIV MNDT RESET - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
905.441	.016	2/1				VERTICAL ADJUSTMENT		2024	00000941-3
905.441	.016	2/1				VERTICAL CONTROL SURVEY		2023	VMOFA
905.441	.016	2/1				VERTICAL ADJUSTMENT		2019	00000941
905.720	.016	2/1				VERTICAL ADJUSTMENT		2011	00000699
905.713	.016	2/1				VERTICAL CONTROL SURVEY		2010	VCOMS

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
905.441			818.627	.010	2011	HORIZONTAL ADJUSTMENT		2024	GPS3674
905.441			818.627	.010	2011	GPS - STATIC		2023	HMOFA3
905.441	.131		818.732	.066	1996	GPS - STATIC		2023	HMOFA3
905.645	.262		818.568	.197	2011	GPS - RTRN		2022	RTRN2022
905.720			818.627	.009	2011	HORIZONTAL ADJUSTMENT		2015	GPS3084
905.720	.131		818.732	.066	1996	GPS - STATIC		2015	HCLAY
905.720			818.620	.009	2011	GPS - STATIC		2015	HCLAY
905.645	.262		818.578	.197	2011	GPS - RTRN		2014	RTRN2014
			818.627	.009	2011	HORIZONTAL ADJUSTMENT		2012	GPS2800
905.707	.131		818.630	.066	2007	HORIZONTAL ADJUSTMENT		2011	GPS2690
905.707	.131		818.732	.066	1996	GPS - STATIC		2010	HCOMS
905.707	.131		818.630	.066	2007	GPS - STATIC		2010	HCOMS
905.566	.262		818.679	.197	1996	GPS - RTRN		2009	RTRN2009

Geoid Separations(ft): GEOID18 = -87.073    12B = -87.067    09 = -86.936    03 = -86.890

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 52 44.14493	96 42 54.33453	496247.896	190797.772	.007		ADJUSTMENT	2024	GPS3674
46 52 44.14493	96 42 54.33453	496247.896	190797.772	.007	C	GPS - STATIC	2023	HMOFA3
46 52 44.14498	96 42 54.33365	496247.957	190797.777	.131	3	GPS - RTRN	2022	RTRN2022
46 52 44.14493	96 42 54.33453	496247.896	190797.772	.007		ADJUSTMENT	2015	GPS3084
46 52 44.14497	96 42 54.33458	496247.892	190797.776	.007	C	GPS - STATIC	2015	HCLAY
46 52 44.14513	96 42 54.33455	496247.895	190797.792	.131	3	GPS - RTRN	2014	RTRN2014
46 52 44.14493	96 42 54.33453	496247.896	190797.772	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 52 44.14512	96 42 54.33550	496247.829	190797.791	.033	C	ADJUSTMENT	2011	GPS2690
46 52 44.14512	96 42 54.33550	496247.829	190797.791	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 52 44.14477	96 42 54.33560	496247.821	190797.756	.033	C	GPS - STATIC	2023	HMOFA3
46 52 44.14477	96 42 54.33560	496247.821	190797.756	.033	C	GPS - STATIC	2015	HCLAY
46 52 44.14477	96 42 54.33560	496247.821	190797.756	.033	C	GPS - STATIC	2010	HCOMS
46 52 44.14516	96 42 54.33556	496247.824	190797.795	.131	3	GPS - RTRN	2009	RTRN2009

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2008290.993	1022848.846	711722.267	17055127.061	.007		ADJUSTMENT	2024	GPS3674
2008290.993	1022848.846	711722.267	17055127.061	.007	C	GPS - STATIC	2023	HMOFA3
2008291.054	1022848.850	711722.328	17055127.063	.131	3	GPS - RTRN	2022	RTRN2022
2008290.993	1022848.846	711722.267	17055127.061	.007		ADJUSTMENT	2015	GPS3084
2008290.990	1022848.851	711722.264	17055127.065	.007	C	GPS - STATIC	2015	HCLAY
2008290.992	1022848.867	711722.267	17055127.081	.131	3	GPS - RTRN	2014	RTRN2014
2008290.993	1022848.846	711722.267	17055127.061	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2008290.926	1022848.868	711722.201	17055127.083	.033	C	ADJUSTMENT	2011	GPS2690
2008290.926	1022848.868	711722.201	17055127.083	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2008290.918	1022848.833	711722.192	17055127.048	.033	C	GPS - STATIC	2023	HMOFA3
2008290.918	1022848.833	711722.192	17055127.048	.033	C	GPS - STATIC	2015	HCLAY
2008290.918	1022848.833	711722.192	17055127.048	.033	C	GPS - STATIC	2010	HCOMS
2008290.922	1022848.872	711722.197	17055127.087	.131	3	GPS - RTRN	2009	RTRN2009

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CORY_RESET-DM1827-3W-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CORY_RESET-DM1827-3W-14JUN2022.jpg</a>	W	Jun 14, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CORY_RESET-DM1827-2-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CORY_RESET-DM1827-2-14JUN2022.jpg</a>		Jun 14, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CORY_RESET-DM1827-1-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CORY_RESET-DM1827-1-14JUN2022.jpg</a>		Jun 14, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: COURT

NGS Name: COURT

County: CLAY, MN (Sheet 1)

NGS ACRN: [DL8745](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096441/  
 USGS Quad: FARGO NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	5	139 N	48 W	465302.60	964550.39	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2003	2022	GOOD	Horz=YES Vert=YES	YES		RECESSED 4 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 50 FT)	SURVEY DISK	MNDT

**Description:** (2003)                      **Stamping:** COURT 2003

IN MOORHEAD, 0.55 MILE NORTH ALONG 11TH STREET NORTH FROM THE JUNCTION OF 1ST AVENUE NORTH AND 11TH STREET NORTH, THEN 0.05 MILE WEST ON 8TH AVENUE NORTH, 67.2 FEET WEST-SOUTHWEST OF THE SOUTHWEST CORNER OF THE MOORHEAD COURTHOUSE, 51.35 FEET NORTHWEST OF THE NORTHWEST CORNER OF A STONE MONUMENT BASE, 4.45 FEET NORTH OF THE INSIDE EDGE OF A SIDEWALK, 3.0 FEET SOUTH OF A WITNESS POST.

**Station Notes**

THIS MARK WAS SET BY DISTRICT 4 SURVEYS, THE ROD AND THE DISK WERE PROVIDED BY THE MNDOT GEODETICS UNIT.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
902.853	.016	2/1					VERTICAL ADJUSTMENT	2024	0000941-3	
902.846	.016	2/1					VERTICAL CONTROL SURVEY	2023	VMOFA	
903.194	.016	2/1					VERTICAL ADJUSTMENT	2010	00000660	
903.207	.016	2/1					VERTICAL CONTROL SURVEY	2004	VHEAD	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
903.023	.262			816.120	.197	2011	GPS - RTRN	2022	RTRN2022	

Geoid Separations(ft): GEOID18 = -86.899 12B = -86.886 09 = -86.765 03 = -86.719

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 53 02.60022	96 45 50.39011	484018.375	192673.772	.131	3	GPS - RTRN	2022	RTRN2022	

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>		
		1996126.280	1025101.947	699588.107	17057578.974	.131	3	GPS - RTRN	2022	RTRN2022

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/COURT-DL8745-3N-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/COURT-DL8745-3N-28JUN2022.jpg</a>	N	Jun 28, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/COURT-DL8745-2-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/COURT-DL8745-2-28JUN2022.jpg</a>		Jun 28, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/COURT-DL8745-1-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/COURT-DL8745-1-28JUN2022.jpg</a>		Jun 28, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: CREEK

NGS Name: CREEK

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM1828](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	8	138 N	48 W	464628.89	964527.75	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2009	2023	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 45 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

**Description:** (2009)                      **Stamping:** CREEK 2009

5.0 MILES SOUTH OF MOORHEAD, 4.95 MILES SOUTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND INTERSTATE HIGHWAY 94 IN MOORHEAD TO TRUNK HIGHWAY 75 MILEPOINT 243.35, THEN 0.5 MILE EAST ON COUNTY ROAD 67 (80TH AVENUE SOUTH), 33.4 FEET NORTH OF COUNTY ROAD 67 (80TH AVENUE SOUTH), 85.5 FEET WEST OF 14TH STREET SOUTH, 4.0 FEET SOUTH OF A CABLE BOX NUMBER 202A4, 28.0 FEET WEST OF A FIELD ENTRANCE, 1.6 FEET SOUTH OF A WITNESS POST.

**Station Pair:** STONEY - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
910.674	.016	2/1				2024	00000941-3	VERTICAL ADJUSTMENT				
910.674	.016	2/1				2023	VMOFA	VERTICAL CONTROL SURVEY				
910.674	.016	2/1				2019	00000941	VERTICAL ADJUSTMENT				
910.920	.016	2/1				2011	00000699	VERTICAL ADJUSTMENT				
910.917	.016	2/1				2010	VCOMS	VERTICAL CONTROL SURVEY				

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
910.674			823.719	.009	2011	2024	GPS3715	HORIZONTAL ADJUSTMENT				
910.674			823.719	.009	2011	2024	HMOFA2	GPS - STATIC				
910.674	.131		823.801	.066	1996	2024	HMOFA2	GPS - STATIC				
910.989	.262		823.801	.197	2011	2022	RTRN2022	GPS - RTRN				
910.920			823.719	.008	2011	2015	GPS3084	HORIZONTAL ADJUSTMENT				
910.920	.131		823.801	.066	1996	2015	HCLAY	GPS - STATIC				
910.920			823.719	.008	2011	2015	HCLAY	GPS - STATIC				
			823.719	.007	2011	2012	GPS2800	HORIZONTAL ADJUSTMENT				
910.923	.131		823.716	.066	2007	2011	GPS2690	HORIZONTAL ADJUSTMENT				
910.923	.131		823.801	.066	1996	2010	HCOMS	GPS - STATIC				
910.923	.131		823.716	.066	2007	2010	HCOMS	GPS - STATIC				

Geoid Separations(ft): GEOID18 = -87.188    12B = -87.185    09 = -87.113    03 = -86.998

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 46 28.89086	96 45 27.74629	485562.051	152783.386	.007		ADJUSTMENT	2024	GPS3715
46 46 28.89086	96 45 27.74629	485562.051	152783.386	.007	C	GPS - STATIC	2024	HMOFA2
46 46 28.89168	96 45 27.74699	485562.002	152783.469	.131	3	GPS - RTRN	2022	RTRN2022
46 46 28.89086	96 45 27.74629	485562.051	152783.386	.007		ADJUSTMENT	2015	GPS3084
46 46 28.89086	96 45 27.74634	485562.047	152783.386	.007	C	GPS - STATIC	2015	HCLAY
46 46 28.89086	96 45 27.74629	485562.051	152783.386	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 46 28.89132	96 45 27.74759	485561.960	152783.433	.033	C	ADJUSTMENT	2011	GPS2690
46 46 28.89132	96 45 27.74759	485561.960	152783.433	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 46 28.89089	96 45 27.74748	485561.968	152783.389	.033	C	GPS - STATIC	2024	HMOFA2
46 46 28.89089	96 45 27.74748	485561.968	152783.389	.033	C	GPS - STATIC	2015	HCLAY
46 46 28.89089	96 45 27.74748	485561.968	152783.389	.033	C	GPS - STATIC	2010	HCOMS

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1996435.731	985186.344	699250.543	17017637.577	.007		ADJUSTMENT	2024	GPS3715
1996435.731	985186.344	699250.543	17017637.577	.007	C	GPS - STATIC	2024	HMOFA2
1996435.684	985186.428	699250.499	17017637.662	.131	3	GPS - RTRN	2022	RTRN2022
1996435.731	985186.344	699250.543	17017637.577	.007		ADJUSTMENT	2015	GPS3084
1996435.727	985186.344	699250.540	17017637.577	.007	C	GPS - STATIC	2015	HCLAY
1996435.731	985186.344	699250.543	17017637.577	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1996435.642	985186.393	699250.455	17017637.628	.033	C	ADJUSTMENT	2011	GPS2690
1996435.642	985186.393	699250.455	17017637.628	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1996435.648	985186.349	699250.461	17017637.584	.033	C	GPS - STATIC	2024	HMOFA2
1996435.648	985186.349	699250.461	17017637.584	.033	C	GPS - STATIC	2015	HCLAY
1996435.648	985186.349	699250.461	17017637.584	.033	C	GPS - STATIC	2010	HCOMS

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CREEK-DM1828-3N-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CREEK-DM1828-3N-15JUN2022.jpg</a>	N	Jun 15, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CREEK-DM1828-2-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CREEK-DM1828-2-15JUN2022.jpg</a>		Jun 15, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CREEK-DM1828-1-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CREEK-DM1828-1-15JUN2022.jpg</a>		Jun 15, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: CROM

NGS Name: CROM

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP7349](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096141/  
 USGS Quad: HAWLEY

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	1	139 N	45 W	465331.37	961804.35		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2013	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 20 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2013)                      Stamping: CROM 2013

1.0 MILES NORTHEAST OF HAWLEY, 1.1 MILES NORTH AND EAST ALONG COUNTY ROAD 33 FROM THE JUNCTION OF COUNTY ROAD 33 AND TRUNK HIGHWAY 10 IN HAWLEY, THEN 0.8 MILE EAST ON COUNTY ROAD 115, 35.2 FEET SOUTH OF COUNTY ROAD 115, 12.7 FEET WEST OF A FIELD ENTRANCE, 11.6 FEET EAST OF A WITNESS POST.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>		
1170.808	.131		1083.236	.066	1996	2023	HHITT	2023	HHITT	2023	HHITT		
1170.821			1083.095	.011	2011	2023	HHITT	2023	HHITT	2023	GPS3626		
1170.821			1083.095	.011	2011	2023	GPS3626	2023	HORIZONTAL ADJUSTMENT	2022	RTRN2022		
1170.916	.262		1083.049	.197	2011	2022	RTRN2022	2022	GPS - RTRN	2015	GPS3084		
1170.969			1083.095	.022	2011	2015	GPS3084	2015	HORIZONTAL ADJUSTMENT	2015	HCLAY		
1170.962	.131		1083.236	.066	1996	2015	HCLAY	2015	GPS - STATIC	2015	HCLAY		
1170.969			1083.095	.022	2011	2015	HCLAY	2015	GPS - STATIC	2013	RTRN2013		
1170.867	.262		1083.023	.197	2011	2013	RTRN2013	2013	GPS - RTRN				

Geoid Separations(ft): GEOID18 = -87.867    12B = -87.844    09 = -87.739    03 = -87.697

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>			<u>Geodetic Position</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>Order (/Class)</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>			
46 53 31.36748	96 18 04.34684		599736.907	195835.218	.007	C	2023	HHITT	2023	HHITT			
46 53 31.36748	96 18 04.34684		599736.907	195835.218	.007		2023	GPS3626	2023	ADJUSTMENT			
46 53 31.36632	96 18 04.34741		599736.868	195835.100	.131	3	2022	RTRN2022	2022	GPS - RTRN			
46 53 31.36748	96 18 04.34684		599736.907	195835.218	.013		2015	GPS3084	2015	ADJUSTMENT			
46 53 31.36748	96 18 04.34684		599736.907	195835.218	.013	C	2015	HCLAY	2015	GPS - STATIC			
46 53 31.36861	96 18 04.34677		599736.911	195835.332	.131	3	2013	RTRN2013	2013	GPS - RTRN			

<u>NAD83(1996)</u>			<u>Geodetic Position</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>Order (/Class)</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>			
46 53 31.36702	96 18 04.34762		599736.853	195835.171	.033	C	2023	HHITT	2023	GPS - STATIC			
46 53 31.36702	96 18 04.34762		599736.853	195835.171	.033	C	2015	HCLAY	2015	GPS - STATIC			

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>			<u>MN State Plane - Central Zone</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>Order (/Class)</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>			
2111877.970	1024680.772		815378.258	17055279.493	.007	C	2023	HHITT	2023	GPS - STATIC			
2111877.970	1024680.772		815378.258	17055279.493	.007		2023	GPS3626	2023	ADJUSTMENT			
2111877.928	1024680.655		815378.214	17055279.378	.131	3	2022	RTRN2022	2022	GPS - RTRN			
2111877.970	1024680.772		815378.258	17055279.493	.013		2015	GPS3084	2015	ADJUSTMENT			
2111877.970	1024680.772		815378.258	17055279.493	.013	C	2015	HCLAY	2015	GPS - STATIC			
2111877.978	1024680.886		815378.268	17055279.608	.131	3	2013	RTRN2013	2013	GPS - RTRN			

<u>NAD83(1996)</u>			<u>MN State Plane - Central Zone</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>Order (/Class)</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>			
2111877.915	1024680.727		815378.202	17055279.449	.033	C	2023	HHITT	2023	GPS - STATIC			
2111877.915	1024680.727		815378.202	17055279.449	.033	C	2015	HCLAY	2015	GPS - STATIC			



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CROM-DP7349-3S-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CROM-DP7349-3S-14JUN2022.jpg</a>	S	Jun 14, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CROM-DP7349-2-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CROM-DP7349-2-14JUN2022.jpg</a>		Jun 14, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CROM-DP7349-1-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CROM-DP7349-1-14JUN2022.jpg</a>		Jun 14, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: CROSS

NGS Name: CROSS

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM1829](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096424/  
 USGS Quad: COMSTOCK

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SW	16	137 N	48 W	464026.23	964453.19	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2009	2009	GOOD	Horz=NO Vert=NO	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 25 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2009)                      Stamping: CROSS 2009

0.9 MILE NORTH OF COMSTOCK, 1.05 MILES NORTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND COUNTY ROAD 2 (THE JUNCTION IS 0.5 MILE WEST OF COMSTOCK), TO TRUNK HIGHWAY 75 MILEPOINT 236.25, THEN 0.45 MILE EAST ON 150TH AVENUE SOUTH, 26.0 FEET NORTH OF 150TH AVENUE SOUTH, 42.0 FEET WEST OF THE WEST RAIL OF THE RAILROAD TRACKS, 26.0 FEET EAST OF A FIELD ENTRANCE, 2.5 FEET WEST OF A WITNESS POST.

**Station Notes**

THE SURVEY MARK IS ON RAILROAD PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
919.280	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941
919.493	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699
919.513	.016	2/1				VERTICAL CONTROL SURVEY	2010	VCOMS

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
			832.803	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
919.519	.131		832.794	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2690
919.519	.131		832.863	.066	1996	GPS - STATIC	2010	HCOMS
919.519	.131		832.794	.066	2007	GPS - STATIC	2010	HCOMS

Geoid Separations(ft): GEOID18 = -86.699    12B = -86.716    09 = -86.666    03 = -86.568

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 40 26.22738	96 44 53.18430	487945.348	116038.731	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 40 26.22758	96 44 53.18530	487945.279	116038.751	.033	C	ADJUSTMENT	2011	GPS2690
46 40 26.22758	96 44 53.18530	487945.279	116038.751	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 40 26.22714	96 44 53.18513	487945.291	116038.707	.033	C	GPS - STATIC	2010	HCOMS



**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
1997681.500	948389.252	699903.423	16980800.678	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
1997681.431	948389.275	699903.354	16980800.702	.033	C	ADJUSTMENT	2011	GPS2690
1997681.431	948389.275	699903.354	16980800.702	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
1997681.442	948389.230	699903.364	16980800.657	.033	C	GPS - STATIC	2010	HCOMS

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CROSS-DM1829-3N-30SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CROSS-DM1829-3N-30SEP2009.jpg</a>	N	Sep 30, 2009
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CROSS-DM1829-2-30SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CROSS-DM1829-2-30SEP2009.jpg</a>		Sep 30, 2009
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CROSS-DM1829-1-30SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CROSS-DM1829-1-30SEP2009.jpg</a>		Sep 30, 2009

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: CUBA

NGS Name: CUBA

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP7350](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096114/  
 USGS Quad: DALE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	1	140 N	44 W	465832.63	961027.10		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2013	2013	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 20 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2013) Stamping: CUBA 2013

4.0 MILES EAST OF HITTERDAL, 4.0 MILES EAST ALONG COUNTY ROAD 26 FROM THE JUNCTION OF COUNTY ROAD 26 AND TRUNK HIGHWAY 32 IN HITTERDAL, THEN 0.1 MILE SOUTH ON 110TH AVENUE, 20.9 FEET WEST OF 110TH AVENUE, 32.7 FEET SOUTH OF A FIELD ENTRANCE, 1.5 FEET NORTH OF A WITNESS POST.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1223.836			1135.769	.022	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084
1223.790	.131		1135.910	.066	1996	GPS - STATIC	2015	HCLAY
1223.836			1135.769	.022	2011	GPS - STATIC	2015	HCLAY
1223.669	.262		1135.628	.197	2011	GPS - RTRN	2013	RTRN2013

Geoid Separations(ft): GEOID18 = -88.061 12B = -88.041 09 = -87.946 03 = -87.861

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 58 32.62968	96 10 27.10003	631290.591	226545.539	.013		ADJUSTMENT	2015	GPS3084
46 58 32.62968	96 10 27.10003	631290.591	226545.539	.013	C	GPS - STATIC	2015	HCLAY
46 58 32.63033	96 10 27.10062	631290.550	226545.605	.131	3	GPS - RTRN	2013	RTRN2013

NAD83(1996)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 58 32.62915	96 10 27.10084	631290.536	226545.486	.033	C	GPS - STATIC	2015	HCLAY

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2144365.360	1054396.143	848355.181	17084475.223	.013		ADJUSTMENT	2015	GPS3084
2144365.360	1054396.143	848355.181	17084475.223	.013	C	GPS - STATIC	2015	HCLAY
2144365.321	1054396.210	848355.142	17084475.291	.131	3	GPS - RTRN	2013	RTRN2013

NAD83(1996)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2144365.303	1054396.091	848355.122	17084475.172	.033	C	GPS - STATIC	2015	HCLAY

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CUBA-DP7350-3W-20AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CUBA-DP7350-3W-20AUG2013.jpg</a>	W	Aug 20, 2013
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CUBA-DP7350-2-20AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CUBA-DP7350-2-20AUG2013.jpg</a>		Aug 20, 2013
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CUBA-DP7350-1-20AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CUBA-DP7350-1-20AUG2013.jpg</a>		Aug 20, 2013

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: D 376

NGS Name: D 376

County: CLAY, MN (Sheet 1)

NGS ACRN: [SL1179](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096234/  
 USGS Quad: ULEN NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	3	142 N	46 W	470819.84	962959.21	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1982	2014	GOOD	Horz=NO Vert=YES	YES		RECESSED 2 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STEEL ROD (IN SLEEVE) (DEPTH 72 FT)	METAL ROD	NGS

**Description:** (1982) **Stamping:** D 376 1982

4.2 MILES NORTH OF FELTON, 4.2 MILES NORTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 34 IN FELTON, AT TRUNK HIGHWAY 9 MILEPOINT 181.90, ON THE PROPERTY OF THE LEE SEED FARM, 278.0 FEET EAST OF TRUNK HIGHWAY 9 ON DRIVEWAY NUMBER 20152 AND 20150, 135.0 FEET SOUTH-SOUTHEAST OF THE SOUTHEAST CORNER OF A HOUSE AND AN OFFICE BUILDING, 156.0 FEET WEST-SOUTHWEST OF THE SOUTHWEST CORNER OF A MAIN ELEVATOR, 146.0 FEET WEST OF THE NORTHWEST CORNER OF A LARGE METAL BUILDING ACROSS THE ROAD FROM AN ELEVATOR, 131.0 FEET SOUTH OF THE SOUTHEAST CORNER OF A 3 CAR GARAGE, 5.0 FEET EAST OF A POWER POLE WITH A LIGHT AND NUMBER TPK, 39.5 FEET SOUTH OF A DRIVEWAY.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
910.011	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941		
910.159	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
910.083	.262		822.869	.197	2011	GPS - RTRN	2014	RTRN2014		
			822.964	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800		
			823.066	.066	2007	HORIZONTAL ADJUSTMENT	2007	GPS2320-B		
910.169	.131		823.073	.066	1996	HORIZONTAL ADJUSTMENT	2007	GPS2320		
			823.066	.010	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300		
910.169	.131		823.073	.066	1996	GPS - STATIC	2006	HNRMN		
910.169	.131		823.073	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1916		
910.169	.131		823.073	.066	1996	GPS - STATIC	2003	HBORU		

Geoid Separations(ft): GEOID18 = -87.214 12B = -87.214 09 = -87.119 03 = -87.093

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
47 08 19.83664	96 29 59.20531			549855.831	285665.023	.131	3	GPS - RTRN	2014	RTRN2014
47 08 19.83625	96 29 59.20581			549855.797	285664.983	.010		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
47 08 19.83615	96 29 59.20659			549855.743	285664.973	.033	C	ADJUSTMENT	2007	GPS2320-B
47 08 19.83615	96 29 59.20659			549855.743	285664.973	.013		ADJUSTMENT	2007	GPS2300

<u>NAD83(1996)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
47 08 19.83579	96 29 59.20651			549855.748	285664.937	.033	C	ADJUSTMENT	2007	GPS2320
47 08 19.83579	96 29 59.20651			549855.748	285664.937	.033	C	GPS - STATIC	2006	HNRMN
47 08 19.83579	96 29 59.20651			549855.748	285664.937	.033	C	ADJUSTMENT	2003	GPS1916
47 08 19.83579	96 29 59.20651			549855.748	285664.937	.033	C	GPS - STATIC	2003	HBORU

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2064805.544	1116006.928	769780.251	17147399.700	.131	3	GPS - RTRN	2014	RTRN2014
2064805.508	1116006.889	769780.215	17147399.662	.010		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2064805.454	1116006.881	769780.161	17147399.654	.033	C	ADJUSTMENT	2007	GPS2320-B
2064805.454	1116006.881	769780.161	17147399.654	.013		ADJUSTMENT	2007	GPS2300

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2064805.459	1116006.844	769780.165	17147399.617	.033	C	ADJUSTMENT	2007	GPS2320
2064805.459	1116006.844	769780.165	17147399.617	.033	C	GPS - STATIC	2006	HNRMN
2064805.459	1116006.844	769780.165	17147399.617	.033	C	ADJUSTMENT	2003	GPS1916
2064805.459	1116006.844	769780.165	17147399.617	.033	C	GPS - STATIC	2003	HBORU

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/D_376-SL1179-3S-29MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/D_376-SL1179-3S-29MAY2014.jpg</a>	S	May 29, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/D_376-SL1179-2-29MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/D_376-SL1179-2-29MAY2014.jpg</a>		May 29, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/D_376-SL1179-1-29MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/D_376-SL1179-1-29MAY2014.jpg</a>		May 29, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: D 377

NGS Name: D 377

County: CLAY, MN (Sheet 1)

NGS ACRN: <a href="#">RP0733</a>	<a href="#">Get Map</a>
NGS Quad / Sta Num : 46096411/	
USGS Quad: GLYNDON NORTH	

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	20	140 N	46 W	465604.18	963021.39	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1982	2014	GOOD	Horz=NO Vert=YES	YES		RECESSED 28 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STEEL ROD (NO SLEEVE) (DEPTH 32 FT)	METAL ROD	NGS

**Description:** (1982)                      **Stamping:** D 377 1982

5.3 MILES NORTHEAST OF GLYNDON, 4.0 MILES NORTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND TRUNK HIGHWAY 10, (THE JUNCTION IS 3.5 MILES EAST OF GLYNDON), AT TRUNK HIGHWAY 9 MILEPOINT 167.75, 70.0 FEET WEST OF TRUNK HIGHWAY 9, 28.0 FEET SOUTH OF 57TH AVENUE NORTH, 3.0 FEET NORTH OF A POWER POLE NUMBER 426, 1.9 FEET EAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
933.144	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941
933.348	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
933.253	.262			845.750	.197	2011	GPS - RTRN	2014	RTRN2014

Geoid Separations(ft): GEOID18 = -87.520 12B = -87.503 09 = -87.378 03 = -87.362

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 56 04.18410	96 30 21.38683			548507.023	211124.894	.131	3	GPS - RTRN	2014	RTRN2014

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2061150.067	1041548.033			764907.721	17072975.212	.131	3	GPS - RTRN	2014	RTRN2014

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/D_377-RP0733-3W-28MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/D_377-RP0733-3W-28MAY2014.jpg</a>	W	May 28, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/D_377-RP0733-2-28MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/D_377-RP0733-2-28MAY2014.jpg</a>		May 28, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/D_377-RP0733-1-28MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/D_377-RP0733-1-28MAY2014.jpg</a>		May 28, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: DAKO

NGS Name: DAKO

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP2177](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096441/  
 USGS Quad: FARGO NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	34	141 N	48 W	465924.82	964508.81	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2012	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 60 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012)                      Stamping: DAKO 2012

IN KRAGNES, 0.1 MILE SOUTHEAST ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND COUNTY ROAD 5/COUNTY ROAD 96 IN KRAGNES, AT TRUNK HIGHWAY 75 MILEPOINT 259.4, 118.0 FEET SOUTHWEST OF TRUNK HIGHWAY 75, 22.8 FEET NORTHWEST OF 21ST STREET NORTH, 1.5 FEET SOUTHEAST OF A WITNESS POST.

Station Pair: HUESMAN - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
891.084	.016	2/1				2024	00000941-3	VERTICAL ADJUSTMENT				
891.110	.016	2/1				2023	VMOFA	VERTICAL CONTROL SURVEY				
891.061	.016	2/1				2019	00000941	VERTICAL ADJUSTMENT				

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
891.110			804.969	.022	2011	2024	GPS3674	HORIZONTAL ADJUSTMENT				
891.110			804.969	.022	2011	2023	HMOFA3	GPS - STATIC				
891.110	.131		805.064	.066	1996	2023	HMOFA3	GPS - STATIC				
891.242	.262		804.825	.197	2011	2022	RTRN2022	GPS - RTRN				
891.245	.262		804.828	.197	2011	2021	GPSBM	GPS - OPUS				
891.268	.262		804.851	.197	2011	2021	RTRN2021	GPS - RTRN				
891.202	.262		804.920	.197	2007	2012	RTRN2012	GPS - RTRN				

Geoid Separations(ft): GEOID18 = -86.417 12B = -86.430 09 = -86.283 03 = -86.270

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 59 24.81812	96 45 08.80912	486932.740	231397.257	.010		ADJUSTMENT	2024	GPS3674
46 59 24.81812	96 45 08.80912	486932.740	231397.257	.010	C	GPS - STATIC	2023	HMOFA3
46 59 24.81881	96 45 08.80913	486932.739	231397.327	.131	3	GPS - RTRN	2022	RTRN2022
46 59 24.81842	96 45 08.80931	486932.727	231397.287	.131	3	GPS - OPUS	2021	GPSBM
46 59 24.81914	96 45 08.80859	486932.777	231397.360	.131	3	GPS - RTRN	2021	RTRN2021

<u>NAD83(2007)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 59 24.81790	96 45 08.80964	486932.704	231397.234	.131	3	GPS - RTRN	2012	RTRN2012

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 59 24.81797	96 45 08.80990	486932.686	231397.242	.033	C	GPS - STATIC	2023	HMOFA3

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2000236.311	1063714.173	704329.442	17096143.355	.010		ADJUSTMENT	2024	GPS3674
2000236.311	1063714.173	704329.442	17096143.355	.010	C	GPS - STATIC	2023	HMOFA3
2000236.313	1063714.243	704329.445	17096143.425	.131	3	GPS - RTRN	2022	RTRN2022
2000236.299	1063714.204	704329.430	17096143.386	.131	3	GPS - OPUS	2021	GPSBM
2000236.351	1063714.275	704329.484	17096143.457	.131	3	GPS - RTRN	2021	RTRN2021

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2000236.274	1063714.152	704329.405	17096143.335	.131	3	GPS - RTRN	2012	RTRN2012

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2000236.256	1063714.160	704329.387	17096143.342	.033	C	GPS - STATIC	2023	HMOFA3

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DAKO-DP2177-3W-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DAKO-DP2177-3W-28JUN2022.jpg</a>	W	Jun 28, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DAKO-DP2177-2-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DAKO-DP2177-2-28JUN2022.jpg</a>		Jun 28, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DAKO-DP2177-1-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DAKO-DP2177-1-28JUN2022.jpg</a>		Jun 28, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: DANE

NGS Name: DANE

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ1928](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096321/  
 USGS Quad: BORUP

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	3	142 N	46 W	470838.56	963002.32	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 71 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

**Description:** (2014) **Stamping:** DANE 2014

4.5 MILES NORTH OF FELTON, 4.5 MILES NORTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 34 IN FELTON, AT TRUNK HIGHWAY 9 MILEPOINT 182.25, 43.5 FEET EAST OF TRUNK HIGHWAY 9, 24.8 FEET NORTH OF A FIELD ENTRANCE, 1.5 FEET SOUTH OF A WITNESS POST.

**Station Pair:** 1410 S - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88			Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
910.011	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
910.011			822.987	.023	2011	HORIZONTAL ADJUSTMENT	2023	GPS3618
910.011	.131		823.118	.066	1996	GPS - STATIC	2023	HFELT
910.011			822.987	.023	2011	GPS - STATIC	2023	HFELT
910.205	.262		822.974	.197	2011	GPS - RTRN	2014	RTRN2014

Geoid Separations(ft): GEOID18 = -87.228 12B = -87.231 09 = -87.136 03 = -87.106

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
47 08 38.56291	96 30 02.32333	549635.423	287561.851	.016		ADJUSTMENT	2023	GPS3618
47 08 38.56291	96 30 02.32333	549635.423	287561.851	.016	C	GPS - STATIC	2023	HFELT
47 08 38.56351	96 30 02.32373	549635.395	287561.911	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(1996)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
47 08 38.56258	96 30 02.32390	549635.384	287561.817	.033	C	GPS - STATIC	2023	HFELT

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone		X	Y	Acc	Order	Determination Method	Year	Reference
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2064643.974	1117909.619	769649.843	17149305.631	.016		ADJUSTMENT	2023	GPS3618
2064643.974	1117909.619	769649.843	17149305.631	.016	C	GPS - STATIC	2023	HFELT
2064643.948	1117909.681	769649.818	17149305.693	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(1996)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone		X	Y	Acc	Order	Determination Method	Year	Reference
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2064643.934	1117909.587	769649.802	17149305.600	.033	C	GPS - STATIC	2023	HFELT

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DANE-DQ1928-3E-11JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DANE-DQ1928-3E-11JUN2014.jpg</a>	E	Jun 11, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DANE-DQ1928-2-11JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DANE-DQ1928-2-11JUN2014.jpg</a>		Jun 11, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DANE-DQ1928-1-11JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DANE-DQ1928-1-11JUN2014.jpg</a>		Jun 11, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: DAVID  
 County: CLAY, MN (Sheet 1)

NGS Name: DAVID

NGS ACRN: [DQ1944](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SE	20	140 N	46 W	465532.99	963021.41	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 44 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: DAVID 2014

4.7 MILES NORTHEAST OF GLYNDON, 3.4 MILES NORTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND TRUNK HIGHWAY 10 (THE JUNCTION IS 3.5 MILES EAST OF GLYNDON), AT TRUNK HIGHWAY 9 MILEPOINT 167.15, 40.6 FEET WEST OF TRUNK HIGHWAY 9, 18.5 FEET SOUTH OF A FIELD ENTRANCE, 1.5 FEET EAST OF A WITNESS POST.

Station Pair: 1410 N - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
933.938	.016	2/1				2019	00000941	VERTICAL ADJUSTMENT				

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
933.938			846.550	.026	2011	2023	GPS3618	HORIZONTAL ADJUSTMENT				
933.938	.131		846.685	.066	1996	2023	HFELT	GPS - STATIC				
933.938			846.550	.026	2011	2023	HFELT	GPS - STATIC				
934.034	.262		846.488	.197	2011	2014	RTRN2014	GPS - RTRN				

**Geoid Separations(ft):** GEOID18 = -87.559    12B = -87.546    09 = -87.418    03 = -87.398

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Acc</u>		<u>Order</u>		<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>		
46 55 32.99036	96 30 21.40980	548513.249	207964.402	.016		2023	GPS3618	ADJUSTMENT					
46 55 32.99036	96 30 21.40980	548513.249	207964.402	.016	C	2023	HFELT	GPS - STATIC					
46 55 32.99105	96 30 21.41024	548513.218	207964.472	.131	3	2014	RTRN2014	GPS - RTRN					

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Acc</u>		<u>Order</u>		<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>		
46 55 32.99005	96 30 21.41037	548513.209	207964.370	.033	C	2023	HFELT	GPS - STATIC					

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Acc</u>		<u>Order</u>		<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>		
2061058.474	1038389.090	764764.755	17069816.596	.016		2023	GPS3618	ADJUSTMENT					
2061058.474	1038389.090	764764.755	17069816.596	.016	C	2023	HFELT	GPS - STATIC					
2061058.445	1038389.160	764764.728	17069816.667	.131	3	2014	RTRN2014	GPS - RTRN					

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Acc</u>		<u>Order</u>		<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>		
2061058.433	1038389.059	764764.714	17069816.566	.033	C	2023	HFELT	GPS - STATIC					

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DAVID-DQ1944-3W-10JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DAVID-DQ1944-3W-10JUN2014.jpg</a>	W	Jun 10, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DAVID-DQ1944-2-10JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DAVID-DQ1944-2-10JUN2014.jpg</a>		Jun 10, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DAVID-DQ1944-1-10JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DAVID-DQ1944-1-10JUN2014.jpg</a>		Jun 10, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: DEEP

NGS Name: DEEP

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ2013](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096232/  
 USGS Quad: ULEN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	16	141 N	44 W	470129.16	961529.53	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 39 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      **Stamping:** DEEP 2014

3.75 MILES SOUTH OF ULEN, 3.75 MILES SOUTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND COUNTY ROAD 34 IN ULEN, AT TRUNK HIGHWAY 32 MILEPOINT 25.8, 42.8 FEET WEST OF TRUNK HIGHWAY 32, 22.5 FEET SOUTH OF A FIELD ENTRANCE, 5.0 FEET NORTH OF A WITNESS POST.

Station Pair: MIKE - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88			Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1209.056	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1209.056	.131		1121.546	.066	1996	GPS - STATIC	2023	HHITT
1209.056			1121.422	.013	2011	GPS - STATIC	2023	HHITT
1209.056			1121.422	.013	2011	HORIZONTAL ADJUSTMENT	2023	GPS3626
1209.190	.262		1121.402	.197	2011	GPS - RTRN	2022	RTRN2022
1209.131	.262		1121.343	.197	2011	GPS - RTRN	2014	RTRN2014

Geoid Separations(ft): GEOID18 = -87.789 12B = -87.789 09 = -87.677 03 = -87.631

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
47 01 29.16020	96 15 29.52508	610217.325	244301.988	.010	C	GPS - STATIC	2023	HHITT
47 01 29.16020	96 15 29.52508	610217.325	244301.988	.010		ADJUSTMENT	2023	GPS3626
47 01 29.15961	96 15 29.52533	610217.308	244301.928	.131	3	GPS - RTRN	2022	RTRN2022
47 01 29.15984	96 15 29.52539	610217.304	244301.951	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(1996)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
47 01 29.16003	96 15 29.52548	610217.298	244301.971	.033	C	GPS - STATIC	2023	HHITT

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		UTM - Zone 15				Project Info				
MN State Plane - Central Zone		X	Y	Acc	Order	Determination Method	Year	Reference		
		2123854.063	1072795.889	828138.586	17103212.292	.010	C	GPS - STATIC	2023	HHITT
		2123854.063	1072795.889	828138.586	17103212.292	.010		ADJUSTMENT	2023	GPS3626
		2123854.044	1072795.830	828138.566	17103212.233	.131	3	GPS - RTRN	2022	RTRN2022
		2123854.040	1072795.853	828138.563	17103212.256	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(1996)		UTM - Zone 15				Project Info				
MN State Plane - Central Zone		X	Y	Acc	Order	Determination Method	Year	Reference		
		2123854.034	1072795.873	828138.558	17103212.276	.033	C	GPS - STATIC	2023	HHITT



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DEEP-DQ2013-3W-03JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DEEP-DQ2013-3W-03JUN2014.jpg</a>	W	Jun 3, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DEEP-DQ2013-2-03JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DEEP-DQ2013-2-03JUN2014.jpg</a>		Jun 3, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DEEP-DQ2013-1-03JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DEEP-DQ2013-1-03JUN2014.jpg</a>		Jun 3, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: DEERE

NGS Name: DEERE

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ2021](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096141/  
 USGS Quad: HAWLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	11	139 N	45 W	465236.25	961920.99	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2013	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 55 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2013)                      Stamping: DEERE 2013

IN HAWLEY, AT THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 31/230TH STREET AND COUNTY ROAD 33/10TH STREET IN HAWLEY, AT TRUNK HIGHWAY 10 MILEPOINT 21.4, 114.4 FEET WEST OF COUNTY 31/230TH STREET, 78.4 FEET SOUTH OF EASTBOUND TRUNK HIGHWAY 10, 1.5 FEET NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1152.763	.016	2/1					VERTICAL ADJUSTMENT	2024	0000941-3	
1152.763	.016	2/1					VERTICAL CONTROL SURVEY	2023	VMOFA	
1152.763	.016	2/1					VERTICAL ADJUSTMENT	2019	0000941	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1152.763				1065.093	.026	2011	HORIZONTAL ADJUSTMENT	2024	GPS3719	
1152.763	.131			1065.224	.066	1996	GPS - STATIC	2024	HMOFA1	
1152.763				1065.093	.026	2011	GPS - STATIC	2024	HMOFA1	
1152.875	.262			1065.041	.197	2011	GPS - RTRN	2022	RTRN2022	
1152.777	.262			1064.965	.197	2011	GPS - RTRN	2015	RTRN2015	
1152.777	.262			1064.962	.197	2011	GPS - RTRN	2014	RTRN2014	
1152.777	.262			1064.965	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.834    12B = -87.812    09 = -87.703    03 = -87.664

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 52 36.24687	96 19 20.99032	594440.448	190224.228	.013		ADJUSTMENT	2024	GPS3719	
46 52 36.24687	96 19 20.99032	594440.448	190224.228	.013	C	GPS - STATIC	2024	HMOFA1	
46 52 36.24707	96 19 20.98906	594440.536	190224.248	.131	3	GPS - RTRN	2022	RTRN2022	
46 52 36.24728	96 19 20.99048	594440.437	190224.269	.131	3	GPS - RTRN	2015	RTRN2015	
46 52 36.24683	96 19 20.99077	594440.417	190224.224	.131	3	GPS - RTRN	2014	RTRN2014	
46 52 36.24728	96 19 20.99048	594440.437	190224.269	.131	3	GPS - RTRN	2014	RTRN2014	

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 52 36.24654	96 19 20.99085	594440.412	190224.194	.033	C	GPS - STATIC	2024	HMOFA1	



State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2106410.749	1019236.996	809821.348	17049922.693	.013		ADJUSTMENT	2024	GPS3719
2106410.749	1019236.996	809821.348	17049922.693	.013	C	GPS - STATIC	2024	HMOFA1
2106410.837	1019237.014	809821.436	17049922.710	.131	3	GPS - RTRN	2022	RTRN2022
2106410.740	1019237.038	809821.338	17049922.735	.131	3	GPS - RTRN	2015	RTRN2015
2106410.718	1019236.993	809821.316	17049922.690	.131	3	GPS - RTRN	2014	RTRN2014
2106410.740	1019237.038	809821.338	17049922.735	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2106410.712	1019236.964	809821.309	17049922.662	.033	C	GPS - STATIC	2024	HMOFA1

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DEERE-DQ2021-3S-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DEERE-DQ2021-3S-14JUN2022.jpg</a>	S	Jun 14, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DEERE-DQ2021-2-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DEERE-DQ2021-2-14JUN2022.jpg</a>		Jun 14, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DEERE-DQ2021-1-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DEERE-DQ2021-1-14JUN2022.jpg</a>		Jun 14, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: DIL MNDT  
County: CLAY, MN (Sheet 1)

NGS Name: DIL

NGS ACRN: [RP1064](#) [Get Map](#)  
NGS Quad / Sta Num : 46096413/1078  
USGS Quad: SABIN

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	19	139 N	47 W	465051.37	964011.70		2

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1961	1991	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

**Description:** (1991) **Stamping:** DIL USCGS 1961

2.8 MILES SOUTHEAST OF MOORHEAD, 2.8 MILES SOUTHEAST OF THE JUNCTION OF TRUNK HIGHWAY 52 AND TRUNK HIGHWAY 75, THEN 2.5 MILES EAST OF TRUNK HIGHWAY 52, 39.0 FEET SOUTH OF 28TH AVENUE SOUTH, 36.0 FEET WEST OF THE WEST COTTONWOOD TREE, 86.45 FEET SOUTH OF DIL MNDT RM 1, 75.40 FEET EAST OF DIL MNDT RM 2.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
912.072	.197		825.372	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
912.104						RECIPROCAL VERTICAL ANGLE	1961	HORZ

Geoid Separations(ft): GEOID18 = -87.287 12B = -87.306 09 = -87.162 03 = -87.090

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 50 51.37336	96 40 11.69572	507551.221	179373.187	.066	2	ADJUSTMENT	1999	17648
46 50 51.37342	96 40 11.69546	507551.239	179373.193	.066	2	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 50 51.37232	96 40 11.68682	507551.839	179373.082	.066	2	ADJUSTMENT	1986	17289

<u>NAD27</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 50 51.50660	96 40 10.40160			.100	2	CLASSICAL SURVEY	1962	12924

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2019234.683	1011081.084	722480.189	17043176.063	.066	2	ADJUSTMENT	1999	17648
2019234.701	1011081.090	722480.207	17043176.068	.066	2	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2019235.297	1011080.960	722480.802	17043175.929	.066	2	ADJUSTMENT	1986	17289

<u>NAD27</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1394639.741	683004.593			.100	2	CLASSICAL SURVEY	1962	12924



Mn/DOT Name: DIL MNDT RM 1

NGS Name: DIL RM 1

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP3633](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	19	139 N	47 W	465051.00	964011.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1961	2001	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	MNDT

Description: Stamping: DIL NO 1 1961

2.6 MILES SOUTHEAST OF DILWORTH, 1.9 MILES EAST ALONG TRUNK HIGHWAY 10 EAST (CENTER AVENUE EAST) FROM THE JUNCTION OF TRUNK HIGHWAY 10 EAST (CENTER AVENUE EAST) AND 4TH STREET SOUTHEAST IN DILWORTH, THEN 2.3 MILES SOUTH ALONG TRUNK HIGHWAY 336 SOUTH (70TH STREET SOUTH), THEN 0.8 MILE WEST ALONG INTERSTATE HIGHWAY 94 WEST.

\* No Horizontal or Vertical Positions in the Database \*

**Geoid Separations(ft): GEOID18 = -87.290 12B = -87.306 09 = -87.162 03 = -87.090**



Mn/DOT Name: DIL MNDT RM 2

NGS Name: DIL RM 2

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP3634](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	19	139 N	47 W	465051.00	964011.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1961	2001	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	MNDT

**Description:** **Stamping:** DIL NO 2 1961

2.6 MILES SOUTHEAST OF DILWORTH, 1.9 MILES EAST ALONG TRUNK HIGHWAY 10 EAST (CENTER AVENUE EAST) FROM THE JUNCTION OF TRUNK HIGHWAY 10 EAST (CENTER AVENUE EAST) AND 4TH STREET SOUTHEAST IN DILWORTH, THEN 2.3 MILES SOUTH ALONG TRUNK HIGHWAY 336 SOUTH (70TH STREET SOUTH), THEN 0.8 MILE WEST ALONG INTERSTATE HIGHWAY 94 WEST.

\* No Horizontal or Vertical Positions in the Database \*

**Geoid Separations(ft): GEOID18 = -87.290 12B = -87.306 09 = -87.162 03 = -87.090**



Mn/DOT Name: DILWORTH MUNICIPAL TANK

NGS Name: DILWORTH MUNICIPAL TANK

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP1069](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/1064  
 USGS Quad: DILWORTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	11	139 N	48 W	465231.42	964159.24		4

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	1954	GOOD	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	ELEVATED TANK	NGS

Description: (1954)

Stamping:

IN DILWORTH, 0.1 MILE WEST ALONG 1ST AVENUE SOUTHEAST FROM THE JUNCTION WITH 4TH STREET SOUTHEAST IN DILWORTH, 155.30 FEET EAST OF 2ND AVENUE SOUTHEAST.

\* No Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.129 12B = -87.123 09 = -86.991 03 = -86.942

Lat/Lon and County Coordinates (Feet)

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 52 31.41611	96 41 59.23853	500075.564	189507.762	.328	4	ADJUSTMENT	1999	17648
46 52 31.41617	96 41 59.23845	500075.569	189507.768	.328	4	ADJUSTMENT	1998	17655

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 52 31.41509	96 41 59.22948	500076.192	189507.658	.328	4	ADJUSTMENT	1986	17289

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
46 52 31.54900	96 41 57.94600			.100	4	CLASSICAL SURVEY	1956	11230

State Plane and UTM Coordinates (Feet)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2012076.637	1021441.186	715486.872	17053657.232	.328	4	ADJUSTMENT	1999	17648
2012076.643	1021441.192	715486.878	17053657.237	.328	4	ADJUSTMENT	1998	17655

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2012077.262	1021441.064	715487.496	17053657.099	.328	4	ADJUSTMENT	1986	17289

<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1387481.311	693364.593			.100	4	CLASSICAL SURVEY	1956	11230



Mn/DOT Name: DING  
 County: CLAY, MN (Sheet 1)

NGS Name: DING

NGS ACRN: [DP7351](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096324/  
 USGS Quad: FELTON NW

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	6	142 N	47 W	470904.64	964124.54		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2013	2013	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 74 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: DING 2013

5.0 MILES NORTHEAST OF GEORGETOWN, 2.8 MILES EAST ALONG COUNTY ROAD 34 (160TH AVENUE NORTH) FROM THE JUNCTION OF COUNTY ROAD 34 AND TRUNK HIGHWAY 75 IN GEORGETOWN (THE JUNCTION TIE AT TRUNK HIGHWAY 75 MILEPOST 265.9), THEN 3.0 MILES NORTH ON COUNTY ROAD 5 (30TH STREET NORTH), THEN 2.0 MILES EAST ON COUNTY ROAD 70, THEN 2.0 MILES NORTH ON 50TH STREET NORTH, 20.7 FEET EAST OF 50TH STREET NORTH, 17.2 FEET SOUTH OF 210TH AVENUE NORTH, 20.7 FEET WEST OF EXTENDED COUNTY ROAD 122, 1.5 FEET EAST OF A WITNESS POST.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>						
887.436			800.553	.029	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084					
887.442	.131		800.694	.066	1996	GPS - STATIC	2015	HCLAY					
887.436			800.553	.029	2011	GPS - STATIC	2015	HCLAY					
887.337	.262		800.491	.197	2011	GPS - RTRN	2013	RTRN2013					

Geoid Separations(ft): GEOID18 = -86.847    12B = -86.850    09 = -86.742    03 = -86.726

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>				<u>Clay County</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
47 09 04.63608	96 41 24.53808	502473.798	290140.517	.020		ADJUSTMENT	2015	GPS3084		
47 09 04.63608	96 41 24.53808	502473.798	290140.517	.020	C	GPS - STATIC	2015	HCLAY		
47 09 04.63645	96 41 24.53810	502473.796	290140.555	.131	3	GPS - RTRN	2013	RTRN2013		

<u>NAD83(1996)</u>		<u>Geodetic Position</u>				<u>Clay County</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
47 09 04.63554	96 41 24.53888	502473.742	290140.463	.033	C	GPS - STATIC	2015	HCLAY		

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
2017585.837	1121946.386	722641.281	17154116.879	.020		ADJUSTMENT	2015	GPS3084		
2017585.837	1121946.386	722641.281	17154116.879	.020	C	GPS - STATIC	2015	HCLAY		
2017585.837	1121946.423	722641.281	17154116.917	.131	3	GPS - RTRN	2013	RTRN2013		

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
2017585.780	1121946.333	722641.223	17154116.827	.033	C	GPS - STATIC	2015	HCLAY		

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DING-DP7351-3W-22AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DING-DP7351-3W-22AUG2013.jpg</a>	W	Aug 22, 2013
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DING-DP7351-2-22AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DING-DP7351-2-22AUG2013.jpg</a>		Aug 22, 2013
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DING-DP7351-1-22AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DING-DP7351-1-22AUG2013.jpg</a>		Aug 22, 2013

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: DOW MNDT  
County: CLAY, MN (Sheet 1)

NGS Name: DOW

NGS ACRN: [RP0397](#) [Get Map](#)  
NGS Quad / Sta Num : 46096412/1082  
USGS Quad: GLYNDON SOUTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
				<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	20	138 N	46 W	464517.27	963133.75	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1961	2023	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	TRAVERSE STATION DISK	MNDT

**Description:** (2013)                      **Stamping:** DOW USCGS 1961

2.0 MILES WEST OF DOWNER, 2.0 MILES WEST ALONG COUNTY ROAD 10 FROM THE JUNCTION OF COUNTY ROAD 10 AND TRUNK HIGHWAY 9 IN DOWNER, 0.2 MILE WEST OF INTERSTATE HIGHWAY 94, 56.0 FEET EAST OF COUNTY ROAD 21 (130TH STREET), 92.0 FEET SOUTH OF COUNTY ROAD 10 (90TH AVENUE SOUTH), 74.76 FEET NORTH OF DOW MNDT RM 1, 1.0 FOOT NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
942.364	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941
942.498	.016	2/1				VERTICAL ADJUSTMENT	2012	00000717
942.498	.016	2/1				VERTICAL CONTROL SURVEY	2010	VBARN
942.498	.016	2/1				VERTICAL ADJUSTMENT	2006	00000425-10
942.495	.016	2/1				VERTICAL CONTROL SURVEY	2005	VPIET
942.364	.016	2				VERTICAL ADJUSTMENT	1991	00000025

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
941.468	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
941.468	.016	2				VERTICAL CONTROL SURVEY	1972	Q460964
941.468	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A
941.468	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
942.364			855.139	.016	2011	HORIZONTAL ADJUSTMENT	2025	GPS3805
942.364	.131		855.274	.066	1996	GPS - STATIC	2025	HTH94A
942.364			855.139	.016	2011	GPS - STATIC	2025	HTH94A
942.541	.262		855.136	.197	2011	GPS - RTRN	2023	RTRN2023
942.498			855.139	.020	2011	HORIZONTAL ADJUSTMENT	2014	GPS2750
942.498			855.139	.020	2011	GPS - STATIC	2014	HBARN
942.485	.131		855.221	.066	2007	GPS - STATIC	2010	HBARN
942.498	.131		855.274	.066	1996	GPS - STATIC	2010	HBARN
			855.202	.066	1996	GPS - STATIC	2001	DIST 4
942.354	.197		855.458	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -87.405    12B = -87.378    09 = -87.277    03 = -87.241



**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County				Project Info		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 45 17.27410	96 31 33.75010	543630.120	145570.440	.013		ADJUSTMENT	2025	GPS3805
46 45 17.27410	96 31 33.75010	543630.120	145570.440	.013	C	GPS - STATIC	2025	HTH94A
46 45 17.27383	96 31 33.74916	543630.185	145570.413	.131	3	GPS - RTRN	2023	RTRN2023
46 45 17.27410	96 31 33.75010	543630.120	145570.440	.013		ADJUSTMENT	2014	GPS2750
46 45 17.27410	96 31 33.75010	543630.120	145570.440	.013	C	GPS - STATIC	2014	HBARN

**NAD83(2007)**

Geodetic Position		Clay County				Project Info		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 45 17.27413	96 31 33.75105	543630.053	145570.442	.033	C	GPS - STATIC	2010	HBARN

**NAD83(1996)**

Geodetic Position		Clay County				Project Info		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 45 17.27367	96 31 33.75096	543630.060	145570.396	.033	C	GPS - STATIC	2025	HTH94A
46 45 17.27367	96 31 33.75096	543630.060	145570.396	.033	C	GPS - STATIC	2010	HBARN
46 45 17.27395	96 31 33.75137	543630.032	145570.424	.033	C	GPS - STATIC	2001	DIST 4
46 45 17.27755	96 31 33.75918	543629.487	145570.788	.066	2	ADJUSTMENT	1999	17648
46 45 17.27749	96 31 33.75921	543629.485	145570.782	.066	2	ADJUSTMENT	1998	17655

**NAD83(1986)**

Geodetic Position		Clay County				Project Info		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 45 17.27671	96 31 33.75024	543630.109	145570.704	.066	2	ADJUSTMENT	1986	17289

**NAD27**

Geodetic Position						Project Info		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 45 17.41800	96 31 32.49070			.100	2	CLASSICAL SURVEY	1962	12924

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2054247.362	976181.509	756943.956	17007694.935	.013		ADJUSTMENT	2025	GPS3805
2054247.362	976181.509	756943.956	17007694.935	.013	C	GPS - STATIC	2025	HTH94A
2054247.426	976181.479	756944.020	17007694.905	.131	3	GPS - RTRN	2023	RTRN2023
2054247.362	976181.509	756943.956	17007694.935	.013		ADJUSTMENT	2014	GPS2750
2054247.362	976181.509	756943.956	17007694.935	.013	C	GPS - STATIC	2014	HBARN

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2054247.296	976181.514	756943.890	17007694.941	.033	C	GPS - STATIC	2010	HBARN

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2054247.301	976181.467	756943.894	17007694.894	.033	C	GPS - STATIC	2025	HTH94A
2054247.301	976181.467	756943.894	17007694.894	.033	C	GPS - STATIC	2010	HBARN
2054247.273	976181.496	756943.867	17007694.924	.033	C	GPS - STATIC	2001	DIST 4
2054246.740	976181.876	756943.339	17007695.313	.066	2	ADJUSTMENT	1999	17648
2054246.738	976181.870	756943.337	17007695.307	.066	2	ADJUSTMENT	1998	17655

**NAD83(1986)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2054247.360	976181.773	756943.958	17007695.200	.066	2	ADJUSTMENT	1986	17289

**NAD27**

MN State Plane - Central Zone						Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1429651.278	648106.444			.100	2	CLASSICAL SURVEY	1962	12924



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DOW-RP0397-3E-14AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DOW-RP0397-3E-14AUG2023.jpg</a>	E	Aug 14, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DOW-RP0397-2-14AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DOW-RP0397-2-14AUG2023.jpg</a>		Aug 14, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DOW-RP0397-1-14AUG2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DOW-RP0397-1-14AUG2023.jpg</a>		Aug 14, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: DOW MNDT RM 1

NGS Name: DOW RM 1

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP3659](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	20	138 N	46 W	464516.54	963133.76	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1961	2010	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	MNDT

**Description:** (2013)                      **Stamping:** DOW NO 1 1961

2.0 MILES WEST OF DOWNER, 2.0 MILES WEST ALONG COUNTY ROAD 10 FROM THE JUNCTION OF COUNTY ROAD 10 AND TRUNK HIGHWAY 9 IN DOWNER, 1000.0 FEET WEST OF INTERSTATE HIGHWAY 94, 166.5 FEET SOUTH OF COUNTY ROAD 10, 91.0 FEET NORTHWEST OF COUNTY 21 SIGN, 74.76 FEET NORTH OF STATION DOW MNDT, 69.0 FEET SOUTH OF A POWER POLE WITH 2 GUY WIRES, 57.0 FEET EAST OF COUNTY ROAD 21, 71.0 FEET SOUTH OF A WITNESS POST, 68.8 FEET SOUTH OF A POWER POLE, 8.1 FEET NORTHWEST OF A POWER POLE, 4.0 FEET NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
941.944	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
942.078	.016	2/1					VERTICAL ADJUSTMENT	2012	00000717	
942.078	.016	2/1					VERTICAL CONTROL SURVEY	2010	VBARN	

Geoid Separations(ft): GEOID18 = -87.405    12B = -87.375    09 = -87.277    03 = -87.237

\* No Horizontal Positions in the Database \*

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DOW_RM_1-CP3659-3E-09APR2008.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DOW_RM_1-CP3659-3E-09APR2008.jpg</a>	E	Apr 9, 2008
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DOW_RM_1-CP3659-2-09APR2008.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DOW_RM_1-CP3659-2-09APR2008.jpg</a>		Apr 9, 2008
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DOW_RM_1-CP3659-1-09APR2008.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DOW_RM_1-CP3659-1-09APR2008.jpg</a>		Apr 9, 2008

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: DOW MNDT RM 2

NGS Name: DOW RM 2

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP3660](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

	<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
<u>1/4</u> <u>Sec</u> <u>Twp</u> <u>Rng</u>	464517.28	963134.68		
NW 20 138 N 46 W				

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1961	2005	NOT FOUND	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	MNDT

Description: Stamping: DOW NO 2 1961

3.1 MILES NORTHEAST OF BAKER, 0.2 MILE EAST ALONG 123RD AVENUE SOUTH/MAIN AVENUE FROM THE JUNCTION OF 123RD AVENUE SOUTH/MAIN AVENUE AND 118TH STREET SOUTH IN BAKER, THEN 0.3 MILE NORTH ALONG 120TH STREET SOUTH, THEN 1.0 MILE NORTH ALONG COUNTY ROAD 62 (120TH AVENUE SOUTH), THEN 2.6 MILES NORTH ALONG 130TH STREET SOUTH.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.405 12B = -87.378 09 = -87.277 03 = -87.241



Mn/DOT Name: DOWNER NORTHWEST ELEVATOR

NGS Name: DOWNER NORTHWEST ELEVATOR

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0947](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096143/1015  
 USGS Quad: DOWNER

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SE	21	138 N	46 W	464508.34	962903.15		4

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1906	1966	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	GRAIN ELEVATOR	NGS

Description: (1966)

Stamping:

0.2 MILE SOUTHEAST OF DOWNER, 0.2 MILE EAST ALONG COUNTY HIGHWAY 10 (90TH AVENUE SOUTH) FROM THE JUNCTION OF COUNTY HIGHWAY 10 (90TH AVENUE SOUTH) AND 148TH STREET SOUTH IN DOWNER, THEN 0.1 MILE SOUTH-SOUTHEAST ALONG TRUNK HIGHWAY 9 SOUTH.

\* No Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.428 12B = -87.401 09 = -87.296 03 = -87.264

Lat/Lon and County Coordinates (Feet)

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 45 08.34392	96 29 03.14613	554119.557	144691.661	.328	4	ADJUSTMENT	1999	17648
46 45 08.34369	96 29 03.14640	554119.539	144691.638	.328	4	ADJUSTMENT	1998	17655

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 45 08.34265	96 29 03.13717	554120.182	144691.534	.328	4	ADJUSTMENT	1986	17289

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
46 45 08.48900	96 29 01.88000			.100	4	CLASSICAL SURVEY	1928	00155

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
46 45 08.69500	96 29 02.26700				3	CLASSICAL SURVEY		17389-73

State Plane and UTM Coordinates (Feet)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2064703.544	974978.679	767384.950	17006323.031	.328	4	ADJUSTMENT	1999	17648
2064703.524	974978.656	767384.930	17006323.009	.328	4	ADJUSTMENT	1998	17655

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2064704.164	974978.533	767385.568	17006322.875	.328	4	ADJUSTMENT	1986	17289

<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1440108.251	646903.762			.100	4	CLASSICAL SURVEY	1928	00155



Mn/DOT Name: DOWNER SOUTHEAST ELEVATOR

NGS Name: DOWNER SOUTHEAST ELEVATOR

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0946](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096143/1016  
 USGS Quad: DOWNER

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SE	21	138 N	46 W	464505.65	962901.23		4

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1906	1906	GOOD	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	GRAIN ELEVATOR	NGS

Description: (1906)

Stamping:

0.2 MILE SOUTHEAST OF DOWNER, 0.2 MILE EAST ALONG COUNTY ROAD 10 (90TH AVENUE SOUTH) FROM THE JUNCTION OF COUNTY ROAD 10 (90TH AVENUE SOUTH) AND 148TH STREET SOUTH IN DOWNER, THEN 0.2 MILE SOUTH-SOUTHEAST ALONG TRUNK HIGHWAY 9 SOUTH.

\* No Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.424 12B = -87.398 09 = -87.293 03 = -87.260

**Lat/Lon and County Coordinates (Feet)**

**NAD83(1996)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 45 05.64503	96 29 01.22766	554253.904	144418.591	.328	4	ADJUSTMENT	1999	17648
46 45 05.64481	96 29 01.22792	554253.886	144418.568	.328	4	ADJUSTMENT	1998	17655

**NAD83(1986)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 45 05.64379	96 29 01.21863	554254.533	144418.467	.328	4	ADJUSTMENT	1986	17289

**NAD27**

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 45 05.79100	96 28 59.96100			.100	4	CLASSICAL SURVEY	1928	00155

**USSD**

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 45 05.99700	96 29 00.34700				3	CLASSICAL SURVEY		17389-73

**State Plane and UTM Coordinates (Feet)**

**NAD83(1996)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2064829.362	974701.609	767506.352	17006043.824	.328	4	ADJUSTMENT	1999	17648
2064829.344	974701.587	767506.333	17006043.803	.328	4	ADJUSTMENT	1998	17655

**NAD83(1986)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2064829.987	974701.466	767506.975	17006043.671	.328	4	ADJUSTMENT	1986	17289

**NAD27**

<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1440234.115	646626.783			.100	4	CLASSICAL SURVEY	1928	00155



Mn/DOT Name: DRAHEIM  
County: CLAY, MN (Sheet 1)

NGS Name: DRAHEIM

NGS ACRN: [DQ1987](#) [Get Map](#)  
NGS Quad / Sta Num : 46096124/  
USGS Quad: ROLLAG

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	9	137 N	44 W	464135.64	961412.62	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 1 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 26 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: DRAHEIM 2014

9.1 MILES EAST-NORTHEAST OF BARNESVILLE, 8.75 MILES EAST ALONG TRUNK HIGHWAY 34 FROM THE JUNCTION OF TRUNK HIGHWAY 34 AND TRUNK HIGHWAY 9 IN BARNESVILLE, THEN 2.35 MILES NORTH ON TRUNK HIGHWAY 32, AT TRUNK HIGHWAY 32 MILEPOINT 2.35, 51.0 FEET WEST OF TRUNK HIGHWAY 32, 31.3 FEET NORTH OF A FIELD ENTRANCE, 1.5 FEET EAST OF A WITNESS POST.

Station Pair:    RADTKE - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
1404.597	.016	2/1				2019	00000941	VERTICAL ADJUSTMENT				

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
1404.597			1317.458	.012	2011	2024	GPS3762	HORIZONTAL ADJUSTMENT				
1404.597	.131		1317.570	.066	1996	2024	HTH32	GPS - STATIC				
1404.597			1317.458	.012	2011	2024	HTH32	GPS - STATIC				
1404.682	.262		1317.481	.197	2011	2023	RTRN2023	GPS - RTRN				
1404.554	.262		1317.392	.197	2011	2014	RTRN2014	GPS - RTRN				

**Geoid Separations(ft): GEOID18 = -87.201    12B = -87.162    09 = -87.080    03 = -87.031**

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 41 35.64497	96 14 12.61884	616258.973	123409.874	.007		ADJUSTMENT	2024	GPS3762
46 41 35.64497	96 14 12.61884	616258.973	123409.874	.007	C	GPS - STATIC	2024	HTH32
46 41 35.64411	96 14 12.61821	616259.017	123409.788	.131	3	GPS - RTRN	2023	RTRN2023
46 41 35.64541	96 14 12.61857	616258.991	123409.919	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 41 35.64483	96 14 12.61902	616258.960	123409.860	.033	C	GPS - STATIC	2024	HTH32

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2126147.707	951786.098	828476.738	16982134.289	.007		ADJUSTMENT	2024	GPS3762
2126147.707	951786.098	828476.738	16982134.289	.007	C	GPS - STATIC	2024	HTH32
2126147.748	951786.010	828476.779	16982134.200	.131	3	GPS - RTRN	2023	RTRN2023
2126147.727	951786.142	828476.759	16982134.333	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2126147.694	951786.085	828476.725	16982134.275	.033	C	GPS - STATIC	2024	HTH32



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DRAHEIM-DQ1987-3W-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DRAHEIM-DQ1987-3W-18OCT2023.jpg</a>	W	Oct 18, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DRAHEIM-DQ1987-2-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DRAHEIM-DQ1987-2-18OCT2023.jpg</a>		Oct 18, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DRAHEIM-DQ1987-1-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/DRAHEIM-DQ1987-1-18OCT2023.jpg</a>		Oct 18, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: E 377

NGS Name: E 377

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0735](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	8	140 N	46 W	465749.09	963020.55	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1982	2014	GOOD	Horz=NO Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STEEL ROD (NO SLEEVE) (DEPTH 24 FT)	METAL ROD	NGS

Description: (2014) Stamping: E 377 1982

6.5 MILES NORTHEAST OF GLYNDON, 6.0 MILES NORTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND TRUNK HIGHWAY 10 (THE JUNCTION IS 3.5 MILES EAST OF GLYNDON), AT TRUNK HIGHWAY 9 MILEPOINT 169.75, 71.0 FEET WEST OF TRUNK HIGHWAY 9, 36.0 FEET SOUTH OF 80TH AVENUE NORTH, 2.5 FEET SOUTH OF A DOUBLE-GUYED POWER POLE, 1.0 FOOT NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
930.979	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941
931.156	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
930.992	.262			843.640	.197	2011	GPS - RTRN	2014	RTRN2014

Geoid Separations(ft): GEOID18 = -87.352 12B = -87.352 09 = -87.224 03 = -87.201

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 57 49.08999	96 30 20.55429			548538.464	221753.931	.131	3	GPS - RTRN	2014	RTRN2014

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2061510.464	1052170.276			765441.028	17083595.449	.131	3	GPS - RTRN	2014	RTRN2014

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/E_377-RP0735-3W-28MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/E_377-RP0735-3W-28MAY2014.jpg</a>	W	May 28, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/E_377-RP0735-2-28MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/E_377-RP0735-2-28MAY2014.jpg</a>		May 28, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/E_377-RP0735-1-28MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/E_377-RP0735-1-28MAY2014.jpg</a>		May 28, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: EGLON

NGS Name: EGLON

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0942](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096142/1003  
 USGS Quad: HAWLEY SE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	21	139 N	44 W	465021.58	961516.83		1

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1906	1964	GOOD	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
OBJECT SURROUNDED BY A MASS OF CONCRETE	NAIL	NGS

Description: (1964)

Stamping:

4.0 MILES SOUTHEAST OF HAWLEY, 0.2 MILE SOUTHEAST ALONG 6TH STREET FROM THE JUNCTION OF 6TH STREET AND COUNTY ROAD 116 (MAIN STREET) IN HAWLEY, THEN 407.0 FEET EAST ALONG VALLEY STREET, THEN 167.0 FEET SOUTH ALONG 5TH STREET, THEN 2.6 MILES EAST ALONG TRUNK HIGHWAY 10 EAST, THEN 2.6 MILES SOUTH ALONG TRUNK HIGHWAY 32 SOUTH (260TH STREET SOUTH), 2.75 MILES SOUTH OF TRUNK HIGHWAY 10, 0.25 MILE EAST OF TRUNK HIGHWAY 32, 0.25 MILE NORTH OF COUNTY ROAD 12, IN A CULTIVATED FIELD, 184.0 FEET SOUTHWEST OF THE SOUTHWEST CORNER OF THE WOODS, 86.0 FEET EAST OF AN OLD FENCE LINE, 86.20 FEET EAST OF EGLON RM 1, 96.00 FEET NORTHEAST OF EGLON RM 2, 97.47 FEET SOUTHEAST OF EGLON RM 3.

Station Notes

ON PRIVATE PROPERTY

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1407.806	.131		1320.568	.066	1996	HORIZONTAL ADJUSTMENT	1999	17648

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1406.985						RECIPROCAL VERTICAL ANGLE	1959	HORZ

Geoid Separations(ft): GEOID18 = -87.628 12B = -87.615 09 = -87.506 03 = -87.447

**Lat/Lon and County Coordinates (Feet)**

**NAD83(1996)**

<u>Geodetic Position</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 50 21.57531	96 15 16.83387	611480.686	176668.667	.033	1	ADJUSTMENT	1999	17648
46 50 21.57475	96 15 16.83377	611480.693	176668.610	.033	1	ADJUSTMENT	1998	17655

**NAD83(1986)**

<u>Geodetic Position</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 50 21.57565	96 15 16.82747	611481.130	176668.704	.033	1	ADJUSTMENT	1986	17289

**NAD27**

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>			<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 50 21.72100	96 15 15.60600			.100	3	CLASSICAL SURVEY	1965	USGS-HORZ
46 50 21.72085	96 15 15.60596			.100	1	CLASSICAL SURVEY	1964	13522

**USSD**

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>			<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 50 21.93000	96 15 15.98000				3	CLASSICAL SURVEY		17389-73



State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2123021.404	1005161.478	826209.024	17035574.674	.033	1	ADJUSTMENT	1999	17648
2123021.410	1005161.421	826209.029	17035574.617	.033	1	ADJUSTMENT	1998	17655

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2123021.850	1005161.501	826209.471	17035574.690	.033	1	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone		<u>X</u>	<u>Y</u>	Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1498425.037	677086.761			.100	3	CLASSICAL SURVEY	1965	USGS-HORZ
1498425.040	677086.746			.100	1	CLASSICAL SURVEY	1964	13522



Mn/DOT Name: EGLON AZ MK

NGS Name: EGLON AZ MK

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP3700](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096142/  
 USGS Quad: HAWLEY SE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	21	139 N	44 W	465023.70	961538.23	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1959	2024	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	NGS

Description: (2013)                      Stamping: EGLON 1959

4.0 MILES SOUTHEAST OF HAWLEY, 2.6 MILES SOUTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND TRUNK HIGHWAY 10 (THE JUNCTION IS 3.0 MILES EAST OF HAWLEY), AT TRUNK HIGHWAY MILEPOINT 12.4, 73.8 FEET WEST OF TRUNK HIGHWAY 32, 1.0 FOOT SOUTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			
1338.121	.016	2/1				2019	00000941			

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			
1338.121			1250.614	.010	2011	2024	GPS3762			
1338.121	.131		1250.759	.066	1996	2024	HTH32			
1338.121			1250.614	.010	2011	2024	HTH32			
1338.268	.262		1250.631	.197	2011	2023	RTRN2023			
1338.268			1250.614	.026	2011	2015	GPS3084			
1338.245	.131		1250.759	.066	1996	2015	HCLAY			
1338.268			1250.614	.026	2011	2015	HCLAY			
1338.216	.262		1250.591	.197	2011	2014	RTRN2014			

Geoid Separations(ft): GEOID18 = -87.638    12B = -87.624    09 = -87.516    03 = -87.457

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
46 50 23.70287	96 15 38.22528	609992.272	176875.848	.007		2024	GPS3762		
46 50 23.70287	96 15 38.22528	609992.272	176875.848	.007	C	2024	HTH32		
46 50 23.70213	96 15 38.22485	609992.302	176875.773	.131	3	2023	RTRN2023		
46 50 23.70287	96 15 38.22528	609992.272	176875.848	.016		2015	GPS3084		
46 50 23.70287	96 15 38.22528	609992.272	176875.848	.016	C	2015	HCLAY		
46 50 23.70336	96 15 38.22544	609992.261	176875.897	.131	3	2014	RTRN2014		

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
46 50 23.70240	96 15 38.22605	609992.219	176875.800	.033	C	2024	HTH32		
46 50 23.70240	96 15 38.22605	609992.219	176875.800	.033	C	2015	HCLAY		

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2121540.268	1005414.637	824731.582	17035851.825	.007		ADJUSTMENT	2024	GPS3762
2121540.268	1005414.637	824731.582	17035851.825	.007	C	GPS - STATIC	2024	HTH32
2121540.296	1005414.561	824731.608	17035851.749	.131	3	GPS - RTRN	2023	RTRN2023
2121540.268	1005414.637	824731.582	17035851.825	.016		ADJUSTMENT	2015	GPS3084
2121540.268	1005414.637	824731.582	17035851.825	.016	C	GPS - STATIC	2015	HCLAY
2121540.258	1005414.687	824731.573	17035851.875	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2121540.213	1005414.591	824731.526	17035851.780	.033	C	GPS - STATIC	2024	HTH32
2121540.213	1005414.591	824731.526	17035851.780	.033	C	GPS - STATIC	2015	HCLAY

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<b>Location:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/EGLON_AZ_MK-CP3700-3W-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/EGLON_AZ_MK-CP3700-3W-18OCT2023.jpg</a>	W	Oct 18, 2023
<b>Monument:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/EGLON_AZ_MK-CP3700-2-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/EGLON_AZ_MK-CP3700-2-18OCT2023.jpg</a>		Oct 18, 2023
<b>Disk:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/EGLON_AZ_MK-CP3700-1-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/EGLON_AZ_MK-CP3700-1-18OCT2023.jpg</a>		Oct 18, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: EGLON RM

NGS Name: EGLON RM

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP3701](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096142/  
 USGS Quad: HAWLEY SE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	21	139 N	44 W	465021.71	961518.22		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1906	2014	GOOD	Horz=NO Vert=NO	NO		RECESSED 4 IN.	SEE DESCRIPTION

**Monument Type**

BLANK

**Disk Type**

REFERENCE MARK DISK

**Mon. Agency**

NGS

**Description:** (2007)

**Stamping:** 1906

4.1 MILES SOUTHEAST OF HAWLEY, 0.2 MILE SOUTHEAST ALONG 6TH STREET FROM THE JUNCTION OF 6TH STREET AND COUNTY ROAD 116 (MAIN STREET) IN HAWLEY, THEN 407.0 FEET EAST ALONG VALLEY STREET, THEN 167.0 FEET SOUTH ALONG 5TH STREET, THEN 2.6 MILES EAST ALONG TRUNK HIGHWAY 10 EAST, THEN 2.6 MILES SOUTH ALONG TRUNK HIGHWAY 32 SOUTH (260TH STREET SOUTH), 1.0 FOOT NORTH OF A 2.0 INCH DIAMETER BY 4.0 INCH DIAMETER WOOD STAKE.

**Station Notes**

ON PRIVATE PROPERTY

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.624 12B = -87.615 09 = -87.506 03 = -87.447



Mn/DOT Name: EGLON RM 2

NGS Name: EGLON RM 2

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP3703](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096142/  
 USGS Quad: HAWLEY SE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	21	139 N	44 W	465021.11	961518.04		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1959	2014	GOOD	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** **Stamping:** EGLON NO 2 1906

4.1 MILES SOUTHEAST OF HAWLEY, 0.2 MILE SOUTHEAST ALONG 6TH STREET FROM THE JUNCTION OF 6TH STREET AND COUNTY ROAD 116 (MAIN STREET) IN HAWLEY, THEN 407.0 FEET EAST ALONG VALLEY STREET, THEN 167.0 FEET SOUTH ALONG 5TH STREET, THEN 2.6 MILES EAST ALONG TRUNK HIGHWAY 10 EAST, THEN 2.6 MILES SOUTH ALONG TRUNK HIGHWAY 32 SOUTH (260TH STREET SOUTH), 1.5 FEET SOUTH OF A STANDARD METAL WITNESS POST.

**Station Notes**  
 ON PRIVATE PROPERTY

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.624 12B = -87.615 09 = -87.506 03 = -87.447



Mn/DOT Name: EGLON RM 3

NGS Name: EGLON RM 3

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP3704](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096142/  
 USGS Quad: HAWLEY SE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	21	139 N	44 W	465022.11	961518.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1959	2014	GOOD	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** **Stamping:** EGLON NO 3 1906

4.1 MILES SOUTHEAST OF HAWLEY, 0.2 MILE SOUTHEAST ALONG 6TH STREET FROM THE JUNCTION OF 6TH STREET AND COUNTY ROAD 116 (MAIN STREET) IN HAWLEY, THEN 407.0 FEET EAST ALONG VALLEY STREET, THEN 167.0 FEET SOUTH ALONG 5TH STREET, THEN 2.6 MILES EAST ALONG TRUNK HIGHWAY 10 EAST, THEN 2.6 MILES SOUTH ALONG TRUNK HIGHWAY 32 SOUTH (260TH STREET SOUTH), 46.0 FEET SOUTH OF A SMALL TREE AND 1.0 FOOT NORTH OF A 2.0 INCH DIAMETER BY 4.0 INCH DIAMETER WOOD STAKE.

**Station Notes**

THE SURVEY MARK IS ON PRIVATE PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.624 12B = -87.615 09 = -87.506 03 = -87.447



Mn/DOT Name: ELK MNDT

NGS Name: ELK

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0929](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/1032  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	33	138 N	46 W	464356.10	962923.37		2

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1961	1968	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

**Description:** (1968)                      **Stamping:** ELK 1961

1.5 MILES SOUTH-SOUTHWEST OF DOWNER, 0.2 MILE EAST ALONG COUNTY HIGHWAY 10 (90TH AVENUE SOUTH) FROM THE JUNCTION OF COUNTY HIGHWAY 10 (90TH AVENUE SOUTH) AND 148TH STREET SOUTH IN DOWNER, THEN 1.3 MILES SOUTHEAST ALONG TRUNK HIGHWAY 9 SOUTH, THEN 0.5 MILE WEST ALONG 150TH STREET SOUTH, THEN 0.3 MILE SOUTH ALONG 150TH STREET SOUTH, THEN 0.3 MILE WEST ALONG 110TH AVENUE SOUTH.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
944.880	.197		858.059	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648		

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
944.913						RECIPROCAL VERTICAL ANGLE	1961	HORZ		

Geoid Separations(ft): GEOID18 = -87.290    12B = -87.264    09 = -87.159    03 = -87.129

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>Geodetic Position</u>				<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
46 43 56.09511	96 29 23.36503	552731.152	137367.983	.066	2	ADJUSTMENT	1999	17648		
46 43 56.09501	96 29 23.36498	552731.156	137367.973	.066	2	ADJUSTMENT	1998	17655		

<u>NAD83(1986)</u>		<u>Geodetic Position</u>				<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
46 43 56.09409	96 29 23.35633	552731.759	137367.881	.066	2	ADJUSTMENT	1986	17289		

<u>NAD27</u>		<u>Geodetic Position</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 43 56.23580	96 29 22.10450			.100	2	CLASSICAL SURVEY	1962	12924

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>				<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
2063089.331	967702.211	765652.852	16999069.698	.066	2	ADJUSTMENT	1999	17648		
2063089.334	967702.200	765652.855	16999069.687	.066	2	ADJUSTMENT	1998	17655		

<u>NAD83(1986)</u>		<u>MN State Plane - Central Zone</u>				<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
2063089.934	967702.090	765653.453	16999069.567	.066	2	ADJUSTMENT	1986	17289		

<u>NAD27</u>		<u>MN State Plane - Central Zone</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1438493.627	639626.888			.100	2	CLASSICAL SURVEY	1962	12924



Mn/DOT Name: ELK MNDT AZ MK

NGS Name: ELK AZ MK

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0103](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/1032  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	33	138 N	46 W	464356.09	962958.48	2	2

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1961	2005	NOT FOUND	Horz=NO Vert=NO	YES			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

**Description:** (1993) **Stamping:** ELK AZIMUTH MARK 1961

1.5 MILES SOUTH AND 0.75 MILE WEST OF DOWNER, 0.2 MILE EAST ALONG COUNTY HIGHWAY 10 (90TH AVENUE SOUTH) FROM THE JUNCTION OF COUNTY HIGHWAY 10 (90TH AVENUE SOUTH) AND 148TH STREET SOUTH IN DOWNER, THEN 1.3 MILES SOUTHEAST ALONG TRUNK HIGHWAY 9 SOUTH, THEN 0.5 MILE WEST ALONG 150TH STREET SOUTH, THEN 0.3 MILE SOUTH ALONG 150TH STREET SOUTH, THEN 0.8 MILE WEST ALONG 110TH AVENUE SOUTH, 23.0 FEET SOUTH OF 110TH AVENUE SOUTH, 0.1 MILE WEST OF A CULVERT, 0.25 MILE EAST OF THE CROSSROADS.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
949.345	.016	2/0					VERTICAL ADJUSTMENT	1991	00000025	

  

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
948.456	.016	2/0					UNKNOWN/APPROXIMATE	1992	UNCHECKED	
948.456	.016	2					VERTICAL CONTROL SURVEY	1972	Q460961	
948.456	.016	2					VERTICAL CONTROL SURVEY	1972	L22167-A	
948.456	.016	2					VERTICAL CONTROL SURVEY	1971	L22167-A	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
949.342	.197			862.538	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648	

Geoid Separations(ft): GEOID18 = -87.283 12B = -87.254 09 = -87.152 03 = -87.123

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(1996)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 43 56.08767	96 29 58.47660			550285.223	137360.848	.066	2	ADJUSTMENT	1999	17648
46 43 56.08756	96 29 58.47661			550285.222	137360.836	.066	2	ADJUSTMENT	1998	17655

  

<u>NAD83(1986)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 43 56.08669	96 29 58.46786			550285.832	137360.750	.066	2	ADJUSTMENT	1986	17289

  

<u>NAD27</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 43 56.22870	96 29 57.21490					.100	2	CLASSICAL SURVEY	1962	12924



**State Plane and UTM Coordinates (Feet)**

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2060644.601	967770.760	763208.247	16999177.651	.066	2	ADJUSTMENT	1999	17648
2060644.600	967770.749	763208.246	16999177.640	.066	2	ADJUSTMENT	1998	17655

**NAD83(1986)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2060645.207	967770.643	763208.851	16999177.525	.066	2	ADJUSTMENT	1986	17289

**NAD27**

MN State Plane - Central Zone		<u>X</u>	<u>Y</u>	Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1436048.906	639695.461			.100	2	CLASSICAL SURVEY	1962	12924

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ELK_AZ_MK-RP0103-3S-12MAR2015.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ELK_AZ_MK-RP0103-3S-12MAR2015.jpg</a>	S	Mar 12, 2015
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ELK_AZ_MK-RP0103-2-12MAR2015.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ELK_AZ_MK-RP0103-2-12MAR2015.jpg</a>		Mar 12, 2015
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ELK_AZ_MK-RP0103-1-12MAR2015.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ELK_AZ_MK-RP0103-1-12MAR2015.jpg</a>		Mar 12, 2015

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: ELK MNDT RM 1

NGS Name: ELK RM 1

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP3713](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	33	138 N	46 W	464356.00	962923.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1961	2001	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	MNDT

**Description:** **Stamping:** ELK NO 1 1961

1.5 MILES SOUTH-SOUTHWEST OF DOWNER, 0.2 MILE EAST ALONG COUNTY HIGHWAY 10 (90TH AVENUE SOUTH) FROM THE JUNCTION OF COUNTY HIGHWAY 10 (90TH AVENUE SOUTH) AND 148TH STREET SOUTH IN DOWNER, THEN 1.3 MILES SOUTH-SOUTHEAST ALONG TRUNK HIGHWAY 9 SOUTH, THEN 0.5 MILE WEST ALONG 150TH STREET SOUTH, THEN 0.3 MILE SOUTH ALONG 150TH STREET SOUTH, THEN 0.3 MILE WEST ALONG 110TH AVENUE SOUTH.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.290 12B = -87.264 09 = -87.159 03 = -87.129



Mn/DOT Name: ELK MNDT RM 2

NGS Name: ELK RM 2

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP3714](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	33	138 N	46 W	464356.00	962923.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1961	2001	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	MNDT

**Description:** (2011)                      **Stamping:** ELK NO 2 1961

1.5 MILES SOUTH-SOUTHWEST OF DOWNER, 0.2 MILE EAST ALONG COUNTY HIGHWAY 10 (90TH AVENUE SOUTH) FROM THE JUNCTION OF COUNTY HIGHWAY 10 (90TH AVENUE SOUTH) AND 148TH STREET SOUTH IN DOWNER, THEN 1.3 MILES SOUTH-SOUTHEAST ALONG TRUNK HIGHWAY 9 SOUTH, THEN 0.5 MILE WEST ALONG 150TH STREET SOUTH, THEN 0.3 MILE SOUTH ALONG 150TH STREET SOUTH, THEN 0.3 MILE WEST ALONG 110TH AVENUE SOUTH.

\* No Horizontal or Vertical Positions in the Database \*

**Geoid Separations(ft): GEOID18 = -87.290    12B = -87.264    09 = -87.159    03 = -87.129**



Mn/DOT Name: ELKTON  
 County: CLAY, MN (Sheet 1)

NGS Name: ELKTON RESET

NGS ACRN: [DF7629](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/1049  
 USGS Quad: GLYNDON SOUTH

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	7	138 N	46 W	464720.44	963234.81		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	1993	GOOD	Horz=NO Vert=NO	NO		RECESSED 12 IN.	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	TRAVERSE STATION DISK	MNDT

**Description:** (2013)                      **Stamping:** ELKTON USCGS 1954 RESET 1961

5.5 MILES EAST OF SABIN, 2.7 MILES EAST ALONG 80TH AVENUE SOUTH FROM THE JUNCTION OF 80TH AVENUE SOUTH AND OSBORN AVENUE SOUTH IN SABIN, THEN 3.0 MILES NORTH ALONG 100TH STREET SOUTH, THEN 2.0 MILES EAST ALONG 50TH AVENUE SOUTH, THEN 2.0 MILES SOUTH ALONG 120TH STREET SOUTH, THEN 0.2 MILE EAST ALONG COUNTY ROAD 71/ 70TH AVENUE SOUTH, 111.6 FEET SOUTH OF THE SOUTHEAST CORNER OF A SHED, 103.0 FEET SOUTHWEST OF THE NORTHWEST CORNER OF A BARN, 19.8 FEET SOUTH OF THE SOUTH SIDE OF A BARN EXTENDED, 109.50 FEET SOUTH OF ELKTON RM 1, 108.48 FEET WEST OF ELKTON RM 3.

**Station Notes**

THE SURVEY MARK IS ON PRIVATE PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

Orthometric Height			Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
			846.291	.026	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			846.452	.024	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
933.856	.131		846.498	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1905
933.856	.131		846.498	.066	1996	GPS - STATIC	2003	HMOOR

**NGVD29**

Orthometric Height			Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
935.005						RECIPROCAL VERTICAL ANGLE	1954	HORZ

Geoid Separations(ft): GEOID18 = -87.533    12B = -87.536    09 = -87.411    03 = -87.533

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 47 20.43510	96 32 34.80503	539353.788	158039.581	.020		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

Geodetic Position		Clay County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 47 20.43506	96 32 34.80600	539353.721	158039.577	.016		ADJUSTMENT	2007	GPS2300

**NAD83(1996)**

Geodetic Position		Clay County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 47 20.43451	96 32 34.80577	539353.737	158039.521	.033	C	ADJUSTMENT	2003	GPS1905
46 47 20.43451	96 32 34.80577	539353.737	158039.521	.033	C	GPS - STATIC	2003	HMOOR
46 47 20.43437	96 32 34.80720	539353.637	158039.507	.066	2	ADJUSTMENT	1999	17648
46 47 20.43441	96 32 34.80718	539353.639	158039.511	.066	2	ADJUSTMENT	1998	17655

**NAD83(1986)**

Geodetic Position		Clay County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 47 20.43359	96 32 34.79801	539354.277	158039.429	.066	2	ADJUSTMENT	1986	17289

**NAD27**

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 47 20.57500	96 32 33.53300			.100	C	CLASSICAL SURVEY	1950	UNK



State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2050359.281	988775.789	753257.544	17020357.183	.020		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2050359.213	988775.787	753257.476	17020357.182	.016		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2050359.228	988775.731	753257.490	17020357.126	.033	C	ADJUSTMENT	2003	GPS1905
2050359.228	988775.731	753257.490	17020357.126	.033	C	GPS - STATIC	2003	HMOOR
2050359.128	988775.720	753257.390	17020357.116	.066	2	ADJUSTMENT	1999	17648
2050359.129	988775.724	753257.391	17020357.120	.066	2	ADJUSTMENT	1998	17655

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2050359.765	988775.622	753258.025	17020357.008	.066	2	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone		<u>X</u>	<u>Y</u>	Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1425763.880	660700.230			.100	C	CLASSICAL SURVEY	1950	UNK



Mn/DOT Name: ELKTON 1954

NGS Name: ELKTON

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP1059](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	7	138 N	46 W	464720.40	963234.80		2

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	1961	DESTROYED	Horz=NO Vert=NO	YES			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	CGS

Description: (2007)                      Stamping: ELKTON 1954

5.0 MILES EAST-NORTHEAST OF SABIN, 4.7 MILES EAST ALONG COUNTY ROAD 67 FROM THE JUNCTION OF COUNTY ROAD 67 AND TRUNK HIGHWAY 52 IN SABIN, THEN 1.0 MILE NORTH ON A TOWNSHIP ROAD, THEN 0.1 MILE EAST ON COUNTY ROAD 71.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
935.037	.197		848.040	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -87.533    12B = -87.536    09 = -87.411    03 = -87.342

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>							
46 47 20.43437	96 32 34.80720	539353.637	158039.507	.066	2	ADJUSTMENT	1999	17648

<u>NAD27</u>						<u>Project Info</u>		
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>							
46 47 20.57500	96 32 33.53300			.100	2	CLASSICAL SURVEY	1962	12924

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>							
2050359.128	988775.720	753257.390	17020357.116	.066	2	ADJUSTMENT	1999	17648

<u>NAD27</u>						<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>							
1425763.880	660700.224			.100	2	CLASSICAL SURVEY	1962	12924



Mn/DOT Name: ELKTON AZ MK

NGS Name: ELKTON AZ MK

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP3715](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	7	138 N	46 W	464720.00	963302.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	1993	GOOD	Horz=? Vert=YES	NO		PROJECTS 4 IN.	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	NGS

**Description:** **Stamping:** ELKTON 1954

6.1 MILES SOUTH-SOUTHEAST OF GLYNDON, 0.7 MILE SOUTH ALONG PARKE AVENUE SOUTH FROM THE JUNCTION OF PARKE AVENUE SOUTH AND 4TH STREET SOUTHEAST IN GLYNDON, THEN 0.6 MILE EAST ALONG COUNTY ROAD 72/COUNTY ROAD 117 (12TH STREET SOUTHEAST), THEN 5.0 MILES SOUTH ALONG 110TH STREET SOUTH, THEN 0.8 MILE EAST ALONG COUNTY ROAD 71 (70TH AVENUE SOUTH), 0.4 MILE WEST-NORTHWEST OF STATION ELKTON, 50.0 FEET SOUTH ACROSS A DRAINAGE DITCH FROM THE CENTERLINE OF THE ROAD, 29.0 FEET WEST OF A POWER POLE.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.523 12B = -87.523 09 = -87.401 03 = -87.333



Mn/DOT Name: ELKTON RM 1

NGS Name: ELKTON RM 1

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP3716](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	7	138 N	46 W	464721.50	963234.57		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	1993	GOOD	Horz=YES Vert=YES	NO		FLUSH	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** **Stamping:** ELKTON NO 1 1954

6.2 MILES SOUTH-SOUTHEAST OF GLYNDON, 0.3 MILE NORTH ALONG PARKE AVENUE SOUTH FROM THE JUNCTION OF PARKE AVENUE SOUTH AND 4TH STREET SOUTHEAST IN GLYNDON, THEN 3.5 MILES EAST ALONG TRUNK HIGHWAY 10 (STATE STREET NORTHEAST), THEN 6.0 MILES SOUTH ALONG TRUNK HIGHWAY 9 SOUTH (140TH STREET SOUTH), THEN 1.8 MILES WEST ALONG COUNTY ROAD 71 (70TH AVENUE SOUTH), 2.0 FEET SOUTH OF THE SOUTHEAST CORNER OF A SMALL RED AND WHITE SHED.

**Station Notes**

STATION ELKTON, ELKTON RM 1, AND ELKTON RM 3 WERE FOUND IN 1993.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.533 12B = -87.536 09 = -87.411 03 = -87.342



Mn/DOT Name: ELKTON RM 2

NGS Name: ELKTON RM 2

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP3717](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	7	138 N	46 W	464719.76	963231.08		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	1993	NOT FOUND	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** **Stamping:** ELKTON NO 2 1954

6.2 MILES SOUTH-SOUTHEAST OF GLYNDON, 0.3 MILE NORTH ALONG PARKE AVENUE SOUTH FROM THE JUNCTION OF PARKE AVENUE SOUTH AND 4TH STREET SOUTHEAST IN GLYNDON, THEN 3.5 MILES EAST ALONG TRUNK HIGHWAY 10 (STATE STREET NORTHEAST), THEN 6.0 MILES SOUTH ALONG TRUNK HIGHWAY 9 SOUTH (140TH STREET SOUTH), THEN 1.8 MILES WEST ALONG COUNTY ROAD 71 (70TH AVENUE SOUTH).

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.533 12B = -87.536 09 = -87.411 03 = -87.342



Mn/DOT Name: ELKTON RM 3

NGS Name: ELKTON RM 3

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP3718](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	7	138 N	46 W	464720.59	963233.26		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1961	1993	GOOD	Horz=YES Vert=YES	NO		PROJECTS 1 IN.	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** **Stamping:** ELKTON USCGS 1961

6.2 MILES SOUTH-SOUTHEAST OF GLYNDON, 0.3 MILE NORTH ALONG PARKE AVENUE SOUTH FROM THE JUNCTION OF PARKE AVENUE SOUTH AND 4TH STREET SOUTHEAST IN GLYNDON, THEN 3.5 MILES EAST ALONG TRUNK HIGHWAY 10 (STATE STREET NORTHEAST), THEN 6.0 MILES SOUTH ALONG TRUNK HIGHWAY 9 SOUTH (140TH STREET SOUTH), THEN 1.8 MILES WEST ALONG COUNTY ROAD 71 (70TH AVENUE SOUTH), 6.0 FEET EAST AND 3.7 FEET SOUTH OF THE SOUTHWEST CORNER OF THE BARN.

**Station Notes**  
 STATION ELKTON, ELKTON RM1, AND ELKTON RM 3 WERE FOUND IN 1993.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.533 12B = -87.536 09 = -87.415 03 = -87.342



Mn/DOT Name: ELM  
 County: CLAY, MN (Sheet 1)

NGS Name: ELM

NGS ACRN: [DP7352](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	1	138 N	48 W	464815.34	964033.79		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2013	2013	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 65 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2013)                      Stamping: ELM 2013

3.5 MILES SOUTHEAST OF MOORHEAD, 2.8 MILES SOUTH ALONG COUNTY ROAD 11 (70TH STREET SOUTH) FROM THE JUNCTION OF COUNTY ROAD 11 AND TRUNK HIGHWAY 336 AND INTERSTATE HIGHWAY 94 IN MOORHEAD, THEN 1.05 MILES WEST ON COUNTY ROAD 12, 37.6 FEET SOUTH OF COUNTY ROAD 12, 0.1 MILE EAST OF COUNTY ROAD 52. 16.2 FEET WEST OF A FIELD ENTRANCE, 1.5 FEET EAST OF A WITNESS POST.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Orthometric Height				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference			
918.597			831.229	.023	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084			
918.535	.131		831.363	.066	1996	GPS - STATIC	2015	HCLAY			
918.597			831.229	.023	2011	GPS - STATIC	2015	HCLAY			
918.548	.262		831.202	.197	2011	GPS - RTRN	2013	RTRN2013			

Geoid Separations(ft): GEOID18 = -87.333    12B = -87.349    09 = -87.237    03 = -87.136

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 48 15.33604	96 40 33.78731	506020.386	163563.548	.016		ADJUSTMENT	2015	GPS3084
46 48 15.33604	96 40 33.78731	506020.386	163563.548	.016	C	GPS - STATIC	2015	HCLAY
46 48 15.33573	96 40 33.78789	506020.345	163563.516	.131	3	GPS - RTRN	2013	RTRN2013

NAD83(1996)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 48 15.33565	96 40 33.78814	506020.328	163563.508	.033	C	GPS - STATIC	2015	HCLAY

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2017215.757	995327.723	720205.119	17027447.926	.016		ADJUSTMENT	2015	GPS3084
2017215.757	995327.723	720205.119	17027447.926	.016	C	GPS - STATIC	2015	HCLAY
2017215.716	995327.692	720205.077	17027447.896	.131	3	GPS - RTRN	2013	RTRN2013

NAD83(1996)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2017215.699	995327.685	720205.059	17027447.889	.033	C	GPS - STATIC	2015	HCLAY

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ELM-DP7352-3S-21AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ELM-DP7352-3S-21AUG2013.jpg</a>	S	Aug 21, 2013
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ELM-DP7352-2-21AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ELM-DP7352-2-21AUG2013.jpg</a>		Aug 21, 2013
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ELM-DP7352-1-21AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ELM-DP7352-1-21AUG2013.jpg</a>		Aug 21, 2013

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: ET 4 JS  
County: CLAY, MN (Sheet 1)

NGS Name: ET 4 JS

NGS ACRN: [SL1473](#) [Get Map](#)  
NGS Quad / Sta Num : 47096231/  
USGS Quad: SYRE

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	10	142 N	44 W	470803.00	961531.44	2	C

  

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1963	2023	GOOD	Horz=YES Vert=YES	YES		PROJECTS 10 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	USGS

Description: (2014)                      Stamping: ET 4 JS 1963

3.0 MILES SOUTH OF SYRE, 3.20 MILES SOUTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND TRUNK HIGHWAY 113 IN SYRE, AT TRUNK HIGHWAY 32 MILEPOINT 33.3, 914.0 FEET SOUTH OF 200TH AVENUE NORTH EXTENSION, 137.0 FEET EAST OF TRUNK HIGHWAY 32, 49.0 FEET EAST OF A SNOWMOBILE TRAIL, 0.5 FOOT WEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1140.549	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941	
1140.687	.016	2/1				VERTICAL CONTROL SURVEY	2004	VSYRE	

  

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1139.679	.033	3				VERTICAL CONTROL SURVEY	1964	USGS-VERT	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1140.549	.131		1053.321	.066	1996	GPS - STATIC	2023	HHITT	
1140.549			1053.216	.018	2011	GPS - STATIC	2023	HHITT	
1140.549			1053.216	.018	2011	HORIZONTAL ADJUSTMENT	2023	GPS3626	
1140.618	.262		1053.164	.197	2011	GPS - RTRN	2022	RTRN2022	
1140.559	.262		1053.111	.197	2011	GPS - RTRN	2014	RTRN2014	
1140.844	.262		1053.814	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648	

Geoid Separations(ft): GEOID18 = -87.454    12B = -87.447    09 = -87.352    03 = -87.342

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>		
47 08 02.99544	96 15 31.43547	609859.911	284204.830	.013	C	GPS - STATIC	2023	HHITT		
47 08 02.99544	96 15 31.43547	609859.911	284204.830	.013		ADJUSTMENT	2023	GPS3626		
47 08 02.99512	96 15 31.43545	609859.912	284204.798	.131	3	GPS - RTRN	2022	RTRN2022		
47 08 02.99564	96 15 31.43614	609859.864	284204.850	.131	3	GPS - RTRN	2014	RTRN2014		

  

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>		
47 08 02.99514	96 15 31.43584	609859.885	284204.800	.033	C	GPS - STATIC	2023	HHITT		
47 08 02.98911	96 15 31.43695	609859.812	284204.188	.131	3	ADJUSTMENT	1999	17648		
47 08 02.98993	96 15 31.43444	609859.985	284204.272	.131	3	ADJUSTMENT	1998	17655		

  

<u>NAD83(1986)</u>		<u>Clay County</u>				<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>		
47 08 02.98943	96 15 31.43154	609860.186	284204.223	.131	3	ADJUSTMENT	1986	17289		

  

<u>NAD27</u>		<u>Clay County</u>				<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>		
47 08 03.12572	96 15 30.21742			.100	3	CLASSICAL SURVEY	1980	16196		

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2124733.612	1112688.546	829669.153	17143099.066	.013	C	GPS - STATIC	2023	HHITT
2124733.612	1112688.546	829669.153	17143099.066	.013		ADJUSTMENT	2023	GPS3626
2124733.612	1112688.514	829669.153	17143099.033	.131	3	GPS - RTRN	2022	RTRN2022
2124733.566	1112688.568	829669.108	17143099.088	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2124733.585	1112688.517	829669.126	17143099.037	.033	C	GPS - STATIC	2023	HHITT
2124733.493	1112687.908	829669.024	17143098.429	.131	3	ADJUSTMENT	1999	17648
2124733.669	1112687.987	829669.201	17143098.505	.131	3	ADJUSTMENT	1998	17655

**NAD83(1986)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2124733.868	1112687.931	829669.400	17143098.446	.131	3	ADJUSTMENT	1986	17289

**NAD27**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1500136.022	784611.853			.100	3	CLASSICAL SURVEY	1980	16196

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ET_4_JS-SL1473-3E-30JUN2004.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ET_4_JS-SL1473-3E-30JUN2004.jpg</a>	E	Jun 30, 2004
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ET_4_JS-SL1473-2-21MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ET_4_JS-SL1473-2-21MAY2014.jpg</a>		May 21, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ET_4_JS-SL1473-1-21MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ET_4_JS-SL1473-1-21MAY2014.jpg</a>		May 21, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: EWEST

NGS Name: EWEST

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ2019](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096232/  
 USGS Quad: ULEN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	28	142 N	44 W	470523.38	961529.92	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 26 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: EWEST 2014

0.8 MILE NORTH OF ULEN, 0.8 MILE NORTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND COUNTY ROAD 34 IN ULEN, AT TRUNK HIGHWAY 32 MILEPOINT 30.2, 38.2 FEET WEST OF TRUNK HIGHWAY 32, 57.0 FEET NORTH OF THE SOUTH ENTRANCE TO A REST AREA, 1.5 FEET EAST OF A WITNESS POST.

Station Pair: 1403 S RESET - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1134.634	.016	2/1							VERTICAL ADJUSTMENT	2019	00000941	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1134.634	.131		1047.357	.066	1996	1047.357	.066	1996	GPS - STATIC	2023	HHITT	
1134.634			1047.232	.015	2011	1047.232	.015	2011	GPS - STATIC	2023	HHITT	
1134.634			1047.232	.015	2011	1047.232	.015	2011	HORIZONTAL ADJUSTMENT	2023	GPS3626	
1134.781	.262		1047.239	.197	2011	1047.239	.197	2011	GPS - RTRN	2022	RTRN2022	
1134.735	.262		1047.190	.197	2011	1047.190	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.542 12B = -87.546 09 = -87.428 03 = -87.421

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>
47 05 23.38314	96 15 29.92209	610055.895	268033.329	.010	C	GPS - STATIC	2023
47 05 23.38314	96 15 29.92209	610055.895	268033.329	.010		ADJUSTMENT	2023
47 05 23.38288	96 15 29.92286	610055.842	268033.303	.131	3	GPS - RTRN	2022
47 05 23.38337	96 15 29.92186	610055.910	268033.353	.131	3	GPS - RTRN	2014

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>
47 05 23.38295	96 15 29.92249	610055.867	268033.310	.033	C	GPS - STATIC	2023

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>
2124428.211	1096519.469	829099.546	17126931.686	829099.546	17126931.686	.010	C
2124428.211	1096519.469	829099.546	17126931.686	829099.546	17126931.686	.010	
2124428.158	1096519.444	829099.492	17126931.662	829099.492	17126931.662	.131	3
2124428.228	1096519.492	829099.563	17126931.709	829099.563	17126931.709	.131	3

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>
2124428.183	1096519.450	829099.518	17126931.668	829099.518	17126931.668	.033	C



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/EWEST-DQ2019-3W-03JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/EWEST-DQ2019-3W-03JUN2014.jpg</a>	W	Jun 3, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/EWEST-DQ2019-2-03JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/EWEST-DQ2019-2-03JUN2014.jpg</a>		Jun 3, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/EWEST-DQ2019-1-03JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/EWEST-DQ2019-1-03JUN2014.jpg</a>		Jun 3, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: F 377  
County: CLAY, MN (Sheet 1)

NGS Name: F 377

NGS ACRN: [SL1169](#) [Get Map](#)  
NGS Quad / Sta Num : 47096233/  
USGS Quad: ULEN SW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	21	141 N	46 W	470032.31	963001.13	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1982	2014	GOOD	Horz=NO Vert=YES	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STEEL ROD (NO SLEEVE) (DEPTH 32 FT)	METAL ROD	NGS

**Description:** (1982)                      **Stamping:** F 377 1982

4.3 MILES SOUTH OF FELTON, 4.75 MILES SOUTH ON TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 34 IN FELTON, 75.0 FEET WEST OF TRUNK HIGHWAY 9, AT TRUNK HIGHWAY MILEPOINT 172.95, 44.0 FEET SOUTH OF AN ENTRANCE, 1.8 FEET NORTH OF A POWER POLE WITH A GUY WIRE, 1.4 FEET SOUTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
926.120	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941
926.288	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
926.235	.262			839.053	.197	2011	GPS - RTRN	2014	RTRN2014

Geoid Separations(ft): GEOID18 = -87.165    12B = -87.182    09 = -87.041    03 = -87.014

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
47 00 32.31347	96 30 01.13434			549843.351	238294.961	.131	3	GPS - RTRN	2014	RTRN2014

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2063326.631	1068661.976			767526.523	17100063.377	.131	3	GPS - RTRN	2014	RTRN2014

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/F_377-SL1169-3W-28MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/F_377-SL1169-3W-28MAY2014.jpg</a>	W	May 28, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/F_377-SL1169-2-28MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/F_377-SL1169-2-28MAY2014.jpg</a>		May 28, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/F_377-SL1169-1-28MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/F_377-SL1169-1-28MAY2014.jpg</a>		May 28, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: F 49

NGS Name: F 49

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0023](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096114/  
 USGS Quad: DALE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	36	140 N	44 W	465352.00	961047.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1934	1966	NOT FOUND	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	NGS

**Description:** (1934)                      **Stamping:** F 49 1934

4.5 MILES WEST OF LAKE PARK, 0.3 MILE NORTH ALONG 2ND STREET FROM THE JUNCTION OF 2ND STREET AND LAKE STREET IN LAKE PARK, THEN 0.8 MILE WEST ALONG COUNTY ROAD 7 (NORTH STREET), THEN 3.1 MILES WEST-NORTHWEST ALONG COUNTY ROAD 102, THEN 0.3 MILE WEST ALONG COUNTY ROAD 115/COUNTY ROAD 15 (THE JUNCTION OF 15TH AVENUE NORTH), 52.0 FEET NORTH OF THE NORTH RAILROAD TRACK, 9 RAILS WEST OF A ROAD CROSSING, 26.0 FEET SOUTHWEST OF POLE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1252.596	.016	2/0					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1251.494	.016	2/0					UNKNOWN/APPROXIMATE	1992	UNCHECKD	
1251.494	.007	1					VERTICAL CONTROL SURVEY	1941	L3620	
1251.494	.007	1					VERTICAL CONTROL SURVEY	1941	Q460961	
1251.494	.007	1					VERTICAL CONTROL SURVEY	1934	L98 MINN	

Geoid Separations(ft): GEOID18 = -87.848    12B = -87.834    09 = -87.723    03 = -87.644

\* No Horizontal Positions in the Database \*



Mn/DOT Name: F 7

NGS Name: F 7

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0320](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	8	139 N	48 W	465225.00	964615.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1931	2001	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STRUCTURE (MASSIVE)	BENCH MARK DISK	NGS

**Description:** (1994)                      **Stamping:** 911.599 F 7 1931

IN MOORHEAD, AT THE JUNCTION OF 6TH STREET SOUTH AND MAIN AVENUE, IN THE WALL OF THE OLD POST OFFICE (RED RIVER ARTS CENTER), 5.0 FEET SOUTH OF NORTHEAST CORNER OF A BUILDING.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
912.400	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
911.461	.007	1					VERTICAL CONTROL SURVEY	1972	Q460964	
911.461	.007	1					VERTICAL CONTROL SURVEY	1972	L22167-A	
911.461	.007	1					VERTICAL CONTROL SURVEY	1971	L22167-A	
911.461	.007	1					VERTICAL CONTROL SURVEY	1940	Q460964	
911.461	.007	1					VERTICAL CONTROL SURVEY	1938	L39 MINN	
911.599	.007	1					VERTICAL CONTROL SURVEY	1935	CUTLER-VERT	
911.599	.007	1					VERTICAL CONTROL SURVEY	1931	L39 MINN	

**Geoid Separations(ft): GEOID18 = -86.936    12B = -86.926    09 = -86.811    03 = -86.752**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: FARMOOR  
County: CLAY, MN (Sheet 1)

NGS Name: FARMOOR

NGS ACRN: [DI0255](#) [Get Map](#)  
NGS Quad / Sta Num : 46096113/  
USGS Quad: LAKE PARK SW

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	24	139 N	44 W	465024.60	961111.40	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2005	2022	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 15 FT)	SURVEY DISK	MNDT

**Description:** (2005)                      **Stamping:** FARMOOR 2005

5.0 MILES WEST-SOUTHWEST OF LAKE PARK, 4.0 MILES WEST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 7 IN LAKE PARK, AT TRUNK HIGHWAY 10 MILEPOINT 28.25, THEN 2.7 MILES SOUTH ON COUNTY ROAD 118, 33.7 FEET WEST OF COUNTY ROAD 118 (297TH STREET SOUTH), 13.6 FEET SOUTH OF A FIELD ENTRANCE, 1.5 FEET NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1413.583	.016	2/1				VERTICAL ADJUSTMENT	2024	00000941-3		
1413.580	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA		
1413.682	.016	2/1				VERTICAL ADJUSTMENT	2006	00000425-10		
1413.682	.016	2/1				VERTICAL CONTROL SURVEY	2005	VSTAK		

Geoid Separations(ft): GEOID18 = -87.552    12B = -87.533    09 = -87.424    03 = -87.375

\* No Horizontal Positions in the Database \*

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FARMOOR-DI0255-3W-26APR2005.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FARMOOR-DI0255-3W-26APR2005.jpg</a>	W	Apr 26, 2005
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FARMOOR-DI0255-2-26APR2005.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FARMOOR-DI0255-2-26APR2005.jpg</a>		Apr 26, 2005
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FARMOOR-DI0255-1-26APR2005.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FARMOOR-DI0255-1-26APR2005.jpg</a>		Apr 26, 2005

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: FELTON CHURCH SPIRE

NGS Name: FELTON CHURCH SPIRE

County: CLAY, MN (Sheet 1)

NGS ACRN: [SL1518](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/1033  
 USGS Quad: FELTON

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SE	28	142 N	46 W	470443.82	963005.92		4

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1906	1906	GOOD	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	CHURCH SPIRE	NGS

**Description:** (1906)

**Stamping:**

IN FELTON, 0.2 MILE NORTH ALONG ATLANTIC AVENUE FROM THE JUNCTION OF ATLANTIC AVENUE AND 4TH STREET IN FELTON, THEN 0.2 MILE EAST ALONG 160TH AVENUE NORTH/7TH STREET.

\* No Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.083 12B = -87.100 09 = -86.968 03 = -86.952

**Lat/Lon and County Coordinates (Feet)**

**NAD83(1996)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 04 43.81550	96 30 05.91802	549447.254	263776.317	.328	4	ADJUSTMENT	1999	17648
47 04 43.81559	96 30 05.91734	549447.301	263776.326	.328	4	ADJUSTMENT	1998	17655

**NAD83(1986)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 04 43.81410	96 30 05.91107	549447.736	263776.177	.328	4	ADJUSTMENT	1986	17289

**NAD27**

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
47 04 43.94800	96 30 04.66000			.100	4	CLASSICAL SURVEY	1928	00155

**USSD**

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
47 04 44.16900	96 30 05.04200				3	CLASSICAL SURVEY		17389-73

**State Plane and UTM Coordinates (Feet)**

**NAD83(1996)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2063719.532	1094142.123	768335.738	17125545.699	.328	4	ADJUSTMENT	1999	17648
2063719.579	1094142.131	768335.786	17125545.706	.328	4	ADJUSTMENT	1998	17655

**NAD83(1986)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2063720.009	1094141.968	768336.213	17125545.536	.328	4	ADJUSTMENT	1986	17289

**NAD27**

<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1439122.968	766065.442			.100	4	CLASSICAL SURVEY	1928	00155



Mn/DOT Name: FELTON ELEVATOR

NGS Name: FELTON ELEVATOR

County: CLAY, MN (Sheet 1)

NGS ACRN: [SL1519](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/1034  
 USGS Quad: FELTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	28	142 N	46 W	470444.08	963025.51		4

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1906	1906	GOOD	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	GRAIN ELEVATOR	NGS

Description: (1906)

Stamping:

IN FELTON, 0.2 MILE NORTH ALONG ATLANTIC AVENUE FROM THE JUNCTION OF ATLANTIC AVENUE AND 4TH STREET IN FELTON, THEN 128.0 FEET WEST ALONG COUNTY HIGHWAY 34 (160TH AVENUE NORTH/7TH STREET).

\* No Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.073 12B = -87.090 09 = -86.958 03 = -86.939

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 04 44.08412	96 30 25.51157	548091.036	263800.143	.328	4	ADJUSTMENT	1999	17648
47 04 44.08418	96 30 25.51071	548091.096	263800.149	.328	4	ADJUSTMENT	1998	17655

NAD83(1986)

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 04 44.08255	96 30 25.50379	548091.575	263799.986	.328	4	ADJUSTMENT	1986	17289

NAD27

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
47 04 44.21400	96 30 24.23100			.100	4	CLASSICAL SURVEY	1928	00155

USSD

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
47 04 44.43500	96 30 24.61400				3	CLASSICAL SURVEY		17389-73

State Plane and UTM Coordinates (Feet)

NAD83(1996)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2062364.758	1094207.920	766981.594	17125633.681	.328	4	ADJUSTMENT	1999	17648
2062364.817	1094207.925	766981.654	17125633.685	.328	4	ADJUSTMENT	1998	17655

NAD83(1986)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2062365.291	1094207.746	766982.125	17125633.498	.328	4	ADJUSTMENT	1986	17289

NAD27

<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1437769.705	766130.925			.100	4	CLASSICAL SURVEY	1928	00155



Mn/DOT Name: FELTON SCHOOLHOUSE CUPOLA

NGS Name: FELTON SCHOOLHOUSE CUPOLA

County: CLAY, MN (Sheet 1)

NGS ACRN: [SL1517](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/1035  
 USGS Quad: FELTON

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SE	28	142 N	46 W	470444.11	963003.60		4

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1906	1906	GOOD	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	CUPOLA	NGS

**Description:** (1906)

**Stamping:**

IN FELTON, 0.2 MILE NORTH ALONG ATLANTIC AVENUE FROM THE JUNCTION OF ATLANTIC AVENUE AND 4TH STREET IN FELTON, THEN 0.3 MILE EAST ALONG COUNTY HIGHWAY 34 (160TH AVENUE NORTH/7TH STREET).

\* No Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.086 12B = -87.100 09 = -86.972 03 = -86.952

**Lat/Lon and County Coordinates (Feet)**

**NAD83(1996)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 04 44.10933	96 30 03.60057	549607.579	263806.496	.328	4	ADJUSTMENT	1999	17648
47 04 44.10942	96 30 03.59988	549607.627	263806.505	.328	4	ADJUSTMENT	1998	17655

**NAD83(1986)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 04 44.10793	96 30 03.59364	549608.059	263806.355	.328	4	ADJUSTMENT	1986	17289

**NAD27**

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 04 44.24100	96 30 02.34300			.100	4	CLASSICAL SURVEY	1928	00155

**USSD**

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 04 44.46200	96 30 02.72500				3	CLASSICAL SURVEY		17389-73

**State Plane and UTM Coordinates (Feet)**

**NAD83(1996)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2063880.707	1094167.322	768497.379	17125568.270	.328	4	ADJUSTMENT	1999	17648
2063880.755	1094167.330	768497.427	17125568.277	.328	4	ADJUSTMENT	1998	17655

**NAD83(1986)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2063881.183	1094167.167	768497.852	17125568.107	.328	4	ADJUSTMENT	1986	17289

**NAD27**

<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1439284.114	766090.559			.100	4	CLASSICAL SURVEY	1928	00155



Mn/DOT Name: FIECKE

NGS Name: FIECKE

County: CLAY, MN (Sheet 1)

NGS ACRN: [DR9256](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096231/  
 USGS Quad: SYRE

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	4	142 N	44 W	470838.66	961534.29		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2022	2022	GOOD	Horz=YES Vert=YES	NO		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 26 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2022)                      Stamping: FIECKE 2022

4.5 MILES NORTH OF ULEN, 4.5 MILES NORTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND COUNTY ROAD 34 IN ULEN, AT TRUNK HIGHWAY 32 MILEPOINT 34, 70.3 FEET WEST OF TRUNK HIGHWAY 32, 25.7 FEET NORTH OF A FIELD ENTRANCE, 34 FEET SOUTH-SOUTHEAST OF A POWER POLE, 34 FEET SOUTH-SOUTHEAST OF A WITNESS POST.

Station Pair: 5404 S - NORMAN, MN

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1133.364	.131			1046.169	.066	1996	GPS - STATIC	2023	HHITT
1133.374				1046.064	.020	2011	GPS - STATIC	2023	HHITT
1133.374				1046.064	.020	2011	HORIZONTAL ADJUSTMENT	2023	GPS3626
1133.423	.262			1045.976	.197	2011	GPS - RTRN	2022	RTRN2022

Geoid Separations(ft): GEOID18 = -87.447 03 = -87.336

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>			<u>Clay County</u>					<u>Project Info</u>	
<u>Geodetic Position</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>								
47 08 38.66420	96 15 34.28918		609642.232	287817.732	.013	C	GPS - STATIC	2023	HHITT
47 08 38.66420	96 15 34.28918		609642.232	287817.732	.013		ADJUSTMENT	2023	GPS3626
47 08 38.66369	96 15 34.28853		609642.278	287817.681	.131	3	GPS - RTRN	2022	RTRN2022

<u>NAD83(1996)</u>			<u>Clay County</u>					<u>Project Info</u>	
<u>Geodetic Position</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>								
47 08 38.66390	96 15 34.28957		609642.206	287817.702	.033	C	GPS - STATIC	2023	HHITT

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>			<u>UTM - Zone 15</u>					<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>								
2124628.048	1116306.321		829622.736	17146719.277	.013	C	GPS - STATIC	2023	HHITT
2124628.048	1116306.321		829622.736	17146719.277	.013		ADJUSTMENT	2023	GPS3626
2124628.092	1116306.268		829622.779	17146719.224	.131	3	GPS - RTRN	2022	RTRN2022

<u>NAD83(1996)</u>			<u>UTM - Zone 15</u>					<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>								
2124628.020	1116306.292		829622.708	17146719.248	.033	C	GPS - STATIC	2023	HHITT



Mn/DOT Name: FLOW

NGS Name: FLOW

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP7353](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096144/  
 USGS Quad: HAWLEY NW

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	31	141 N	45 W	465838.10	962549.45		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2013	2013	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 10 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2013)                      Stamping: FLOW 2013

8.0 MILES NORTH-NORTHWEST OF HAWLEY, 3.9 MILES WEST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 31 AND COUNTY ROAD 33 IN HAWLEY, TO TRUNK HIGHWAY 10 MILEPOST 17.45, THEN 6.9 MILES NORTH ON COUNTY ROAD 113, THEN 1.1 MILES WEST ON COUNTY ROAD 26, 59.7 FEET NORTH OF COUNTY ROAD 26, 23.5 FEET WEST OF A FIELD ENTRANCE, 1.5 FEET EAST OF A WITNESS POST.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Orthometric Height				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference			
1092.947			1005.402	.021	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084			
1092.911	.131		1005.543	.066	1996	GPS - STATIC	2015	HCLAY			
1092.947			1005.402	.021	2011	GPS - STATIC	2015	HCLAY			
1092.842	.262		1005.323	.197	2011	GPS - RTRN	2013	RTRN2013			

Geoid Separations(ft): GEOID18 = -87.493    12B = -87.516    09 = -87.411    03 = -87.349

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 58 38.10348	96 25 49.44834	567326.156	226775.557	.013		ADJUSTMENT	2015	GPS3084
46 58 38.10348	96 25 49.44834	567326.156	226775.557	.013	C	GPS - STATIC	2015	HCLAY
46 58 38.10305	96 25 49.44811	567326.172	226775.513	.131	3	GPS - RTRN	2013	RTRN2013

NAD83(1996)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 58 38.10299	96 25 49.44913	567326.101	226775.507	.033	C	GPS - STATIC	2015	HCLAY

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone		X	Y	Acc	Order	Determination Method	Year	Reference
X	Y	X	Y					
2080443.370	1056607.567	784452.577	17087726.112	.013		ADJUSTMENT	2015	GPS3084
2080443.370	1056607.567	784452.577	17087726.112	.013	C	GPS - STATIC	2015	HCLAY
2080443.384	1056607.523	784452.591	17087726.068	.131	3	GPS - RTRN	2013	RTRN2013

NAD83(1996)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone		X	Y	Acc	Order	Determination Method	Year	Reference
X	Y	X	Y					
2080443.314	1056607.519	784452.520	17087726.065	.033	C	GPS - STATIC	2015	HCLAY

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FLOW-DP7353-3N-20AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FLOW-DP7353-3N-20AUG2013.jpg</a>	N	Aug 20, 2013
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FLOW-DP7353-2-20AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FLOW-DP7353-2-20AUG2013.jpg</a>		Aug 20, 2013
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FLOW-DP7353-1-20AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FLOW-DP7353-1-20AUG2013.jpg</a>		Aug 20, 2013

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: FMM 35

NGS Name: FMM 35

County: CLAY, MN (Sheet 1)

NGS ACRN: [DN4389](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096332/  
 USGS Quad: GEORGETOWN

				Reference	Reference	Vert	Horz
1/4	Sec	Twp	Rng	Latitude	Longitude	Order	Order
NW	30	142 N	48 W	470533.74	964856.66	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2011	2022	GOOD	Horz=NO Vert=YES	YES	6646	FLUSH	NO MAG MATERIAL

Monument Type	Disk Type	Mon. Agency
CONCRETE FOOTING - LARGE	SURVEY DISK	USACE

Description: (2011) Stamping: FMM 35 2011

1.0 MILE NORTH AND 1.0 MILE WEST OF GEORGETOWN, SET IN THE SOUTHEAST CORNER OF A BRIDGE OVER THE RED RIVER, 0.2 MILE WEST ALONG PROBSFIELD STREET FROM THE JUNCTION OF PROBSFIELD STREET AND 160TH AVENUE NORTHWEST IN GEORGETOWN, THEN 0.7 MILE NORTH ALONG COUNTY ROAD 100 (10TH STREET NORTHWEST), THEN 0.9 MILE WEST ALONG COUNTY ROAD 36 (170TH AVENUE NORTHWEST), 14.2 FEET SOUTH OF 170TH AVENUE, 7.72 FEET SOUTHEAST OF A SCRIBED X IN THE TOP OF A BARRIER, 8.45 FEET WEST OF THE EAST END OF A BRIDGE, 0.71 FOOT WEST OF THE EAST FACE OF A SOUTHEAST ABUTMENT, 0.68 FOOT EAST OF THE WEST FACE OF A SOUTHEAST ABUTMENT, 0.64 FOOT SOUTH OF THE BACK OF A BARRIER.

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
883.187	.016	2/1				VERTICAL ADJUSTMENT	2024	00000941-3
883.230	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA
883.187	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941
883.456	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699
883.469	.016	2/1				VERTICAL CONTROL SURVEY	2011	VFMA

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
913.797	.262		826.882	.197	2011	GPS - RTRN	2022	RTRN2022
883.325	.262		797.118	.197	2011	GPS - RTRN	2022	RTRN2022
883.217	.262		797.101	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -86.204 12B = -86.230 09 = -86.112 03 = -86.089

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 43 00.48962	96 49 12.70677	469870.954	131686.974	.131	3	GPS - RTRN	2022	RTRN2022
47 05 33.74056	96 48 56.66050	471191.327	268793.445	.131	3	GPS - RTRN	2022	RTRN2022

NAD83(2007)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
47 05 33.74038	96 48 56.66318	471191.141	268793.428	.131	3	GPS - RTRN	2012	RTRN2012

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone		X	Y	Acc	Order	Determination Method	Year	Reference
1980101.439	964587.209	682574.535	16997290.905	.131	3	GPS - RTRN	2022	RTRN2022
1985659.220	1101577.333	690365.618	17134263.628	.131	3	GPS - RTRN	2022	RTRN2022

NAD83(2007)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone		X	Y	Acc	Order	Determination Method	Year	Reference
1985659.034	1101577.321	690365.432	17134263.619	.131	3	GPS - RTRN	2012	RTRN2012



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FMM_35-DN4389-3W-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FMM_35-DN4389-3W-28JUN2022.jpg</a>	W	Jun 28, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FMM_35-DN4389-2-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FMM_35-DN4389-2-28JUN2022.jpg</a>		Jun 28, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FMM_35-DN4389-1-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FMM_35-DN4389-1-28JUN2022.jpg</a>		Jun 28, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: FMM 36

NGS Name: FMM 36

County: CLAY, MN (Sheet 1)

NGS ACRN: [DN4390](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096332/  
 USGS Quad: GEORGETOWN

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	29	142 N	48 W	470533.84	964745.37	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2011	2022	DESTROYED	Horz=NO Vert=NO	YES		FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE ABUTMENT	SURVEY DISK	USACE

Description: (2012) Stamping: FMM 36 2011

1.0 MILE NORTH OF GEORGETOWN, IN AN ABUTMENT IN THE SOUTHEAST CORNER OF A BRIDGE, 0.2 MILE WEST ALONG PROBSFIELD STREET FROM THE JUNCTION OF PROBSFIELD STREET AND 160TH AVENUE NORTHWEST IN GEORGETOWN, THEN 0.7 MILE NORTH ALONG COUNTY ROAD 100 (10TH STREET NORTHWEST), 75.5 FEET SOUTHEAST OF 170TH AVENUE, 15.3 FEET EAST OF 10TH STREET, 0.77 FOOT SOUTH OF THE NORTH FACE OF A SOUTHEAST ABUTMENT WALL, 0.73 FOOT NORTH OF THE SOUTH FACE OF A SOUTHEAST ABUTMENT WALL.

Station Notes

THE BOX CULVERT HAS BEEN REPLACED.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
882.462	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941
882.731	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699
882.741	.016	2/1				VERTICAL CONTROL SURVEY	2011	VFMA

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
882.416	.262		796.235	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -86.276 12B = -86.306 09 = -86.181 03 = -86.158

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

<u>Geodetic Position</u>		<u>Clay County</u>		<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
47 05 33.83673	96 47 45.37046	476124.339	268796.515	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2007)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
1990589.790	1101427.923	695296.105	17134033.152	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FMM_36-DN4390-3NE-16AUG2011.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FMM_36-DN4390-3NE-16AUG2011.jpg</a>	NE	Aug 16, 2011
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FMM_36-DN4390-2-22AUG2012.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FMM_36-DN4390-2-22AUG2012.jpg</a>		Aug 22, 2012
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FMM_36-DN4390-1-22AUG2012.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FMM_36-DN4390-1-22AUG2012.jpg</a>		Aug 22, 2012

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: FMM 37

NGS Name: FMM 37

County: CLAY, MN (Sheet 1)

NGS ACRN: [DN4392](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096332/  
 USGS Quad: GEORGETOWN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	32	142 N	48 W	470350.65	964721.68	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2011	2013	GOOD	Horz=NO Vert=NO	YES		RECESSED 4 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 60 FT)	METAL ROD (WITH REMOVABLE ID DISK)	USACE

Description: (2012)                      Stamping: FMM 37 2011

1.0 MILE SOUTH OF GEORGETOWN, 1.1 MILES SOUTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND 160TH AVENUE NORTHWEST IN GEORGETOWN, AT TRUNK HIGHWAY 75 MILEPOINT 264.7, 90.0 FEET WEST OF TRUNK HIGHWAY 75, 34.4 FEET NORTHWEST OF 150TH AVENUE, 34.9 FEET NORTHWEST OF THE NORTH END OF A CORRUGATED METAL PIPE UNDER 150TH AVENUE, 32.35 FEET NORTHEAST OF THE EAST RAIL OF A RAILROAD, 23.65 FEET NORTHEAST OF A PARKER KALON NAIL IN A RAILROAD CROSSING SIGN, 16.5 FEET SOUTHWEST OF A RIGHT-OF-WAY POST, 1.0 FOOT EAST OF A WITNESS POST.

Station Notes

THE SURVEY MARK IS ON RAILROAD PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
880.799	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941	
881.068	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699	
881.071	.016	2/1				VERTICAL CONTROL SURVEY	2011	VFMA	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
881.068			794.752	.019	2011	HORIZONTAL ADJUSTMENT	2013	GPS2963	
881.110	.131		794.972	.066	1996	GPS - STATIC	2013	HGEOR	
881.068			794.752	.019	2011	GPS - STATIC	2013	HGEOR	
880.809	.262		794.641	.197	2007	GPS - RTRN	2012	RTRN2012	

Geoid Separations(ft): GEOID18 = -86.270 12B = -86.299 09 = -86.168 03 = -86.138

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
47 03 50.64676	96 47 21.67953	477751.721	258339.294	.010		ADJUSTMENT	2013	GPS2963
47 03 50.64676	96 47 21.67953	477751.721	258339.294	.010	C	GPS - STATIC	2013	HGEOR

NAD83(2007)

<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
47 03 50.64671	96 47 21.68111	477751.612	258339.289	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
47 03 50.64596	96 47 21.68013	477751.680	258339.213	.033	C	GPS - STATIC	2013	HGEOR



State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1991893.077	1090925.808	696427.640	17123504.627	.010		ADJUSTMENT	2013	GPS2963
1991893.077	1090925.808	696427.640	17123504.627	.010	C	GPS - STATIC	2013	HGEOR

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1991892.967	1090925.806	696427.530	17123504.627	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1991893.033	1090925.728	696427.594	17123504.548	.033	C	GPS - STATIC	2013	HGEOR

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FMM_37-DN4392-3NW-16AUG2011.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FMM_37-DN4392-3NW-16AUG2011.jpg</a>	NW	Aug 16, 2011
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FMM_37-DN4392-2-16AUG2011.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FMM_37-DN4392-2-16AUG2011.jpg</a>		Aug 16, 2011
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FMM_37-DN4392-1-16AUG2011.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FMM_37-DN4392-1-16AUG2011.jpg</a>		Aug 16, 2011

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: FMM 38

NGS Name: FMM 38

County: CLAY, MN (Sheet 1)

NGS ACRN: [DN4393](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096332/  
 USGS Quad: GEORGETOWN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	8	142 N	48 W	470258.32	964656.01	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2011	2013	GOOD	Horz=NO Vert=NO	YES		RECESSED 4 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 62 FT)	METAL ROD (WITH REMOVABLE ID DISK)	USACE

Description: (2012)                      Stamping: FMM 38 2011

2.0 MILES SOUTH OF GEORGETOWN, 2.2 MILES SOUTH ALONG TRUNK HIGHWAY 75 SOUTH FROM THE JUNCTION OF TRUNK HIGHWAY 75 SOUTH AND 160TH AVENUE NORTHWEST IN GEORGETOWN, AT TRUNK HIGHWAY 75 MILEPOINT 263.7, 97.4 FEET WEST OF TRUNK HIGHWAY 75, 50.0 FEET SOUTHEAST OF 140TH AVENUE NORTHWEST, 39.7 FEET SOUTHWEST OF THE SOUTH END OF A 28.0 INCH DIAMETER CORRUGATED METAL PIPE UNDER 140TH AVENUE, 25.9 FEET EAST OF THE EASTERLY RAIL OF A RAILROAD, 1.3 FEET EAST OF A WITNESS POST.

Station Notes

THE SURVEY MARK IS ON RAILROAD PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>				<u>Orthometric Height</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order</u>	<u>(/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>						
883.387	.016	2/1					2019	00000941						
883.653	.016	2/1					2011	00000699						
883.656	.016	2/1					2011	VFMA						

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u>				<u>Orthometric Height</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order</u>	<u>(/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>						
883.482	.262			797.282	.197	2007	2012	RTRN2012						

Geoid Separations(ft): GEOID18 = -86.309 12B = -86.315 09 = -86.201 03 = -86.178

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2007)</u>				<u>Geodetic Position</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>							
47 02 58.31822	96 46 56.00514	479523.674	253035.401	.131	3	2012	RTRN2012							

State Plane and UTM Coordinates (Feet)

<u>NAD83(2007)</u>				<u>MN State Plane - Central Zone</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>							
1993500.144	1085569.908	697947.668	17118119.807	.131	3	2012	RTRN2012							

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FMM_38-DN4393-3NE-23AUG2011.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FMM_38-DN4393-3NE-23AUG2011.jpg</a>	NE	Aug 23, 2011
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FMM_38-DN4393-2-16AUG2011.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FMM_38-DN4393-2-16AUG2011.jpg</a>		Aug 16, 2011
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FMM_38-DN4393-1-16AUG2011.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FMM_38-DN4393-1-16AUG2011.jpg</a>		Aug 16, 2011

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: FORM MNDT

NGS Name: FORM

County: CLAY, MN (Sheet 1)

NGS ACRN: [DF7612](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096441/  
 USGS Quad: FARGO NORTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	18	140 N	48 W	465654.11	964719.83		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1993	2009	DESTROYED	Horz=NO Vert=NO	NO			MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 50 FT)	SURVEY DISK	MNDT

Description: (1993) Stamping: FORM 1993

5.0 MILES NORTH OF FARGO, 5.0 MILES NORTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND TRUNK HIGHWAY 75 IN MOORHEAD THEN 2.0 MILES WEST ALONG COUNTY ROAD 93, 71.0 FEET SOUTH OF COUNTY ROAD 93, 29.0 FEET EAST OF COUNTY ROAD 1, 9.0 FEET SOUTH OF AN ENTRANCE, 118.2 FEET SOUTH-SOUTHWEST OF A POWER POLE, 8.3 FEET NORTH-NORTHWEST OF THE SOUTH END OF AN 18.0 INCH DIAMETER METAL CULVERT, 6.7 FEET NORTH-NORTHWEST OF A WITNESS POST.

Station Notes

FOUND THE CAP OFF. THE DISK WAS TURNED IN TO THE OFFICE.

\* No Leveling-Derived Orthometric Heights in the Database \*

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
			807.233	.012	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			807.377	.017	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
893.699	.131		807.436	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1905
893.699	.131		807.436	.066	1996	GPS - STATIC	2003	HMOOR

Geoid Separations(ft): GEOID18 = -86.424 12B = -86.447 09 = -86.286 03 = -86.276

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 56 54.10587	96 47 19.83055	477831.867	216135.468	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 56 54.10575	96 47 19.83123	477831.820	216135.456	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 56 54.10512	96 47 19.83107	477831.831	216135.392	.033	C	ADJUSTMENT	2003	GPS1905
46 56 54.10512	96 47 19.83107	477831.831	216135.392	.033	C	GPS - STATIC	2003	HMOOR

State Plane and UTM Coordinates (Feet)

NAD83(2011)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1990668.518	1048741.997	694512.508	17081319.959	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1990668.471	1048741.986	694512.460	17081319.949	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1990668.480	1048741.922	694512.468	17081319.885	.033	C	ADJUSTMENT	2003	GPS1905
1990668.480	1048741.922	694512.468	17081319.884	.033	C	GPS - STATIC	2003	HMOOR



Mn/DOT Name: FORM MNDT RESET

NGS Name: FORM RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM1830](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096441/  
 USGS Quad: FARGO NORTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	18	140 N	48 W	465654.10	964719.83		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2009	2021	DESTROYED	Horz=NO Vert=NO	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 50 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2009)                      Stamping: FORM 1993 2009

6.2 MILES NORTH-NORTHWEST OF MOORHEAD, 5.0 MILES NORTH ALONG TRUNK HIGHWAY 75 FROM THE EAST JUNCTION OF TRUNK HIGHWAY 10 AND TRUNK HIGHWAY 75 IN MOORHEAD, TO TRUNK HIGHWAY 75 MILEPOINT 256.5, THEN 2.0 MILES WEST ALONG COUNTY ROAD 93 (70 AVENUE NORTH), 71.0 FEET SOUTH OF COUNTY ROAD 93 (70TH AVENUE NORTH), 29.0 FEET EAST OF COUNTY ROAD 1 (BROADWAY STREET NORTHWEST), 9.0 FEET SOUTH OF AN ENTRANCE, 118.2 FEET SOUTH-SOUTHWEST OF A POWER POLE, 8.3 FEET NORTH-NORTHWEST OF THE SOUTH END OF AN 18.0 INCH DIAMETER METAL CULVERT, 6.6 FEET NORTHWEST OF A WITNESS POST.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
			807.000	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
893.469	.131		807.069	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2690
893.469	.131		807.137	.066	1996	GPS - STATIC	2010	HCOMS
893.469	.131		807.069	.066	2007	GPS - STATIC	2010	HCOMS
893.322	.262		807.046	.197	1996	GPS - RTRN	2009	RTRN2009

Geoid Separations(ft): GEOID18 = -86.424 12B = -86.447 09 = -86.286 03 = -86.276

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>			<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 56 54.10417	96 47 19.82914		477831.965	216135.296	.007		ADJUSTMENT	2012	GPS2800

  

<u>NAD83(2007)</u>			<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 56 54.10424	96 47 19.83017		477831.894	216135.303	.033	C	ADJUSTMENT	2011	GPS2690
46 56 54.10424	96 47 19.83017		477831.894	216135.303	.033	C	GPS - STATIC	2010	HCOMS

  

<u>NAD83(1996)</u>			<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 56 54.10365	96 47 19.83003		477831.903	216135.243	.033	C	GPS - STATIC	2010	HCOMS
46 56 54.10469	96 47 19.83093		477831.841	216135.349	.131	3	GPS - RTRN	2009	RTRN2009

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>			<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>		<u>X</u>	<u>Y</u>					
1990668.611	1048741.821		694512.597	17081319.782	.007		ADJUSTMENT	2012	GPS2800

  

<u>NAD83(2007)</u>			<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>		<u>X</u>	<u>Y</u>					
1990668.539	1048741.831		694512.526	17081319.792	.033	C	ADJUSTMENT	2011	GPS2690
1990668.539	1048741.831		694512.526	17081319.792	.033	C	GPS - STATIC	2010	HCOMS

  

<u>NAD83(1996)</u>			<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>		<u>X</u>	<u>Y</u>					
1990668.547	1048741.771		694512.533	17081319.732	.033	C	GPS - STATIC	2010	HCOMS
1990668.488	1048741.878		694512.476	17081319.840	.131	3	GPS - RTRN	2009	RTRN2009



**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FORM_RESET-DM1830-3S-21SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FORM_RESET-DM1830-3S-21SEP2009.jpg</a>	S	Sep 21, 2009
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FORM_RESET-DM1830-2-21SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FORM_RESET-DM1830-2-21SEP2009.jpg</a>		Sep 21, 2009
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FORM_RESET-DM1830-1-21SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FORM_RESET-DM1830-1-21SEP2009.jpg</a>		Sep 21, 2009

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: FOWLER MNDT  
 County: CLAY, MN (Sheet 1)

NGS Name: FOWLER

NGS ACRN: [DF7613](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
				<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	15	140 N	48 W	465655.49	964315.27		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1993	2009	DESTROYED	Horz=NO Vert=NO	NO			MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 45 FT)	SURVEY DISK	MNDT

**Description:** (1993)                      **Stamping:** FOWLER 1993

5.0 MILES NORTH OF MOORHEAD, 5.0 MILES NORTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND TRUNK HIGHWAY 75 IN MOORHEAD, THEN 1.15 MILES EAST ALONG COUNTY ROAD 93, 31.5 FEET SOUTH OF COUNTY ROAD 93, 10.5 FEET WEST OF AN ENTRANCE, 36.7 FEET NORTHEAST OF A POWER POLE, 15.6 FEET NORTHEAST OF THE WEST END OF A 48.0 INCH DIAMETER METAL CULVERT, 10.3 FEET EAST OF A WITNESS POST.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
			814.903	.014	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800		
			815.067	.018	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300		
901.573	.131		815.126	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1905		
901.573	.131		815.126	.066	1996	GPS - STATIC	2003	HMOOR		

Geoid Separations(ft): GEOID18 = -86.624    12B = -86.640    09 = -86.470    03 = -86.460

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 56 55.49217	96 43 15.27223	494800.086	216264.050	.010		ADJUSTMENT	2012	GPS2800

  

<u>NAD83(2007)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 56 55.49199	96 43 15.27278	494800.048	216264.032	.013		ADJUSTMENT	2007	GPS2300

  

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 56 55.49139	96 43 15.27261	494800.059	216263.971	.033	C	ADJUSTMENT	2003	GPS1905
46 56 55.49139	96 43 15.27261	494800.060	216263.971	.033	C	GPS - STATIC	2003	HMOOR

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2007631.477	1048345.877	711477.341	17080647.056	.010		ADJUSTMENT	2012	GPS2800

  

<u>NAD83(2007)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2007631.438	1048345.860	711477.302	17080647.039	.013		ADJUSTMENT	2007	GPS2300

  

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2007631.448	1048345.799	711477.312	17080646.978	.033	C	ADJUSTMENT	2003	GPS1905
2007631.448	1048345.799	711477.312	17080646.978	.033	C	GPS - STATIC	2003	HMOOR



Mn/DOT Name: FOWLER MNDT RESET

NGS Name: FOWLER RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM1831](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	15	140 N	48 W	465655.49	964315.27	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2009	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 45 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2015)                      Stamping: FOWLER 1993 2009

5.0 MILES NORTH OF MOORHEAD, 5.0 MILES NORTH ALONG TRUNK HIGHWAY 75 FROM THE EAST JUNCTION OF TRUNK HIGHWAY 10 AND TRUNK HIGHWAY 75 IN MOORHEAD TO TRUNK HIGHWAY 75 MILEPOINT 256.5, THEN 1.2 MILES EAST ALONG COUNTY ROAD 93 (70 AVENUE NORTH), 31.5 FEET SOUTH OF 70TH AVENUE NORTH, 10.5 FEET WEST OF A FIELD ENTRANCE, 15.6 FEET NORTHEAST OF THE WEST END OF A 48.0 INCH DIAMETER METAL CULVERT, 6.5 FEET EAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
900.986	.016	2/1					VERTICAL ADJUSTMENT	2024	00000941-3	
901.005	.016	2/1					VERTICAL CONTROL SURVEY	2023	VMOFA	
900.979	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
901.005				814.647	.023	2011	HORIZONTAL ADJUSTMENT	2024	GPS3674	
901.005				814.647	.023	2011	GPS - STATIC	2023	HMOFA3	
901.005	.131			814.742	.066	1996	GPS - STATIC	2023	HMOFA3	
901.153	.262			814.529	.197	2011	GPS - RTRN	2022	RTRN2022	
901.278				814.634	.010	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084	
901.297	.131			814.769	.066	1996	GPS - STATIC	2015	HCLAY	
901.278				814.637	.010	2011	GPS - STATIC	2015	HCLAY	
901.110	.262			814.641	.197	2007	GPS - RTRN	2012	RTRN2012	
				814.634	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
901.278	.131			814.683	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2690	
901.278	.131			814.769	.066	1996	GPS - STATIC	2010	HCOMS	
901.278	.131			814.683	.066	2007	GPS - STATIC	2010	HCOMS	
901.137	.262			814.674	.197	1996	GPS - RTRN	2009	RTRN2009	

Geoid Separations(ft): GEOID18 = -86.624    12B = -86.640    09 = -86.470    03 = -86.460

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 56 55.49087	96 43 15.27450	494799.928	216263.919	.010		ADJUSTMENT	2024	GPS3674
46 56 55.49087	96 43 15.27450	494799.928	216263.919	.010	C	GPS - STATIC	2023	HMOFA3
46 56 55.49079	96 43 15.27555	494799.856	216263.911	.131	3	GPS - RTRN	2022	RTRN2022
46 56 55.49148	96 43 15.27340	494800.004	216263.981	.007		ADJUSTMENT	2015	GPS3084
46 56 55.49147	96 43 15.27342	494800.003	216263.980	.007	C	GPS - STATIC	2015	HCLAY
46 56 55.49148	96 43 15.27340	494800.004	216263.981	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 56 55.49195	96 43 15.27495	494799.897	216264.028	.131	3	GPS - RTRN	2012	RTRN2012
46 56 55.49152	96 43 15.27432	494799.941	216263.984	.033	C	ADJUSTMENT	2011	GPS2690
46 56 55.49152	96 43 15.27432	494799.941	216263.984	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 56 55.49074	96 43 15.27529	494799.874	216263.905	.033	C	GPS - STATIC	2023	HMOFA3
46 56 55.49113	96 43 15.27437	494799.937	216263.945	.033	C	GPS - STATIC	2015	HCLAY
46 56 55.49113	96 43 15.27437	494799.937	216263.945	.033	C	GPS - STATIC	2010	HCOMS
46 56 55.49223	96 43 15.27437	494799.937	216264.056	.131	3	GPS - RTRN	2009	RTRN2009

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2007631.315	1048345.751	711477.178	17080646.931	.010		ADJUSTMENT	2024	GPS3674
2007631.315	1048345.751	711477.178	17080646.931	.010	C	GPS - STATIC	2023	HMOFA3
2007631.243	1048345.745	711477.105	17080646.927	.131	3	GPS - RTRN	2022	RTRN2022
2007631.394	1048345.810	711477.257	17080646.990	.007		ADJUSTMENT	2015	GPS3084
2007631.392	1048345.809	711477.256	17080646.989	.007	C	GPS - STATIC	2015	HCLAY
2007631.394	1048345.810	711477.257	17080646.990	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2007631.288	1048345.861	711477.152	17080647.042	.131	3	GPS - RTRN	2012	RTRN2012
2007631.330	1048345.816	711477.194	17080646.997	.033	C	ADJUSTMENT	2011	GPS2690
2007631.330	1048345.816	711477.194	17080646.997	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2007631.260	1048345.739	711477.123	17080646.921	.033	C	GPS - STATIC	2023	HMOFA3
2007631.325	1048345.777	711477.188	17080646.957	.033	C	GPS - STATIC	2015	HCLAY
2007631.325	1048345.777	711477.188	17080646.957	.033	C	GPS - STATIC	2010	HCOMS
2007631.329	1048345.888	711477.194	17080647.069	.131	3	GPS - RTRN	2009	RTRN2009

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FOWLER_RESET-DM1831-3S-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FOWLER_RESET-DM1831-3S-28JUN2022.jpg</a>	S	Jun 28, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FOWLER_RESET-DM1831-2-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FOWLER_RESET-DM1831-2-28JUN2022.jpg</a>		Jun 28, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FOWLER_RESET-DM1831-1-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FOWLER_RESET-DM1831-1-28JUN2022.jpg</a>		Jun 28, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: FRITO MNDT

NGS Name: FRITO

County: CLAY, MN (Sheet 1)

NGS ACRN: [DF7614](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	20	139 N	48 W	465011.16	964603.84	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1993	2022	DESTROYED	Horz=NO Vert=NO	YES		RECESSED 1 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 38 FT)	SURVEY DISK	MNDT

Description: (1993)                      Stamping: FRITO 1993

AT THE SOUTH EDGE OF MOORHEAD, 2.8 MILES SOUTH ALONG 8TH STREET SOUTH FROM THE JUNCTION OF 8TH STREET SOUTH AND MAIN AVENUE IN MOORHEAD, THEN 0.2 MILE NORTH ALONG 8TH STREET SOUTH AT 40TH AVENUE SOUTH, 0.7 MILE SOUTH OF INTERSTATE HIGHWAY 94, AT TRUNK HIGHWAY 75 MILEPOINT 247.6, 38.0 FEET EAST OF NORTHBOUND TRUNK HIGHWAY 75, 114.0 FEET SOUTH OF 37TH AVENUE, 56.4 FEET SOUTH-SOUTHWEST OF A POWER POLE, 14.1 FEET WEST OF A WITNESS POST.

**Station Notes**

THE STATION LOOKS TO HAVE BEEN DISTURBED BY SIDEWALK CONSTRUCTION IN 2017. COORDINATES ESTABLISHED PRIOR TO THIS DATE SHOULD BE USED WITH CAUTION.  
 THE DISK WAS TURNED IN TO THE OFFICE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
905.307	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699		
905.353	.016	2/1				VERTICAL ADJUSTMENT	2011	00000685		
905.303	.016	2/1				VERTICAL CONTROL SURVEY	2010	VCOMS		
905.458	.016	2/1				VERTICAL ADJUSTMENT	2004	00000425-2		
905.362	.016	2/1				VERTICAL CONTROL SURVEY	2002	VMORE		
905.467	.016	2/1				VERTICAL CONTROL SURVEY	2002	VMOOR		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
			818.233	.007	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
905.313	.131		818.289	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2690	
905.313	.131		818.351	.066	1996	GPS - STATIC	2010	HCOMS	
905.313	.131		818.289	.066	2007	GPS - STATIC	2010	HCOMS	
905.175	.262		818.289	.197	1996	GPS - RTRN	2009	RTRN2009	
			818.506	.014	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300	
905.444	.131		818.571	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1905	
905.444	.131		818.571	.066	1996	GPS - STATIC	2003	HMOOR	

Geoid Separations(ft): GEOID18 = -87.096    12B = -87.109    09 = -86.991    03 = -86.886

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 50 11.16475	96 46 03.84346	483068.842	175305.259	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 50 11.16547	96 46 03.84496	483068.738	175305.332	.033	C	ADJUSTMENT	2011	GPS2690
46 50 11.16547	96 46 03.84496	483068.738	175305.332	.033	C	GPS - STATIC	2010	HCOMS
46 50 11.16525	96 46 03.84514	483068.725	175305.309	.010		ADJUSTMENT	2007	GPS2300

**NAD83(1996)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 50 11.16495	96 46 03.84478	483068.750	175305.279	.033	C	GPS - STATIC	2010	HCOMS
46 50 11.16620	96 46 03.84578	483068.681	175305.406	.131	3	GPS - RTRN	2009	RTRN2009
46 50 11.16468	96 46 03.84497	483068.737	175305.252	.033	C	ADJUSTMENT	2003	GPS1905
46 50 11.16468	96 46 03.84497	483068.737	175305.252	.033	C	GPS - STATIC	2003	HMOOR

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1994640.282	1007772.512	697819.938	17040264.710	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1994640.180	1007772.588	697819.838	17040264.788	.033	C	ADJUSTMENT	2011	GPS2690
1994640.180	1007772.588	697819.838	17040264.788	.033	C	GPS - STATIC	2010	HCOMS
1994640.167	1007772.566	697819.824	17040264.767	.010		ADJUSTMENT	2007	GPS2300

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1994640.191	1007772.535	697819.847	17040264.735	.033	C	GPS - STATIC	2010	HCOMS
1994640.126	1007772.664	697819.784	17040264.865	.131	3	GPS - RTRN	2009	RTRN2009
1994640.177	1007772.508	697819.833	17040264.708	.033	C	ADJUSTMENT	2003	GPS1905
1994640.177	1007772.508	697819.833	17040264.708	.033	C	GPS - STATIC	2003	HMOOR

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FRITO-DF7614-3S-26SEP2017.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FRITO-DF7614-3S-26SEP2017.jpg</a>	S	Sep 26, 2017
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FRITO-DF7614-2-26SEP2017.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FRITO-DF7614-2-26SEP2017.jpg</a>		Sep 26, 2017
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FRITO-DF7614-1-16SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/FRITO-DF7614-1-16SEP2009.jpg</a>		Sep 16, 2009

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: FRITO MNDT RESET

NGS Name: FRITO RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [DR9712](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SE	20	139 N	48 W	465011.16	964603.84	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2022	2023	GOOD	Horz=YES Vert=YES	NO		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 38 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2022)                      Stamping: FRITO 1993 2022

IN MOORHEAD, 2.8 MILES SOUTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND INTERSTATE HIGHWAY 94 IN MOORHEAD, AT TRUNK HIGHWAY 75 MILEPOINT 247.6, 38.0 FEET EAST OF NORTHBOUND TRUNK HIGHWAY 75, 114.0 FEET SOUTH OF 37TH AVENUE.

Station Pair: KATE - CLAY, MN

Station Notes

NO WITNESS POST, THE SURVEY MARK IS IN A MOWED AREA.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
904.860	.016	2/1				2024	00000941-3					
904.864	.016	2/1				2023	VMOFA					

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
904.864			818.007	.022	2011	2024	GPS3715					
904.864			818.007	.022	2011	2024	HMOFA2					
904.864	.131		818.115	.066	1996	2024	HMOFA2					
904.985	.262		817.889	.197	2011	2022	RTRN2022					

**Geoid Separations(ft): GEOID18 = -87.096 03 = -86.886**

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			
46 50 11.16462	96 46 03.84294	483068.878	175305.246	.013		2024	GPS3715			
46 50 11.16462	96 46 03.84294	483068.878	175305.246	.013	C	2024	HMOFA2			
46 50 11.16447	96 46 03.84293	483068.878	175305.230	.131	3	2022	RTRN2022			

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			
46 50 11.16447	96 46 03.84375	483068.822	175305.230	.033	C	2024	HMOFA2			

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			
1994640.318	1007772.498	697819.974	17040264.696	.013		2024	GPS3715			
1994640.318	1007772.498	697819.974	17040264.696	.013	C	2024	HMOFA2			
1994640.318	1007772.482	697819.974	17040264.681	.131	3	2022	RTRN2022			

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			
1994640.261	1007772.484	697819.917	17040264.683	.033	C	2024	HMOFA2			



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos//GARRISON_CORS_ARP-!52236-3S-29AUG2006.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos//GARRISON_CORS_ARP-!52236-3S-29AUG2006.jpg</a>	S	Aug 29, 2006
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos//GARRISON_CORS_ARP-!52236-2-07DEC2006.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos//GARRISON_CORS_ARP-!52236-2-07DEC2006.jpg</a>		Dec 7, 2006
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos//GARRISON_CORS_ARP-!52236-1-29AUG2006.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos//GARRISON_CORS_ARP-!52236-1-29AUG2006.jpg</a>		Aug 29, 2006

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: G 377

NGS Name: G 377

County: CLAY, MN (Sheet 1)

NGS ACRN: [SL1172](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/  
 USGS Quad: FELTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	9	141 N	46 W	470257.23	963001.81	2	B

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1982	2023	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STEEL ROD (NO SLEEVE) (DEPTH 32 FT)	METAL ROD	NGS

Description: (2013) Stamping: G 377 1982

2.0 MILES SOUTH-SOUTHEAST OF FELTON, 2.05 MILES SOUTH ON TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 34 AT FELTON, AT TRUNK HIGHWAY 9 MILEPOINT 175.70, 75.5 FEET WEST OF TRUNK HIGHWAY 9, 53.0 FEET SOUTH OF COUNTY ROAD 108 (140TH AVENUE NORTH), 31.0 FEET SOUTHWEST OF THE SOUTHWEST CORNER OF A 36.0 INCH DIAMETER METAL CULVERT, 31.0 FEET SOUTHWEST OF A STOP SIGN, 3.5 FEET EAST-SOUTHEAST OF A POWER POLE, 1.7 FEET SOUTH OF A RIGHT-OF-WAY POST, 1.0 FOOT NORTH OF A WITNESS POST.

Station Pair: LAURA - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
918.230	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941
918.404	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
918.230			831.350	.006	2011	HORIZONTAL ADJUSTMENT	2023	GPS3618
918.230	.131		831.498	.066	1996	GPS - STATIC	2023	HFELT
918.230			831.350	.006	2011	GPS - STATIC	2023	HFELT
918.407	.262		831.298	.197	2011	GPS - RTRN	2015	RTRN2015
918.535			831.350	.006	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084
918.404	.131		831.498	.066	1996	GPS - STATIC	2015	HCLAY
918.535			831.353	.006	2011	GPS - STATIC	2015	HCLAY
918.489	.262		831.380	.197	2011	GPS - RTRN	2014	RTRN2014
918.423	.262		831.314	.197	2011	GPS - RTRN	2013	RTRN2013
			831.350	.006	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
918.404	.131		831.452	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2690
918.404	.098		831.452	.049	2007	HORIZONTAL ADJUSTMENT	2010	GPS2697
918.404	.098		831.452	.049	2007	GPS - STATIC	2010	HBMN2
918.404	.131		831.498	.066	1996	GPS - STATIC	2010	HCOMS
918.404	.131		831.452	.066	2007	GPS - STATIC	2010	HCOMS
			831.452	.066	2007	HORIZONTAL ADJUSTMENT	2007	GPS2320-B
918.404	.131		831.498	.066	1996	HORIZONTAL ADJUSTMENT	2007	GPS2320
			831.452	.007	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
918.404	.131		831.498	.066	1996	GPS - STATIC	2006	HNRMN
918.404	.098		831.498	.049	1996	GPS - STATIC	2005	GPS2036
918.404	.131		831.498	.066	1996	HORIZONTAL ADJUSTMENT	2004	GPS2048
918.404	.131		831.498	.066	1996	GPS - STATIC	2004	HSYRE
918.404	.098		831.498	.049	1996	GPS - STATIC	2004	GPS1954
918.404	.131		831.498	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1916
918.404	.131		831.498	.066	1996	GPS - STATIC	2003	HBORU
918.404	.098		831.498	.049	1996	GPS - STATIC	1997	GPS805-B
918.404	.131		831.498	.066	1996	GPS - STATIC	1997	GPS805-C

Geoid Separations(ft): GEOID18 = -87.100 12B = -87.109 09 = -86.981 03 = -86.962

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Clay County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
47 02 57.22650	96 30 01.80709	549759.319	252977.400	.003		ADJUSTMENT	2023	GPS3618
47 02 57.22650	96 30 01.80709	549759.319	252977.400	.003	C	GPS - STATIC	2023	HFELT
47 02 57.22680	96 30 01.80636	549759.369	252977.430	.131	3	GPS - RTRN	2015	RTRN2015
47 02 57.22650	96 30 01.80709	549759.319	252977.400	.003		ADJUSTMENT	2015	GPS3084
47 02 57.22650	96 30 01.80711	549759.317	252977.400	.003	C	GPS - STATIC	2015	HCLAY
47 02 57.22744	96 30 01.80681	549759.338	252977.495	.131	3	GPS - RTRN	2014	RTRN2014
47 02 57.22699	96 30 01.80789	549759.263	252977.449	.131	3	GPS - RTRN	2013	RTRN2013
47 02 57.22650	96 30 01.80709	549759.319	252977.400	.003		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Clay County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
47 02 57.22641	96 30 01.80786	549759.266	252977.390	.033	C	ADJUSTMENT	2011	GPS2690
47 02 57.22641	96 30 01.80786	549759.266	252977.390	.016	B	ADJUSTMENT	2010	GPS2697
47 02 57.22641	96 30 01.80786	549759.266	252977.390	.016	B	GPS - STATIC	2010	HBMN2
47 02 57.22641	96 30 01.80786	549759.266	252977.390	.033	C	GPS - STATIC	2010	HCOMS
47 02 57.22641	96 30 01.80786	549759.266	252977.390	.033	C	ADJUSTMENT	2007	GPS2320-B
47 02 57.22641	96 30 01.80786	549759.266	252977.390	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Clay County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
47 02 57.22617	96 30 01.80804	549759.253	252977.366	.033	C	GPS - STATIC	2023	HFELT
47 02 57.22617	96 30 01.80804	549759.253	252977.366	.033	C	GPS - STATIC	2015	HCLAY
47 02 57.22617	96 30 01.80804	549759.253	252977.366	.033	C	GPS - STATIC	2010	HCOMS
47 02 57.22617	96 30 01.80804	549759.253	252977.366	.033	C	ADJUSTMENT	2007	GPS2320
47 02 57.22617	96 30 01.80804	549759.253	252977.366	.033	C	GPS - STATIC	2006	HNRMN
47 02 57.22617	96 30 01.80804	549759.253	252977.366	.016	B	GPS - STATIC	2005	GPS2036
47 02 57.22617	96 30 01.80803	549759.254	252977.366	.033	C	ADJUSTMENT	2004	GPS2048
47 02 57.22617	96 30 01.80804	549759.253	252977.366	.033	C	GPS - STATIC	2004	HSYRE
47 02 57.22617	96 30 01.80804	549759.253	252977.366	.016	B	GPS - STATIC	2004	GPS1954
47 02 57.22617	96 30 01.80804	549759.253	252977.366	.033	C	ADJUSTMENT	2003	GPS1916
47 02 57.22617	96 30 01.80804	549759.253	252977.366	.033	C	GPS - STATIC	2003	HBORU
47 02 57.22617	96 30 01.80804	549759.253	252977.366	.016	B	GPS - STATIC	1997	GPS805-B
47 02 57.22617	96 30 01.80804	549759.253	252977.366	.033	C	GPS - STATIC	1997	GPS805-C

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2063697.137	1083339.207	768136.728	17114739.562	.003		ADJUSTMENT	2023	GPS3618
2063697.137	1083339.207	768136.728	17114739.562	.003	C	GPS - STATIC	2023	HFELT
2063697.188	1083339.236	768136.780	17114739.591	.131	3	GPS - RTRN	2015	RTRN2015
2063697.137	1083339.207	768136.728	17114739.562	.003		ADJUSTMENT	2015	GPS3084
2063697.135	1083339.207	768136.727	17114739.563	.003	C	GPS - STATIC	2015	HCLAY
2063697.159	1083339.301	768136.752	17114739.657	.131	3	GPS - RTRN	2014	RTRN2014
2063697.083	1083339.258	768136.675	17114739.615	.131	3	GPS - RTRN	2013	RTRN2013
2063697.137	1083339.207	768136.728	17114739.562	.003		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2063697.083	1083339.199	768136.674	17114739.556	.033	C	ADJUSTMENT	2011	GPS2690
2063697.083	1083339.199	768136.674	17114739.556	.016	B	ADJUSTMENT	2010	GPS2697
2063697.083	1083339.199	768136.674	17114739.556	.016	B	GPS - STATIC	2010	HBMN2
2063697.083	1083339.199	768136.674	17114739.556	.033	C	GPS - STATIC	2010	HCOMS
2063697.083	1083339.199	768136.674	17114739.556	.033	C	ADJUSTMENT	2007	GPS2320-B
2063697.083	1083339.199	768136.674	17114739.556	.007		ADJUSTMENT	2007	GPS2300

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2063697.070	1083339.175	768136.661	17114739.532	.033	C	GPS - STATIC	2023	HFELT
2063697.070	1083339.175	768136.661	17114739.532	.033	C	GPS - STATIC	2015	HCLAY
2063697.070	1083339.175	768136.661	17114739.532	.033	C	GPS - STATIC	2010	HCOMS
2063697.070	1083339.175	768136.661	17114739.532	.033	C	ADJUSTMENT	2007	GPS2320
2063697.070	1083339.175	768136.661	17114739.532	.033	C	GPS - STATIC	2006	HNRMN
2063697.070	1083339.175	768136.661	17114739.532	.016	B	GPS - STATIC	2005	GPS2036
2063697.071	1083339.175	768136.662	17114739.532	.033	C	ADJUSTMENT	2004	GPS2048
2063697.070	1083339.175	768136.661	17114739.532	.033	C	GPS - STATIC	2004	HSYRE
2063697.070	1083339.175	768136.661	17114739.532	.016	B	GPS - STATIC	2004	GPS1954
2063697.070	1083339.175	768136.661	17114739.532	.033	C	ADJUSTMENT	2003	GPS1916
2063697.070	1083339.175	768136.661	17114739.532	.033	C	GPS - STATIC	2003	HBORU
2063697.070	1083339.175	768136.661	17114739.532	.016	B	GPS - STATIC	1997	GPS805-B
2063697.070	1083339.175	768136.661	17114739.532	.033	C	GPS - STATIC	1997	GPS805-C

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/G_377-SL1172-3W-22JUL2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/G_377-SL1172-3W-22JUL2013.jpg</a>	W	Jul 22, 2013
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/G_377-SL1172-2-22JUL2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/G_377-SL1172-2-22JUL2013.jpg</a>		Jul 22, 2013
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/G_377-SL1172-1-22JUL2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/G_377-SL1172-1-22JUL2013.jpg</a>		Jul 22, 2013

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: G 49

NGS Name: G 49

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0024](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096114/  
 USGS Quad: DALE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	34	140 N	44 W	465415.00	961308.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1934	1934	GOOD	Horz=NO Vert=NO	YES			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	NGS

**Description:** (1934)                      **Stamping:** G 49 1934

6.7 MILES WEST OF LAKE PARK, 0.3 MILE NORTH ALONG 2ND STREET FROM THE JUNCTION OF 2ND STREET AND LAKE STREET IN LAKE PARK, THEN 0.8 MILE WEST ALONG COUNTY HIGHWAY 7 (NORTH STREET), THEN 3.1 MILES WEST ALONG COUNTY ROAD 102, THEN 2.0 MILES WEST ALONG COUNTY ROAD 155/COUNTY ROAD 15 (JUNCTION AVENUE NORTH), THEN 0.3 MILE NORTH ALONG COUNTY ROAD 37 (280TH STREET NORTH), 8 RAILS EAST OF THE RAILROAD STATION AT DALE, 53.0 FEET SOUTH OF THE SOUTH RAILROAD TRACK, 8.0 FEET NORTHEAST OF A FENCE POST, 4.0 FEET NORTH OF A FENCE.

**Station Notes**

THE SURVEY MARK IS ON RAILROAD PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1224.417	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025	

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1223.311	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD	
1223.311	.033	3				VERTICAL CONTROL SURVEY	1965	USGS-VERT	
1223.311	.007	1				VERTICAL CONTROL SURVEY	1941	L3620	
1223.311	.007	1				VERTICAL CONTROL SURVEY	1941	Q460961	
1223.311	.007	1				VERTICAL CONTROL SURVEY	1934	L98 MINN	

Geoid Separations(ft): GEOID18 = -87.890 12B = -87.880 09 = -87.769 03 = -87.697

\* No Horizontal Positions in the Database \*



Mn/DOT Name: G 7

NGS Name: G 7

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0319](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	8	139 N	48 W	465229.00	964622.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1931	2001	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STRUCTURE (MASSIVE)	BENCH MARK DISK	NGS

Description: (1973)                      Stamping: 910.418 G 7 1931

IN MOORHEAD, 0.2 MILE WEST ALONG MAIN AVENUE FROM THE JUNCTION OF MAIN AVENUE AND 8TH STREET SOUTH IN MOORHEAD, THEN 335.0 FEET NORTH ALONG 5TH STREET SOUTH, IN THE EAST WALL OF THE CITY HALL, 7.0 FEET EAST OF THE CENTER OF AN ENTRANCE, 4.0 FEET ABOVE THE SIDEWALK.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
911.160	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025		

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
910.218	.016	2				VERTICAL CONTROL SURVEY	1972	Q460964		
910.218	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A		
910.218	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A		
910.326	.007	1				VERTICAL CONTROL SURVEY	1940	Q460964		
910.326	.007	1				VERTICAL CONTROL SURVEY	1938	L39 MINN		
910.418	.007	1				VERTICAL CONTROL SURVEY	1935	CUTLER-VERT		
910.418	.007	1				VERTICAL CONTROL SURVEY	1931	L39 MINN		

Geoid Separations(ft): GEOID18 = -86.922    12B = -86.913    09 = -86.798    03 = -86.739

\* No Horizontal Positions in the Database \*



Mn/DOT Name: GABRIELLE  
County: CLAY, MN (Sheet 1)

NGS Name: GABRIELLE

NGS ACRN: [DQ6750](#) [Get Map](#)  
NGS Quad / Sta Num : 46096442/  
USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	31	139 N	48 W	464905.59	964641.25	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2015	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 69 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

**Description:** (2015)                      **Stamping:** GABRIELLE 2015

2.0 MILES SOUTH OF MOORHEAD, 1.95 MILES SOUTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND INTERSTATE HIGHWAY 94 IN MOORHEAD TO TRUNK HIGHWAY 75 MILEPOST 246.40, THEN 0.5 MILE WEST ON 50TH AVENUE SOUTH, 42.6 FEET SOUTH OF 50TH AVENUE SOUTH, 70.2 FEET EAST OF 3RD STREET SOUTH, 1.5 FEET NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
907.551	.016	2/1				VERTICAL ADJUSTMENT	2024	0000941-3	
907.551	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
907.551			820.641	.014	2011	HORIZONTAL ADJUSTMENT	2025	GPS3805	
907.551	.131		820.809	.066	1996	GPS - STATIC	2025	HTH94A	
907.551			820.641	.014	2011	GPS - STATIC	2025	HTH94A	
907.551			820.641	.015	2011	HORIZONTAL ADJUSTMENT	2024	GPS3715	
907.551			820.641	.015	2011	GPS - STATIC	2024	HMOFA2	
907.551	.131		820.809	.066	1996	GPS - STATIC	2024	HMOFA2	
907.813	.262		820.697	.197	2011	GPS - RTRN	2022	RTRN2022	
907.816			820.641	.019	2011	HORIZONTAL ADJUSTMENT	2018	GPS3119	
907.734	.131		820.809	.066	1996	GPS - STATIC	2017	HMNCORS07	
907.816			820.641	.019	2011	GPS - STATIC	2017	HMNPH	
907.833	.262		820.697	.197	2011	GPS - RTRN	2015	RTRN2015	

Geoid Separations(ft): GEOID18 = -87.116    12B = -87.136    09 = -87.027    03 = -86.903

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 49 05.59203	96 46 41.25109	480461.378	168664.092	.010		ADJUSTMENT	2025	GPS3805	
46 49 05.59203	96 46 41.25109	480461.378	168664.092	.010	C	GPS - STATIC	2025	HTH94A	
46 49 05.59203	96 46 41.25109	480461.378	168664.092	.010		ADJUSTMENT	2024	GPS3715	
46 49 05.59203	96 46 41.25109	480461.378	168664.092	.010	C	GPS - STATIC	2024	HMOFA2	
46 49 05.59293	96 46 41.25102	480461.383	168664.183	.131	3	GPS - RTRN	2022	RTRN2022	
46 49 05.59203	96 46 41.25109	480461.378	168664.092	.010		ADJUSTMENT	2018	GPS3119	
46 49 05.59203	96 46 41.25109	480461.378	168664.092	.010	C	GPS - STATIC	2017	HMNPH	
46 49 05.59143	96 46 41.25077	480461.400	168664.031	.131	3	GPS - RTRN	2015	RTRN2015	

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 49 05.59172	96 46 41.25161	480461.341	168664.061	.033	C	GPS - STATIC	2025	HTH94A	
46 49 05.59172	96 46 41.25161	480461.341	168664.061	.033	C	GPS - STATIC	2024	HMOFA2	
46 49 05.59172	96 46 41.25161	480461.341	168664.061	.033	C	GPS - STATIC	2017	HMNCORS07	

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1991828.963	1001215.712	694900.827	17033750.034	.010		ADJUSTMENT	2025	GPS3805
1991828.963	1001215.712	694900.827	17033750.034	.010	C	GPS - STATIC	2025	HTH94A
1991828.963	1001215.712	694900.827	17033750.034	.010		ADJUSTMENT	2024	GPS3715
1991828.963	1001215.712	694900.827	17033750.034	.010	C	GPS - STATIC	2024	HMOFA2
1991828.971	1001215.803	694900.836	17033750.125	.131	3	GPS - RTRN	2022	RTRN2022
1991828.963	1001215.712	694900.827	17033750.034	.010		ADJUSTMENT	2018	GPS3119
1991828.963	1001215.712	694900.827	17033750.034	.010	C	GPS - STATIC	2017	HMNPH
1991828.984	1001215.651	694900.846	17033749.972	.131	3	GPS - RTRN	2015	RTRN2015

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1991828.926	1001215.682	694900.789	17033750.004	.033	C	GPS - STATIC	2025	HTH94A
1991828.926	1001215.682	694900.789	17033750.004	.033	C	GPS - STATIC	2024	HMOFA2
1991828.926	1001215.682	694900.789	17033750.004	.033	C	GPS - STATIC	2017	HMNCORS07

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GABRIELLE-DQ6750-3S-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GABRIELLE-DQ6750-3S-15JUN2022.jpg</a>	S	Jun 15, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GABRIELLE-DQ6750-2-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GABRIELLE-DQ6750-2-15JUN2022.jpg</a>		Jun 15, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GABRIELLE-DQ6750-1-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GABRIELLE-DQ6750-1-15JUN2022.jpg</a>		Jun 15, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: GEN

NGS Name: GEN

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP7354](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096232/  
 USGS Quad: ULEN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	31	142 N	44 W	470353.24	961918.23		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2013	2013	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 73 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2013)                      Stamping: GEN 2013

3.0 MILES WEST OF ULEN, 2.95 MILES WEST ALONG COUNTY ROAD 34 FROM THE JUNCTION OF COUNTY ROAD 34 AND TRUNK HIGHWAY 32 IN ULEN, THEN 0.95 MILE SOUTH ON COUNTY ROAD 33, 102.8 FEET EAST OF COUNTY ROAD 33, 27.6 FEET NORTH OF AN ENTRANCE TO THE WATERFOWL PRODUCTION AREA PARKING LOT, 1.5 FEET SOUTH OF A WITNESS POST.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Orthometric Height				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference			
1143.958			1056.340	.022	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084			
1143.990	.131		1056.481	.066	1996	GPS - STATIC	2015	HCLAY			
1143.958			1056.340	.022	2011	GPS - STATIC	2015	HCLAY			
1143.823	.262		1056.235	.197	2011	GPS - RTRN	2013	RTRN2013			

Geoid Separations(ft): GEOID18 = -87.608    12B = -87.588    09 = -87.474    03 = -87.490

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Geodetic Position				Clay County		Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference		
47 03 53.23750	96 19 18.22501	594301.530	258816.926	.013		ADJUSTMENT	2015	GPS3084		
47 03 53.23750	96 19 18.22501	594301.530	258816.926	.013	C	GPS - STATIC	2015	HCLAY		
47 03 53.23910	96 19 18.22407	594301.594	258817.089	.131	3	GPS - RTRN	2013	RTRN2013		

NAD83(1996)		Geodetic Position				Clay County		Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference		
47 03 53.23693	96 19 18.22583	594301.473	258816.868	.033	C	GPS - STATIC	2015	HCLAY		

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		MN State Plane - Central Zone				UTM - Zone 15			Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference		
2108396.607	1087796.185	812921.940	17118468.035	.013		ADJUSTMENT	2015	GPS3084		
2108396.607	1087796.185	812921.940	17118468.035	.013	C	GPS - STATIC	2015	HCLAY		
2108396.677	1087796.345	812922.012	17118468.195	.131	3	GPS - RTRN	2013	RTRN2013		

NAD83(1996)		MN State Plane - Central Zone				UTM - Zone 15			Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference		
2108396.549	1087796.129	812921.881	17118467.980	.033	C	GPS - STATIC	2015	HCLAY		

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GEN-DP7354-3N-21AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GEN-DP7354-3N-21AUG2013.jpg</a>	N	Aug 21, 2013
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GEN-DP7354-2-21AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GEN-DP7354-2-21AUG2013.jpg</a>		Aug 21, 2013
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GEN-DP7354-1-21AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GEN-DP7354-1-21AUG2013.jpg</a>		Aug 21, 2013

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: GEORGE  
County: CLAY, MN (Sheet 1)

NGS Name: GEORGE

NGS ACRN: [DO9533](#) [Get Map](#)  
NGS Quad / Sta Num : 47096332/  
USGS Quad: GEORGETOWN

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SE	8	141 N	48 W	470230.74	964642.09	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2012	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 65 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012)                      Stamping: GEORGE 2012

2.6 MILES SOUTHEAST OF GEORGETOWN, 2.7 MILES SOUTHEAST ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND COUNTY ROAD 100/COUNTY ROAD 34 IN GEORGETOWN, AT TRUNK HIGHWAY 75 MILEPOINT 263.2, 0.55 MILE SOUTHEAST OF COUNTY ROAD 108, 76.1 FEET SOUTHWEST OF TRUNK HIGHWAY 75, 18.4 FEET SOUTHEAST OF AN ENTRANCE, 5.2 FEET NORTHWEST OF A RIGHT-OF-WAY POST, 1.5 FEET NORTHWEST OF A WITNESS POST.

Station Pair: ANNABELLE - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
884.555	.016	2/1				2024	00000941-3	VERTICAL ADJUSTMENT				
884.588	.016	2/1				2023	VMOFA	VERTICAL CONTROL SURVEY				
884.549	.016	2/1				2019	00000941	VERTICAL ADJUSTMENT				

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
884.588			798.447	.019	2011	2024	GPS3674	HORIZONTAL ADJUSTMENT				
884.588			798.447	.019	2011	2023	HMOFA3	GPS - STATIC				
884.588	.131		798.594	.066	1996	2023	HMOFA3	GPS - STATIC				
884.739	.262		798.410	.197	2011	2022	RTRN2022P	GPS - RTRN				
884.831	.262		798.502	.197	2011	2022	RTRN2022T	GPS - RTRN				
884.857	.262		798.529	.197	2011	2022	RTRN2022	GPS - RTRN				
884.788			798.447	.024	2011	2013	GPS2963	HORIZONTAL ADJUSTMENT				
884.792	.131		798.594	.066	1996	2013	HGEOR	GPS - STATIC				
884.788			798.447	.024	2011	2013	HGEOR	GPS - STATIC				
884.650	.262		798.433	.197	2007	2012	RTRN2012	GPS - RTRN				

Geoid Separations(ft): GEOID18 = -86.329    12B = -86.325    09 = -86.217    03 = -86.197

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>					
47 02 30.74416	96 46 42.09075	480484.479	250240.605	.010		2024	GPS3674	ADJUSTMENT				
47 02 30.74416	96 46 42.09075	480484.479	250240.605	.010	C	2023	HMOFA3	GPS - STATIC				
47 02 30.74375	96 46 42.09180	480484.406	250240.564	.131	3	2022	RTRN2022P	GPS - RTRN				
47 02 30.74380	96 46 42.09220	480484.378	250240.569	.131	3	2022	RTRN2022T	GPS - RTRN				
47 02 30.74455	96 46 42.09050	480484.496	250240.645	.131	3	2022	RTRN2022	GPS - RTRN				
47 02 30.74416	96 46 42.09075	480484.479	250240.605	.013		2013	GPS2963	ADJUSTMENT				
47 02 30.74416	96 46 42.09075	480484.479	250240.605	.013	C	2013	HGEOR	GPS - STATIC				

<u>NAD83(2007)</u>		<u>Geodetic Position</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>					
47 02 30.74412	96 46 42.09209	480484.386	250240.602	.131	3	2012	RTRN2012	GPS - RTRN				

<u>NAD83(1996)</u>		<u>Geodetic Position</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>					
47 02 30.74371	96 46 42.09129	480484.441	250240.560	.033	C	2023	HMOFA3	GPS - STATIC				
47 02 30.74371	96 46 42.09129	480484.441	250240.560	.033	C	2013	HGEOR	GPS - STATIC				

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1994374.045	1082746.876	698775.732	17115281.101	.010		ADJUSTMENT	2024	GPS3674
1994374.045	1082746.876	698775.732	17115281.101	.010	C	GPS - STATIC	2023	HMOFA3
1994373.972	1082746.837	698775.658	17115281.063	.131	3	GPS - RTRN	2022	RTRN2022P
1994373.944	1082746.843	698775.630	17115281.069	.131	3	GPS - RTRN	2022	RTRN2022T
1994374.064	1082746.916	698775.751	17115281.139	.131	3	GPS - RTRN	2022	RTRN2022
1994374.045	1082746.876	698775.732	17115281.101	.013		ADJUSTMENT	2013	GPS2963
1994374.045	1082746.876	698775.732	17115281.101	.013	C	GPS - STATIC	2013	HGEOR

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1994373.953	1082746.876	698775.639	17115281.101	.131	3	GPS - RTRN	2012	RTRN2012

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1994374.007	1082746.832	698775.693	17115281.057	.033	C	GPS - STATIC	2023	HMOFA3
1994374.007	1082746.832	698775.693	17115281.057	.033	C	GPS - STATIC	2013	HGEOR

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GEORGE-DO9533-3SW-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GEORGE-DO9533-3SW-28JUN2022.jpg</a>	SW	Jun 28, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GEORGE-DO9533-2-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GEORGE-DO9533-2-28JUN2022.jpg</a>		Jun 28, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GEORGE-DO9533-1-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GEORGE-DO9533-1-28JUN2022.jpg</a>		Jun 28, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: GEORGETOWN

NGS Name: GEORGETOWN

County: CLAY, MN (Sheet 1)

NGS ACRN: [SL1531](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096332/1012  
 USGS Quad: GEORGETOWN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	19	142 N	48 W	470626.16	964747.41	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	2014	GOOD	Horz=YES Vert=YES	YES		FLUSH	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	NGS

**Description:** (2012)                      **Stamping:** GEORGETOWN 1954

2.0 MILES NORTH OF GEORGETOWN, 1.8 MILES NORTH ALONG TRUNK HIGHWAY 75 NORTH FROM THE JUNCTION OF TRUNK HIGHWAY 75 NORTH AND 160TH AVENUE NORTHWEST, TO TRUNK HIGHWAY 75 MILEPOINT 267.8, THEN 253.0 FEET WEST ALONG 180TH AVENUE NORTH, ON THE WEST SIDE OF TRUNK HIGHWAY 75, IN A TRIANGLE FORMED BY COUNTY ROADS, 130.3 FEET WEST OF AN OLD RAILROAD BED, 52.0 FEET SOUTH OF 180TH AVENUE NORTHWEST, 141.13 FEET SOUTHWEST OF GEORGETOWN RM 1, 122.82 FEET NORTHWEST OF GEORGETOWN RM 2, 1.1 FEET NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
878.860	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
879.145				792.728	.021	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084	
879.155	.131			792.931	.066	1996	GPS - STATIC	2015	HCLAY	
879.145				792.751	.021	2011	GPS - STATIC	2015	HCLAY	
879.086				792.728	.029	2011	HORIZONTAL ADJUSTMENT	2013	GPS2963	
879.149	.131			792.931	.066	1996	GPS - STATIC	2013	HGEOR	
879.086				792.728	.029	2011	GPS - STATIC	2013	HGEOR	
878.791	.262			792.561	.197	2007	GPS - RTRN	2012	RTRN2012	
				793.089	.066	1996	GPS - STATIC	2001	DIST 4	
879.263	.197			793.440	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
879.296							RECIPROCAL VERTICAL ANGLE	1954	HORZ	

Geoid Separations(ft): GEOID18 = -86.322    12B = -86.338    09 = -86.230    03 = -86.217



**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County					Project Info	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 06 26.15816	96 47 47.41336	475989.519	274097.953	.013		ADJUSTMENT	2015	GPS3084
47 06 26.15816	96 47 47.41318	475989.532	274097.953	.013	C	GPS - STATIC	2015	HCLAY
47 06 26.15816	96 47 47.41336	475989.519	274097.953	.016		ADJUSTMENT	2013	GPS2963
47 06 26.15816	96 47 47.41336	475989.519	274097.953	.016	C	GPS - STATIC	2013	HGEOR

**NAD83(2007)**

Geodetic Position		Clay County					Project Info	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 06 26.15851	96 47 47.41350	475989.510	274097.988	.131	3	GPS - RTRN	2012	RTRN2012

**NAD83(1996)**

Geodetic Position		Clay County					Project Info	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 06 26.15748	96 47 47.41393	475989.480	274097.884	.033	C	GPS - STATIC	2015	HCLAY
47 06 26.15748	96 47 47.41393	475989.480	274097.884	.033	C	GPS - STATIC	2013	HGEOR
47 06 26.15733	96 47 47.41405	475989.471	274097.870	.033	C	GPS - STATIC	2001	DIST 4
47 06 26.15525	96 47 47.41309	475989.538	274097.658	.066	2	ADJUSTMENT	1999	17648
47 06 26.15547	96 47 47.41340	475989.516	274097.680	.066	2	ADJUSTMENT	1998	17655

**NAD83(1986)**

Geodetic Position		Clay County					Project Info	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 06 26.15479	96 47 47.40548	475990.064	274097.611	.066	2	ADJUSTMENT	1986	17289

**NAD27**

Geodetic Position							Project Info	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 06 26.26800	96 47 46.11900			.100	2	CLASSICAL SURVEY	1956	11230

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1990618.913	1106730.811	695412.373	17139338.073	.013		ADJUSTMENT	2015	GPS3084
1990618.925	1106730.811	695412.386	17139338.073	.013	C	GPS - STATIC	2015	HCLAY
1990618.913	1106730.811	695412.373	17139338.073	.016		ADJUSTMENT	2013	GPS2963
1990618.913	1106730.811	695412.373	17139338.073	.016	C	GPS - STATIC	2013	HGEOR

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1990618.904	1106730.847	695412.365	17139338.109	.131	3	GPS - RTRN	2012	RTRN2012

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1990618.871	1106730.744	695412.330	17139338.006	.033	C	GPS - STATIC	2015	HCLAY
1990618.871	1106730.744	695412.330	17139338.006	.033	C	GPS - STATIC	2013	HGEOR
1990618.862	1106730.728	695412.321	17139337.992	.033	C	GPS - STATIC	2001	DIST 4
1990618.922	1106730.516	695412.378	17139337.778	.066	2	ADJUSTMENT	1999	17648
1990618.901	1106730.539	695412.357	17139337.801	.066	2	ADJUSTMENT	1998	17655

**NAD83(1986)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1990619.447	1106730.452	695412.901	17139337.706	.066	2	ADJUSTMENT	1986	17289

**NAD27**

MN State Plane - Central Zone							Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1366022.514	778651.459			.100	2	CLASSICAL SURVEY	1956	11230



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GEORGETOWN-SL1531-3S-22AUG2012.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GEORGETOWN-SL1531-3S-22AUG2012.jpg</a>	S	Aug 22, 2012
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GEORGETOWN-SL1531-2-22AUG2012.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GEORGETOWN-SL1531-2-22AUG2012.jpg</a>		Aug 22, 2012
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GEORGETOWN-SL1531-1-22AUG2012.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GEORGETOWN-SL1531-1-22AUG2012.jpg</a>		Aug 22, 2012

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: GEORGETOWN AZ MK

NGS Name: GEORGETOWN AZ MK

County: CLAY, MN (Sheet 1)

NGS ACRN: [CO9599](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096332/  
 USGS Quad: GEORGETOWN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	19	142 N	48 W	470605.00	964744.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	AZIMUTH MARK DISK	NGS

**Description:** **Stamping:** GEORGETOWN 1954

1.5 MILES NORTH OF GEORGETOWN, 0.2 MILE NORTH ALONG PROBSFIELD STREET FROM THE JUNCTION OF PROBSFIELD STREET AND 160TH AVENUE NORTHWEST IN GEORGETOWN, THEN 1.3 MILES NORTH ALONG COUNTY ROAD 100 (10TH STREET NORTHWEST), WEST OF A LARGE BILLBOARD, 41.0 FEET EAST OF THE CENTER OF AN OILED ROAD, 1.5 FEET NORTH OF A WHITE WITNESS POST.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -86.306 12B = -86.329 09 = -86.210 03 = -86.194



Mn/DOT Name: GEORGETOWN FARM ELEV CO ELEV

NGS Name: GEORGETOWN FARM ELEV CO ELEV

County: CLAY, MN (Sheet 1)

NGS ACRN: [SL1530](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096332/1036  
 USGS Quad: GEORGETOWN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	29	142 N	48 W	470449.66	964736.35		4

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	1954	GOOD	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	GRAIN ELEVATOR	NGS

Description: (1954)

Stamping:

IN GEORGETOWN, 161.0 FEET NORTH ALONG COUNTY ROAD 100 (BRIDGE STREET) FROM THE JUNCTION OF COUNTY ROAD 100 (BRIDGE STREET) AND 160TH AVENUE NORTHWEST.

\* No Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -86.260 12B = -86.296 09 = -86.165 03 = -86.135

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 04 49.66204	96 47 36.34789	476743.321	264319.942	.328	4	ADJUSTMENT	1999	17648
47 04 49.66226	96 47 36.34816	476743.303	264319.965	.328	4	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 04 49.66160	96 47 36.34004	476743.865	264319.897	.328	4	ADJUSTMENT	1986	17289

<u>NAD27</u>						<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 04 49.77300	96 47 35.05000			.100	4	CLASSICAL SURVEY	1956	11230

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>							
1991070.076	1096934.525	695702.838	17129529.726	.328	4	ADJUSTMENT	1999	17648
1991070.058	1096934.548	695702.820	17129529.749	.328	4	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>							
1991070.617	1096934.463	695703.378	17129529.655	.328	4	ADJUSTMENT	1986	17289

<u>NAD27</u>						<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>							
1366473.993	768855.318			.100	4	CLASSICAL SURVEY	1956	11230



Mn/DOT Name: GEORGETOWN RM 1

NGS Name: GEORGETOWN RM 1

County: CLAY, MN (Sheet 1)

NGS ACRN: [CO9600](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096332/1012  
 USGS Quad: GEORGETOWN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	18	142 N	48 W	470627.33	964746.31		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	2012	DESTROYED	Horz=NO Vert=NO	NO		PROJECTS 2 IN.	STEEL SPIKE ADJ TO MON

Monument Type  
 UNKNOWN

Disk Type  
 REFERENCE MARK DISK

Mon. Agency  
 NGS

Description: (2002)

Stamping: GEORGETOWN NO 1 1954

2.0 MILES NORTH OF GEORGETOWN, 1.9 MILES NORTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND COUNTY ROAD 34 IN GEORGETOWN, TO TRUNK HIGHWAY 75 MILEPOINT 267.8, THEN 200.0 FEET WEST ON 180TH AVENUE NORTHWEST, 174.5 FEET WEST OF TRUNK HIGHWAY 75, 47.1 FEET WEST OF THE WEST RAIL OF A RAILROAD, 28.0 FEET EAST OF A FIELD ENTRANCE, 1.1 FEET EAST OF A WITNESS POST.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -86.325 12B = -86.342 09 = -86.233 03 = -86.220



Mn/DOT Name: GEORGETOWN RM 2

NGS Name: GEORGETOWN RM 2

County: CLAY, MN (Sheet 1)

NGS ACRN: [CO9601](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096332/1012  
 USGS Quad: GEORGETOWN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	19	142 N	48 W	470625.28	964746.19	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	2012	GOOD	Horz=YES Vert=YES	YES		PROJECTS 3 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** (2012)                      **Stamping:** GEORGETOWN NO 2 1954

2.0 MILES NORTH OF GEORGETOWN, 1.8 MILES NORTH ALONG TRUNK HIGHWAY 75 NORTH FROM THE JUNCTION OF TRUNK HIGHWAY 75 NORTH AND 160TH AVENUE NORTHWEST, TO TRUNK HIGHWAY 75 MILEPOINT 267.8, THEN 253.0 FEET WEST ALONG 180TH AVENUE NORTH, ON THE WEST SIDE OF TRUNK HIGHWAY 75, IN A TRIANGLE FORMED BY COUNTY ROADS, 166.5 FEET SOUTH OF 180TH AVENUE NORTHWEST, 50.7 FEET WEST OF AN OLD RAILROAD BED, 122.82 FEET SOUTHEAST OF STATION GEORGETOWN, 84.4 FEET NORTHEAST OF COUNTY ROAD 100 (10TH STREET NORTHWEST), 1.0 FOOT EAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
878.896	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
878.850	.262			792.623	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -86.322    12B = -86.338    09 = -86.230    03 = -86.217

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2007)</u>				<u>Clay County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
47 06 25.28025	96 47 46.18596			476074.318	274008.897	.131	3	GPS - RTRN	2012	RTRN2012

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2007)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
1990700.916	1106639.180			695492.909	17139245.051	.131	3	GPS - RTRN	2012	RTRN2012

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GEORGETOWN_RM_2-CO9601-3W-22AUG2012.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GEORGETOWN_RM_2-CO9601-3W-22AUG2012.jpg</a>	W	Aug 22, 2012
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GEORGETOWN_RM_2-CO9601-2-22AUG2012.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GEORGETOWN_RM_2-CO9601-2-22AUG2012.jpg</a>		Aug 22, 2012
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GEORGETOWN_RM_2-CO9601-1-22AUG2012.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GEORGETOWN_RM_2-CO9601-1-22AUG2012.jpg</a>		Aug 22, 2012

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: GLYN  
 County: CLAY, MN (Sheet 1)

NGS Name: GLYN

NGS ACRN: [DP7355](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	1	138 N	47 W	464817.25	963248.25		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2013	2013	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 74 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2013) Stamping: GLYN 2013

8.5 MILES SOUTHEAST OF MOORHEAD, 1.0 MILE SOUTH ALONG COUNTY ROAD 117 (PARKE AVENUE) FROM THE JUNCTION OF COUNTY ROAD 117 AND TRUNK HIGHWAY 10 IN GLYNDON, THEN 1.5 MILES EAST ON COUNTY ROAD 72 (12TH STREET SOUTHEAST), THEN 4.5 MILES SOUTH ON COUNTY ROAD 72 (120TH STREET SOUTH), 69.0 FEET SOUTH OF 60TH AVENUE SOUTH, 13.8 FEET WEST OF COUNTY ROAD 72, 5.9 FEET SOUTHEAST OF A WITNESS POST.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Orthometric Height				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference			
936.370			848.768	.019	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084			
936.314	.131		848.906	.066	1996	GPS - STATIC	2015	HCLAY			
936.370			848.768	.019	2011	GPS - STATIC	2015	HCLAY			
936.435	.262		848.857	.197	2011	GPS - RTRN	2013	RTRN2013			

Geoid Separations(ft): GEOID18 = -87.572 12B = -87.579 09 = -87.447 03 = -87.372

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Clay County				Project Info			
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference	
46 48 17.25043	96 32 48.24950	538406.983	163794.019	.013		ADJUSTMENT	2015	GPS3084	
46 48 17.25043	96 32 48.24950	538406.983	163794.019	.013	C	GPS - STATIC	2015	HCLAY	
46 48 17.25107	96 32 48.25128	538406.859	163794.084	.131	3	GPS - RTRN	2013	RTRN2013	

NAD83(1996)		Clay County				Project Info			
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference	
46 48 17.25000	96 32 48.25033	538406.925	163793.975	.033	C	GPS - STATIC	2015	HCLAY	

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		UTM - Zone 15				Project Info			
MN State Plane - Central Zone		X	Y	Acc	Order	Determination Method	Year	Reference	
2049591.057	994556.233	752582.414	17026152.438	.013		ADJUSTMENT	2015	GPS3084	
2049591.057	994556.233	752582.414	17026152.438	.013	C	GPS - STATIC	2015	HCLAY	
2049590.935	994556.302	752582.294	17026152.508	.131	3	GPS - RTRN	2013	RTRN2013	

NAD83(1996)		UTM - Zone 15				Project Info			
MN State Plane - Central Zone		X	Y	Acc	Order	Determination Method	Year	Reference	
2049590.998	994556.191	752582.355	17026152.397	.033	C	GPS - STATIC	2015	HCLAY	

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GLYN-DP7355-3S-21AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GLYN-DP7355-3S-21AUG2013.jpg</a>	S	Aug 21, 2013
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GLYN-DP7355-2-21AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GLYN-DP7355-2-21AUG2013.jpg</a>		Aug 21, 2013
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GLYN-DP7355-1-21AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GLYN-DP7355-1-21AUG2013.jpg</a>		Aug 21, 2013

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: GLYNDON

NGS Name: GLYNDON

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0296](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/1050  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	1	139 N	47 W	465238.91	963252.65	2	2

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	2022	GOOD	Horz=NO Vert=YES	YES		RECESSED 3 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	NGS

**Description:** (2003)                      **Stamping:** GLYNDON 1954

1.5 MILES EAST OF GLYNDON, 1.45 MILES EAST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 19/COUNTY ROAD 117 IN GLYNDON, AT TRUNK HIGHWAY 10 MILEPOINT 11.2, 60.0 FEET NORTH OF WESTBOUND TRUNK HIGHWAY 10, 30.0 FEET EAST-SOUTHEAST OF A TELEPHONE PEDESTAL GUARD POST, 144.0 FEET NORTH OF GLYNDON RM 1, 131.02 FEET EAST OF GLYNDON RM 2, 247.86 FEET NORTH OF GLYNDON RM 3.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
926.307	.016	2/1				VERTICAL ADJUSTMENT	2024	0000941-3		
926.307	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA		
926.288	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941		
926.448	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025		

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
925.385	.007	1/2				UNKNOWN/APPROXIMATE	1992	UNCHECKD		
925.385	.016	2				VERTICAL CONTROL SURVEY	1972	Q460964		
925.385	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A		
925.385	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
927.767	.262		840.185	.197	2011	GPS - RTRN	2015	RTRN2015		
926.442	.197		839.418	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648		

Geoid Separations(ft): GEOID18 = -87.579    12B = -87.582    09 = -87.437    03 = -87.392

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 52 38.90519	96 32 52.65202	538049.391	190303.360	.131	3	GPS - RTRN	2015	RTRN2015	

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 52 38.90632	96 32 52.64920	538049.587	190303.475	.066	2	ADJUSTMENT	1999	17648	
46 52 38.90624	96 32 52.64885	538049.611	190303.467	.066	2	ADJUSTMENT	1998	17655	

<u>NAD83(1986)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 52 38.90566	96 32 52.64140	538050.129	190303.409	.066	2	ADJUSTMENT	1986	17289	

<u>NAD27</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 52 39.04400	96 32 51.37200			.100	2	CLASSICAL SURVEY	1956	11230	

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2050053.895	1021061.669	753474.645	17052661.170	.131	3	GPS - RTRN	2015	RTRN2015

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2050054.094	1021061.777	753474.846	17052661.276	.066	2	ADJUSTMENT	1999	17648
2050054.118	1021061.769	753474.870	17052661.266	.066	2	ADJUSTMENT	1998	17655

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2050054.633	1021061.695	753475.385	17052661.184	.066	2	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone		<u>X</u>	<u>Y</u>	Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1425458.859	692985.835			.100	2	CLASSICAL SURVEY	1956	11230

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GLYNDON-RP0296-3N-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GLYNDON-RP0296-3N-05JUL2022.jpg</a>	N	Jul 5, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GLYNDON-RP0296-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GLYNDON-RP0296-2-05JUL2022.jpg</a>		Jul 5, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GLYNDON-RP0296-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GLYNDON-RP0296-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: GLYNDON AZ MK

NGS Name: GLYNDON AZ MK

County: CLAY, MN (Sheet 1)

NGS ACRN: [CO9612](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	12	139 N	47 W	465238.00	963318.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	2006	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	NGS

**Description:** **Stamping:** GLYNDON 1954

1.1 MILES EAST-NORTHEAST OF GLYNDON, 0.3 MILE NORTH ALONG PARKE AVENUE SOUTH FROM THE JUNCTION OF PARKE AVENUE SOUTH AND 4TH STREET SOUTHEAST IN GLYNDON, THEN 1.2 MILES EAST ALONG TRUNK HIGHWAY 10 (STATE STREET NORTHEAST), THEN 115.0 FEET WEST ALONG TRUNK HIGHWAY 10,

**Station Notes**  
 THE SURVEY MARK WAS RESET.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.559 12B = -87.562 09 = -87.418 03 = -87.372



Mn/DOT Name: GLYNDON AZ MK 3

NGS Name: GLYNDON AZ MK 3

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0727](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	12	139 N	47 W	465236.00	963315.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1974	2022	NOT FOUND	Horz=NO Vert=NO	NO		FLUSH	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	NGS

Description: (1982)                      Stamping: GLYNDON 1954 1974

1.2 MILES EAST-NORTHEAST OF GLYNDON, 0.3 MILE NORTH ALONG PARKE AVENUE SOUTH FROM THE JUNCTION OF PARKE AVENUE SOUTH AND 4TH STREET SOUTHEAST IN GLYNDON, THEN 1.2 MILES EAST ALONG TRUNK HIGHWAY 10 (STATE STREET NORTHEAST), 1.1 MILES EAST ON TRUNK HIGHWAY 10 FROM A POST OFFICE AT GLYNDON, AT A GRAVEL ROAD SOUTH, 106.0 FEET SOUTH OF EASTBOUND TRUNK HIGHWAY 10, 27.5 FEET EAST OF A GRAVEL ROAD, 42.0 FEET WEST OF A POWER POLE, 2.0 FEET EAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
925.759	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025	

Geoid Separations(ft): GEOID18 = -87.565    12B = -87.569    09 = -87.424    03 = -87.378

\* No Horizontal Positions in the Database \*



Mn/DOT Name: GLYNDON AZ MK RESET

NGS Name: GLYNDON AZ MK RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0298](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	12	139 N	47 W	465236.00	963330.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	2022	NOT FOUND	Horz=NO Vert=NO	NO		PROJECTS 1 IN.	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE FOOTING - SMALL	SURVEY DISK	NGS

Description: (1969)

Stamping: GLYNDON AZIMUTH MARK RESET 1964

0.8 MILE EAST OF GLYNDON, 1.2 MILES EAST-NORTHEAST OF GLYNDON, 0.3 MILE NORTH ALONG PARKE AVENUE SOUTH FROM THE JUNCTION OF PARKE AVENUE SOUTH AND 4TH STREET SOUTHEAST IN GLYNDON, THEN 1.0 MILE EAST ALONG TRUNK HIGHWAY 10 (STATE STREET NORTHEAST), 150.0 FEET SOUTH OF EASTBOUND TRUNK HIGHWAY 10, AT TRUNK HIGHWAY 10 STATION 562+80, 30.0 FEET WEST OF A DRIVEWAY SOUTH, 20.0 FEET NORTH OF A 36.0 INCH DIAMETER BOXELDER TREE, 1.0 FOOT EAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
926.940	.016	2					VERTICAL CONTROL SURVEY	1993	POSTED	

  

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
925.923	.016	2/0					UNKNOWN/APPROXIMATE	1992	UNCHECKD	
925.923	.016	2					VERTICAL CONTROL SURVEY	1972	Q460964	
925.923	.016	2					VERTICAL CONTROL SURVEY	1972	L22167-A	
925.923	.016	2					VERTICAL CONTROL SURVEY	1971	L22167-A	

Geoid Separations(ft): GEOID18 = -87.552 12B = -87.556 09 = -87.411 03 = -87.365

\* No Horizontal Positions in the Database \*



Mn/DOT Name: GLYNDON CHURCH SPIRE

NGS Name: GLYNDON CHURCH SPIRE

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP1060](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/1065  
 USGS Quad: GLYNDON SOUTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	11	139 N	47 W	465227.49	963436.82		4

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1906	2006	GOOD	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	CHURCH SPIRE	NGS

Description: (1906)

Stamping:

IN GLYNDON, 354.0 FEET NORTH ALONG PARKE AVENUE FROM THE JUNCTION OF PARKE AVENUE AND 4TH STREET  
 SOUTHEAST IN GLYNDON, THEN 0.2 MILE EAST ALONG 3RD STREET EAST.

\* No Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.500 12B = -87.503 09 = -87.362 03 = -87.316

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 52 27.49189	96 34 36.81550	530814.499	189134.315	.328	4	ADJUSTMENT	1999	17648
46 52 27.49214	96 34 36.81579	530814.479	189134.340	.328	4	ADJUSTMENT	1998	17655

NAD83(1986)

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 52 27.48976	96 34 36.80435	530815.274	189134.100	.328	4	ADJUSTMENT	1986	17289

NAD27

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 52 27.63000	96 34 35.54000			.100	4	CLASSICAL SURVEY	1928	00155

USSD

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 52 27.85000	96 34 35.93000				3	CLASSICAL SURVEY		17389-73

State Plane and UTM Coordinates (Feet)

NAD83(1996)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2042786.874	1020117.129	746189.341	17051834.122	.328	4	ADJUSTMENT	1999	17648
2042786.855	1020117.155	746189.322	17051834.149	.328	4	ADJUSTMENT	1998	17655

NAD83(1986)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2042787.642	1020116.891	746190.106	17051833.871	.328	4	ADJUSTMENT	1986	17289

NAD27

<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1418191.311	692041.213			.100	4	CLASSICAL SURVEY	1928	00155



Mn/DOT Name: GLYNDON ELEVATOR

NGS Name: GLYNDON ELEVATOR

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP1061](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/1066  
 USGS Quad: GLYNDON SOUTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	11	139 N	47 W	465224.18	963447.59		4

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1906	1906	GOOD	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	GRAIN ELEVATOR	NGS

Description: (1906)

Stamping:

IN GLYNDON, 112.0 FEET EAST ALONG 4TH STREET SOUTHEAST FROM THE JUNCTION OF 4TH STREET SOUTHEAST AND PARKE AVENUE SOUTH IN GLYNDON.

\* No Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.493 12B = -87.497 09 = -87.355 03 = -87.310

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 52 24.17990	96 34 47.59457	530066.098	188797.593	.328	4	ADJUSTMENT	1999	17648
46 52 24.18016	96 34 47.59489	530066.075	188797.620	.328	4	ADJUSTMENT	1998	17655

NAD83(1986)

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 52 24.17776	96 34 47.58328	530066.882	188797.378	.328	4	ADJUSTMENT	1986	17289

NAD27

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
46 52 24.32000	96 34 46.32000			.100	4	CLASSICAL SURVEY	1928	00155

USSD

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
46 52 24.53000	96 34 46.71000				3	CLASSICAL SURVEY		17389-73

State Plane and UTM Coordinates (Feet)

NAD83(1996)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2042028.474	1019803.751	745425.541	17051532.916	.328	4	ADJUSTMENT	1999	17648
2042028.452	1019803.778	745425.520	17051532.943	.328	4	ADJUSTMENT	1998	17655

NAD83(1986)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2042029.252	1019803.511	745426.316	17051532.663	.328	4	ADJUSTMENT	1986	17289

NAD27

<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1417432.830	691728.036			.100	4	CLASSICAL SURVEY	1928	00155



Mn/DOT Name: GLYNDON RM 1

NGS Name: GLYNDON RM 1

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0295](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	1	139 N	47 W	465237.57	963253.34	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	2015	DESTROYED	Horz=NO Vert=NO	NO		PROJECTS 3 IN.	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	SURVEY DISK	NGS

**Description:** (1969)                      **Stamping:** GLYNDON RM NO. 1 1964

1.2 MILES EAST OF GLYNDON, 0.3 MILE NORTH ALONG PARKE AVENUE SOUTH FROM THE JUNCTION OF PARKE AVENUE SOUTH AND 4TH STREET SOUTHEAST IN GLYNDON, THEN 1.6 MILES EAST ALONG TRUNK HIGHWAY 10 (STATE STREET NORTHEAST), 79.0 FEET SOUTH OF EASTBOUND TRUNK HIGHWAY 10, NEAR THE NORTHEAST CORNER OF A GARDEN, 144.0 FEET SOUTH OF STATION GLYNDON.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
926.038	.016	2/0					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
924.975	.016	2					VERTICAL CONTROL SURVEY	1972	Q460964	
924.975	.016	2					VERTICAL CONTROL SURVEY	1972	L22167-A	
924.975	.016	2					VERTICAL CONTROL SURVEY	1971	L22167-A	

**Geoid Separations(ft): GEOID18 = -87.582    12B = -87.585    09 = -87.441    03 = -87.392**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: GLYNDON RM 2

NGS Name: GLYNDON RM 2

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0294](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	1	139 N	47 W	465239.00	963254.51	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	2022	NOT FOUND	Horz=NO Vert=NO	NO		PROJECTS 2 IN.	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE FOOTING - SMALL	SURVEY DISK	NGS

**Description:** (1969)                      **Stamping:** GLYNDON NO 2 1954

1.2 MILES EAST OF GLYNDON, 0.3 MILE NORTH ALONG PARKE AVENUE SOUTH FROM THE JUNCTION OF PARKE AVENUE SOUTH AND 4TH STREET SOUTHEAST IN GLYNDON, THEN 1.6 MILES EAST ALONG TRUNK HIGHWAY 10 (STATE STREET NORTHEAST), 70.0 FEET NORTH OF WESTBOUND TRUNK HIGHWAY 10, 1.0 FOOT SOUTH OF A NORTH RIGHT-OF-WAY FENCE, 131.0 FEET WEST OF STATION GLYNDON.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
926.550	.016	2/0					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
925.490	.016	2/0					UNKNOWN/APPROXIMATE	1992	UNCHECKD	
925.490	.016	2					VERTICAL CONTROL SURVEY	1972	Q460964	
925.490	.016	2					VERTICAL CONTROL SURVEY	1972	L22167-A	
925.487	.016	2					VERTICAL CONTROL SURVEY	1971	L22167-A	

**Geoid Separations(ft): GEOID18 = -87.579    12B = -87.582    09 = -87.437    03 = -87.392**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: GLYNDON RM 3

NGS Name: GLYNDON RM 3

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0728](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	12	139 N	47 W	465236.46	963252.78	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	2022	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** (1982)                      **Stamping:** GLYNDON NO 3 1954

1.5 MILES EAST-NORTHEAST OF GLYNDON, 1.45 MILES EAST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 19/COUNTY ROAD 117 IN GLYNDON, AT TRUNK HIGHWAY 10 MILEPOINT 11.2, 101.5 FEET SOUTH OF EASTBOUND TRUNK HIGHWAY 10, 5.0 FEET WEST OF A TELEPHONE JUNCTION BOX, 3.0 FEET EAST-NORTHEAST OF A POWER POLE NUMBER 312, 1.0 FOOT NORTH OF A WITNESS POST. 1.0 FOOT WEST OF WOOD WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
925.851	.016	2/1				VERTICAL ADJUSTMENT	2024	0000941-3		
925.851	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA		
925.851	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941		
926.051	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
926.084	.262		838.506	.197	2011	GPS - RTRN	2022	RTRN2022		
926.094	.262		838.515	.197	2011	GPS - OPUS	2021	GPSBM		
926.038	.262		838.460	.197	2011	GPS - RTRN	2021	RTRN2021		
926.064	.262		838.479	.197	2011	GPS - RTRN	2015	RTRN2015		

Geoid Separations(ft): GEOID18 = -87.582    12B = -87.585    09 = -87.441    03 = -87.392

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 52 36.46366	96 32 52.77619	538041.244	190055.974	.131	3	GPS - RTRN	2022	RTRN2022	
46 52 36.46409	96 32 52.77624	538041.240	190056.018	.131	3	GPS - OPUS	2021	GPSBM	
46 52 36.46535	96 32 52.77701	538041.186	190056.145	.131	3	GPS - RTRN	2021	RTRN2021	
46 52 36.46425	96 32 52.77666	538041.211	190056.034	.131	3	GPS - RTRN	2015	RTRN2015	

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
		753454.835	17052414.332	.131	3	GPS - RTRN	2022	RTRN2022	
		753454.833	17052414.376	.131	3	GPS - OPUS	2021	GPSBM	
		753454.786	17052414.506	.131	3	GPS - RTRN	2021	RTRN2021	
		753454.805	17052414.393	.131	3	GPS - RTRN	2015	RTRN2015	

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GLYNDON_RM_3-RP0728-3S-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GLYNDON_RM_3-RP0728-3S-05JUL2022.jpg</a>	S	Jul 5, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GLYNDON_RM_3-RP0728-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GLYNDON_RM_3-RP0728-2-05JUL2022.jpg</a>		Jul 5, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GLYNDON_RM_3-RP0728-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GLYNDON_RM_3-RP0728-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: GOAR

NGS Name: GOAR

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ1997](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096142/  
 USGS Quad: HAWLEY SE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	28	139 N	44 W	464934.22	961537.87	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2024	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 19 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: GOAR 2014

4.25 MILES SOUTHEAST OF HAWLEY, 3.5 MILES SOUTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND TRUNK HIGHWAY 10 (THE JUNCTION IS 3.0 MILES EAST OF HAWLEY), AT TRUNK HIGHWAY 32 MILEPOINT 11.95, 48.3 FEET EAST OF TRUNK HIGHWAY 32, 17.4 FEET SOUTH OF A FIELD ENTRANCE, 1.5 FEET WEST OF A WITNESS POST.

Station Pair: 1402 B - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
1346.270	.016	2/1				2019	00000941					

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
1346.270			1258.813	.011	2011	2024	GPS3762					
1346.270	.131		1258.934	.066	1996	2024	HTH32					
1346.270			1258.813	.011	2011	2024	HTH32					
1346.395	.262		1258.810	.197	2011	2023	RTRN2023					
1346.326	.262		1258.754	.197	2011	2014	RTRN2014					

Geoid Separations(ft): GEOID18 = -87.585 12B = -87.569 09 = -87.460 03 = -87.408

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 49 34.22197	96 15 37.86672	610045.247	171862.772	.007		ADJUSTMENT	2024	GPS3762
46 49 34.22197	96 15 37.86672	610045.247	171862.772	.007	C	GPS - STATIC	2024	HTH32
46 49 34.22149	96 15 37.86726	610045.210	171862.724	.131	3	GPS - RTRN	2023	RTRN2023
46 49 34.22240	96 15 37.86730	610045.206	171862.816	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 49 34.22182	96 15 37.86695	610045.231	171862.757	.033	C	GPS - STATIC	2024	HTH32

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2121437.956	1000402.824	824548.307	17030840.312	.007		ADJUSTMENT	2024	GPS3762
2121437.956	1000402.824	824548.307	17030840.312	.007	C	GPS - STATIC	2024	HTH32
2121437.917	1000402.776	824548.267	17030840.265	.131	3	GPS - RTRN	2023	RTRN2023
2121437.917	1000402.868	824548.268	17030840.357	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2121437.939	1000402.809	824548.290	17030840.298	.033	C	GPS - STATIC	2024	HTH32



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GOAR-DQ1997-3E-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GOAR-DQ1997-3E-18OCT2023.jpg</a>	E	Oct 18, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GOAR-DQ1997-2-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GOAR-DQ1997-2-18OCT2023.jpg</a>		Oct 18, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GOAR-DQ1997-1-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GOAR-DQ1997-1-18OCT2023.jpg</a>		Oct 18, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: GOOSE  
 County: CLAY, MN (Sheet 1)

NGS Name: GOOSE

NGS ACRN: [DP7356](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096223/  
 USGS Quad: TILDE LAKE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	36	142 N	44 W	470350.31	961140.33		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2013	2013	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 15 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

**Description:** (2013)                      **Stamping:** GOOSE 2013

3.0 MILES EAST-SOUTHEAST OF ULEN, 2.0 MILES EAST ALONG COUNTY ROAD 34 FROM THE JUNCTION OF COUNTY ROAD 34 AND TRUNK HIGHWAY 32 IN ULEN, THEN 1.0 MILE SOUTH ON COUNTY ROAD 37 (280TH STREET NORTH,) THEN 1.0 MILE EAST ON 150TH AVENUE NORTH, 18.1 FEET NORTH OF 150TH AVENUE NORTH, 30.2 FEET WEST OF A FIELD ENTRANCE, 3.5 SOUTHEAST OF A WITNESS POST.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Orthometric Height				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference			
1178.813			1091.018	.024	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084			
1178.771	.131		1091.159	.066	1996	GPS - STATIC	2015	HCLAY			
1178.813			1091.018	.024	2011	GPS - STATIC	2015	HCLAY			
1178.525	.262		1090.752	.197	2011	GPS - RTRN	2013	RTRN2013			

Geoid Separations(ft): GEOID18 = -87.762    12B = -87.772    09 = -87.657    03 = -87.595

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
47 03 50.30841	96 11 40.32827	626004.659	258699.145	.016		ADJUSTMENT	2015	GPS3084
47 03 50.30841	96 11 40.32827	626004.659	258699.145	.016	C	GPS - STATIC	2015	HCLAY
47 03 50.30818	96 11 40.32937	626004.584	258699.121	.131	3	GPS - RTRN	2013	RTRN2013

NAD83(1996)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
47 03 50.30779	96 11 40.32909	626004.603	258699.081	.033	C	GPS - STATIC	2015	HCLAY

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2140079.077	1086695.886	844593.324	17116850.935	.016		ADJUSTMENT	2015	GPS3084
2140079.077	1086695.886	844593.324	17116850.935	.016	C	GPS - STATIC	2015	HCLAY
2140079.001	1086695.865	844593.247	17116850.914	.131	3	GPS - RTRN	2013	RTRN2013

NAD83(1996)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2140079.019	1086695.825	844593.265	17116850.874	.033	C	GPS - STATIC	2015	HCLAY

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GOOSE-DP7356-3N-20AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GOOSE-DP7356-3N-20AUG2013.jpg</a>	N	Aug 20, 2013
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GOOSE-DP7356-2-20AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GOOSE-DP7356-2-20AUG2013.jpg</a>		Aug 20, 2013
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GOOSE-DP7356-1-20AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GOOSE-DP7356-1-20AUG2013.jpg</a>		Aug 20, 2013

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: GROVE

NGS Name: GROVE

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP7357](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096141/  
 USGS Quad: HAWLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	1	140 N	45 W	465831.43	961801.30		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2013	2013	GOOD	Horz=NO Vert=NO	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 25 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

**Description:** (2013)                      **Stamping:** GROVE 2013

2.0 MILES WEST OF HITTERDAL, 1.9 MILES WEST ALONG COUNTY ROAD 26 FROM THE JUNCTION OF COUNTY ROAD 26 AND TRUNK HIGHWAY 32 IN HITTERDAL, THEN 0.10 MILE SOUTH ON 240TH STREET NORTH, 20.8 FEET WEST OF 240TH STREET NORTH, 19.2 FEET SOUTH OF A FIELD ENTRANCE, 2.9 FEET NORTH OF A WITNESS POST.

**Station Notes**

THE SURVEY MARK IS ON PRIVATE PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

Orthometric Height			Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1236.871			1148.990	.022	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084
1236.835	.131		1149.132	.066	1996	GPS - STATIC	2015	HCLAY
1236.871			1148.990	.022	2011	GPS - STATIC	2015	HCLAY
1236.756	.262		1148.902	.197	2011	GPS - RTRN	2013	RTRN2013

Geoid Separations(ft): GEOID18 = -87.848    12B = -87.854    09 = -87.736    03 = -87.680

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 58 31.43122	96 18 01.29615	599793.873	226238.145	.016		ADJUSTMENT	2015	GPS3084
46 58 31.43122	96 18 01.29615	599793.873	226238.145	.016	C	GPS - STATIC	2015	HCLAY
46 58 31.43254	96 18 01.29653	599793.846	226238.279	.131	3	GPS - RTRN	2013	RTRN2013

**NAD83(1996)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 58 31.43073	96 18 01.29695	599793.817	226238.095	.033	C	GPS - STATIC	2015	HCLAY

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2112876.638	1055064.915	816870.114	17085655.567	.016		ADJUSTMENT	2015	GPS3084
2112876.638	1055064.915	816870.114	17085655.567	.016	C	GPS - STATIC	2015	HCLAY
2112876.615	1055065.050	816870.094	17085655.702	.131	3	GPS - RTRN	2013	RTRN2013

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2112876.581	1055064.867	816870.057	17085655.520	.033	C	GPS - STATIC	2015	HCLAY

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GROVE-DP7357-3E-20AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GROVE-DP7357-3E-20AUG2013.jpg</a>	E	Aug 20, 2013
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GROVE-DP7357-2-20AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GROVE-DP7357-2-20AUG2013.jpg</a>		Aug 20, 2013
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GROVE-DP7357-1-20AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/GROVE-DP7357-1-20AUG2013.jpg</a>		Aug 20, 2013

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: H 377

NGS Name: H 377

County: CLAY, MN (Sheet 1)

NGS ACRN: [SL1174](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/  
 USGS Quad: FELTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	28	142 N	46 W	470442.95	963002.23	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1982	2014	GOOD	Horz=NO Vert=NO	YES		RECESSED 12 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STEEL ROD (NO SLEEVE) (DEPTH 32 FT)	METAL ROD	NGS

**Description:** (1982)                      **Stamping:** H 377 1982

IN FELTON, AT THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 34 IN FELTON, AT TRUNK HIGHWAY 9 MILEPOINT 177.75, 45.0 FEET WEST OF TRUNK HIGHWAY 9, 32.0 FEET NORTH OF COUNTY ROAD 34 (7TH STREET), 2.0 FEET NORTH OF A POWER POLE WITH A GUY WIRE, 1.0 FOOT WEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
914.670	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941
914.929	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
914.919	.262			827.817	.197	2011	GPS - RTRN	2014	RTRN2014

Geoid Separations(ft): GEOID18 = -87.086    12B = -87.103    09 = -86.972    03 = -86.952

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
47 04 42.94761	96 30 02.23012			549702.733	263689.031	.131	3	GPS - RTRN	2014	RTRN2014

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2063972.176	1094046.973			768586.908	17125446.385	.131	3	GPS - RTRN	2014	RTRN2014

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/H_377-SL1174-3W-29MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/H_377-SL1174-3W-29MAY2014.jpg</a>	W	May 29, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/H_377-SL1174-2-29MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/H_377-SL1174-2-29MAY2014.jpg</a>		May 29, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/H_377-SL1174-1-29MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/H_377-SL1174-1-29MAY2014.jpg</a>		May 29, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: H 49

NGS Name: H 49

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0741](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096114/  
 USGS Quad: DALE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	28	140 N	44 W	465425.00	961458.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1934	1945	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	NGS

**Description:** (1945)                      **Stamping:** H 49 1934

1.4 MILES WEST-NORTHWEST OF DALE, 1.6 MILES WEST ALONG 28TH AVENUE NORTH FROM THE JUNCTION OF 28TH AVENUE NORTH AND 280TH STREET NORTH IN DALE, THEN 167.0 FEET NORTH ALONG 265TH STREET NORTH.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1204.722	.016	2/0					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1203.498	.007	1					VERTICAL CONTROL SURVEY	1934	L3620	

Geoid Separations(ft): GEOID18 = -87.903    12B = -87.887    09 = -87.779    03 = -87.716

\* No Horizontal Positions in the Database \*



Mn/DOT Name: H 7

NGS Name: H 7

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0321](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	8	139 N	48 W	465228.00	964605.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1931	1975	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STRUCTURE (MASSIVE)	BENCH MARK DISK	NGS

Description: (1975)                      Stamping: H 7 1931

AT MOORHEAD, 223.0 FEET NORTH ALONG 8TH STREET SOUTH FROM THE JUNCTION OF 8TH STREET SOUTH AND MAIN STREET IN MOORHEAD, IN THE SOUTH WALL OF THE NORTHERN PACIFIC RAILWAY STATION 8.0 FEET WEST OF THE SOUTHEAST CORNER, 4.7 FEET ABOVE THE PLATFORM.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
911.517	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

  

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
910.576	.007	1					VERTICAL CONTROL SURVEY	1938	L39 MINN	
910.743	.007	1					VERTICAL CONTROL SURVEY	1935	CUTLER-VERT	
910.743	.007	1					VERTICAL CONTROL SURVEY	1931	L39 MINN	

Geoid Separations(ft): GEOID18 = -86.942    12B = -86.932    09 = -86.817    03 = -86.758

\* No Horizontal Positions in the Database \*



Mn/DOT Name: H 7 RESET 1964

NGS Name: H 7 RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0322](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	8	139 N	48 W	465228.00	964605.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	2001	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE FOOTING - SMALL	BENCH MARK DISK	NGS

**Description:** (1995)                      **Stamping:** H 7 RESET 1964

IN MOORHEAD, 223.0 FEET NORTH ALONG 8TH STREET SOUTH FROM THE JUNCTION OF 8TH STREET SOUTH AND MAIN AVENUE IN MOORHEAD.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
906.488	.016	2/0					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
905.546	.016	2					VERTICAL CONTROL SURVEY	1972	Q460964	
905.546	.016	2					VERTICAL CONTROL SURVEY	1972	L22167-A	
905.546	.016	2					VERTICAL CONTROL SURVEY	1971	L22167-A	
905.868	.016	2					VERTICAL CONTROL SURVEY	1964	Q460964	

**Geoid Separations(ft): GEOID18 = -86.942    12B = -86.932    09 = -86.817    03 = -86.758**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: HAG  
 County: CLAY, MN (Sheet 1)

NGS Name: HAG

NGS ACRN: [DP7358](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096234/  
 USGS Quad: ULEN NW

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SE	1	142 N	46 W	470831.95	962609.29		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2013	2013	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 62 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2013)                      Stamping: HAG 2013

5.0 MILES NORTH-NORTHEAST OF FELTON, 2.0 MILES EAST ALONG COUNTY ROAD 40 (190TH AVENUE NORTH) FROM THE JUNCTION OF COUNTY ROAD 40 AND COUNTY ROAD 104 AND TRUNK HIGHWAY 9 IN FELTON, (THE JUNCTION TIE AT TRUNK HIGHWAY 9 MILEPOST 180.75), THEN 1.0 MILE NORTH ON 160TH STREET NORTH, THEN 1.0 MILE EAST ON 200TH AVENUE NORTH, THEN 0.35 MILE NORTH ON 170TH STREET NORTH, 22.5 FEET EAST OF 170TH STREET NORTH, 16.4 FEET SOUTH OF A FIELD ENTRANCE, 1.5 FEET NORTH OF A WITNESS POST.

**Station Notes**

170TH STREET NORTH IS A DEAD END ROAD.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
927.455			840.139	.025	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084
927.462	.131		840.280	.066	1996	GPS - STATIC	2015	HCLAY
927.455			840.139	.025	2011	GPS - STATIC	2015	HCLAY
927.498	.262		840.202	.197	2011	GPS - RTRN	2013	RTRN2013

Geoid Separations(ft): GEOID18 = -87.287 12B = -87.293 09 = -87.191 03 = -87.165

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 08 31.95454	96 26 09.28765	565747.362	286940.040	.016		ADJUSTMENT	2015	GPS3084
47 08 31.95454	96 26 09.28765	565747.362	286940.040	.016	C	GPS - STATIC	2015	HCLAY
47 08 31.95388	96 26 09.28820	565747.324	286939.973	.131	3	GPS - RTRN	2013	RTRN2013

**NAD83(1996)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 08 31.95395	96 26 09.28849	565747.304	286939.980	.033	C	GPS - STATIC	2015	HCLAY

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2080728.489	1116789.205	785720.711	17147921.123	.016		ADJUSTMENT	2015	GPS3084
2080728.489	1116789.205	785720.711	17147921.123	.016	C	GPS - STATIC	2015	HCLAY
2080728.449	1116789.139	785720.670	17147921.058	.131	3	GPS - RTRN	2013	RTRN2013

**NAD83(1996)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2080728.429	1116789.147	785720.650	17147921.066	.033	C	GPS - STATIC	2015	HCLAY

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAG-DP7358-3E-21AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAG-DP7358-3E-21AUG2013.jpg</a>	E	Aug 21, 2013
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAG-DP7358-2-21AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAG-DP7358-2-21AUG2013.jpg</a>		Aug 21, 2013
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAG-DP7358-1-21AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAG-DP7358-1-21AUG2013.jpg</a>		Aug 21, 2013

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: HAGEN  
County: CLAY, MN (Sheet 1)

NGS Name: HAGEN RESET

NGS ACRN: [SL1475](#) [Get Map](#)  
NGS Quad / Sta Num : 47096232/1003  
USGS Quad: ULEN

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SE	26	142 N	45 W	470443.63	962106.49		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	2004	NOT FOUND	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	NGS

**Description:** (1996)                      **Stamping:** HAGEN 1954 1963

4.5 MILES WEST OF ULEN, 4.4 MILES WEST ALONG 160TH AVENUE NORTH FROM THE JUNCTION OF 160TH AVENUE NORTH AND 1ST STREET NORTHWEST IN ULEN, 64.0 FEET NORTH OF COUNTY ROAD 34, 71.0 FEET EAST-NORTHEAST OF A POWER POLE, 65.66 FEET WEST-NORTHWEST OF HAGEN RM 3, 59.62 FEET SOUTH-SOUTHEAST OF HAGEN RM 4.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
1115.483	.197		1027.862	.066	1996	GPS - STATIC	2001	DIST 4		
			1028.446	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648		

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
1115.516						RECIPROCAL VERTICAL ANGLE	1954	HORZ		

Geoid Separations(ft): GEOID18 = -87.490 12B = -87.483 09 = -87.365 03 = -87.385

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 04 43.62541	96 21 06.48918	586783.436	263887.464	.033	C	GPS - STATIC	2001	DIST 4
47 04 43.62651	96 21 06.49010	586783.373	263887.574	.066	2	ADJUSTMENT	1999	17648
47 04 43.62722	96 21 06.48863	586783.474	263887.646	.066	2	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 04 43.62751	96 21 06.48256	586783.894	263887.678	.066	2	ADJUSTMENT	1986	17289

<u>NAD27</u>		<u>Geodetic Position</u>		<u>Project Info</u>				
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 04 43.76000	96 21 05.26000			.100	2	CLASSICAL SURVEY	1956	11230

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2101039.593	1093096.959	805649.609	17123890.232	.033	C	GPS - STATIC	2001	DIST 4
2101039.532	1093097.073	805649.550	17123890.347	.066	2	ADJUSTMENT	1999	17648
2101039.636	1093097.142	805649.655	17123890.414	.066	2	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2101040.057	1093097.160	805650.076	17123890.426	.066	2	ADJUSTMENT	1986	17289

<u>NAD27</u>		<u>MN State Plane - Central Zone</u>		<u>Project Info</u>				
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1476442.170	765020.677			.100	2	CLASSICAL SURVEY	1956	11230



Mn/DOT Name: HAGEN AZ MK

NGS Name: HAGEN AZ MK

County: CLAY, MN (Sheet 1)

NGS ACRN: [CO9660](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096232/  
 USGS Quad: ULEN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	26	142 N	45 W	470442.00	962136.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	2004	NOT FOUND	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	NGS

**Description:** **Stamping:** HAGEN 1954 1

4.8 MILES WEST OF ULEN, 4.8 MILES WEST ALONG 160TH AVENUE NORTH FROM THE JUNCTION OF 160TH AVENUE NORTH AND 1ST STREET NORTHWEST IN ULEN.

**Station Notes**

THE ROAD WAS UNDER CONSTRUCTION AND WIDER.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.477 12B = -87.467 09 = -87.352 03 = -87.369



Mn/DOT Name: HAGEN RM 1

NGS Name: HAGEN RM 1

County: CLAY, MN (Sheet 1)

NGS ACRN: [CO9661](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096232/  
 USGS Quad: ULEN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	26	142 N	45 W	470443.48	962105.53		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	2004	NOT FOUND	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** **Stamping:** HAGEN NO 1 1954

4.3 MILES WEST OF ULEN, 4.4 MILES WEST ALONG 160TH AVENUE NORTH FROM THE JUNCTION OF 160TH AVENUE NORTH AND 1ST STREET NORTHWEST IN ULEN.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.493 12B = -87.483 09 = -87.369 03 = -87.385



Mn/DOT Name: HAGEN RM 2

NGS Name: HAGEN RM 2

County: CLAY, MN (Sheet 1)

NGS ACRN: [CO9662](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096232/  
 USGS Quad: ULEN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	26	142 N	45 W	470444.12	962106.93		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	2004	NOT FOUND	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** **Stamping:** HAGEN NO 2 1954

4.4 MILES WEST OF ULEN, 4.4 MILES WEST ALONG 160TH AVENUE NORTH FROM THE JUNCTION OF 160TH AVENUE NORTH AND 1ST STREET NORTHWEST IN ULEN.

**Station Notes**

THE ROAD WAS UNDER CONSTRUCTION AND WIDER.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.493 12B = -87.483 09 = -87.369 03 = -87.385



Mn/DOT Name: HAGEN RM 3

NGS Name: HAGEN RM 3

County: CLAY, MN (Sheet 1)

NGS ACRN: [CO9663](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096232/  
 USGS Quad: ULEN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	26	142 N	45 W	470443.59	962105.54		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	2004	NOT FOUND	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** **Stamping:** HAGEN NO 3 1954

4.4 MILES WEST OF ULEN, 4.4 MILES WEST ALONG 160TH AVENUE NORTH FROM THE JUNCTION OF 160TH AVENUE NORTH AND 1ST STREET NORTHWEST IN ULEN, EAST-SOUTHEAST OF STATION HAGEN, 60.0 FEET NORTH OF THE CENTERLINE OF THE HIGHWAY.

**Station Notes**  
 THE ROAD WAS UNDER CONSTRUCTION AND WIDER.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.493 12B = -87.483 09 = -87.369 03 = -87.385



Mn/DOT Name: HAGEN RM 4

NGS Name: HAGEN RM 4

County: CLAY, MN (Sheet 1)

NGS ACRN: [CO9664](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096232/  
 USGS Quad: ULEN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	26	142 N	45 W	470444.20	962106.70		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	2004	NOT FOUND	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** **Stamping:** HAGEN NO 4 1954

4.4 MILES WEST OF ULEN, 4.4 MILES WEST ALONG 160TH AVENUE NORTH FROM THE JUNCTION OF 160TH AVENUE NORTH AND 1ST STREET NORTHWEST IN ULEN. NORTH-NORTHWEST OF STATION HAGEN AND IS ABOUT 120.0 FEET NORTH OF THE CENTERLINE OF THE HIGHWAY.

**Station Notes**  
 THE ROAD WAS UNDER CONSTRUCTION AND WIDER.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.493 12B = -87.483 09 = -87.369 03 = -87.385



Mn/DOT Name: HANSON MNNDT

NGS Name: HANSON

County: CLAY, MN (Sheet 1)

NGS ACRN: [DF7615](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096441/  
 USGS Quad: FARGO NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	8	139 N	48 W	465233.30	964603.38	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1993	2009	DESTROYED	Horz=NO Vert=NO	NO			MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 50 FT)	SURVEY DISK	MNNDT

Description: (1993)                      Stamping: HANSON 1993

IN MOORHEAD, 0.1 MILE NORTH ALONG 8TH STREET SOUTH FROM THE JUNCTION OF 8TH STREET SOUTH AND MAIN AVENUE IN MOORHEAD, 57.0 FEET EAST OF 8TH STREET, 61.0 FEET SOUTH OF 1ST AVENUE NORTH, 24.2 FEET NORTH OF THE NORTH RAIL OF THE RAILROAD TRACKS, 33.5 FEET SOUTH-SOUTHWEST OF A SIGNAL LIGHT POST, 42.6 FEET NORTH OF THE NORTH LEG OF THE DODGE DEALERSHIP SIGN.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
904.411	.016	2/1				VERTICAL ADJUSTMENT	2004	0000425-2		
904.421	.016	2/1				VERTICAL CONTROL SURVEY	2002	VMOOR		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
			817.429	.012	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800		
			817.626	.017	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300		
904.427	.131		817.689	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1905		
904.427	.131		817.689	.066	1996	GPS - STATIC	2003	HMOOR		

Geoid Separations(ft): GEOID18 = -86.936 12B = -86.926 09 = -86.808 03 = -86.752

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>			<u>Geodetic Position</u>			<u>Clay County</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
46 52 33.30456	96 46 03.37966		483113.487	189706.375	.010		ADJUSTMENT	2012	GPS2800	

  

<u>NAD83(2007)</u>			<u>Geodetic Position</u>			<u>Clay County</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
46 52 33.30455	96 46 03.38072		483113.413	189706.374	.013		ADJUSTMENT	2007	GPS2300	

  

<u>NAD83(1996)</u>			<u>Geodetic Position</u>			<u>Clay County</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
46 52 33.30396	96 46 03.38055		483113.425	189706.314	.033	C	ADJUSTMENT	2003	GPS1905	
46 52 33.30396	96 46 03.38055		483113.425	189706.314	.033	C	GPS - STATIC	2003	HMOOR	

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>				
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1995130.150	1022164.179	698543.716	17054655.890	698543.716	17054655.890	.010		ADJUSTMENT	2012	GPS2800

  

<u>NAD83(2007)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>				
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1995130.077	1022164.180	698543.643	17054655.892	698543.643	17054655.892	.013		ADJUSTMENT	2007	GPS2300

  

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>				
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1995130.087	1022164.120	698543.651	17054655.832	698543.651	17054655.832	.033	C	ADJUSTMENT	2003	GPS1905
1995130.087	1022164.120	698543.652	17054655.832	698543.652	17054655.832	.033	C	GPS - STATIC	2003	HMOOR



Mn/DOT Name: HANSON MNDT RESET

NGS Name: HANSON RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM1832](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096441/  
 USGS Quad: FARGO NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	8	139 N	48 W	465233.30	964603.38	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2009	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 6 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 50 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2009)                      Stamping: HANSON 1993 2009

IN MOORHEAD, 0.1 MILE NORTH ALONG 8TH STREET SOUTH FROM THE JUNCTION OF 8TH STREET SOUTH AND MAIN AVENUE IN MOORHEAD, 57.0 FEET EAST OF 8TH STREET, 61.0 FEET SOUTH OF 1ST AVENUE, 24.2 FEET NORTH OF THE NORTH RAIL OF THE RAILROAD TRACKS, 33.5 FEET SOUTH-SOUTHWEST OF SIGNAL LIGHT POST, 3.0 FEET NORTH OF A FENCE LINE.

**Station Notes**

THERE IS A HOLE DUG OUT IN PAVEMENT TO GET TO MARK, NO WITNESS POST IN A MOWED AREA.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
903.706	.016	2/1					VERTICAL ADJUSTMENT	2024	00000941-3	
903.702	.016	2/1					VERTICAL CONTROL SURVEY	2023	VMOFA	
903.781	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
904.063	.016	2/1					VERTICAL ADJUSTMENT	2011	00000699	
904.063	.016	2/1					VERTICAL CONTROL SURVEY	2010	VCOMS	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
903.702				817.118	.010	2011	HORIZONTAL ADJUSTMENT	2024	GPS3674	
903.702				817.118	.010	2011	GPS - STATIC	2023	HMOFA3	
903.702	.131			817.242	.066	1996	GPS - STATIC	2023	HMOFA3	
903.893	.262			816.960	.197	2011	GPS - RTRN	2022	RTRN2022	
				817.118	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
904.066	.131			817.157	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2690	
904.066	.131			817.242	.066	1996	GPS - STATIC	2010	HCOMS	
904.066	.131			817.157	.066	2007	GPS - STATIC	2010	HCOMS	
903.902	.262			817.151	.197	1996	GPS - RTRN	2009	RTRN2009	

Geoid Separations(ft): GEOID18 = -86.936    12B = -86.926    09 = -86.808    03 = -86.752

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 52 33.30430	96 46 03.37939			483113.506	189706.349	.007		ADJUSTMENT	2024	GPS3674
46 52 33.30430	96 46 03.37939			483113.506	189706.349	.007	C	GPS - STATIC	2023	HMOFA3
46 52 33.30448	96 46 03.37896			483113.535	189706.367	.131	3	GPS - RTRN	2022	RTRN2022
46 52 33.30430	96 46 03.37939			483113.506	189706.349	.007		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 52 33.30480	96 46 03.38070			483113.415	189706.399	.033	C	ADJUSTMENT	2011	GPS2690
46 52 33.30480	96 46 03.38070			483113.415	189706.399	.033	C	GPS - STATIC	2010	HCOMS

<u>NAD83(1996)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 52 33.30433	96 46 03.38059			483113.422	189706.352	.033	C	GPS - STATIC	2023	HMOFA3
46 52 33.30433	96 46 03.38059			483113.422	189706.352	.033	C	GPS - STATIC	2010	HCOMS
46 52 33.30452	96 46 03.38109			483113.387	189706.371	.131	3	GPS - RTRN	2009	RTRN2009

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1995130.169	1022164.152	698543.734	17054655.863	.007		ADJUSTMENT	2024	GPS3674
1995130.169	1022164.152	698543.734	17054655.863	.007	C	GPS - STATIC	2023	HMOFA3
1995130.199	1022164.169	698543.765	17054655.879	.131	3	GPS - RTRN	2022	RTRN2022
1995130.169	1022164.152	698543.734	17054655.863	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1995130.079	1022164.205	698543.645	17054655.918	.033	C	ADJUSTMENT	2011	GPS2690
1995130.079	1022164.205	698543.645	17054655.918	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1995130.085	1022164.157	698543.650	17054655.870	.033	C	GPS - STATIC	2023	HMOFA3
1995130.085	1022164.157	698543.650	17054655.870	.033	C	GPS - STATIC	2010	HCOMS
1995130.051	1022164.178	698543.617	17054655.891	.131	3	GPS - RTRN	2009	RTRN2009

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HANSON_RESET-DM1832-3S-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HANSON_RESET-DM1832-3S-14JUN2022.jpg</a>	S	Jun 14, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HANSON_RESET-DM1832-2-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HANSON_RESET-DM1832-2-14JUN2022.jpg</a>		Jun 14, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HANSON_RESET-DM1832-1-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HANSON_RESET-DM1832-1-14JUN2022.jpg</a>		Jun 14, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: HARPER  
 County: CLAY, MN (Sheet 1)

NGS Name: HARPER

NGS ACRN: [DM1833](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	2	139 N	47 W	465251.80	963446.94	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2009	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 75 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: HARPER 2009

IN GLYNDON, 0.25 MILE NORTH ALONG COUNTY ROAD 19 FROM THE JUNCTION OF COUNTY ROAD 19 AND TRUNK HIGHWAY 10 IN GLYNDON, 32.4 FEET WEST OF COUNTY ROAD 19, 15.0 FEET NORTH OF PARTRIDGE AVENUE NORTH EXTENDED, 16.4 FEET NORTH OF A FIELD ENTRANCE, 9.3 FEET SOUTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
921.589	.016	2/1					VERTICAL ADJUSTMENT	2024	00000941-3	
921.589	.016	2/1					VERTICAL CONTROL SURVEY	2023	VMOFA	
921.589	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
921.589				834.339	.011	2011	HORIZONTAL ADJUSTMENT	2024	GPS3719	
921.589				834.339	.012	2011	HORIZONTAL ADJUSTMENT	2024	GPS3715	
921.589	.131			834.457	.066	1996	GPS - STATIC	2024	HMOFA1	
921.589				834.339	.011	2011	GPS - STATIC	2024	HMOFA1	
921.589				834.339	.012	2011	GPS - STATIC	2024	HMOFA2	
921.589	.131			834.457	.066	1996	GPS - STATIC	2024	HMOFA2	
921.789	.262			834.322	.197	2011	GPS - RTRN	2022	RTRN2022	
921.783				834.339	.011	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084	
921.816	.131			834.457	.066	1996	GPS - STATIC	2015	HCLAY	
921.783				834.339	.011	2011	GPS - STATIC	2015	HCLAY	
921.753	.262			834.280	.197	2011	GPS - RTRN	2014	RTRN2014	
				834.339	.012	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
921.783	.131			834.424	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2690	
921.783	.131			834.457	.066	1996	GPS - STATIC	2010	HCOMS	
921.783	.131			834.424	.066	2007	GPS - STATIC	2010	HCOMS	

Geoid Separations(ft): GEOID18 = -87.470    12B = -87.474    09 = -87.326    03 = -87.290

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 52 51.79577	96 34 46.93585	530107.578	191595.624	.007		ADJUSTMENT	2024	GPS3719
46 52 51.79577	96 34 46.93585	530107.578	191595.624	.007		ADJUSTMENT	2024	GPS3715
46 52 51.79577	96 34 46.93585	530107.578	191595.624	.007	C	GPS - STATIC	2024	HMOFA1
46 52 51.79577	96 34 46.93585	530107.578	191595.624	.007	C	GPS - STATIC	2024	HMOFA2
46 52 51.79583	96 34 46.93576	530107.584	191595.630	.131	3	GPS - RTRN	2022	RTRN2022
46 52 51.79577	96 34 46.93585	530107.578	191595.624	.007		ADJUSTMENT	2015	GPS3084
46 52 51.79577	96 34 46.93581	530107.581	191595.624	.007	C	GPS - STATIC	2015	HCLAY
46 52 51.79626	96 34 46.93575	530107.584	191595.674	.131	3	GPS - RTRN	2014	RTRN2014
46 52 51.79577	96 34 46.93585	530107.578	191595.624	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 52 51.79582	96 34 46.93678	530107.513	191595.629	.033	C	ADJUSTMENT	2011	GPS2690
46 52 51.79582	96 34 46.93678	530107.513	191595.629	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 52 51.79545	96 34 46.93683	530107.510	191595.591	.033	C	GPS - STATIC	2024	HMOFA1
46 52 51.79545	96 34 46.93683	530107.510	191595.591	.033	C	GPS - STATIC	2024	HMOFA2
46 52 51.79545	96 34 46.93683	530107.510	191595.591	.033	C	GPS - STATIC	2015	HCLAY
46 52 51.79545	96 34 46.93683	530107.510	191595.591	.033	C	GPS - STATIC	2010	HCOMS

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2042156.498	1022598.936	745598.969	17054327.187	.007		ADJUSTMENT	2024	GPS3719
2042156.498	1022598.936	745598.969	17054327.187	.007		ADJUSTMENT	2024	GPS3715
2042156.498	1022598.936	745598.969	17054327.187	.007	C	GPS - STATIC	2024	HMOFA1
2042156.498	1022598.936	745598.969	17054327.187	.007	C	GPS - STATIC	2024	HMOFA2
2042156.505	1022598.942	745598.976	17054327.193	.131	3	GPS - RTRN	2022	RTRN2022
2042156.498	1022598.936	745598.969	17054327.187	.007		ADJUSTMENT	2015	GPS3084
2042156.501	1022598.935	745598.972	17054327.187	.007	C	GPS - STATIC	2015	HCLAY
2042156.507	1022598.985	745598.978	17054327.236	.131	3	GPS - RTRN	2014	RTRN2014
2042156.498	1022598.936	745598.969	17054327.187	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2042156.434	1022598.943	745598.905	17054327.195	.033	C	ADJUSTMENT	2011	GPS2690
2042156.434	1022598.943	745598.905	17054327.195	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2042156.429	1022598.905	745598.900	17054327.158	.033	C	GPS - STATIC	2024	HMOFA1
2042156.429	1022598.905	745598.900	17054327.158	.033	C	GPS - STATIC	2024	HMOFA2
2042156.429	1022598.905	745598.900	17054327.158	.033	C	GPS - STATIC	2015	HCLAY
2042156.429	1022598.905	745598.900	17054327.158	.033	C	GPS - STATIC	2010	HCOMS

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HARPER-DM1833-3W-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HARPER-DM1833-3W-05JUL2022.jpg</a>	W	Jul 5, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HARPER-DM1833-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HARPER-DM1833-2-05JUL2022.jpg</a>		Jul 5, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HARPER-DM1833-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HARPER-DM1833-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: HAWL

NGS Name: HAWL

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM3565](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096141/  
 USGS Quad: HAWLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	6	139 N	44 W	465241.51	961802.01	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2003	2022	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 50 FT)	SURVEY DISK	MNDT

Description: (2003)                      Stamping: HAWL 2003

IN HAWLEY, 1.0 MILE EAST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROADS 31 AND 33 IN HAWLEY TO TRUNK HIGHWAY 10 MILEPOINT 22.4, THEN NORTH ON AN ENTRANCE TO HIGHWAY MAINTENANCE SHOP, AT TRUNK HIGHWAY 10 MILEPOINT 22.4, 80.4 FEET SOUTH-SOUTHWEST OF THE SOUTHWEST CORNER OF A COLD STORAGE BUILDING (BUILDING NUMBER 90654), 99.8 FEET WEST-NORTHWEST OF THE NORTHWEST CORNER OF THE HAWLEY MAINTENANCE SHOP, 1.0 FOOT EAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1160.034	.016	2/1					VERTICAL ADJUSTMENT	2024	00000941-3	
1160.034	.016	2/1					VERTICAL CONTROL SURVEY	2023	VMOFA	
1160.034	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
1160.172	.016	2/1					VERTICAL CONTROL SURVEY	2004	VAWLE	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1160.135	.262			1072.308	.197	2011	GPS - RTRN	2022	RTRN2022	
1160.070	.262			1072.258	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.831 12B = -87.812 09 = -87.700 03 = -87.657

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 52 41.50940	96 18 02.00575	599925.217	190784.568	.131	3	GPS - RTRN	2022	RTRN2022	
46 52 41.50938	96 18 02.00569	599925.221	190784.566	.131	3	GPS - RTRN	2014	RTRN2014	

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
2111909.751	1019627.160	815328.231	17050223.961	.131	3	GPS - RTRN	2022	RTRN2022	
2111909.755	1019627.158	815328.235	17050223.959	.131	3	GPS - RTRN	2014	RTRN2014	

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAWL-DM3565-3W-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAWL-DM3565-3W-14JUN2022.jpg</a>	W	Jun 14, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAWL-DM3565-2-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAWL-DM3565-2-14JUN2022.jpg</a>		Jun 14, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAWL-DM3565-1-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAWL-DM3565-1-14JUN2022.jpg</a>		Jun 14, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: HAWLEY  
 County: CLAY, MN (Sheet 1)

NGS Name: HAWLEY

NGS ACRN: [RP0034](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096142/1046  
 USGS Quad: HAWLEY SE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	11	139 N	45 W	465208.68	962036.65	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	NGS

**Description:** (2013)                      **Stamping:** HAWLEY 1964

1.5 MILES SOUTHWEST OF HAWLEY, 1.0 MILE WEST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 31 IN HAWLEY TO TRUNK HIGHWAY 10 MILEPOINT 20.45, THEN 0.55 MILE SOUTH ON 220TH STREET SOUTH, 39.0 FEET EAST OF 220TH STREET, 51.78 FEET SOUTH OF HAWLEY RM 1, 54.15 FEET NORTH OF HAWLEY RM 2, 13.0 FEET NORTH OF A FIELD ENTRANCE, 4.0 FEET WEST OF THE EDGE OF A CULTIVATED FIELD, 2.85 FEET SOUTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1213.236	.016	2/1				VERTICAL ADJUSTMENT	2024	00000941-3	
1213.236	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA	
1213.236	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941	
1213.403	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1212.196	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD	
1212.196	.016	2				VERTICAL CONTROL SURVEY	1972	Q460961	
1212.196	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A	
1212.196	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1213.236			1125.516	.016	2011	HORIZONTAL ADJUSTMENT	2024	GPS3719	
1213.236	.131		1125.657	.066	1996	GPS - STATIC	2024	HMOFA1	
1213.236			1125.516	.016	2011	GPS - STATIC	2024	HMOFA1	
1213.324	.262		1125.506	.197	2011	GPS - RTRN	2022	RTRN2022	
1213.403			1125.516	.021	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084	
1213.334	.131		1125.657	.066	1996	GPS - STATIC	2015	HCLAY	
1213.403			1125.516	.021	2011	GPS - STATIC	2015	HCLAY	
1213.249	.262		1125.447	.197	2011	GPS - RTRN	2014	RTRN2014	
			1125.772	.066	1996	GPS - STATIC	2001	DIST 4	
1213.351	.197		1125.962	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648	

Geoid Separations(ft): GEOID18 = -87.818    12B = -87.798    09 = -87.690    03 = -87.654

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 52 08.68054	96 20 36.64891	589196.722	187406.717	.010		ADJUSTMENT	2024	GPS3719
46 52 08.68054	96 20 36.64891	589196.722	187406.717	.010	C	GPS - STATIC	2024	HMOFA1
46 52 08.67998	96 20 36.64799	589196.786	187406.661	.131	3	GPS - RTRN	2022	RTRN2022
46 52 08.68054	96 20 36.64891	589196.722	187406.717	.013		ADJUSTMENT	2015	GPS3084
46 52 08.68054	96 20 36.64891	589196.722	187406.717	.013	C	GPS - STATIC	2015	HCLAY
46 52 08.68063	96 20 36.64853	589196.748	187406.727	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(1996)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 52 08.68007	96 20 36.64970	589196.667	187406.669	.033	C	GPS - STATIC	2024	HMOFA1
46 52 08.68007	96 20 36.64970	589196.667	187406.669	.033	C	GPS - STATIC	2015	HCLAY
46 52 08.67995	96 20 36.64969	589196.787	187406.656	.033	C	GPS - STATIC	2001	DIST 4
46 52 08.67976	96 20 36.64772	589196.805	187406.639	.066	2	ADJUSTMENT	1999	17648
46 52 08.67916	96 20 36.64799	589196.786	187406.578	.066	2	ADJUSTMENT	1998	17655

**NAD83(1986)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 52 08.68042	96 20 36.64000	589197.341	187406.708	.066	2	ADJUSTMENT	1986	17289

**NAD27**

Geodetic Position						Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 52 08.82427	96 20 35.40514			.100	2	CLASSICAL SURVEY	1991	17504
46 52 08.82362	96 20 35.40599			.100	2	CLASSICAL SURVEY	1964	13522

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2101082.756	1016583.465	804448.828	17047354.616	.010		ADJUSTMENT	2024	GPS3719
2101082.756	1016583.465	804448.828	17047354.616	.010	C	GPS - STATIC	2024	HMOFA1
2101082.819	1016583.407	804448.890	17047354.556	.131	3	GPS - RTRN	2022	RTRN2022
2101082.756	1016583.465	804448.828	17047354.616	.013		ADJUSTMENT	2015	GPS3084
2101082.756	1016583.465	804448.828	17047354.616	.013	C	GPS - STATIC	2015	HCLAY
2101082.783	1016583.474	804448.855	17047354.624	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2101082.700	1016583.419	804448.772	17047354.571	.033	C	GPS - STATIC	2024	HMOFA1
2101082.700	1016583.419	804448.772	17047354.571	.033	C	GPS - STATIC	2015	HCLAY
2101082.701	1016583.407	804448.772	17047354.558	.033	C	GPS - STATIC	2001	DIST 4
2101082.837	1016583.384	804448.908	17047354.533	.066	2	ADJUSTMENT	1999	17648
2101082.817	1016583.324	804448.887	17047354.473	.066	2	ADJUSTMENT	1998	17655

**NAD83(1986)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2101083.375	1016583.437	804449.447	17047354.577	.066	2	ADJUSTMENT	1986	17289

**NAD27**

MN State Plane - Central Zone						Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1476486.772	688508.396			.100	2	CLASSICAL SURVEY	1991	17504
1476486.711	688508.332			.100	2	CLASSICAL SURVEY	1964	13522

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAWLEY-RP0034-3E-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAWLEY-RP0034-3E-14JUN2022.jpg</a>	E	Jun 14, 2022
Moment:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAWLEY-RP0034-2-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAWLEY-RP0034-2-14JUN2022.jpg</a>		Jun 14, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAWLEY-RP0034-1-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAWLEY-RP0034-1-14JUN2022.jpg</a>		Jun 14, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: HAWLEY AZ MK

NGS Name: HAWLEY AZ MK

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0033](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096141/  
 USGS Quad: HAWLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	3	139 N	45 W	465238.00	962037.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	2014	DESTROYED	Horz=NO Vert=NO	NO		PROJECTS 1 IN.	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	SURVEY DISK	NGS

**Description:** (1964)                      **Stamping:** HAWLEY AZIMUTH 1964

1.5 MILES SOUTHWEST OF HAWLEY, 0.1 MILE WEST-SOUTHWEST ALONG COUNTY ROAD 116 (MAIN STREET) FROM THE JUNCTION OF COUNTY ROAD 116 (MAIN STREET) AND 6TH STREET IN HAWLEY, THEN 0.2 MILE SOUTH-SOUTHEAST ALONG 8TH STREET, THEN 1.2 MILES WEST ALONG TRUNK HIGHWAY 10 WEST, 0.6 MILE SOUTH OF TRUNK HIGHWAY 10, 44.0 FEET EAST OF 220TH STREET SOUTH, 54.0 FEET SOUTH OF STATION HAWLEY, 2.0 FEET NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1195.985	.016	2/0					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1194.778	.016	2					VERTICAL CONTROL SURVEY	1972	Q460961	
1194.778	.016	2					VERTICAL CONTROL SURVEY	1972	L22167-A	
1194.778	.016	2					VERTICAL CONTROL SURVEY	1971	L22167-A	

**Geoid Separations(ft): GEOID18 = -87.834    12B = -87.815    09 = -87.707    03 = -87.674**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: HAWLEY MINN ST PATROL RAD MAST

NGS Name: HAWLEY MINN ST PATROL RAD MAST

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0894](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096114/1019  
 USGS Quad: DALE

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	9	139 N	44 W	465235.80	961440.86		4

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	1954	GOOD	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	RADIO/TV MAST	NGS

Description: (1954)

Stamping:

2.0 MILES EAST OF HAWLEY, 0.2 MILE SOUTH-SOUTHEAST 6TH STREET FROM THE JUNCTION OF 6TH STREET AND COUNTY ROAD 116 (MAIN STREET) IN HAWLEY, THEN 407.0 FEET EAST ALONG VALLEY STREET, THEN 167.0 FEET SOUTH ALONG 5TH STREET, THEN 3.3 MILES EAST ALONG TRUNK HIGHWAY 10 EAST, SOUTH OF TRUNK HIGHWAY 10.

\* No Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.785 12B = -87.769 09 = -87.661 03 = -87.598

Lat/Lon and County Coordinates (Feet)

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 52 35.80206	96 14 40.85928	613902.912	190282.402	.328	4	ADJUSTMENT	1999	17648
46 52 35.80167	96 14 40.85928	613902.912	190282.363	.328	4	ADJUSTMENT	1998	17655

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 52 35.80215	96 14 40.85275	613903.365	190282.414	.328	4	ADJUSTMENT	1986	17289

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
46 52 35.96100	96 14 39.63400			.100	4	CLASSICAL SURVEY	1956	11230

State Plane and UTM Coordinates (Feet)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2125863.906	1018692.346	829270.981	17049063.113	.328	4	ADJUSTMENT	1999	17648
2125863.905	1018692.307	829270.979	17049063.073	.328	4	ADJUSTMENT	1998	17655

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2125864.359	1018692.344	829271.434	17049063.103	.328	4	ADJUSTMENT	1986	17289

<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1501267.408	690618.927			.100	4	CLASSICAL SURVEY	1956	11230



Mn/DOT Name: HAWLEY MUNICIPAL TANK

NGS Name: HAWLEY MUNICIPAL TANK

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0940](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096141/1047  
 USGS Quad: HAWLEY

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SW	1	139 N	45 W	465243.49	961901.07		4

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	1964	GOOD	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	ELEVATED TANK	NGS

Description: (1964)

Stamping:

IN HAWLEY, AT THE NORTHEAST CORNER OF THE JUNCTION OF 7TH STREET AND HOBART STREET, 1 BLOCK NORTH OF TRUNK HIGHWAY 10.

\* No Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.838 12B = -87.818 09 = -87.710 03 = -87.667

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 52 43.48726	96 19 01.07235	595820.677	190964.506	.328	4	ADJUSTMENT	1999	17648
46 52 43.48684	96 19 01.07222	595820.686	190964.463	.328	4	ADJUSTMENT	1998	17655

NAD83(1986)

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 52 43.48758	96 19 01.06551	595821.152	190964.541	.328	4	ADJUSTMENT	1986	17289

NAD27

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
46 52 43.63072	96 18 59.83492			.100	4	CLASSICAL SURVEY	1964	13522

State Plane and UTM Coordinates (Feet)

NAD83(1996)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2107813.119	1019934.111	811235.406	17050597.308	.328	4	ADJUSTMENT	1999	17648
2107813.127	1019934.068	811235.414	17050597.265	.328	4	ADJUSTMENT	1998	17655

NAD83(1986)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2107813.594	1019934.131	811235.882	17050597.320	.328	4	ADJUSTMENT	1986	17289

NAD27

<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1483216.877	691859.035			.100	4	CLASSICAL SURVEY	1964	13522



Mn/DOT Name: HAWLEY RM 1

NGS Name: HAWLEY RM 1

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0035](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096142/  
 USGS Quad: HAWLEY SE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	11	139 N	45 W	465209.19	962036.58	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	2022	GOOD	Horz=YES Vert=YES	YES		RECESSED 6 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** (1964)                      **Stamping:** HAWLEY NO. 1 1964

1.5 MILES SOUTHWEST OF HAWLEY, 1.0 MILE WEST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 31 IN HAWLEY TO TRUNK HIGHWAY 10 MILEPOINT 20.45, THEN 0.55 MILE SOUTH ON 220TH STREET SOUTH, 44.0 FEET EAST OF 220TH STREET SOUTH, 105.5 FEET NORTH OF HAWLEY RM 2, 51.78 FEET NORTH OF STATION HAWLEY, 64.0 FEET NORTH OF A FIELD ENTRANCE, 2.5 FEET SOUTHWEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1214.400	.016	2/1					VERTICAL ADJUSTMENT	2024	0000941-3	
1214.400	.016	2/1					VERTICAL CONTROL SURVEY	2023	VMOFA	
1214.400	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
1214.558	.016	2/0					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1213.354	.016	2/0					UNKNOWN/APPROXIMATE	1992	UNCHECKD	
1213.354	.016	2					VERTICAL CONTROL SURVEY	1972	Q460961	
1213.354	.016	2					VERTICAL CONTROL SURVEY	1972	L22167-A	
1213.354	.016	2					VERTICAL CONTROL SURVEY	1971	L22167-A	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1214.489	.262			1126.671	.197	2011	GPS - RTRN	2022	RTRN2022	
1214.410	.262			1126.612	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.818    12B = -87.798    09 = -87.690    03 = -87.654

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>										
46 52 09.18937	96 20 36.58204			589201.134	187458.291	.131	3	GPS - RTRN	2022	RTRN2022	
46 52 09.19018	96 20 36.58193			589201.141	187458.373	.131	3	GPS - RTRN	2014	RTRN2014	

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>X</u>	<u>Y</u>										
2101088.763	1016634.874			804455.669	17047405.942	.131	3	GPS - RTRN	2022	RTRN2022	
2101088.773	1016634.955			804455.680	17047406.024	.131	3	GPS - RTRN	2014	RTRN2014	

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAWLEY_RM_1-RP0035-3E-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAWLEY_RM_1-RP0035-3E-14JUN2022.jpg</a>	E	Jun 14, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAWLEY_RM_1-RP0035-2-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAWLEY_RM_1-RP0035-2-14JUN2022.jpg</a>		Jun 14, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAWLEY_RM_1-RP0035-1-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAWLEY_RM_1-RP0035-1-14JUN2022.jpg</a>		Jun 14, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: HAWLEY RM 2

NGS Name: HAWLEY RM 2

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0036](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096142/  
 USGS Quad: HAWLEY SE

				Reference	Reference	Vert	Horz
1/4	Sec	Twp	Rng	Latitude	Longitude	Order	Order
SW	11	139 N	45 W	465208.15	962036.58	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1964	2022	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** (1964)                      **Stamping:** HAWLEY NO. 2 1964

1.5 MILES SOUTHWEST OF HAWLEY, 1.0 MILE WEST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 31 IN HAWLEY TO TRUNK HIGHWAY 10 MILEPOINT 20.45, THEN 0.55 MILE SOUTH ON 220TH STREET SOUTH, 105.5 FEET SOUTH OF HAWLEY RM 1, 44.0 FEET EAST OF 220TH STREET SOUTH, 54.0 FEET SOUTH OF STATION HAWLEY, 2.0 FEET NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88				Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj		Year	Reference		
1212.678	.016	2/1				VERTICAL ADJUSTMENT	2024	0000941-3		
1212.678	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA		
1212.678	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941		
1212.836	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025		

NGVD29				Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj		Year	Reference		
1211.628	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD		
1211.628	.016	2				VERTICAL CONTROL SURVEY	1972	Q460961		
1211.628	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A		
1211.628	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88				Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj		Year	Reference		
1212.799	.262		1124.985	.197	2011	GPS - RTRN	2022	RTRN2022		
1212.688	.262		1124.889	.197	2011	GPS - RTRN	2014	RTRN2014		

Geoid Separations(ft): GEOID18 = -87.818    12B = -87.798    09 = -87.690    03 = -87.654

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Clay County				Determination Method		Project Info	
Latitude	Longitude	X	Y	Acc	Order		Year	Reference	
46 52 08.14821	96 20 36.58161	589201.643	187352.804	.131	3	GPS - RTRN	2022	RTRN2022	
46 52 08.14831	96 20 36.58147	589201.653	187352.815	.131	3	GPS - RTRN	2014	RTRN2014	

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		UTM - Zone 15				Determination Method		Project Info	
MN State Plane - Central Zone		X	Y	Acc	Order		Year	Reference	
2101086.005	1016529.431	804451.204	17047300.512	.131	3	GPS - RTRN	2022	RTRN2022	
2101086.016	1016529.441	804451.214	17047300.522	.131	3	GPS - RTRN	2014	RTRN2014	

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAWLEY_RM_2-RP0036-3E-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAWLEY_RM_2-RP0036-3E-14JUN2022.jpg</a>	E	Jun 14, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAWLEY_RM_2-RP0036-2-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAWLEY_RM_2-RP0036-2-14JUN2022.jpg</a>		Jun 14, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAWLEY_RM_2-RP0036-1-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAWLEY_RM_2-RP0036-1-14JUN2022.jpg</a>		Jun 14, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: HAY MNDT

NGS Name: HAY

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0404](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/1080  
 USGS Quad: GLYNDON SOUTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SW	35	139 N	47 W	464817.91	963441.21	2	2

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1961	2001	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE FOOTING - SMALL	SURVEY DISK	MNDT

**Description:** (1993)                      **Stamping:** HAY 1961

4.9 MILES SOUTH OF GLYNDON, 5.0 MILES SOUTH ON COUNTY ROAD 17 FROM THE JUNCTION OF COUNTY ROAD 17 AND TRUNK HIGHWAY 10 AT THE WEST EDGE OF GLYNDON, THEN 0.5 MILE EAST ON COUNTY ROAD 73, 46.0 FEET NORTH OF COUNTY ROAD 73, 104.3 FEET NORTH OF A FENCE LINE, 78.49 FEET EAST OF HAY RM 2.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>		<u>Year</u>	<u>Reference</u>	
929.306	.016	2/0				VERTICAL ADJUSTMENT		1991	00000025	

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>		<u>Year</u>	<u>Reference</u>	
928.404	.016	2				VERTICAL CONTROL SURVEY		1972	Q460964	
928.404	.016	2				VERTICAL CONTROL SURVEY		1972	L22167-A	
928.404	.016	2				VERTICAL CONTROL SURVEY		1971	L22167-A	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>		<u>Year</u>	<u>Reference</u>	
929.296	.197		842.331	.131	1996	HORIZONTAL ADJUSTMENT		1999	17648	

Geoid Separations(ft): GEOID18 = -87.523    12B = -87.526    09 = -87.401    03 = -87.333

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>			
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>		<u>Year</u>	<u>Reference</u>
46 48 17.90843	96 34 41.20993	530548.419	163846.929	.066	2	ADJUSTMENT		1999	17648
46 48 17.90859	96 34 41.21010	530548.407	163846.945	.066	2	ADJUSTMENT		1998	17655

<u>NAD83(1986)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>			
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>		<u>Year</u>	<u>Reference</u>
46 48 17.90774	96 34 41.20048	530549.077	163846.860	.066	2	ADJUSTMENT		1986	17289

<u>NAD27</u>		<u>Geodetic Position</u>		<u>Project Info</u>				
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 48 18.04560	96 34 39.93380			.100	2	CLASSICAL SURVEY	1962	12924

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>			
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>		<u>Year</u>	<u>Reference</u>
2041738.608	994852.243	744731.439	17026575.534	.066	2	ADJUSTMENT		1999	17648
2041738.596	994852.260	744731.428	17026575.550	.066	2	ADJUSTMENT		1998	17655

<u>NAD83(1986)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>			
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>		<u>Year</u>	<u>Reference</u>
2041739.263	994852.154	744732.093	17026575.434	.066	2	ADJUSTMENT		1986	17289

<u>NAD27</u>		<u>MN State Plane - Central Zone</u>		<u>Project Info</u>				
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1417143.192	666776.337			.100	2	CLASSICAL SURVEY	1962	12924



Mn/DOT Name: HAY RM 1  
 County: CLAY, MN (Sheet 1)

NGS Name: HAY RM 1

NGS ACRN: [CO9695](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	35	139 N	47 W	464818.00	963440.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1961	2001	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	MNDT

Description: Stamping: HAY NO 2 1961

4.9 MILES SOUTH OF GLYNDON, 0.3 MILE EAST ALONG TRUNK HIGHWAY 10 (STATE STREET NORTHEAST) FROM THE JUNCTION OF TRUNK HIGHWAY 10 (STATE STREET NORTHEAST) IN GLYNDON, THEN 8.7 MILES SOUTH ALONG TRUNK HIGHWAY 9 SOUTH (140TH STREET SOUTH), THEN 1.7 MILES WEST ALONG 90TH AVENUE SOUTH, 4.6 MILES NORTHWEST ALONG INTERSTATE HIGHWAY 94 WEST.

\* No Horizontal or Vertical Positions in the Database \*

**Geoid Separations(ft): GEOID18 = -87.523 12B = -87.529 09 = -87.401 03 = -87.333**



Mn/DOT Name: HAY RM 2  
 County: CLAY, MN (Sheet 1)

NGS Name: HAY RM 2

NGS ACRN: [RP0405](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	35	139 N	47 W	464818.00	963441.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1961	2008	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

Description: (1993) Stamping: HAY NO 2 1961

4.0 MILES SOUTH OF GLYNDON, 0.3 MILE EAST OF THE JUNCTION OF COUNTY ROAD 73 AND INTERSTATE HIGHWAY 94,  
 34.0 FEET NORTH OF COUNTY ROAD 73, 78.5 FEET WEST OF A NORTH-SOUTH SECTION LINE AND STATION HAY MNDT.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
927.364	.016	2/0					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
926.461	.016	2					VERTICAL CONTROL SURVEY	1972	Q460964	
926.461	.016	2					VERTICAL CONTROL SURVEY	1972	L22167-A	
926.461	.016	2					VERTICAL CONTROL SURVEY	1971	L22167-A	

Geoid Separations(ft): GEOID18 = -87.523 12B = -87.526 09 = -87.401 03 = -87.333

\* No Horizontal Positions in the Database \*



Mn/DOT Name: HEAD MNDT

NGS Name: HEAD

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0425](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/1076  
 USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	20	139 N	48 W	465047.15	964605.14	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1961	2001	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	TRAVERSE STATION DISK	MNDT

**Description:** (2000)                      **Stamping:** HEAD 1961

2.0 MILES SOUTH OF MOORHEAD, NEAR THE JUNCTION OF INTERSTATE HIGHWAY 94 AND TRUNK HIGHWAY 75, 111.0 FEET SOUTH OF THE SOUTH END OF INTERSTATE HIGHWAY 94 BRIDGE, IN TRUNK HIGHWAY 75 MEDIAN, 34.2 FEET WEST OF NORTHBOUND TRUNK HIGHWAY 75, 29.5 FEET EAST OF SOUTHBOUND TRUNK HIGHWAY 75, 31.8 FEET SOUTH OF A GUARDRAIL, 111.22 FEET SOUTH OF HEAD MNDT RM 1, 59.66 FEET EAST OF HEAD MNDT RM 2, 31.1 FEET SOUTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
922.091	.016	2/1				VERTICAL ADJUSTMENT	2004	0000425-2		
922.101	.016	2/1				VERTICAL CONTROL SURVEY	2002	VMOOR		
922.813	.016	2				VERTICAL ADJUSTMENT	1991	00000025		

  

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
921.881	.016	2				VERTICAL CONTROL SURVEY	1972	Q460964		
921.881	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A		
921.881	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
			834.992	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800		
			835.182	.014	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300		
922.111	.131		835.244	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1905		
922.111	.131		835.244	.066	1996	GPS - STATIC	2003	HMOOR		
922.800	.197		836.376	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648		

Geoid Separations(ft): GEOID18 = -87.063    12B = -87.070    09 = -86.955    03 = -86.863



**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County					Project Info	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 50 47.14935	96 46 05.13947	482981.894	178951.170	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

Geodetic Position		Clay County					Project Info	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 50 47.14935	96 46 05.14054	482981.820	178951.170	.010		ADJUSTMENT	2007	GPS2300

**NAD83(1996)**

Geodetic Position		Clay County					Project Info	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 50 47.14877	96 46 05.14037	482981.832	178951.111	.033	C	ADJUSTMENT	2003	GPS1905
46 50 47.14877	96 46 05.14037	482981.832	178951.111	.033	C	GPS - STATIC	2003	HMOOR
46 50 47.14810	96 46 05.13966	482981.881	178951.043	.066	2	ADJUSTMENT	1999	17648
46 50 47.14815	96 46 05.13998	482981.859	178951.049	.066	2	ADJUSTMENT	1998	17655

**NAD83(1986)**

Geodetic Position		Clay County					Project Info	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 50 47.14687	96 46 05.13041	482982.524	178950.918	.066	2	ADJUSTMENT	1986	17289

**NAD27**

Geodetic Position							Project Info	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 50 47.27680	96 46 03.83650			.100	2	CLASSICAL SURVEY	1962	12924

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1994666.107	1011419.060	697904.938	17043912.743	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1994666.032	1011419.062	697904.864	17043912.747	.010		ADJUSTMENT	2007	GPS2300

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1994666.042	1011419.003	697904.873	17043912.687	.033	C	ADJUSTMENT	2003	GPS1905
1994666.042	1011419.003	697904.873	17043912.687	.033	C	GPS - STATIC	2003	HMOOR
1994666.089	1011418.934	697904.919	17043912.617	.066	2	ADJUSTMENT	1999	17648
1994666.067	1011418.940	697904.897	17043912.623	.066	2	ADJUSTMENT	1998	17655

**NAD83(1986)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1994666.728	1011418.789	697905.555	17043912.462	.066	2	ADJUSTMENT	1986	17289

**NAD27**

MN State Plane - Central Zone							Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1370071.022	683341.876			.100	2	CLASSICAL SURVEY	1962	12924



Mn/DOT Name: HEAD MNDT AZ MK

NGS Name: HEAD AZ MK

County: CLAY, MN (Sheet 1)

NGS ACRN: [CO9702](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	20	139 N	48 W	465051.00	964634.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1961	2001	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	MNDT

Description: Stamping: HEAD 1961

1.7 MILES SOUTHEAST OF FARGO, 1.7 MILES SOUTHWEST OF MOORHEAD, 1.7 MILES SOUTH ALONG 8TH STREET SOUTH FROM THE JUNCTION OF 8TH STREET SOUTH AND MAIN AVENUE IN MOORHEAD, THEN 0.4 MILE WEST ALONG INTERSTATE HIGHWAY 94 WEST.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.037 12B = -87.041 09 = -86.929 03 = -86.834



Mn/DOT Name: HEAD MNDT AZ MK 2

NGS Name: HEAD AZ MK 2

County: CLAY, MN (Sheet 1)

NGS ACRN: [CO9703](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	20	139 N	48 W	465051.00	964634.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1961	2001	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	MNDT

**Description:** 1.7 MILES SOUTHEAST OF FARGO, 1.7 MILES SOUTHWEST OF MOORHEAD, 1.7 MILES SOUTH ALONG 8TH STREET SOUTH FROM THE JUNCTION OF 8TH STREET SOUTH AND MAIN AVENUE IN MOORHEAD, THEN 0.4 MILE WEST ALONG INTERSTATE HIGHWAY 94 WEST.

**Stamping:**

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.037 12B = -87.041 09 = -86.929 03 = -86.834



Mn/DOT Name: HEAD RM 1

NGS Name: HEAD RM 1

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0426](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	20	139 N	48 W	465048.24	964605.37	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1961	2022	DESTROYED	Horz=NO Vert=NO	NO		PROJECTS 2 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	MNDT

**Description:** (1968)                      **Stamping:** HEAD NO 1 1961

AT MOORHEAD, AT THE JUNCTION OF TRUNK HIGHWAY 75 AND INTERSTATE HIGHWAY 94, 25.0 FEET WEST OF SOUTHBOUND TRUNK HIGHWAY 75, 59.4 FEET EAST OF STATION HEAD MNDT, 109.5 FEET SOUTH OF SOUTHWEST CORNER OF BRIDGE NUMBER 9475.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
921.711	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025		
<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
920.779	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD		
920.779	.016	2				VERTICAL CONTROL SURVEY	1972	Q460964		
920.779	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A		
920.779	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A		

Geoid Separations(ft): GEOID18 = -87.063    12B = -87.070    09 = -86.955    03 = -86.863

\* No Horizontal Positions in the Database \*



Mn/DOT Name: HEAD RM 2

NGS Name: HEAD RM 2

County: CLAY, MN (Sheet 1)

NGS ACRN: [CO9704](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	20	139 N	48 W	465047.00	964604.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1961	1993	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	MNDT

**Description:** **Stamping:** HEAD NO 2 1961

1.5 MILES SOUTHWEST OF MOORHEAD, 1.9 MILES SOUTH ALONG 8TH STREET SOUTH FROM THE JUNCTION OF 8TH STREET SOUTH AND MAIN AVENUE IN MOORHEAD, THEN 279.0 FEET NORTH ALONG 8TH STREET SOUTH.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.067 12B = -87.073 09 = -86.955 03 = -86.863



Mn/DOT Name: HELENA TWIN CITIES AWY BCN 79

NGS Name: HELENA TWIN CITIES AWY BCN 79

County: CLAY, MN (Sheet 1)

NGS ACRN: <a href="#">RP0931</a>	<a href="#">Get Map</a>
NGS Quad / Sta Num : 46096134/1020	
USGS Quad: BARNESVILLE	

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SW	25	137 N	46 W	463908.21	962623.07		4

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1935	2022	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	AIRPORT BEACON	NGS

Description: (1935)

Stamping:

1.0 MILE WEST OF BARNESVILLE, 1.0 MILE WEST OF THE JUNCTION OF TRUNK HIGHWAY 82 AND MAIN STREET, 75.0 FEET SOUTH OF TRUNK HIGHWAY 82. THE POINT OBSERVED UPON WAS A REVOLVING BEACON ATOP A UNITED STATES DEPARTMENT OF COMMERCE AIR BEACON ABOUT 50.0 FEET HIGH. THERE WERE NO DISTINGUISHING MARKS OR NUMBERS ON THE BEACON, BUT IT IS PROBABLY ON THE LINE FROM FERGUS FALLS, MINNESOTA TO FARGO, NORTH DAKOTA.

Station Notes

THE BEACON IS NO LONGER IN PLACE.

\* No Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.041 12B = -87.034 09 = -86.942 03 = -86.896

Lat/Lon and County Coordinates (Feet)

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 39 08.20840	96 26 23.07027	565387.200	108238.637	.328	4	ADJUSTMENT	1999	17648
46 39 08.20809	96 26 23.06989	565387.226	108238.606	.328	4	ADJUSTMENT	1998	17655

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 39 08.20766	96 26 23.06195	565387.780	108238.564	.328	4	ADJUSTMENT	1986	17289

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
46 39 08.37900	96 26 21.75900			.100	4	CLASSICAL SURVEY	1944	05937

State Plane and UTM Coordinates (Feet)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2074836.640	938198.352	776930.502	16969365.438	.328	4	ADJUSTMENT	1999	17648
2074836.665	938198.320	776930.527	16969365.406	.328	4	ADJUSTMENT	1998	17655

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2074837.218	938198.261	776931.078	16969365.338	.328	4	ADJUSTMENT	1986	17289

<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1450245.067	610126.138			.100	4	CLASSICAL SURVEY	1944	05937



Mn/DOT Name: HERBST  
County: CLAY, MN (Sheet 1)

NGS Name: HERBST

NGS ACRN: [DQ1955](#) [Get Map](#)  
NGS Quad / Sta Num : 46096143/  
USGS Quad: DOWNER

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	11	137 N	46 W	464212.37	962630.55	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 13 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: HERBST 2014

3.5 MILES NORTH-NORTHWEST OF BARNESVILLE, 3.4 MILES NORTHWEST ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND TRUNK HIGHWAY 34 IN BARNESVILLE, AT TRUNK HIGHWAY 9 MILEPOINT 150.95, 80.8 FEET SOUTHWEST OF TRUNK HIGHWAY 9, 28.3 FEET SOUTHEAST OF 130TH AVENUE SOUTH, 1.5 FEET NORTHWEST OF A WITNESS POST.

Station Pair: LEWER - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
968.151	.016	2/1				2019	00000941					

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
968.151			881.242	.012	2011	2024	GPS3762					
968.151	.131		881.360	.066	1996	2024	HTH32					
968.151			881.242	.012	2011	2024	HTH32					
968.295	.262		881.169	.197	2011	2023	RTRN2023					
968.305	.262		881.176	.197	2011	2014	RTRN2014					

Geoid Separations(ft): GEOID18 = -87.126    12B = -87.129    09 = -87.014    03 = -86.958

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 42 12.37166	96 26 30.54878	564804.298	126895.150	.007		ADJUSTMENT	2024	GPS3762
46 42 12.37166	96 26 30.54878	564804.298	126895.150	.007	C	GPS - STATIC	2024	HTH32
46 42 12.37166	96 26 30.54950	564804.248	126895.150	.131	3	GPS - RTRN	2023	RTRN2023
46 42 12.37182	96 26 30.54918	564804.270	126895.166	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 42 12.37151	96 26 30.54899	564804.283	126895.135	.033	C	GPS - STATIC	2024	HTH32

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>				
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2074831.366	956861.911	777224.995	16988036.218	.007		ADJUSTMENT	2024	GPS3762		
2074831.366	956861.911	777224.995	16988036.218	.007	C	GPS - STATIC	2024	HTH32		
2074831.316	956861.912	777224.945	16988036.221	.131	3	GPS - RTRN	2023	RTRN2023		
2074831.339	956861.928	777224.968	16988036.236	.131	3	GPS - RTRN	2014	RTRN2014		

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2074831.351	956861.896	777224.980	16988036.204	.033	C	GPS - STATIC	2024	HTH32



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HERBST-DQ1955-3SW-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HERBST-DQ1955-3SW-18OCT2023.jpg</a>	SW	Oct 18, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HERBST-DQ1955-2-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HERBST-DQ1955-2-18OCT2023.jpg</a>		Oct 18, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HERBST-DQ1955-1-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HERBST-DQ1955-1-18OCT2023.jpg</a>		Oct 18, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: HIGH

NGS Name: HIGH

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP7359](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096114/  
 USGS Quad: DALE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	36	140 N	44 W	465330.23	961027.75		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2013	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 45 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2013)                      Stamping: HIGH 2013

4.0 MILES WEST OF LAKE PARK, 3.75 MILES WEST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 7 IN LAKE PARK TO TRUNK HIGHWAY 10 MILEPOINT 28.45, THEN 1.2 MILES NORTH ON 300TH STREET NORTH, 18.8 FEET WEST OF 300TH STREET NORTH EXTENDED, 42.6 FEET NORTH OF 15TH AVENUE NORTH, 1.5 FEET EAST OF A WITNESS POST.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>		
1298.350	.131		1210.841	.066	1996	2023	HHITT	2023	HHITT	2023	GPS3626		
1298.387			1210.732	.011	2011	2023	HHITT	2023	HHITT	2022	RTRN2022		
1298.387			1210.732	.011	2011	2023	GPS3626	2022	RTRN2022	2015	GPS3084		
1298.491	.262		1210.680	.197	2011	2022	RTRN2022	2015	GPS3084	2015	HCLAY		
1298.557			1210.732	.024	2011	2015	GPS3084	2015	HCLAY	2015	HCLAY		
1298.518	.131		1210.877	.066	1996	2015	HCLAY	2015	HCLAY	2013	RTRN2013		
1298.557			1210.732	.024	2011	2015	HCLAY	2015	HCLAY	2013	RTRN2013		
1298.416	.262		1210.618	.197	2011	2013	RTRN2013						

Geoid Separations(ft): GEOID18 = -87.808 12B = -87.795 09 = -87.687 03 = -87.611

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>			<u>Geodetic Position</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>Order (/Class)</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>		
46 53 30.22893	96 10 27.75174		631450.746	195906.641	.007	C	GPS - STATIC	2023	HHITT	2023	GPS3626		
46 53 30.22893	96 10 27.75174		631450.746	195906.641	.007		ADJUSTMENT	2023	GPS3626	2022	RTRN2022		
46 53 30.22816	96 10 27.75173		631450.748	195906.563	.131	3	GPS - RTRN	2022	RTRN2022	2015	GPS3084		
46 53 30.22893	96 10 27.75174		631450.746	195906.641	.016		ADJUSTMENT	2015	GPS3084	2015	HCLAY		
46 53 30.22893	96 10 27.75174		631450.746	195906.641	.016	C	GPS - STATIC	2015	HCLAY	2013	RTRN2013		
46 53 30.23041	96 10 27.75247		631450.694	195906.791	.131	3	GPS - RTRN	2013	RTRN2013				

<u>NAD83(1996)</u>			<u>Geodetic Position</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>Order (/Class)</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>		
46 53 30.22880	96 10 27.75177		631450.744	195906.628	.033	C	GPS - STATIC	2023	HHITT	2015	HCLAY		
46 53 30.22847	96 10 27.75251		631450.693	195906.594	.033	C	GPS - STATIC	2015	HCLAY				

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>			<u>MN State Plane - Central Zone</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>Order (/Class)</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>		
2143575.902	1023769.703		847069.293	17053855.157	.007	C	GPS - STATIC	2023	HHITT	2023	GPS3626		
2143575.902	1023769.703		847069.293	17053855.157	.007		ADJUSTMENT	2023	GPS3626	2022	RTRN2022		
2143575.901	1023769.625		847069.291	17053855.079	.131	3	GPS - RTRN	2022	RTRN2022	2015	GPS3084		
2143575.902	1023769.703		847069.293	17053855.157	.016		ADJUSTMENT	2015	GPS3084	2015	HCLAY		
2143575.902	1023769.703		847069.293	17053855.157	.016	C	GPS - STATIC	2015	HCLAY	2013	RTRN2013		
2143575.855	1023769.855		847069.249	17053855.309	.131	3	GPS - RTRN	2013	RTRN2013				

<u>NAD83(1996)</u>			<u>MN State Plane - Central Zone</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>Order (/Class)</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>		
2143575.900	1023769.690		847069.291	17053855.144	.033	C	GPS - STATIC	2023	HHITT	2015	HCLAY		
2143575.848	1023769.658		847069.238	17053855.112	.033	C	GPS - STATIC	2015	HCLAY				



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HIGH-DP7359-3N-13JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HIGH-DP7359-3N-13JUN2022.jpg</a>	N	Jun 13, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HIGH-DP7359-2-13JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HIGH-DP7359-2-13JUN2022.jpg</a>		Jun 13, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HIGH-DP7359-1-13JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HIGH-DP7359-1-13JUN2022.jpg</a>		Jun 13, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: HITTERDAL

NGS Name: HITTERDAL

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0936](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096141/1045  
 USGS Quad: HAWLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	33	141 N	44 W	465843.62	961531.32	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	2022	GOOD	Horz=NO Vert=YES	YES		RECESSED 6 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	NGS

Description: (1994)                      Stamping: HITTERDAL 1964

IN HITTERDAL, 0.1 MILE NORTH ALONG TRUNK HIGHWAY 32 (260TH STREET NORTH) FROM THE JUNCTION OF TRUNK HIGHWAY 32 (260TH STREET NORTH) AND COUNTY ROAD 26 (FRONT STREET) IN HITTERDAL, AT THE CITY WATER TANK, AT TRUNK HIGHWAY 32 MILEPOINT 22.6, 74.0 FEET EAST OF TRUNK HIGHWAY 32, 32.0 FEET NORTHWEST OF THE SOUTHWEST LEG OF A TANK, 88.87 FEET SOUTH OF HITTERDAL RM 1, 96.91 FEET NORTH OF HITTERDAL RM 2, 31.83 FEET NORTHWEST OF A TANK, 14.0 FEET WEST OF THE NORTHWEST LEG OF A TANK.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
1245.378	.016	2/1				VERTICAL ADJUSTMENT		2019	00000941

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
1245.434	.262		1157.540	.197	2011	GPS - RTRN		2022	RTRN2022
1245.513	.262		1157.616	.197	2011	GPS - RTRN		2014	RTRN2014
			1157.553	.137	2011	HORIZONTAL ADJUSTMENT		2012	GPS2800
			1157.655	.144	2007	HORIZONTAL ADJUSTMENT		2007	GPS2300
1245.306	.131		1157.852	.066	1996	HORIZONTAL ADJUSTMENT		1999	17648
1245.309	.131		1157.698	.066	1996	GPS - STATIC		1997	GPS805-C

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
1240.188						RECIPROCAL VERTICAL ANGLE		1964	HORZ

Geoid Separations(ft): GEOID18 = -87.897    12B = -87.900    09 = -87.782    03 = -87.716

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 58 43.62353	96 15 31.31996	610187.450	227529.254	.131	3	GPS - RTRN	2022	RTRN2022
46 58 43.62329	96 15 31.31984	610187.458	227529.230	.131	3	GPS - RTRN	2014	RTRN2014
46 58 43.62444	96 15 31.31987	610187.456	227529.346	.062		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 58 43.62432	96 15 31.32072	610187.397	227529.334	.066		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 58 43.62373	96 15 31.32058	610187.407	227529.274	.033	C	ADJUSTMENT	1999	17648
46 58 43.62373	96 15 31.32058	610187.407	227529.274	.033	C	GPS - STATIC	1997	GPS805-C

NAD83(1986)

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 58 43.62321	96 15 31.31568	610187.747	227529.223	.066	2	ADJUSTMENT	1986	17289

NAD27

Geodetic Position						Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 58 43.76514	96 15 30.09674			.100	2	CLASSICAL SURVEY	1964	13522

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2123304.468	1056033.298	827316.264	17086454.747	.131	3	GPS - RTRN	2022	RTRN2022
2123304.475	1056033.274	827316.271	17086454.722	.131	3	GPS - RTRN	2014	RTRN2014
2123304.476	1056033.391	827316.274	17086454.839	.062		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2123304.417	1056033.380	827316.215	17086454.829	.066		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2123304.425	1056033.320	827316.222	17086454.769	.033	C	ADJUSTMENT	1999	17648
2123304.425	1056033.320	827316.222	17086454.769	.033	C	GPS - STATIC	1997	GPS805-C

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2123304.764	1056033.259	827316.559	17086454.702	.066	2	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone						Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1498707.513	727957.962			.100	2	CLASSICAL SURVEY	1964	13522

Station Photos

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HITTERDAL-RP0936-3E-20MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HITTERDAL-RP0936-3E-20MAY2014.jpg</a>	E	May 20, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HITTERDAL-RP0936-2-20MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HITTERDAL-RP0936-2-20MAY2014.jpg</a>		May 20, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HITTERDAL-RP0936-1-20MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HITTERDAL-RP0936-1-20MAY2014.jpg</a>		May 20, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: HITTERDAL AZ MK

NGS Name: HITTERDAL AZ MK

County: CLAY, MN (Sheet 1)

NGS ACRN: [CO9747](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096141/  
 USGS Quad: HAWLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	33	141 N	44 W	465857.00	961529.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	2014	GOOD	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	MNDT

**Description:** **Stamping:** 4 DWE 1963 1225

0.4 MILE NORTH OF HITTERDAL, 0.4 MILE NORTH ALONG TRUNK HIGHWAY 32 (260TH STREET NORTH) FROM THE JUNCTION OF TRUNK HIGHWAY 32 (260TH STREET NORTH) AND COUNTY HIGHWAY 26 (FRONT STREET) IN HITTERDAL, 98.8 FEET EAST OF TRUNK HIGHWAY 32, 49.2 FEET WEST OF THE WEST RAIL OF A RAILROAD, 36.0 FEET NORTH OF THE CENTER OF A GRAVEL ROAD, 2.1 FEET SOUTHEAST OF A TELEPHONE POLE, 1.3 FEET NORTH OF A METAL WITNESS POST.

**Station Notes**

THE SURVEY MARK IS ON RAILROAD PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.890 12B = -87.894 09 = -87.779 03 = -87.713



Mn/DOT Name: HITTERDAL ELEVATOR

NGS Name: HITTERDAL ELEVATOR

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0939](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096141/1022  
 USGS Quad: HAWLEY

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SE	33	141 N	44 W	465842.95	961527.81		4

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1906	1906	GOOD	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	GRAIN ELEVATOR	NGS

**Description:** (1906)

**Stamping:**

IN HITTERDAL, 272.0 FEET EAST ALONG COUNTY ROAD 26 (FRONT STREET) FROM THE JUNCTION OF COUNTY ROAD 26 (FRONT STREET) AND TRUNK HIGHWAY 32 (260TH STREET NORTH) IN HITTERDAL, THEN 466.0 FEET NORTH ALONG NP AVENUE.

\* No Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.897 12B = -87.900 09 = -87.785 03 = -87.720

**Lat/Lon and County Coordinates (Feet)**

**NAD83(1996)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 58 42.95219	96 15 27.81270	610431.040	227462.605	.328	4	ADJUSTMENT	1999	17648
46 58 42.94698	96 15 27.81182	610431.104	227462.078	.328	4	ADJUSTMENT	1998	17655

**NAD83(1986)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 58 42.94913	96 15 27.80816	610431.356	227462.297	.328	4	ADJUSTMENT	1986	17289

**NAD27**

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 58 43.06000	96 15 26.59000			.100	4	CLASSICAL SURVEY	1928	00155

**USSD**

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 58 43.27000	96 15 26.96000				3	CLASSICAL SURVEY		17389-73

**State Plane and UTM Coordinates (Feet)**

**NAD83(1996)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2123545.857	1055959.140	827556.506	17086376.649	.328	4	ADJUSTMENT	1999	17648
2123545.905	1055958.611	827556.545	17086376.119	.328	4	ADJUSTMENT	1998	17655

**NAD83(1986)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2123546.164	1055958.822	827556.808	17086376.326	.328	4	ADJUSTMENT	1986	17289

**NAD27**

<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1498948.787	727880.382			.100	4	CLASSICAL SURVEY	1928	00155



Mn/DOT Name: HITTERDAL LOW CHURCH SPIRE

NGS Name: HITTERDAL LOW CHURCH SPIRE

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0938](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096141/1023  
 USGS Quad: HAWLEY

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	4	140 N	44 W	465828.44	961529.47		4

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1906	1906	GOOD	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	CHURCH SPIRE	NGS

Description: (1906)

Stamping:

0.2 MILE SOUTH-SOUTHEAST OF HITTERDAL, 0.2 MILE SOUTH ALONG TRUNK HIGHWAY 32 (260TH STREET NORTH) FROM THE JUNCTION OF TRUNK HIGHWAY 32 (260TH STREET NORTH) AND COUNTY ROAD 26 (FRONT STREET) IN HITTERDAL, THEN 276.0 FEET EAST-SOUTHEAST ALONG DEVELOPERS DRIVE.

\* No Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.903 12B = -87.907 09 = -87.789 03 = -87.723

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 58 28.43686	96 15 29.46778	610324.561	225991.284	.328	4	ADJUSTMENT	1999	17648
46 58 28.43158	96 15 29.46690	610324.625	225990.749	.328	4	ADJUSTMENT	1998	17655

NAD83(1986)

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 58 28.43393	96 15 29.46318	610324.882	225990.989	.328	4	ADJUSTMENT	1986	17289

NAD27

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 58 28.54000	96 15 28.24000			.100	4	CLASSICAL SURVEY	1928	00155

USSD

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 58 28.76000	96 15 28.62000				3	CLASSICAL SURVEY		17389-73

State Plane and UTM Coordinates (Feet)

NAD83(1996)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2123393.849	1054491.933	827380.627	17084911.562	.328	4	ADJUSTMENT	1999	17648
2123393.897	1054491.397	827380.666	17084911.025	.328	4	ADJUSTMENT	1998	17655

NAD83(1986)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2123394.161	1054491.628	827380.933	17084911.252	.328	4	ADJUSTMENT	1986	17289

NAD27

<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1498797.123	726412.699			.100	4	CLASSICAL SURVEY	1928	00155



Mn/DOT Name: HITTERDAL MUNICIPAL TANK

NGS Name: HITTERDAL MUNICIPAL TANK

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0937](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096141/1045  
 USGS Quad: HAWLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	33	141 N	44 W	465843.48	961530.91		4

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	1964	GOOD	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	ELEVATED TANK	NGS

Description: (1964)

Stamping:

IN HITTERDAL, 0.1 MILE NORTH ALONG TRUNK HIGHWAY 32 (260TH STREET NORTH) FROM THE JUNCTION OF TRUNK HIGHWAY 32 (260TH STREET NORTH) AND COUNTY ROAD 26 (FRONT STREET) IN HITTERDAL, ON THE EAST SIDE OF TRUNK HIGHWAY 32, 31.83 FEET SOUTHEAST OF STATION HITTERDAL.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
1245.306	.328		1157.852	.328	1996	HORIZONTAL ADJUSTMENT	1999	17648		

Geoid Separations(ft): GEOID18 = -87.897 12B = -87.900 09 = -87.782 03 = -87.716

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
46 58 43.48120	96 15 30.91138	610215.864	227514.992	.328	4	ADJUSTMENT	1999	17648		
46 58 43.48120	96 15 30.91137	610215.865	227514.993	.328	4	ADJUSTMENT	1998	17655		

<u>NAD83(1986)</u>		<u>Geodetic Position</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
46 58 43.48090	96 15 30.90621	610216.222	227514.964	.328	4	ADJUSTMENT	1986	17289		

<u>NAD27</u>		<u>Geodetic Position</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 58 43.62263	96 15 29.68760			.100	4	CLASSICAL SURVEY	1964	13522

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>					<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2123332.424	1056018.165	827343.981	17086439.155	.328	4	ADJUSTMENT	1999	17648		
2123332.424	1056018.165	827343.981	17086439.155	.328	4	ADJUSTMENT	1998	17655		

<u>NAD83(1986)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>					<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
2123332.781	1056018.125	827344.338	17086439.110	.328	4	ADJUSTMENT	1986	17289		

<u>NAD27</u>		<u>MN State Plane - Central Zone</u>					<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1498735.508	727942.810			.100	4	CLASSICAL SURVEY	1964	13522



Mn/DOT Name: HITTERDAL RM 1

NGS Name: HITTERDAL RM 1

County: CLAY, MN (Sheet 1)

NGS ACRN: [CO9748](#) [Get Map](#)  
NGS Quad / Sta Num : 46096141/  
USGS Quad: HAWLEY

				Reference	Reference	Vert	Horz
1/4	Sec	Twp	Rng	Latitude	Longitude	Order	Order
SE	33	141 N	44 W	465844.49	961531.11	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1964	2023	GOOD	Horz=YES Vert=YES	YES		FLUSH	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** (2014) **Stamping:** HITTERDAL NO 1 1964

IN HITTERDAL, 0.1 MILE NORTH ALONG TRUNK HIGHWAY 32 (260TH STREET NORTH) FROM THE JUNCTION OF TRUNK HIGHWAY 32 (260TH STREET NORTH) AND COUNTY ROAD 26 (FRONT STREET) IN HITTERDAL, AT A CITY WATER TANK, AT TRUNK HIGHWAY 32 MILEPOINT 22.6, 88.9 FEET NORTH OF STATION HITTERDAL, 71.7 FEET EAST OF TRUNK HIGHWAY 32.

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88				Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)		Height	Acc	Adj	Determination Method	Year	Reference
1243.419	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88				Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)		Height	Acc	Adj	Determination Method	Year	Reference
1243.419	.131			1155.795	.066	1996	GPS - STATIC	2023	HHITT
1243.419				1155.670	.014	2011	GPS - STATIC	2023	HHITT
1243.419				1155.670	.014	2011	HORIZONTAL ADJUSTMENT	2023	GPS3626
1243.593	.262			1155.697	.197	2011	GPS - RTRN	2022	RTRN2022
1243.603	.262			1155.706	.197	2011	GPS - RTRN	2014	RTRN2014

Geoid Separations(ft): GEOID18 = -87.894 12B = -87.900 09 = -87.782 03 = -87.716

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)			Clay County				Project Info		
Latitude	Longitude		X	Y	Acc	Order	Determination Method	Year	Reference
46 58 44.48963	96 15 31.11151		610201.411	227617.087	.010	C	GPS - STATIC	2023	HHITT
46 58 44.48963	96 15 31.11151		610201.411	227617.087	.010		ADJUSTMENT	2023	GPS3626
46 58 44.48989	96 15 31.11157		610201.406	227617.114	.131	3	GPS - RTRN	2022	RTRN2022
46 58 44.48994	96 15 31.11181		610201.390	227617.119	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(1996)			Clay County				Project Info		
Latitude	Longitude		X	Y	Acc	Order	Determination Method	Year	Reference
46 58 44.48946	96 15 31.11189		610201.384	227617.070	.033	C	GPS - STATIC	2023	HHITT

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)			UTM - Zone 15				Project Info		
MN State Plane - Central Zone			X	Y	Acc	Order	Determination Method	Year	Reference
X	Y		X	Y					
2123321.142	1056120.651		827334.361	17086541.849	.010	C	GPS - STATIC	2023	HHITT
2123321.142	1056120.651		827334.361	17086541.849	.010		ADJUSTMENT	2023	GPS3626
2123321.138	1056120.677		827334.358	17086541.876	.131	3	GPS - RTRN	2022	RTRN2022
2123321.122	1056120.683		827334.342	17086541.881	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(1996)			UTM - Zone 15				Project Info		
MN State Plane - Central Zone			X	Y	Acc	Order	Determination Method	Year	Reference
X	Y		X	Y					
2123321.115	1056120.634		827334.335	17086541.833	.033	C	GPS - STATIC	2023	HHITT



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HITTERDAL_RM_1-CO9748-3E-20MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HITTERDAL_RM_1-CO9748-3E-20MAY2014.jpg</a>	E	May 20, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HITTERDAL_RM_1-CO9748-2-20MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HITTERDAL_RM_1-CO9748-2-20MAY2014.jpg</a>		May 20, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HITTERDAL_RM_1-CO9748-1-20MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HITTERDAL_RM_1-CO9748-1-20MAY2014.jpg</a>		May 20, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: HITTERDAL RM 2

NGS Name: HITTERDAL RM 2

County: CLAY, MN (Sheet 1)

NGS ACRN: [CO9749](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096141/  
 USGS Quad: HAWLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	33	141 N	44 W	465842.67	961531.43	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	2022	GOOD	Horz=NO Vert=YES	YES		FLUSH	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** (2014)                      **Stamping:** HITTERDAL NO 2 1964

IN HITTERDAL, 0.1 MILE NORTH ALONG TRUNK HIGHWAY 32 (260TH STREET NORTH) FROM THE JUNCTION OF TRUNK HIGHWAY 32 (260TH STREET NORTH) AND COUNTY ROAD 26 (FRONT STREET) IN HITTERDAL, AT A CITY WATER TANK, 82.0 FEET EAST OF TRUNK HIGHWAY 32, 96.9 FEET SOUTH OF STATION HITTERDAL, AT TRUNK HIGHWAY 32 MILEPOINT 22.6, 1.7 FEET NORTHEAST OF THE NORTHWEST CORNER OF A LARGE METAL BUILDING.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1249.558	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1249.614	.262			1161.720	.197	2011	GPS - RTRN	2022	RTRN2022
1249.607	.262			1161.707	.197	2011	GPS - RTRN	2014	RTRN2014

Geoid Separations(ft): GEOID18 = -87.897 12B = -87.900 09 = -87.782 03 = -87.716

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 58 42.67058	96 15 31.42634			610180.617	227432.661	.131	3	GPS - RTRN	2022	RTRN2022
46 58 42.67195	96 15 31.42802			610180.500	227432.799	.131	3	GPS - RTRN	2014	RTRN2014

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2123294.645	1055936.970			827304.875	17086358.556	.131	3	GPS - RTRN	2022	RTRN2022
2123294.532	1055937.112			827304.764	17086358.699	.131	3	GPS - RTRN	2014	RTRN2014

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HITTERDAL_RM_2-CO9749-3E-20MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HITTERDAL_RM_2-CO9749-3E-20MAY2014.jpg</a>	E	May 20, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HITTERDAL_RM_2-CO9749-2-20MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HITTERDAL_RM_2-CO9749-2-20MAY2014.jpg</a>		May 20, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HITTERDAL_RM_2-CO9749-1-20MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HITTERDAL_RM_2-CO9749-1-20MAY2014.jpg</a>		May 20, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: HITTERDAL TALL CHURCH SPIRE

NGS Name: HITTERDAL TALL CHURCH SPIRE

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0941](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096141/1024  
 USGS Quad: HAWLEY

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	5	140 N	44 W	465833.06	961534.29		4

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1906	1906	GOOD	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	CHURCH SPIRE	NGS

Description: (1906)

Stamping:

IN HITTERDAL, 0.1 MILE SOUTH ALONG TRUNK HIGHWAY 32 (260TH STREET NORTH) FROM THE JUNCTION OF TRUNK HIGHWAY 32 (260TH STREET NORTH) AND COUNTY ROAD 26 (FRONT STREET) IN HITTERDAL.

\* No Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.897 12B = -87.903 09 = -87.785 03 = -87.720

Lat/Lon and County Coordinates (Feet)

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 58 33.05758	96 15 34.29120	609987.431	226457.566	.328	4	ADJUSTMENT	1999	17648
46 58 33.05256	96 15 34.29028	609987.498	226457.058	.328	4	ADJUSTMENT	1998	17655

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 58 33.05477	96 15 34.28659	609987.752	226457.283	.328	4	ADJUSTMENT	1986	17289

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
46 58 33.16000	96 15 33.06000			.100	4	CLASSICAL SURVEY	1928	00155

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
46 58 33.38000	96 15 33.44000				3	CLASSICAL SURVEY		17389-73

State Plane and UTM Coordinates (Feet)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2123071.354	1054968.403	827065.794	17085393.384	.328	4	ADJUSTMENT	1999	17648
2123071.404	1054967.893	827065.837	17085392.873	.328	4	ADJUSTMENT	1998	17655

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2123071.666	1054968.110	827066.102	17085393.086	.328	4	ADJUSTMENT	1986	17289

<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1498474.850	726889.087			.100	4	CLASSICAL SURVEY	1928	00155



Mn/DOT Name: HOLY

NGS Name: HOLY

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM1834](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096431/  
 USGS Quad: HICKSON

		<u>Reference</u>		<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Order</u>	<u>Order</u>
SE	17	137 N	48 W	2	C
		<u>Latitude</u>	<u>Longitude</u>		
		464026.35	964531.05		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2009	2023	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 25 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2009) Stamping: HOLY 2009

1.15 MILES NORTH OF COMSTOCK, 1.05 MILES NORTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND COUNTY ROAD 2 (THE JUNCTION IS 0.5 MILE WEST OF COMSTOCK), AT TRUNK HIGHWAY 75 MILEPOINT 236.25, 72.2 FEET WEST OF TRUNK HIGHWAY 75, 73.0 FEET NORTH OF 150TH AVENUE SOUTH, 4.6 FEET EAST OF A CABLE BOX, 1.7 FEET NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
918.072	.016	2/1				VERTICAL ADJUSTMENT		2019	00000941
918.289	.016	2/1				VERTICAL ADJUSTMENT		2011	00000699
918.305	.016	2/1				VERTICAL CONTROL SURVEY		2010	VCOMS

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
918.072			831.590	.009	2011	HORIZONTAL ADJUSTMENT		2025	GPS3838
918.072			831.590	.009	2011	GPS - STATIC		2024	HENLOE
918.128	.262		831.426	.197	2011	GPS - RTRN		2023	RTRN2023
918.289			831.590	.009	2011	HORIZONTAL ADJUSTMENT		2015	GPS3084
918.289	.131		831.652	.066	1996	GPS - STATIC		2015	HCLAY
918.289			831.593	.009	2011	GPS - STATIC		2015	HCLAY
			831.590	.009	2011	HORIZONTAL ADJUSTMENT		2012	GPS2800
918.305	.131		831.583	.066	2007	HORIZONTAL ADJUSTMENT		2011	GPS2690
918.305	.131		831.652	.066	1996	GPS - STATIC		2010	HCOMS
918.305	.131		831.583	.066	2007	GPS - STATIC		2010	HCOMS

Geoid Separations(ft): GEOID18 = -86.703 12B = -86.716 09 = -86.670 03 = -86.575

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>							
46 40 26.35145	96 45 31.04611	485304.998	116053.090	.007		ADJUSTMENT	2025	GPS3838
46 40 26.35145	96 45 31.04611	485304.998	116053.090	.007	C	GPS - STATIC	2024	HENLOE
46 40 26.35170	96 45 31.04701	485304.935	116053.115	.131	3	GPS - RTRN	2023	RTRN2023
46 40 26.35145	96 45 31.04611	485304.998	116053.090	.007		ADJUSTMENT	2015	GPS3084
46 40 26.35145	96 45 31.04613	485304.997	116053.090	.007	C	GPS - STATIC	2015	HCLAY
46 40 26.35145	96 45 31.04611	485304.998	116053.090	.007		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>							
46 40 26.35165	96 45 31.04710	485304.929	116053.110	.033	C	ADJUSTMENT	2011	GPS2690
46 40 26.35165	96 45 31.04710	485304.929	116053.110	.033	C	GPS - STATIC	2010	HCOMS

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>							
46 40 26.35108	96 45 31.04689	485304.943	116053.052	.066		NCAT	2024	HENLOE
46 40 26.35121	96 45 31.04693	485304.941	116053.065	.033	C	GPS - STATIC	2015	HCLAY
46 40 26.35121	96 45 31.04693	485304.941	116053.065	.033	C	GPS - STATIC	2010	HCOMS

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1995043.137	948485.244	697265.168	16980939.177	.007		ADJUSTMENT	2025	GPS3838
1995043.137	948485.244	697265.168	16980939.177	.007	C	GPS - STATIC	2024	HENLOE
1995043.075	948485.271	697265.107	16980939.205	.131	3	GPS - RTRN	2023	RTRN2023
1995043.137	948485.244	697265.168	16980939.177	.007		ADJUSTMENT	2015	GPS3084
1995043.135	948485.244	697265.167	16980939.177	.007	C	GPS - STATIC	2015	HCLAY
1995043.137	948485.244	697265.168	16980939.177	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1995043.068	948485.266	697265.100	16980939.200	.033	C	ADJUSTMENT	2011	GPS2690
1995043.068	948485.266	697265.100	16980939.200	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1995043.081	948485.208	697265.112	16980939.142	.066		NCAT	2024	HENLOE
1995043.078	948485.221	697265.110	16980939.155	.033	C	GPS - STATIC	2015	HCLAY
1995043.078	948485.221	697265.110	16980939.155	.033	C	GPS - STATIC	2010	HCOMS

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HOLY-DM1834-3W-11OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HOLY-DM1834-3W-11OCT2023.jpg</a>	W	Oct 11, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HOLY-DM1834-2-11OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HOLY-DM1834-2-11OCT2023.jpg</a>		Oct 11, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HOLY-DM1834-1-11OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HOLY-DM1834-1-11OCT2023.jpg</a>		Oct 11, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: HORIZON  
County: CLAY, MN (Sheet 1)

NGS Name: HORIZON

NGS ACRN: [DM7602](#) [Get Map](#)  
NGS Quad / Sta Num : 46096413/  
USGS Quad: SABIN

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	15	139 N	48 W	465130.26	964309.57	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2009	2023	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 52 FT)	METAL ROD	MN4880

**Description:** (2009)                      **Stamping:** HORIZON 2009

IN MOORHEAD, 0.73 MILE NORTH ALONG 8TH STREET FROM THE JUNCTION OF MAIN AVENUE SOUTHEAST AND INTERSTATE HIGHWAY 94 IN MOORHEAD, THEN 0.28 MILE EAST ON RIDGEWOOD BOULEVARD, 56.7 FEET SOUTH OF RIDGEWOOD BOULEVARD, 75.0 FEET NORTH OF A GAZEBO, 33.3 FEET SOUTH OF A LIGHT POLE, 60.2 FEET WEST OF A LIGHT POLE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
907.370	.016	2/1				VERTICAL ADJUSTMENT	2024	0000941-3		
907.377	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA		
907.462	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941		
907.731	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699		
907.708	.016	2/1				VERTICAL CONTROL SURVEY	2010	VCOMS		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
907.377			820.458	.021	2011	HORIZONTAL ADJUSTMENT	2024	GPS3715		
907.377			820.458	.021	2011	GPS - STATIC	2024	HMOFA2		
907.377	.131		820.563	.066	1996	GPS - STATIC	2024	HMOFA2		
907.606	.262		820.458	.197	2011	GPS - RTRN	2022	RTRN2022		

Geoid Separations(ft): GEOID18 = -87.149    12B = -87.152    09 = -87.024    03 = -86.955

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 51 30.26197	96 43 09.56900	495187.675	183312.406	.013		ADJUSTMENT	2024	GPS3715	
46 51 30.26197	96 43 09.56900	495187.675	183312.406	.013	C	GPS - STATIC	2024	HMOFA2	
46 51 30.26256	96 43 09.56776	495187.761	183312.465	.131	3	GPS - RTRN	2022	RTRN2022	

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 51 30.26180	96 43 09.56981	495187.618	183312.388	.033	C	GPS - STATIC	2024	HMOFA2	

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
2006999.892	1015400.444	710309.589	17047695.978	.013		ADJUSTMENT	2024	GPS3715	
2006999.892	1015400.444	710309.589	17047695.978	.013	C	GPS - STATIC	2024	HMOFA2	
2006999.980	1015400.501	710309.677	17047696.034	.131	3	GPS - RTRN	2022	RTRN2022	

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
2006999.835	1015400.428	710309.531	17047695.964	.033	C	GPS - STATIC	2024	HMOFA2	



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HORIZON-DM7602-3S-29JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HORIZON-DM7602-3S-29JUN2022.jpg</a>	S	Jun 29, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HORIZON-DM7602-2-29JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HORIZON-DM7602-2-29JUN2022.jpg</a>		Jun 29, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HORIZON-DM7602-1-29JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HORIZON-DM7602-1-29JUN2022.jpg</a>		Jun 29, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: HUESMAN  
County: CLAY, MN (Sheet 1)

NGS Name: HUESMAN

NGS ACRN: [DR9635](#) [Get Map](#)  
NGS Quad / Sta Num : 46096441/  
USGS Quad: FARGO NORTH

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	28	141 N	48 W	465944.57	964518.18	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2022	2023	GOOD	Horz=YES Vert=YES	NO		RECESSED 4 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 26 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2022)                      Stamping: HUESMAN 2022

0.5 MILE NORTH OF KRAGNES, 0.3 MILE NORTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND COUNTY ROAD 5 AND COUNTY ROAD 96 IN KRAGNES, AT TRUNK HIGHWAY 75 MILEPOINT 259.8, 62.2 FEET EAST OF TRUNK HIGHWAY 75, 9.9 FEET WEST OF A RIGHT-OF-WAY POST.

Station Pair: DAKO - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88			Orthometric Height			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Year	Reference					
889.355	.016	2/1				2024	00000941-3					
889.381	.016	2/1				2023	VMOFA					

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Orthometric Height			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Year	Reference					
889.381			803.246	.023	2011	2024	GPS3674					
889.381			803.246	.023	2011	2023	HMOFA3					
889.381	.131		803.345	.066	1996	2023	HMOFA3					

Geoid Separations(ft): GEOID18 = -86.404 03 = -86.256

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Geodetic Position		Clay County		Determination Method			Project Info	
Latitude	Longitude	X	Y	Acc	Order	Year	Reference			
46 59 44.57507	96 45 18.17473	486284.839	233399.460	.010		2024	GPS3674			
46 59 44.57507	96 45 18.17473	486284.839	233399.460	.010	C	2023	HMOFA3			

  

NAD83(1996)		Geodetic Position		Clay County		Determination Method			Project Info	
Latitude	Longitude	X	Y	Acc	Order	Year	Reference			
46 59 44.57492	96 45 18.17551	486284.785	233399.445	.033	C	2023	HMOFA3			

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		MN State Plane - Central Zone		UTM - Zone 15		Determination Method			Project Info	
X	Y	X	Y	Acc	Order	Year	Reference			
1999650.662	1065735.336	703776.538	17098175.058	.010		2024	GPS3674			
1999650.662	1065735.336	703776.538	17098175.058	.010	C	2023	HMOFA3			

  

NAD83(1996)		MN State Plane - Central Zone		UTM - Zone 15		Determination Method			Project Info	
X	Y	X	Y	Acc	Order	Year	Reference			
1999650.608	1065735.323	703776.483	17098175.045	.033	C	2023	HMOFA3			

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HUESMAN-DR9635-3E-25JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HUESMAN-DR9635-3E-25JUL2022.jpg</a>	E	Jul 25, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HUESMAN-DR9635-2-25JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HUESMAN-DR9635-2-25JUL2022.jpg</a>		Jul 25, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HUESMAN-DR9635-1-25JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HUESMAN-DR9635-1-25JUL2022.jpg</a>		Jul 25, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: HUM MNDT  
County: CLAY, MN (Sheet 1)

NGS Name: HUM

NGS ACRN: [RP0083](#) [Get Map](#)  
NGS Quad / Sta Num : 46096134/1035  
USGS Quad: BARNESVILLE

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SW	21	137 N	45 W	463935.33	962300.98	2	2

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1961	1993	DESTROYED	Horz=NO Vert=NO	YES		FLUSH	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

**Description:** (1991) **Stamping:** HUM 1961

1.7 MILES EAST OF BARNESVILLE, 0.5 MILE NORTH ALONG TRUNK HIGHWAY 9 (FRONT STREET SOUTH) FROM THE JUNCTION OF TRUNK HIGHWAY 9 (FRONT STREET SOUTH) AND 2ND AVENUE SOUTHEAST IN BARNESVILLE, THEN 1.7 MILES EAST ALONG TRUNK HIGHWAY 34 EAST (160TH AVENUE SOUTH), 60.0 FEET NORTH OF TRUNK HIGHWAY 34, 64.5 FEET SOUTH OF THE SOUTHWEST CORNER OF A HOUSE, 52.5 FEET SOUTHEAST OF A POWER POLE WITH A TRANSFORMER, 102.0 FEET EAST OF HIGHWAY 25, 116.87 FEET NORTH OF HUM MNDT RM 1, 53.19 FEET EAST OF HUM MNDT RM 2.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1066.904	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025		
<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1066.035	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD		
1066.035	.016	2				VERTICAL CONTROL SURVEY	1972	Q460961		
1066.035	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A		
1066.035	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1066.894	.197		980.178	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648		

Geoid Separations(ft): GEOID18 = -87.113 12B = -87.103 09 = -87.008 03 = -86.958

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(1996)</u>			<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>									
46 39 35.33258	96 23 00.98276		579474.713	111038.265	.066	2	ADJUSTMENT	1999	17648	
46 39 35.33225	96 23 00.98223		579474.750	111038.232	.066	2	ADJUSTMENT	1998	17655	
<u>NAD83(1986)</u>			<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>									
46 39 35.33120	96 23 00.97487		579475.264	111038.128	.066	2	ADJUSTMENT	1986	17289	
<u>NAD27</u>			<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>			<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>Latitude</u>	<u>Longitude</u>									
46 39 35.47270	96 22 59.75310				.100	2	CLASSICAL SURVEY	1962	12924	



State Plane and UTM Coordinates (Feet)

NAD83(1996)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2089002.436	940560.405	791139.452	16971501.102	.066	2	ADJUSTMENT	1999	17648
2089002.472	940560.371	791139.488	16971501.067	.066	2	ADJUSTMENT	1998	17655

NAD83(1986)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2089002.983	940560.251	791139.997	16971500.939	.066	2	ADJUSTMENT	1986	17289

NAD27

<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1464405.498	612485.299			.100	2	CLASSICAL SURVEY	1962	12924



Mn/DOT Name: HUM MNDT AZ MK

NGS Name: HUM AZ MK

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0086](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/1035  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	20	137 N	45 W	463935.16	962327.07	2	2

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1961	2024	GOOD	Horz=NO Vert=YES	YES		RECESSED 4 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	MNDT

**Description:** (2015)                      **Stamping:** NO. HUM 1961

1.35 MILES EAST OF BARNESVILLE, 0.15 MILE EAST ALONG TRUNK HIGHWAY 34 FROM THE JUNCTION OF TRUNK HIGHWAY 34 AND INTERSTATE HIGHWAY 94 (THE JUNCTION IS 1.0 MILE EAST OF BARNESVILLE), 68.2 FEET NORTH OF TRUNK HIGHWAY 34, 146.4 FEET EAST OF A FIELD ENTRANCE NORTH, 4.0 FEET EAST OF A WITNESS POST.

**Station Notes**

DUE TO TREE COVER, THIS SURVEY MARK HAS BEEN ABANDONED FOR MNDOT GEODETIC HORIZONTAL SURVEYS.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1060.300	.016	2/1				VERTICAL CONTROL SURVEY	2024	VTHER2
1060.300	.016	2/1				VERTICAL ADJUSTMENT	2020	0000941-2
1060.300	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941
1060.444	.016	2/1				VERTICAL ADJUSTMENT	2017	00000911
1060.444	.016	2/1				VERTICAL CONTROL SURVEY	2016	VI94D4
1060.444	.016	2/1				VERTICAL ADJUSTMENT	2012	00000717
1060.444	.016	2/1				VERTICAL CONTROL SURVEY	2010	VBARN
1060.444	.016	2/1				VERTICAL ADJUSTMENT	2009	00000425-35
1060.441	.016	2/1				VERTICAL CONTROL SURVEY	2006	VTHER
1060.408	.016	2				VERTICAL ADJUSTMENT	1991	00000025

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1059.542	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
1059.542	.016	2				VERTICAL CONTROL SURVEY	1972	Q460961
1059.542	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A
1059.542	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1060.382	.262		973.276	.197	2011	GPS - RTRN	2023	RTRN2023
1060.398	.197		973.692	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -87.106    12B = -87.093    09 = -87.001    03 = -86.952

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County					Project Info	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 39 35.16393	96 23 27.09714	577653.175	111013.947	.131	3	GPS - RTRN	2023	RTRN2023

**NAD83(1996)**

Geodetic Position		Clay County					Project Info	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 39 35.15848	96 23 27.07086	577655.010	111013.402	.066	2	ADJUSTMENT	1999	17648
46 39 35.15815	96 23 27.07037	577655.044	111013.369	.066	2	ADJUSTMENT	1998	17655

**NAD83(1986)**

Geodetic Position		Clay County					Project Info	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 39 35.15712	96 23 27.06294	577655.563	111013.266	.066	2	ADJUSTMENT	1986	17289

**NAD27**

Geodetic Position							Project Info	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 39 35.29890	96 23 25.84030			.100	2	CLASSICAL SURVEY	1962	12924

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2087181.226	940592.469	789318.103	16971562.397	.131	3	GPS - RTRN	2023	RTRN2023

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2087183.043	940591.868	789319.912	16971561.766	.066	2	ADJUSTMENT	1999	17648
2087183.077	940591.833	789319.944	16971561.731	.066	2	ADJUSTMENT	1998	17655

**NAD83(1986)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2087183.592	940591.715	789320.458	16971561.604	.066	2	ADJUSTMENT	1986	17289

**NAD27**

MN State Plane - Central Zone							Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1462586.115	612516.784			.100	2	CLASSICAL SURVEY	1962	12924

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HUM_AZ_MK-RP0086-3N-26JUL2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HUM_AZ_MK-RP0086-3N-26JUL2023.jpg</a>	N	Jul 26, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HUM_AZ_MK-RP0086-2-26JUL2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HUM_AZ_MK-RP0086-2-26JUL2023.jpg</a>		Jul 26, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HUM_AZ_MK-RP0086-1-26JUL2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HUM_AZ_MK-RP0086-1-26JUL2023.jpg</a>		Jul 26, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: HUM RM 1

NGS Name: HUM RM 1

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0084](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	28	137 N	45 W	463934.18	962300.98	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1961	1968	DESTROYED	Horz=NO Vert=NO	NO		RECESSED 2 IN.	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

**Description:** (1961)                      **Stamping:** HUM NO. 1 1961

1.5 MILES EAST OF BARNESVILLE, 0.5 MILE NORTH ALONG TRUNK HIGHWAY 9 (FRONT STREET SOUTH) FROM THE JUNCTION OF TRUNK HIGHWAY 9 (FRONT STREET SOUTH) AND 2ND AVENUE SOUTHEAST IN BARNESVILLE, THEN 1.7 MILES EAST ALONG TRUNK HIGHWAY 34 EAST (160TH AVENUE SOUTH), THEN 0.1 MILE NORTH ALONG 200TH STREET SOUTH, 0.5 MILE EAST OF INTERSTATE HIGHWAY 94, 57.0 FEET SOUTH OF TRUNK HIGHWAY 34, 113.0 FEET SOUTHEAST OF A CROSSROAD AND COUNTY ROAD 25, 117.0 FEET SOUTH OF STATION HUM MNDT, 44.5 FEET EAST OF A POLE.

**Station Notes**

THE POSITION IS IN A DITCH BOTTOM. GRADED OUT.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1067.659	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025	

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1066.789	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD	
1066.789	.016	2				VERTICAL CONTROL SURVEY	1972	Q460961	
1066.789	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A	
1066.789	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A	

Geoid Separations(ft): GEOID18 = -87.113    12B = -87.100    09 = -87.004    03 = -86.955

\* No Horizontal Positions in the Database \*



Mn/DOT Name: HUM RM 2

NGS Name: HUM RM 2

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0085](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	21	137 N	45 W	463935.40	962301.74	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1961	1968	DESTROYED	Horz=NO Vert=NO	NO		PROJECTS 2 IN.	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

**Description:** (1961)                      **Stamping:** HUM NO. 2 1961

1.5 MILES EAST OF BARNESVILLE, 0.5 MILE NORTH ALONG TRUNK HIGHWAY 9 (FRONT STREET SOUTH) FROM THE JUNCTION OF TRUNK HIGHWAY 9 (FRONT STREET SOUTH) AND 2ND AVENUE SOUTHEAST IN BARNESVILLE, THEN 1.7 MILES EAST ALONG TRUNK HIGHWAY 34 EAST (160TH AVENUE SOUTH), THEN 0.1 MILE NORTH ALONG 200TH STREET SOUTH, 0.5 MILE EAST OF INTERSTATE HIGHWAY 94, 82.0 FEET NORTHEAST OF TRUNK HIGHWAY 34, 48.5 FEET EAST OF A CROSSROAD AND COUNTY ROAD 25, 53.0 FEET WEST OF STATION HUM MNDT, 28.0 FEET SOUTH OF A DRIVEWAY.

**Station Notes**

7-23-2009 THE POSITION IS IN A REWORKED DITCH. GRADED OUT.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1066.835	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025	

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1065.966	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD	
1065.966	.016	2				VERTICAL CONTROL SURVEY	1972	Q460961	
1065.966	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A	
1065.966	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A	

Geoid Separations(ft): GEOID18 = -87.113    12B = -87.100    09 = -87.004    03 = -86.955

\* No Horizontal Positions in the Database \*



Mn/DOT Name: HUMBOLDT

NGS Name: HUMBOLDT

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0914](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096131/1004  
 USGS Quad: BIG SLOUGH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	35	137 N	45 W	463820.30	961936.32		2

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	1978	NOT FOUND	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	NGS

**Description:** (1963)                      **Stamping:** HUMBOLDT 1954

4.0 MILES EAST-SOUTHEAST OF BARNESVILLE, 0.5 MILE NORTH ALONG TRUNK HIGHWAY 9 (FRONT STREET SOUTH) FROM THE JUNCTION OF TRUNK HIGHWAY 9 (FRONT STREET SOUTH) AND 2ND AVENUE SOUTHEAST IN BARNESVILLE, THEN 4.2 MILES EAST ALONG TRUNK HIGHWAY 34 EAST (160TH AVENUE SOUTH), THEN 1.4 MILES SOUTH ALONG 230TH STREET SOUTH, IN A BARNYARD, 0.15 MILE EAST OF A ROAD, 104.0 FEET SOUTH OF A BARN, 64.0 FEET NORTHEAST OF A CHICKEN COOP, 108.03 FEET WEST OF HUMBOLDT RM 1, 94.32 FEET NORTH OF HUMBOLDT RM 2.

**Station Notes**

THE SURVEY MARK IS ON PRIVATE PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1164.696	.197		1077.836	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1164.696						RECIPROCAL VERTICAL ANGLE	1954	HORZ

Geoid Separations(ft): GEOID18 = -87.228    12B = -87.211    09 = -87.109    03 = -87.054

**Lat/Lon and County Coordinates (Feet)**

**NAD83(1996)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 38 20.30327	96 19 36.31594	593787.229	103499.313	.066	2	ADJUSTMENT	1999	17648
46 38 20.30316	96 19 36.31621	593787.210	103499.302	.066	2	ADJUSTMENT	1998	17655

**NAD83(1986)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 38 20.30255	96 19 36.30828	593787.764	103499.243	.066	2	ADJUSTMENT	1986	17289

**NAD27**

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
46 38 20.44400	96 19 35.08300			.100	2	CLASSICAL SURVEY	1956	11230

**State Plane and UTM Coordinates (Feet)**

**NAD83(1996)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2103073.118	932583.020	805087.082	16963295.369	.066	2	ADJUSTMENT	1999	17648
2103073.099	932583.010	805087.063	16963295.358	.066	2	ADJUSTMENT	1998	17655

**NAD83(1986)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2103073.650	932582.933	805087.613	16963295.273	.066	2	ADJUSTMENT	1986	17289

**NAD27**

<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1478476.873	604508.055			.100	2	CLASSICAL SURVEY	1956	11230



Mn/DOT Name: HUMBOLDT AZ MK

NGS Name: HUMBOLDT AZ MK

County: CLAY, MN (Sheet 1)

NGS ACRN: [CO9789](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096131/  
 USGS Quad: BIG SLOUGH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	35	137 N	45 W	463755.00	961946.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	1978	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	NGS

**Description:** **Stamping:** HUMBOLDT 1954

4.5 MILES EAST-SOUTHEAST OF BARNESVILLE, 0.5 MILE NORTH ALONG TRUNK HIGHWAY 9 (FRONT STREET SOUTH) FROM THE JUNCTION OF TRUNK HIGHWAY 9 (FRONT STREET SOUTH) AND 2ND AVENUE SOUTHEAST IN BARNESVILLE, THEN 4.2 MILES EAST ALONG TRUNK HIGHWAY 34 EAST (160TH AVENUE SOUTH), THEN 1.9 MILES SOUTH ALONG 230TH STREET SOUTH, 33.0 FEET EAST OF THE APPROXIMATE CENTER OF A GRAVEL ROAD, 1.0 FOOT NORTH OF A GUYED POWER POLE, 1.0 FOOT EAST OF A WIRE FENCE, 3.0 FEET NORTHEAST OF A WITNESS POST.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.250 12B = -87.231 09 = -87.132 03 = -87.077



Mn/DOT Name: HUMBOLDT RM 1

NGS Name: HUMBOLDT RM 1

County: CLAY, MN (Sheet 1)

NGS ACRN: [CO9790](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096131/  
 USGS Quad: BIG SLOUGH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	35	137 N	45 W	463820.49	961934.79		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	1978	NOT FOUND	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** **Stamping:** HUMBOLDT NO 1 1954

4.0 MILES EAST-SOUTHEAST OF BARNESVILLE, 0.5 MILE NORTH ALONG TRUNK HIGHWAY 9 (FRONT STREET SOUTH) FROM THE JUNCTION OF TRUNK HIGHWAY 9 (FRONT STREET SOUTH) AND 2ND AVENUE SOUTHEAST IN BARNESVILLE, THEN 4.2 MILES EAST ALONG TRUNK HIGHWAY 34 EAST (160TH AVENUE SOUTH), THEN 1.4 MILES SOUTH ALONG 230TH STREET SOUTH, EAST OF STATION HUMBOLDT, 27.0 FEET SOUTHEAST OF A CORN CRIB, 1.0 FOOT WEST OF A WIRE FENCE.

**Station Notes**

THE SURVEY MARK IS ON PRIVATE PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.228 12B = -87.211 09 = -87.109 03 = -87.054



Mn/DOT Name: HUMBOLDT RM 2

NGS Name: HUMBOLDT RM 2

County: CLAY, MN (Sheet 1)

NGS ACRN: [CO9791](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096131/  
 USGS Quad: BIG SLOUGH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	35	137 N	45 W	463819.40	961936.66		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	1978	NOT FOUND	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** **Stamping:** HUMBOLDT NO 2 1954

4.5 MILES EAST-SOUTHEAST OF BARNESVILLE, 0.5 MILE NORTH ALONG TRUNK HIGHWAY 9 (FRONT STREET SOUTH) FROM THE JUNCTION OF TRUNK HIGHWAY 9 (FRONT STREET SOUTH) AND 2ND AVENUE SOUTHEAST IN BARNESVILLE, THEN 4.2 MILES EAST ALONG TRUNK HIGHWAY 34 EAST (160TH AVENUE SOUTH), THEN 1.4 MILES SOUTH ALONG 230TH STREET SOUTH, 26.0 FEET SOUTH OF THE SOUTHEAST CORNER OF THE CHICKEN COOP AND 1.0 FOOT NORTH OF A WIRE FENCE.

**Station Notes**

THE SURVEY MARK IS ON PRIVATE PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.228 12B = -87.211 09 = -87.109 03 = -87.054



Mn/DOT Name: HWY R/W STA 41+44

NGS Name: HWY R/W STA 41+44

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	9	139 N	48 W	465210.00	964450.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1958	1958	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
PIPE (<10 FT)	SURVEY DISK	MNDT

**Description:** (1958)                      **Stamping:** 41+44.2 SP 64-24 SEC

0.5 MILE NORTH OF MOORHEAD, 1.1 MILES EAST AND EAST-SOUTHEAST ALONG MAIN AVENUE FROM THE JUNCTION OF MAIN AVENUE AND 8TH STREET SOUTH IN MOORHEAD, 171.0 FEET SOUTH AND 31.0 FEET EAST OF THE JUNCTION OF TRUNK HIGHWAY 52 AND THE EAST RAIL OF A RAILROAD.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
907.249	.033	3				VERTICAL CONTROL SURVEY	1964	USGS-VERT	

Geoid Separations(ft): GEOID18 = -87.034    12B = -87.027    09 = -86.906    03 = -86.844

\* No Horizontal Positions in the Database \*



Mn/DOT Name: IRIS

NGS Name: IRIS

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ2028](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096144/  
 USGS Quad: HAWLEY NW

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	2	139 N	46 W	465235.00	962649.75	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 57 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: IRIS 2014

5.9 MILES WEST OF HAWLEY, 5.9 MILES WEST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 31 IN HAWLEY, AT TRUNK HIGHWAY 10 MILEPOINT 15.55, 0.25 MILE WEST OF COUNTY ROAD 86(170TH STREET NORTH), 50.0 FEET NORTH OF WESTBOUND TRUNK HIGHWAY 10 FOG LINE, 2.0 FEET SOUTH OF A RIGHT-OF-WAY POST, 1.5 FEET SOUTH OF A WITNESS POST.

Station Pair: TYLER - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88			Orthometric Height			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj				Year	Reference		
1016.996	.016	2/1				VERTICAL ADJUSTMENT			2024	00000941-3		
1016.996	.016	2/1				VERTICAL CONTROL SURVEY			2023	VMOFA		
1016.996	.016	2/1				VERTICAL ADJUSTMENT			2019	00000941		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Orthometric Height			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj				Year	Reference		
1016.996			929.398	.026	2011	HORIZONTAL ADJUSTMENT			2024	GPS3719		
1016.996	.131		929.529	.066	1996	GPS - STATIC			2024	HMOFA1		
1016.996			929.398	.026	2011	GPS - STATIC			2024	HMOFA1		
1017.144	.262		929.355	.197	2011	GPS - RTRN			2022	RTRN2022		
1017.104	.262		929.316	.197	2011	GPS - RTRN			2014	RTRN2014		

Geoid Separations(ft): GEOID18 = -87.785    12B = -87.789    09 = -87.657    03 = -87.608

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Geodetic Position		Clay County		Determination Method			Project Info	
Latitude	Longitude	X	Y	Acc	Order			Year	Reference	
46 52 35.00305	96 26 49.75138	563263.000	189973.028	.013		ADJUSTMENT		2024	GPS3719	
46 52 35.00305	96 26 49.75138	563263.000	189973.028	.013	C	GPS - STATIC		2024	HMOFA1	
46 52 35.00313	96 26 49.75174	563262.975	189973.036	.131	3	GPS - RTRN		2022	RTRN2022	
46 52 35.00249	96 26 49.75100	563263.027	189972.971	.131	3	GPS - RTRN		2014	RTRN2014	

NAD83(1996)		Geodetic Position		Clay County		Determination Method			Project Info	
Latitude	Longitude	X	Y	Acc	Order			Year	Reference	
46 52 35.00272	96 26 49.75190	563262.964	189972.994	.033	C	GPS - STATIC		2024	HMOFA1	

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		MN State Plane - Central Zone		UTM - Zone 15		Determination Method			Project Info	
X	Y	X	Y	X	Y	Acc	Order		Year	Reference
2075243.146	1019951.212	778655.339	17051141.923	.013		ADJUSTMENT			2024	GPS3719
2075243.146	1019951.212	778655.339	17051141.923	.013	C	GPS - STATIC			2024	HMOFA1
2075243.121	1019951.220	778655.315	17051141.932	.131	3	GPS - RTRN			2022	RTRN2022
2075243.171	1019951.154	778655.363	17051141.865	.131	3	GPS - RTRN			2014	RTRN2014

NAD83(1996)		MN State Plane - Central Zone		UTM - Zone 15		Determination Method			Project Info	
X	Y	X	Y	X	Y	Acc	Order		Year	Reference
2075243.109	1019951.179	778655.302	17051141.891	.033	C	GPS - STATIC			2024	HMOFA1



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/IRIS-DQ2028-3N-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/IRIS-DQ2028-3N-05JUL2022.jpg</a>	N	Jul 5, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/IRIS-DQ2028-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/IRIS-DQ2028-2-05JUL2022.jpg</a>		Jul 5, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/IRIS-DQ2028-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/IRIS-DQ2028-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: IRON RIVET

NGS Name: IRON RIVET

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0743](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	29	141 N	46 W	465950.00	963210.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1940	1999	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	SEE DESCRIPTION	NGS

Description: (1940)

Stamping:

2.0 MILES NORTH-NORTHEAST OF AVERILL, ON THE TOP OF THE WEST END OF A CONCRETE CULVERT UNDER A RAILROAD, 1.6 MILES NORTH ALONG 120TH STREET NORTH FROM THE JUNCTION OF 120TH STREET NORTH AND COUNTY HIGHWAY 26 (90TH AVENUE NORTH/90TH AVENUE NORTH) 0.4 MILE NORTH-NORTHEAST OF AVERILL, 1.9 MILES NORTH OF A RAILROAD THE STATION AT AVERILL, 0.3 MILE NORTH OF A RAILROAD MILEPOST 27, 14.0 FEET WEST OF THE WEST RAIL OF A RAILROAD.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
917.160	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
915.973	.007	1					VERTICAL CONTROL SURVEY	1938	L45 MINN	

Geoid Separations(ft): GEOID18 = -87.080 12B = -87.100 09 = -86.945 03 = -86.916

\* No Horizontal Positions in the Database \*



Mn/DOT Name: J 376

NGS Name: J 376

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0711](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	20	139 N	48 W	465048.00	964604.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1982	2009	DESTROYED	Horz=NO Vert=NO	NO	9476		SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE ABUTMENT	VERTICAL CONTROL DISK	NGS

**Description:** (1994)                      **Stamping:** J 376 1982

IN MOORHEAD, SET VERTICALLY IN THE EAST FACE OF THE SOUTH PIER OF TRUNK HIGHWAY 75 BRIDGE NUMBER 9476 OVER INTERSTATE HIGHWAY 94, 0.5 MILE EAST ON INTERSTATE HIGHWAY 94 FROM EAST END OF INTERSTATE HIGHWAY 94 BRIDGE OVER THE RED RIVER, AT INTERSTATE HIGHWAY 94 AND TRUNK HIGHWAY 75 JUNCTION, 24.0 FEET SOUTH OF EASTBOUND INTERSTATE HIGHWAY 94.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
907.167	.016	2/1					VERTICAL ADJUSTMENT	2011	00000685	
907.167	.016	2/1					VERTICAL ADJUSTMENT	2004	00000425-2	
907.177	.016	2/1					VERTICAL CONTROL SURVEY	2002	VMOOR	
907.177	.016	2/1					VERTICAL CONTROL SURVEY	2002	VMOOR	
907.177	.007	1					VERTICAL ADJUSTMENT	1991	00000025	

**Geoid Separations(ft): GEOID18 = -87.063    12B = -87.070    09 = -86.955    03 = -86.863**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: J 377

NGS Name: J 377

County: CLAY, MN (Sheet 1)

NGS ACRN: [SL1176](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096233/  
 USGS Quad: ULEN SW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	15	142 N	46 W	470634.00	962959.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1982	2014	DESTROYED	Horz=NO Vert=NO	YES		FLUSH	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	METAL ROD	NGS

**Description:** (1982)                      **Stamping:** J 377 1982

2.1 MILES NORTH-NORTHEAST OF FELTON, 2.1 MILES NORTH ON TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 34 AT FELTON, 0.1 MILE NORTH OF A CROSSROADS, NEAR THE FELTON TOWN HALL (WHITE WOOD BUILDING), 99.5 FEET EAST OF TRUNK HIGHWAY 9, 36.7 FEET SOUTH-SOUTHWEST OF THE SOUTHWEST CORNER OF THE TOWN HALL, 1.0 FOOT NORTH OF A POWER POLE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
912.213	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

**Geoid Separations(ft): GEOID18 = -87.129    12B = -87.142    09 = -87.021    03 = -86.998**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: J 49

NGS Name: J 49

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0026](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096141/  
 USGS Quad: HAWLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	31	140 N	44 W	465343.00	961658.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1934	1969	GOOD	Horz=NO Vert=NO	NO		FLUSH	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	NGS

**Description:** (1934)                      **Stamping:** J-49 1934

1.9 MILES NORTHEAST OF HAWLEY, 377.0 FEET EAST ALONG MAIN STREET FROM THE JUNCTION OF MAIN STREET AND 6TH STREET IN HAWLEY, THEN 0.8 MILE NORTH ALONG COUNTY ROAD 33 (5TH STREET), THEN 1.7 MILES EAST ALONG COUNTY ROAD 115/COUNTY ROAD 15 (15TH AVENUE NORTH/JUNCTION AVENUE NORTH), 0.3 MILE NORTHEAST OF COUNTY ROAD 115 BRIDGE AT A RAILROAD, 75.0 FEET SOUTHEAST OF THE SOUTHEAST CORNER OF A CONCRETE HEADWALL, 48.0 FEET WEST OF A FARM ROAD, 57.0 FEET SOUTH OF THE SOUTH RAILROAD TRACK, 30.0 FEET NORTH OF A FENCE.

**Station Notes**

THE SURVEY MARK IS ON RAILROAD PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1180.044	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025	

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1178.810	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD	
1178.810	.007	1				VERTICAL CONTROL SURVEY	1972	Q460961	
1178.810	.007	1				VERTICAL CONTROL SURVEY	1972	L22167-A	
1178.810	.007	1				VERTICAL CONTROL SURVEY	1971	L22167-A	
1178.810	.007	1				VERTICAL CONTROL SURVEY	1941	Q460961	
1178.810	.007	1				VERTICAL CONTROL SURVEY	1934	L98 MINN	

Geoid Separations(ft): GEOID18 = -87.874    12B = -87.851    09 = -87.749    03 = -87.697

\* No Horizontal Positions in the Database \*



Mn/DOT Name: J 49 A

NGS Name: J 49 A

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0025](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096141/  
 USGS Quad: HAWLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	31	140 N	44 W	465343.00	961658.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1969	1969	GOOD	Horz=NO Vert=NO	NO		FLUSH	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE FOOTING - SMALL	SEE DESCRIPTION	MNDT

Description: (1969)

Stamping:

1.8 MILE EAST OF HAWLEY, IN THE NORTHWEST CORNER OF THE NORTH HEADWALL OF A BOX CULVERT UNDER THE NORTHERN PACIFIC RAILROAD, 377.0 FEET EAST ALONG MAIN STREET FROM THE JUNCTION OF MAIN STREET AND 6TH STREET IN HAWLEY, THEN 0.8 MILE NORTH ALONG COUNTY ROAD 33 (5TH STREET), THEN 1.7 MILES EAST ALONG COUNTY ROAD 115/COUNTY ROAD 15 (15TH AVENUE NORTH/JUNCTION AVENUE NORTH), 100.0 FEET WEST OF A PRIVATE DRIVE, THE CENTERLINE OF A PRIVATE DRIVE ABOUT 135.0 FEET NORTHWEST OF USC AND STATION J 49, 15.0 FEET NORTH OF THE NORTH RAIL.

Station Notes

THE SET DATE UNKNOWN. THE SURVEY MARK IS A CHISELED X. THE SURVEY MARK IS ON PRIVATE PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1173.206	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1171.973	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD

Geoid Separations(ft): GEOID18 = -87.874 12B = -87.851 09 = -87.749 03 = -87.697

\* No Horizontal Positions in the Database \*



Mn/DOT Name: J 7

NGS Name: J 7

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0326](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	8	139 N	48 W	465226.00	964141.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1931	2001	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STRUCTURE (MASSIVE)	BENCH MARK DISK	NGS

**Description:** (1994)                      **Stamping:** 915.756 J 7 1931

AT DILWORTH, 0.1 MILE EAST ALONG 1ST AVENUE SOUTHEAST FROM THE JUNCTION OF THE 1ST AVENUE SOUTHEAST AND 4TH STREET SOUTHEAST IN DILWORTH, THEN 492.0 FEET SOUTH ALONG 5TH STREET SOUTHEAST, 27.8 FEET EAST OF THE NORTHWEST CORNER OF THE RAILROAD CENTRAL YARD OFFICE, IN THE NORTH WALL OF A BUILDING, 5.0 FEET ABOVE A PLATFORM.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
916.665	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
915.704	.007	1					VERTICAL CONTROL SURVEY	1972	Q460964	
915.704	.007	1					VERTICAL CONTROL SURVEY	1972	L22167-A	
915.704	.007	1					VERTICAL CONTROL SURVEY	1971	L22167-A	
915.704	.007	1					VERTICAL CONTROL SURVEY	1940	Q460964	
915.704	.007	1					VERTICAL CONTROL SURVEY	1938	L39 MINN	
915.756	.007	1					VERTICAL CONTROL SURVEY	1935	CUTLER-VERT	
915.756	.007	1					VERTICAL CONTROL SURVEY	1931	L39 MINN	

**Geoid Separations(ft): GEOID18 = -87.149    12B = -87.145    09 = -87.011    03 = -86.962**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: J 7 RESET  
 County: CLAY, MN (Sheet 1)

NGS Name: J 7 RESET

NGS ACRN: [RP1221](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

	<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u> <u>Sec</u> <u>Twp</u> <u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE 11 139 N 48 W	465226.00	964141.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1984	1984	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MAT FOUNDATION (NON-PAVEMENT)	VERTICAL CONTROL DISK	NGS

**Description:** (1984)                                  **Stamping:** J 7 RESET 1984

IN DILWORTH, 0.1 MILE EAST ALONG 1ST AVENUE SOUTHEAST FROM THE JUNCTION OF 1ST AVENUE SOUTHEAST AND 4TH STREET SOUTHEAST IN DILWORTH, THEN 492.0 FEET SOUTH ALONG 5TH STREET SOUTHEAST, AT THE DILWORTH RAILROAD TERMINAL OFFICE BUILDING, NEAR THE CENTER OF THE WEST EDGE OF THE SOUTHWEST CORNER OF THE TERMINAL OFFICE BUILDING, 56.2 FEET NORTH OF THE NORTHEAST CORNER OF A WHITE METAL BUILDING BETWEEN FUEL TANKS, 7.9 FEET SOUTH OF THE SOUTH RAIL OF A SOUTH RAILROAD TRACK, IN A 6.9 FEET BY 8.2 FEET PAD, 11.2 FEET EAST OF A WITNESS POST SET ALONG THE EAST SIDE OF A POWER POLE.

*\* No Horizontal or Vertical Positions in the Database \**

**Geoid Separations(ft):** GEOID18 = -87.149   12B = -87.145   09 = -87.011   03 = -86.962



Mn/DOT Name: JAGUARS  
County: CLAY, MN (Sheet 1)

NGS Name: JAGUARS

NGS ACRN: [DM1835](#) [Get Map](#)  
NGS Quad / Sta Num : 46096424/  
USGS Quad: COMSTOCK

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	33	137 N	48 W	463841.23	964453.86	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2009	2021	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 25 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2009)                      Stamping: JAGUARS 2009

1.0 MILE SOUTH OF COMSTOCK, 1.0 MILE SOUTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND COUNTY ROAD 2 (THE JUNCTION IS 0.5 MILE WEST OF COMSTOCK), TO TRUNK HIGHWAY 75 MILEPOINT 234.25, THEN 0.45 MILE EAST ON 170TH AVENUE SOUTH, 21.6 FEET SOUTH OF 170TH AVENUE SOUTH, 73.6 FEET WEST OF THE WEST RAIL OF THE RAILROAD TRACKS, 15.0 FEET WEST OF A FIELD ENTRANCE, 2.6 FEET EAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
923.030	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941		
923.230	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699		
923.240	.016	2/1				VERTICAL CONTROL SURVEY	2010	VCOMS		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
923.197	.262		836.517	.197	2011	GPS - OPUS	2021	GPSBM		
923.263	.262		836.583	.197	2011	GPS - RTRN	2021	RTRN2021		
923.230			836.547	.008	2011	HORIZONTAL ADJUSTMENT	2015	GPS3080		
923.240	.131		836.612	.066	1996	GPS - STATIC	2015	HWILK		
923.230			836.540	.008	2011	GPS - STATIC	2015	HWILK		
			836.547	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800		
923.226	.131		836.550	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2690		
923.226	.131		836.612	.066	1996	GPS - STATIC	2010	HCOMS		
923.226	.131		836.550	.066	2007	GPS - STATIC	2010	HCOMS		

Geoid Separations(ft): GEOID18 = -86.680 12B = -86.676 09 = -86.624 03 = -86.568

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 38 41.22708	96 44 53.85649			487891.951	105400.837	.131	3	GPS - OPUS	2021	GPSBM
46 38 41.22685	96 44 53.85669			487891.937	105400.814	.131	3	GPS - RTRN	2021	RTRN2021
46 38 41.22782	96 44 53.85511			487892.047	105400.912	.007		ADJUSTMENT	2015	GPS3080
46 38 41.22778	96 44 53.85508			487892.049	105400.908	.007	C	GPS - STATIC	2015	HWILK
46 38 41.22782	96 44 53.85511			487892.047	105400.912	.007		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 38 41.22793	96 44 53.85624			487891.968	105400.923	.033	C	ADJUSTMENT	2011	GPS2690
46 38 41.22793	96 44 53.85624			487891.968	105400.923	.033	C	GPS - STATIC	2010	HCOMS

<u>NAD83(1996)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 38 41.22748	96 44 53.85601			487891.984	105400.878	.033	C	GPS - STATIC	2015	HWILK
46 38 41.22748	96 44 53.85601			487891.984	105400.878	.033	C	GPS - STATIC	2010	HCOMS

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1997299.200	937759.240	699349.992	16970171.035	.131	3	GPS - OPUS	2021	GPSBM
1997299.186	937759.217	699349.977	16970171.012	.131	3	GPS - RTRN	2021	RTRN2021
1997299.299	937759.312	699350.092	16970171.105	.007		ADJUSTMENT	2015	GPS3080
1997299.301	937759.308	699350.094	16970171.101	.007	C	GPS - STATIC	2015	HWILK
1997299.299	937759.312	699350.092	16970171.105	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1997299.220	937759.326	699350.014	16970171.120	.033	C	ADJUSTMENT	2011	GPS2690
1997299.220	937759.326	699350.014	16970171.120	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1997299.235	937759.280	699350.027	16970171.074	.033	C	GPS - STATIC	2015	HWILK
1997299.235	937759.280	699350.027	16970171.074	.033	C	GPS - STATIC	2010	HCOMS

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/JAGUARS-DM1835-3S-30SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/JAGUARS-DM1835-3S-30SEP2009.jpg</a>	S	Sep 30, 2009
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/JAGUARS-DM1835-2-30SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/JAGUARS-DM1835-2-30SEP2009.jpg</a>		Sep 30, 2009
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/JAGUARS-DM1835-1-30SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/JAGUARS-DM1835-1-30SEP2009.jpg</a>		Sep 30, 2009

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: JKJ A  
 County: CLAY, MN (Sheet 1)

NGS Name: JKJ A

NGS ACRN: [DI3207](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	19	139 N	47 W	465012.96	963916.73	2	B

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2006	2022	GOOD	Horz=NO Vert=NO	YES		FLUSH	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
STEEL ROD (IN SLEEVE) (DEPTH 61 FT)	METAL ROD	WOOLPT

**Description:** (2009) **Stamping:** JKJ A 2006

6.0 MILES SOUTHEAST OF MOORHEAD, 0.4 MILE SOUTH ON COUNTY ROAD 11 FROM THE JUNCTION OF INTERSTATE HIGHWAY 94 AND TRUNK HIGHWAY 336, THEN 0.25 MILE WEST AND SOUTH TO AN AIRPORT, 0.1 MILE SOUTHEAST OF AN OFFICE, 164.4 FEET SOUTH OF THE SOUTH CORNER OF A RAMP, 39.0 FEET NORTHWEST OF A CULTIVATED FIELD, 272.9 FEET NORTHEAST OF THE EXTENDED NORTHEAST EDGE OF A RUNWAY, 331.6 FEET SOUTHEAST OF THE SOUTHEAST EDGE OF A TAXIWAY, 205.7 FEET SOUTHEAST OF THE SOUTH CORNER OF A HELICOPTER PAD, 1.8 FEET WEST OF A WITNESS POST.

**Station Notes**

THE SURVEY MARK IS ON AIRPORT PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88			Orthometric Height			Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference		
915.736	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941		
916.022	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699		
916.002	.016	2/1				VERTICAL CONTROL SURVEY	2010	VCOMS		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Orthometric Height			Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference		
915.982	.262		828.640	.197	2011	GPS - RTRN	2022	RTRN2022		
			828.679	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800		
916.009	.131		828.745	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2690		
916.009	.131		828.732	.066	1996	GPS - STATIC	2010	HCOMS		
916.009	.131		828.745	.066	2007	GPS - STATIC	2010	HCOMS		
915.828	.262		828.686	.197	1996	GPS - RTRN	2009	RTRN2009		
915.989	.098		828.732	.049	1996	HORIZONTAL ADJUSTMENT	2006	GPS2296-B		
915.989	.098		828.732	.049	1996	HORIZONTAL ADJUSTMENT	2006	GPS2296		

Geoid Separations(ft): GEOID18 = -87.342 12B = -87.365 09 = -87.214 03 = -87.142

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Geodetic Position		Clay County		Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 50 12.96074	96 39 16.72638	511374.555	175483.190	.131	3	GPS - RTRN	2022	RTRN2022
46 50 12.96058	96 39 16.72587	511374.590	175483.173	.007		ADJUSTMENT	2012	GPS2800

  

NAD83(2007)		Geodetic Position		Clay County		Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 50 12.96076	96 39 16.72702	511374.510	175483.192	.033	C	ADJUSTMENT	2011	GPS2690
46 50 12.96076	96 39 16.72702	511374.510	175483.192	.033	C	GPS - STATIC	2010	HCOMS

  

NAD83(1996)		Geodetic Position		Clay County		Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 50 12.96029	96 39 16.72678	511374.527	175483.144	.033	C	GPS - STATIC	2010	HCOMS
46 50 12.96072	96 39 16.72698	511374.513	175483.188	.131	3	GPS - RTRN	2009	RTRN2009
46 50 12.96029	96 39 16.72678	511374.527	175483.144	.016	B	ADJUSTMENT	2006	GPS2296
46 50 12.96029	96 39 16.72678	511374.527	175483.144	.016	B	ADJUSTMENT	2006	GPS2296-B

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2022935.552	1007075.024	726117.845	17039108.145	.131	3	GPS - RTRN	2022	RTRN2022
2022935.587	1007075.007	726117.880	17039108.128	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2022935.508	1007075.027	726117.801	17039108.149	.033	C	ADJUSTMENT	2011	GPS2690
2022935.508	1007075.027	726117.801	17039108.149	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2022935.523	1007074.979	726117.815	17039108.101	.033	C	GPS - STATIC	2010	HCOMS
2022935.510	1007075.023	726117.803	17039108.145	.131	3	GPS - RTRN	2009	RTRN2009
2022935.523	1007074.979	726117.815	17039108.101	.016	B	ADJUSTMENT	2006	GPS2296
2022935.523	1007074.979	726117.815	17039108.101	.016	B	ADJUSTMENT	2006	GPS2296-B

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/JKJ_A-DI3207-3NW-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/JKJ_A-DI3207-3NW-05JUL2022.jpg</a>	NW	Jul 5, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/JKJ_A-DI3207-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/JKJ_A-DI3207-2-05JUL2022.jpg</a>		Jul 5, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/JKJ_A-DI3207-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/JKJ_A-DI3207-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: JKJ B

NGS Name: JKJ B

County: CLAY, MN (Sheet 1)

NGS ACRN: [DI3208](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	19	139 N	47 W	465016.14	963944.93	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2006	2022	GOOD	Horz=NO Vert=NO	YES		FLUSH	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STEEL ROD (IN SLEEVE) (DEPTH 201 FT)	METAL ROD	WOOLPT

**Description:** (2009)                      **Stamping:** JKJ B 2006

6.0 MILES SOUTHEAST OF MOORHEAD, 0.4 MILE SOUTH ON COUNTY ROAD 11 FROM THE JUNCTION OF INTERSTATE HIGHWAY 94 AND TRUNK HIGHWAY 336, THEN 0.25 MILE WEST AND SOUTH TO AN AIRPORT, THEN 0.5 MILE WEST ON A TAXIWAY, THEN 0.1 MILE SOUTHEAST TO A WINDSOCK, 288.1 FEET EAST OF THE WINDSOCK, 269.0 FEET SOUTH-SOUTHWEST OF THE EDGE OF A RUNWAY, 18.0 FEET NORTHEAST OF THE CENTER OF A DIRT ROAD, 152.2 FEET EAST-SOUTHEAST OF THE SOUTHEAST CORNER OF A CONCRETE PAD, 2.0 FEET WEST OF A WITNESS POST.

**Station Notes**

THE SURVEY MARK IS ON AIRPORT PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>				<u>Year</u>	<u>Reference</u>
912.295	.016	2/1				VERTICAL ADJUSTMENT			2019	00000941
912.577	.016	2/1				VERTICAL ADJUSTMENT			2011	00000699
912.557	.016	2/1				VERTICAL CONTROL SURVEY			2010	VCOMS

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>				<u>Year</u>	<u>Reference</u>
912.646	.262		825.323	.197	2011	GPS - RTRN			2022	RTRN2022
			825.254	.009	2011	HORIZONTAL ADJUSTMENT			2012	GPS2800
912.564	.131		825.320	.066	2007	HORIZONTAL ADJUSTMENT			2011	GPS2690
912.564	.131		825.307	.066	1996	GPS - STATIC			2010	HCOMS
912.564	.131		825.320	.066	2007	GPS - STATIC			2010	HCOMS
912.400	.262		825.281	.197	1996	GPS - RTRN			2009	RTRN2009
912.538	.131		825.300	.066	1996	HORIZONTAL ADJUSTMENT			2006	GPS2296-B

Geoid Separations(ft): GEOID18 = -87.323 12B = -87.346 09 = -87.198 03 = -87.123

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

<u>Geodetic Position</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 50 16.13858	96 39 44.93380	509413.229	175804.122	.131	3	GPS - RTRN	2022	RTRN2022
46 50 16.13863	96 39 44.93399	509413.215	175804.127	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

<u>Geodetic Position</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 50 16.13883	96 39 44.93511	509413.138	175804.148	.033	C	ADJUSTMENT	2011	GPS2690
46 50 16.13883	96 39 44.93511	509413.138	175804.148	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

<u>Geodetic Position</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 50 16.13836	96 39 44.93490	509413.152	175804.100	.033	C	GPS - STATIC	2010	HCOMS
46 50 16.13956	96 39 44.93524	509413.128	175804.222	.131	3	GPS - RTRN	2009	RTRN2009
46 50 16.13807	96 39 44.93516	509413.134	175804.071	.033	C	ADJUSTMENT	2006	GPS2296-B



**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2020985.257	1007456.438	724172.824	17039521.343	.131	3	GPS - RTRN	2022	RTRN2022
2020985.244	1007456.444	724172.811	17039521.349	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2020985.167	1007456.466	724172.735	17039521.372	.033	C	ADJUSTMENT	2011	GPS2690
2020985.167	1007456.466	724172.735	17039521.372	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2020985.180	1007456.418	724172.747	17039521.324	.033	C	GPS - STATIC	2010	HCOMS
2020985.160	1007456.541	724172.729	17039521.447	.131	3	GPS - RTRN	2009	RTRN2009
2020985.161	1007456.390	724172.728	17039521.296	.033	C	ADJUSTMENT	2006	GPS2296-B

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/JKJ_B-DI3208-3E-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/JKJ_B-DI3208-3E-05JUL2022.jpg</a>	E	Jul 5, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/JKJ_B-DI3208-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/JKJ_B-DI3208-2-05JUL2022.jpg</a>		Jul 5, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/JKJ_B-DI3208-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/JKJ_B-DI3208-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: JKJ C

NGS Name: JKJ C

County: CLAY, MN (Sheet 1)

NGS ACRN: [DI3209](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	19	139 N	47 W	465033.60	964020.74	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2006	2022	GOOD	Horz=NO Vert=NO	YES		FLUSH	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STEEL ROD (IN SLEEVE) (DEPTH 296 FT)	METAL ROD	WOOLPT

**Description:** (2009)                      **Stamping:** JKJ C 2006

6.0 MILES SOUTHEAST OF MOORHEAD, 0.4 MILE SOUTH ON COUNTY ROAD 11 FROM THE JUNCTION OF INTERSTATE HIGHWAY 94 AND TRUNK HIGHWAY 336, THEN 0.25 MILE WEST AND SOUTH TO AN AIRPORT, THEN 0.95 MILE WEST ALONG A TAXIWAY TO THE END OF A RUNWAY, 285.4 FEET NORTHWEST OF THE NORTHWEST EDGE OF A TAXIWAY, 91.5 FEET NORTH OF THE EAST CORNER OF A BOX CULVERT HEADWALL, 147.6 FEET NORTHEAST OF THE EXTENDED EDGE OF A RUNWAY, 23.0 FEET EAST OF A DITCH, 7.5 FEET EAST OF A WITNESS POST.

**Station Notes**

THE SURVEY MARK IS ON AIRPORT PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			
913.259	.016	2/1				2019	00000941	VERTICAL ADJUSTMENT		
913.538	.016	2/1				2011	00000699	VERTICAL ADJUSTMENT		
913.522	.016	2/1				2010	VCOMS	VERTICAL CONTROL SURVEY		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			
913.601	.262		826.307	.197	2011	2022	RTRN2022	GPS - RTRN		
			826.255	.009	2011	2012	GPS2800	HORIZONTAL ADJUSTMENT		
913.515	.131		826.317	.066	2007	2011	GPS2690	HORIZONTAL ADJUSTMENT		
913.515	.131		826.304	.066	1996	2010	HCOMS	GPS - STATIC		
913.515	.131		826.317	.066	2007	2010	HCOMS	GPS - STATIC		
913.351	.262		826.258	.197	1996	2009	RTRN2009	GPS - RTRN		
913.515	.131		826.307	.066	1996	2006	GPS2296-B	HORIZONTAL ADJUSTMENT		

Geoid Separations(ft): GEOID18 = -87.293    12B = -87.313    09 = -87.168    03 = -87.093

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

<u>Geodetic Position</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 50 33.60335	96 40 20.74381	506922.892	177572.560	.131	3	GPS - RTRN	2022	RTRN2022
46 50 33.60391	96 40 20.74316	506922.938	177572.617	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

<u>Geodetic Position</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 50 33.60410	96 40 20.74433	506922.856	177572.636	.033	C	ADJUSTMENT	2011	GPS2690
46 50 33.60410	96 40 20.74433	506922.856	177572.636	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

<u>Geodetic Position</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 50 33.60363	96 40 20.74412	506922.871	177572.588	.033	C	GPS - STATIC	2010	HCOMS
46 50 33.60442	96 40 20.74415	506922.869	177572.668	.131	3	GPS - RTRN	2009	RTRN2009
46 50 33.60362	96 40 20.74373	506922.898	177572.587	.033	C	ADJUSTMENT	2006	GPS2296-B



**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2018551.017	1009300.902	721767.340	17041406.129	.131	3	GPS - RTRN	2022	RTRN2022
2018551.064	1009300.957	721767.387	17041406.183	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2018550.984	1009300.979	721767.307	17041406.206	.033	C	ADJUSTMENT	2011	GPS2690
2018550.984	1009300.979	721767.307	17041406.206	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2018550.997	1009300.931	721767.320	17041406.158	.033	C	GPS - STATIC	2010	HCOMS
2018550.997	1009301.011	721767.321	17041406.238	.131	3	GPS - RTRN	2009	RTRN2009
2018551.024	1009300.930	721767.346	17041406.156	.033	C	ADJUSTMENT	2006	GPS2296-B

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/JKJ_C-DI3209-3W-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/JKJ_C-DI3209-3W-05JUL2022.jpg</a>	W	Jul 5, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/JKJ_C-DI3209-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/JKJ_C-DI3209-2-05JUL2022.jpg</a>		Jul 5, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/JKJ_C-DI3209-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/JKJ_C-DI3209-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: JORDAN  
 County: CLAY, MN (Sheet 1)

NGS Name: JORDAN

NGS ACRN: [DQ1937](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	28	141 N	46 W	465956.16	963000.92	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 1 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 69 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      **Stamping:** JORDAN 2014

5.5 MILES SOUTH OF FELTON, 5.5 MILES SOUTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 34 IN FELTON, AT TRUNK HIGHWAY 9 MILEPOINT 172.25, 39.0 FEET WEST OF TRUNK HIGHWAY 9, 21.6 FEET NORTH OF A FIELD ENTRANCE, 1.5 FEET EAST OF A WITNESS POST.

Station Pair: 1410 Q - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88			Orthometric Height			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Year	Reference			Year	Reference	
929.526	.016	2/1				2019	00000941	VERTICAL ADJUSTMENT				

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Orthometric Height			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Year	Reference			Year	Reference	
929.526			842.557	.022	2011	2023	GPS3618	HORIZONTAL ADJUSTMENT				
929.526	.131		842.689	.066	1996	2023	HFELT	GPS - STATIC				
929.526			842.557	.022	2011	2023	HFELT	GPS - STATIC				
929.755	.262		842.541	.197	2011	2014	RTRN2014	GPS - RTRN				

Geoid Separations(ft): GEOID18 = -87.195    12B = -87.214    09 = -87.070    03 = -87.041

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Geodetic Position		Clay County		Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 59 56.16491	96 30 00.91533	549867.868	234632.451	.013		ADJUSTMENT	2023	GPS3618
46 59 56.16491	96 30 00.91533	549867.868	234632.451	.013	C	GPS - STATIC	2023	HFELT
46 59 56.16523	96 30 00.91535	549867.866	234632.483	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(1996)		Geodetic Position		Clay County		Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 59 56.16459	96 30 00.91589	549867.829	234632.419	.033	C	GPS - STATIC	2023	HFELT

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		MN State Plane - Central Zone		UTM - Zone 15		Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2063237.767	1065000.674	767377.932	17096402.254	.013		ADJUSTMENT	2023	GPS3618
2063237.767	1065000.674	767377.932	17096402.254	.013	C	GPS - STATIC	2023	HFELT
2063237.766	1065000.707	767377.932	17096402.286	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(1996)		MN State Plane - Central Zone		UTM - Zone 15		Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2063237.727	1065000.643	767377.891	17096402.223	.033	C	GPS - STATIC	2023	HFELT

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/JORDAN-DQ1937-3W-10JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/JORDAN-DQ1937-3W-10JUN2014.jpg</a>	W	Jun 10, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/JORDAN-DQ1937-2-10JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/JORDAN-DQ1937-2-10JUN2014.jpg</a>		Jun 10, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/JORDAN-DQ1937-1-10JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/JORDAN-DQ1937-1-10JUN2014.jpg</a>		Jun 10, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: JUSTIN

NGS Name: JUSTIN

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ1941](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	5	140 N	46 W	465809.74	963019.61	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 19 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

**Description:** (2014)                      **Stamping:** JUSTIN 2014

7.6 MILES SOUTH OF FELTON, 7.6 MILES SOUTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 34 IN FELTON, AT TRUNK HIGHWAY 9 MILEPOINT 170.15, 79.0 FEET WEST OF TRUNK HIGHWAY 9, 18.7 FEET SOUTH OF A FIELD ENTRANCE, 1.5 FEET EAST OF A WITNESS POST.

**Station Pair:** 1410 P - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88			Orthometric Height			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Year	Reference			Year	Reference	
931.639	.016	2/1				2019	00000941	VERTICAL ADJUSTMENT				

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Orthometric Height			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Year	Reference			Year	Reference	
931.639			844.470	.025	2011	2023	GPS3618	HORIZONTAL ADJUSTMENT				
931.639	.131		844.605	.066	1996	2023	HFELT	GPS - STATIC				
931.639			844.470	.025	2011	2023	HFELT	GPS - STATIC				
931.753	.262		844.427	.197	2011	2014	RTRN2014	GPS - RTRN				

Geoid Separations(ft): GEOID18 = -87.319 12B = -87.326 09 = -87.195 03 = -87.165

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Geodetic Position		Clay County		Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 58 09.74315	96 30 19.61211	548598.623	223846.644	.016		ADJUSTMENT	2023	GPS3618
46 58 09.74315	96 30 19.61211	548598.623	223846.644	.016	C	GPS - STATIC	2023	HFELT
46 58 09.74342	96 30 19.61181	548598.644	223846.672	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(1996)		Geodetic Position		Clay County		Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 58 09.74283	96 30 19.61268	548598.584	223846.612	.033	C	GPS - STATIC	2023	HFELT

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		MN State Plane - Central Zone		UTM - Zone 15		Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2061635.362	1054259.988	765599.987	17085683.878	.016		ADJUSTMENT	2023	GPS3618
2061635.362	1054259.988	765599.987	17085683.878	.016	C	GPS - STATIC	2023	HFELT
2061635.383	1054260.015	765600.009	17085683.904	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(1996)		MN State Plane - Central Zone		UTM - Zone 15		Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2061635.321	1054259.957	765599.946	17085683.847	.033	C	GPS - STATIC	2023	HFELT

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/JUSTIN-DQ1941-3W-10JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/JUSTIN-DQ1941-3W-10JUN2014.jpg</a>	W	Jun 10, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/JUSTIN-DQ1941-2-10JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/JUSTIN-DQ1941-2-10JUN2014.jpg</a>		Jun 10, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/JUSTIN-DQ1941-1-10JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/JUSTIN-DQ1941-1-10JUN2014.jpg</a>		Jun 10, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: K 376

NGS Name: K 376

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0712](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	21	139 N	48 W	465049.00	964449.40	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1982	2009	GOOD	Horz=NO Vert=NO	YES	9477	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE PILLAR/PIER	VERTICAL CONTROL DISK	NGS

**Description:** (1994)                      **Stamping:** K 376 1982

1.1 MILES SOUTH OF MOORHEAD, SET VERTICALLY IN THE EAST FACE OF THE EAST PIER OF A RAILROAD BRIDGE OVER INTERSTATE HIGHWAY 94, 1.9 MILES SOUTH ALONG 8TH STREET SOUTH FROM THE JUNCTION OF 8TH STREET SOUTH AND MAIN AVENUE IN MOORHEAD, THEN 1.0 MILE EAST ALONG INTERSTATE 94 EAST, AT INTERSTATE HIGHWAY 94 MILEPOINT 1.58, 1.5 MILES EAST ON INTERSTATE HIGHWAY 94 FROM WEST END OF INTERSTATE HIGHWAY 94 BRIDGE ON THE STATE LINE AT THE MOORHEAD, ON THE SOUTH SIDE OF THE EASTBOUND LANES OF INTERSTATE HIGHWAY 94, 24.0 FEET SOUTH OF EASTBOUND INTERSTATE HIGHWAY 94.

**Station Notes**

THE SURVEY MARK IS ON RAILROAD PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
899.194	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941	
899.440	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699	
899.440	.016	2/1				VERTICAL ADJUSTMENT	2011	00000685	
899.447	.016	2/1				VERTICAL CONTROL SURVEY	2010	VCOMS	
899.447	.007	1/2				VERTICAL ADJUSTMENT	2004	00000425-2	
899.447	.016	2/1				VERTICAL CONTROL SURVEY	2002	VMORE	
899.447	.016	2/1				VERTICAL CONTROL SURVEY	2002	VMOOR	
899.447	.007	1				VERTICAL ADJUSTMENT	1991	00000025	

Geoid Separations(ft): GEOID18 = -87.116    12B = -87.129    09 = -87.011    03 = -86.916

\* No Horizontal Positions in the Database \*

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<b>Location:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/K_376-RP0712-3W-16NOV2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/K_376-RP0712-3W-16NOV2009.jpg</a>	W	Nov 16, 2009
<b>Monument:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/K_376-RP0712-2-16NOV2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/K_376-RP0712-2-16NOV2009.jpg</a>		Nov 16, 2009
<b>Disk:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/K_376-RP0712-1-16NOV2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/K_376-RP0712-1-16NOV2009.jpg</a>		Nov 16, 2009

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: K 49

NGS Name: K 49

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0028](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096141/  
 USGS Quad: HAWLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	1	139 N	45 W	465246.00	961850.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1934	1969	NOT FOUND	Horz=NO Vert=NO	YES			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	NGS

**Description:** (1934)                      **Stamping:** K-49 1934

AT HAWLEY, 0.2 MILE SOUTH-SOUTHEAST ALONG 6TH STREET FROM THE JUNCTION OF 6TH STREET AND COUNTY ROAD 116 (MAIN STREET) IN HAWLEY, THEN 407.0 FEET EAST ALONG VALLEY STREET, THEN 0.1 MILE NORTH-NORTHEAST ALONG 5TH STREET, 5 RAILS EAST OF A RAILROAD STATION, 27.0 FEET NORTH OF THE NORTH RAILROAD TRACK, 27.0 FEET SOUTH OF A SPUR TRACK.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1150.483	.016	2/0					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1149.269	.016	2/0					UNKNOWN/APPROXIMATE	1992	UNCHECKD	
1149.364	.007	1					VERTICAL CONTROL SURVEY	1941	Q460961	
1149.364	.007	1					VERTICAL CONTROL SURVEY	1934	L98 MINN	

**Geoid Separations(ft): GEOID18 = -87.838    12B = -87.818    09 = -87.710    03 = -87.670**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: K 49 A

NGS Name: K 49 A

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0027](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096141/  
 USGS Quad: HAWLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	6	139 N	44 W	465316.00	961801.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1969	1969	GOOD	Horz=NO Vert=NO	NO		FLUSH	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE FOOTING - SMALL	SEE DESCRIPTION	MNDT

Description: (1969)

Stamping:

0.9 MILE EAST FROM HAWLEY, 0.8 MILE EAST-NORTHEAST ALONG COUNTY ROAD 116 (MAIN STREET) FROM THE JUNCTION OF COUNTY ROAD 116 (MAIN STREET) AND 6TH STREET IN HAWLEY, 0.3 MILE SOUTHEAST OF A COUNTY ROAD 115 BRIDGE OVER THE GREAT NORTHERN RAILROAD, 8.0 FEET SOUTHEAST OF THE SOUTHEAST RAIL OF THE NORTHERN PACIFIC RAILROAD, NORTHERN PACIFIC RAILROAD BRIDGE OVER THE GREAT NORTHERN RAILROAD.

Station Notes

THE SET DATE IS UNKNOWN. THE MARK IS LOCATED IN HAWLEY TOWNSHIP. THE MARK IS A CHISELED X IN THE SOUTHEAST BOLT IN THE BASE OF RAILROAD SIGNAL NUMBER 2336. THE SURVEY MARK IS ON RAILROAD PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1163.534	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1162.311	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD

Geoid Separations(ft): GEOID18 = -87.854 12B = -87.834 09 = -87.729 03 = -87.687

\* No Horizontal Positions in the Database \*



Mn/DOT Name: K 7

NGS Name: K 7

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0336](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	9	139 N	47 W	465226.00	963742.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1931	2001	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STRUCTURE (MASSIVE)	BENCH MARK DISK	NGS

Description: (1962)                      Stamping: K 7 1931

2.3 MILES WEST OF GLYNDON, 0.3 MILE NORTH ALONG PARKE AVENUE SOUTH FROM THE JUNCTION OF PARKE AVENUE SOUTH AND 4TH STREET SOUTHEAST IN GLYNDON, THEN 2.4 MILES WEST ALONG TRUNK HIGHWAY 10 WEST (STATE STREET NORTHEAST), THEN 0.1 MILE EAST ALONG TRUNK HIGHWAY 10 EAST, 3.0 MILES EAST ALONG THE NORTHERN PACIFIC RAILWAY FROM DILWORTH, 0.2 MILE WEST OF MILEPOST 251, IN THE SOUTHWEST CORNER PILASTER OF THE DILWORTH PUMPING STATION ON THE SOUTH BRANCH OF THE BUFFALO RIVER.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
919.496	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
918.368	.007	1					VERTICAL CONTROL SURVEY	1935	CUTLER-VERT	
918.368	.007	1					VERTICAL CONTROL SURVEY	1931	L39 MINN	

Geoid Separations(ft): GEOID18 = -87.326    12B = -87.333    09 = -87.178    03 = -87.139

\* No Horizontal Positions in the Database \*



Mn/DOT Name: K 7 RESET

NGS Name: K 7 RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0337](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	9	139 N	47 W	465226.00	963742.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1962	2005	DESTROYED	Horz=NO Vert=NO	NO	RR	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STRUCTURE (MASSIVE)	BENCH MARK DISK	NGS

**Description:** (2003)                      **Stamping:** K-7 RESET 1962

2.2 MILES WEST OF GLYNDON, IN THE NORTHWEST CORNER OF A RAILROAD BRIDGE OVER THE SOUTH FORK OF THE BUFFALO RIVER, 0.3 MILE NORTH ALONG PARKE AVENUE SOUTH FROM THE JUNCTION OF PARKE AVENUE SOUTH AND 4TH STREET SOUTHEAST IN GLYNDON, THEN 2.4 MILES WEST ALONG TRUNK HIGHWAY 10 WEST (STATE STREET NORTHEAST), THEN 0.1 MILE EAST ALONG TRUNK HIGHWAY 10 EAST, 0.1 MILE SOUTH OF TRUNK HIGHWAY 10, 600.0 FEET EAST OF A PRIVATE ROAD CROSSING, AN APPROXIMATE 4.5 FEET DIFFERENCE IN ELEVATION.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			
920.352	.016	2/0							VERTICAL ADJUSTMENT	1991	00000025		

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			
919.437	.016	2							VERTICAL CONTROL SURVEY	1972	Q460964		
919.437	.016	2							VERTICAL CONTROL SURVEY	1972	L22167-A		
923.968	.016	2							VERTICAL CONTROL SURVEY	1962	Q460964		

Geoid Separations(ft): GEOID18 = -87.326    12B = -87.333    09 = -87.178    03 = -87.139

\* No Horizontal Positions in the Database \*



Mn/DOT Name: KARSTEN  
County: CLAY, MN (Sheet 1)

NGS Name: KARSTEN

NGS ACRN: [DQ1960](#) [Get Map](#)  
NGS Quad / Sta Num : 46096134/  
USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	24	137 N	46 W	463935.18	962512.70	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2024	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 22 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: KARSTEN 2014

IN BARNESVILLE, AT THE JUNCTION OF TRUNK HIGHWAY 34 AND TRUNK HIGHWAY 9 IN BARNESVILLE, AT TRUNK HIGHWAY 9 MILEPOINT 147.5, 29.1 FEET WEST OF TRUNK HIGHWAY 9, 58.7 FEET NORTH OF COUNTY ROAD 2 (TRUNK HIGHWAY 34 EXTENDED), 29.0 FEET NORTHWEST OF A FIRE HYDRANT, 7.5 FEET SOUTHEAST OF A TELEPHONE POLE, 7.0 FEET SOUTHEAST OF A WITNESS POST.

Station Pair: COLE - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order</u>	<u>(/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
1016.822	.016	2/1					2024	Vther2	VERTICAL CONTROL SURVEY				
1016.822	.016	2/1					2019	00000941	VERTICAL ADJUSTMENT				

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order</u>	<u>(/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
1016.822				929.910	.023	2011	2024	GPS3671	HORIZONTAL ADJUSTMENT				
1016.822	.131			930.024	.066	1996	2023	HTH9	GPS - STATIC				
1016.822				929.910	.023	2011	2023	HTH9	GPS - STATIC				
1016.930	.262			929.864	.197	2011	2023	RTRN2023	GPS - RTRN				
1016.940	.262			929.873	.197	2011	2022	RTRN2022	GPS - RTRN				
1016.884	.262			929.828	.197	2011	2014	RTRN2014	GPS - RTRN				

Geoid Separations(ft): GEOID18 = -87.063    12B = -87.057    09 = -86.962    03 = -86.916

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Geodetic Position</u>				<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>								
46 39 35.18476	96 25 12.69588	570287.133	110988.523	.013		2024	GPS3671	ADJUSTMENT							
46 39 35.18476	96 25 12.69588	570287.133	110988.523	.013	C	2023	HTH9	GPS - STATIC							
46 39 35.18473	96 25 12.69616	570287.113	110988.520	.131	3	2023	RTRN2023	GPS - RTRN							
46 39 35.18493	96 25 12.69602	570287.123	110988.540	.131	3	2022	RTRN2022	GPS - RTRN							
46 39 35.18528	96 25 12.69598	570287.126	110988.576	.131	3	2014	RTRN2014	GPS - RTRN							

<u>NAD83(1996)</u>				<u>Geodetic Position</u>				<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>								
46 39 35.18452	96 25 12.69634	570287.101	110988.499	.033	C	2023	HTH9	GPS - STATIC							

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>MN State Plane - Central Zone</u>				<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>								
2079818.761	940794.996	781956.181	16971883.131	.013		2024	GPS3671	ADJUSTMENT							
2079818.761	940794.996	781956.181	16971883.131	.013	C	2023	HTH9	GPS - STATIC							
2079818.742	940794.994	781956.161	16971883.129	.131	3	2023	RTRN2023	GPS - RTRN							
2079818.752	940795.014	781956.172	16971883.149	.131	3	2022	RTRN2022	GPS - RTRN							
2079818.756	940795.049	781956.176	16971883.184	.131	3	2014	RTRN2014	GPS - RTRN							

<u>NAD83(1996)</u>				<u>MN State Plane - Central Zone</u>				<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>								
2079818.728	940794.973	781956.148	16971883.108	.033	C	2023	HTH9	GPS - STATIC							



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KARSTEN-DQ1960-3W-26JUL2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KARSTEN-DQ1960-3W-26JUL2023.jpg</a>	W	Jul 26, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KARSTEN-DQ1960-2-26JUL2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KARSTEN-DQ1960-2-26JUL2023.jpg</a>		Jul 26, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KARSTEN-DQ1960-1-26JUL2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KARSTEN-DQ1960-1-26JUL2023.jpg</a>		Jul 26, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: KATE

NGS Name: KATE

County: CLAY, MN (Sheet 1)

NGS ACRN: [DR9711](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	29	139 N	48 W	464953.50	964603.26	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2022	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 82 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2022)                      **Stamping:** KATE 2022

IN MOORHEAD, 1.1 MILES SOUTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND INTERSTATE HIGHWAY 94 IN MOORHEAD, AT TRUNK HIGHWAY 75 MILEPOINT 247.25, 60.4 FEET EAST OF NORTHBOUND TRUNK HIGHWAY 75, 400 FEET SOUTH OF 40TH AVENUE SOUTH, 1.5 FEET WEST OF A WITNESS POST.

Station Pair: FRITO MNDT RESET - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88			Orthometric Height			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj				Year	Reference		
905.241	.016	2/1				VERTICAL ADJUSTMENT			2024	00000941-3		
905.241	.016	2/1				VERTICAL CONTROL SURVEY			2023	VMOFA		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Orthometric Height			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj				Year	Reference		
905.241			818.378	.021	2011	HORIZONTAL ADJUSTMENT			2024	GPS3715		
905.241			818.378	.021	2011	GPS - STATIC			2024	HMOFA2		
905.241	.131		818.486	.066	1996	GPS - STATIC			2024	HMOFA2		
905.523	.262		818.410	.197	2011	GPS - RTRN			2022	RTRN2022		

Geoid Separations(ft): GEOID18 = -87.109 03 = -86.899

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Geodetic Position		Clay County		X		Y		Acc	Order	Determination Method	Year	Reference
Latitude	Longitude													
46 49 53.50316	96 46 03.26141	483107.771	173515.816	.013		ADJUSTMENT	2024	GPS3715						
46 49 53.50316	96 46 03.26141	483107.771	173515.816	.013	C	GPS - STATIC	2024	HMOFA2						
46 49 53.50336	96 46 03.26187	483107.739	173515.836	.131	3	GPS - RTRN	2022	RTRN2022						

NAD83(1996)		Geodetic Position		Clay County		Acc	Order	Determination Method	Year	Reference
Latitude	Longitude	X	Y							
46 49 53.50300	96 46 03.26222	483107.715	173515.800	.033	C	GPS - STATIC	2024	HMOFA2		

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Year	Reference
X	Y	X	Y	X	Y					
1994623.863	1005982.875	697774.487	17038474.403	.013		ADJUSTMENT	2024	GPS3715		
1994623.863	1005982.875	697774.487	17038474.403	.013	C	GPS - STATIC	2024	HMOFA2		
1994623.832	1005982.896	697774.456	17038474.424	.131	3	GPS - RTRN	2022	RTRN2022		

NAD83(1996)		MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Year	Reference
X	Y	X	Y	X	Y					
1994623.807	1005982.860	697774.430	17038474.389	.033	C	GPS - STATIC	2024	HMOFA2		

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KATE-DR9711-3E-26JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KATE-DR9711-3E-26JUL2022.jpg</a>	E	Jul 26, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KATE-DR9711-2-26JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KATE-DR9711-2-26JUL2022.jpg</a>		Jul 26, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KATE-DR9711-1-26JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KATE-DR9711-1-26JUL2022.jpg</a>		Jul 26, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: KEENE

NGS Name: KEENE

County: CLAY, MN (Sheet 1)

NGS ACRN: [AH9046](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096233/  
 USGS Quad: ULEN SW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	20	141 N	45 W	470049.00	962518.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1906	1954	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
PIPE (CAPPED) DRIVEN IN GROUND (<10 FT)	NAIL	NGS

Description: (1935)                      Stamping:

6.3 MILES SOUTHEAST OF FELTON, 0.3 MILE EAST ALONG 4TH STREET FROM THE JUNCTION OF 4TH STREET AND ATLANTIC AVENUE IN FELTON, THEN 6.8 MILES SOUTH ALONG TRUNK HIGHWAY 9, THEN 5.5 MILES EAST ALONG 90TH AVENUE NORTH, THEN 2.0 MILES NORTH ALONG 200TH STREET, THEN 1.2 MILES WEST ALONG 100TH AVENUE NORTH/110TH AVENUE NORTH, ON LAND OWNED BY PHILIP WEISBROD OF IOWA, JUST NORTH OF A HALF-SECTION LINE, ON A LOW RIDGE RUNNING NORTH AND SOUTH BETWEEN TWO DESERTED DWELLING HOUSES, 350.0 FEET NORTHWEST OF A LONE PAIR OF COTTONWOOD TREES EAST OF THE FOUNDATION OF A SOUTHERN HOUSE SITE, 163.06 FEET FROM KEENE RM 1.

Station Notes

6.8 MILES SOUTH THEN 5.5 MILES EAST ON COUNTY HIGHWAY 26(90TH AVENUE) THEN 2.0 MILES NORTH ON COUNTY HIGHWAY 27(200TH STREET) THEN 1.2 MILES WEST ON 100TH AVENUE

\* No Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.510    12B = -87.546    09 = -87.437    03 = -87.355

Lat/Lon and County Coordinates (Feet)

							<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>							
47 00 49.77400	96 25 17.33700			.100	3	CLASSICAL SURVEY	1964	USGS-HORZ

State Plane and UTM Coordinates (Feet)

							<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>							
1458351.496	741793.843			.100	3	CLASSICAL SURVEY	1964	USGS-HORZ



Mn/DOT Name: KEENE AZ MK

NGS Name: KEENE AZ MK

County: CLAY, MN (Sheet 1)

NGS ACRN: [CO9873](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096233/  
 USGS Quad: ULEN SW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	19	141 N	45 W	470022.00	962535.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1906	1998	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	NGS

Description: (1963)                      Stamping: KEENE 1906 1954

6.3 MILES SOUTHEAST OF FELTON, 0.3 MILE EAST ALONG 4TH STREET FROM THE JUNCTION OF 4TH STREET AND ATLANTIC AVENUE IN FELTON, THEN 6.8 MILES SOUTH ALONG TRUNK HIGHWAY 9 SOUTH (140TH STREET NORTH), THEN 3.0 MILES EAST ALONG 90TH AVENUE NORTH, THEN 2.0 MILES NORTH ALONG 170TH STREET NORTH, 0.5 MILE SOUTHWEST OF STATION KEENE, 2.0 FEET NORTHEAST OF A GATE POST, 2.0 FEET EAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>		
1100.992	.033	3							VERTICAL CONTROL SURVEY	1964	USGS-VERT	

**Geoid Separations(ft):** GEOID18 = -87.408    12B = -87.441    09 = -87.326    03 = -87.267

\* No Horizontal Positions in the Database \*



Mn/DOT Name: KEENE RESET

NGS Name: KEENE RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [SL1481](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096233/1005  
 USGS Quad: ULEN SW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	20	141 N	45 W	470049.64	962518.59		1

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	1964	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	NGS

Description: (1964) Stamping: KEENE 1906 1954

6.0 MILES SOUTHEAST OF FELTON, 0.3 MILE EAST ALONG 4TH STREET FROM THE JUNCTION OF 4TH STREET AND ATLANTIC AVENUE IN FELTON, THEN 1.8 MILES SOUTH ALONG TRUNK HIGHWAY 9 SOUTH (140TH STREET NORTH), THEN 2.9 MILES EAST ALONG COUNTY ROAD 108 (140TH AVENUE NORTH), THEN 0.8 MILE SOUTH ALONG COUNTY ROAD 108 (170TH STREET NORTH), THEN 1.8 MILES SOUTH ALONG COUNTY ROAD 108 (170TH STREET NORTH), IN A CULTIVATED PASTURE, 160.0 FEET WEST OF A NORTH-SOUTH FENCE LINE, 168.73 FEET NORTHWEST OF KEENE RM 2, 66.31 FEET EAST OF KEENE RM 3, 163.0 FEET WEST OF A WITNESS POST.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1119.420	.131		1032.498	.066	1996	HORIZONTAL ADJUSTMENT	1999	17648

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1118.010						RECIPROCAL VERTICAL ANGLE	1954	HORZ

Geoid Separations(ft): GEOID18 = -87.424 12B = -87.447 09 = -87.329 03 = -87.287

**Lat/Lon and County Coordinates (Feet)**

**NAD83(1996)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 00 49.63628	96 25 18.58665	569418.961	240109.828	.033	1	ADJUSTMENT	1999	17648
47 00 49.63610	96 25 18.58602	569419.005	240109.810	.033	1	ADJUSTMENT	1998	17655

**NAD83(1986)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 00 49.63596	96 25 18.58018	569419.409	240109.797	.033	1	ADJUSTMENT	1986	17289

**NAD27**

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
47 00 49.77402	96 25 17.33699			.100	1	CLASSICAL SURVEY	1964	13522

**USSD**

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
47 00 49.99200	96 25 17.71700				3	CLASSICAL SURVEY		17389-73



**State Plane and UTM Coordinates (Feet)**

**NAD83(1996)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>					<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2082947.916	1069869.816	787173.897	17100951.721	.033	1	ADJUSTMENT	1999	17648
2082947.959	1069869.797	787173.940	17100951.701	.033	1	ADJUSTMENT	1998	17655

**NAD83(1986)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>					<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2082948.363	1069869.771	787174.344	17100951.669	.033	1	ADJUSTMENT	1986	17289

**NAD27**

<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1458351.497	741793.845			.100	1	CLASSICAL SURVEY	1964	13522





Mn/DOT Name: KEENE RM 2

NGS Name: KEENE RM 2

County: CLAY, MN (Sheet 1)

NGS ACRN: [CO9875](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096233/  
 USGS Quad: ULEN SW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	20	141 N	45 W	470048.41	962516.94		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1906	1964	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** **Stamping:** KEENE NO 2 1906 1954

3.0 MILES SOUTHEAST OF FELTON, 0.3 MILE EAST ALONG 4TH STREET FROM THE JUNCTION OF 4TH STREET AND ATLANTIC AVENUE IN FELTON, THEN 1.8 MILES SOUTH ALONG TRUNK HIGHWAY 9 SOUTH (140TH STREET NORTH), THEN 2.9 MILES EAST ALONG COUNTY ROAD 108 (140TH AVENUE NORTH), THEN 0.8 MILE SOUTH ALONG COUNTY ROAD 108 (170TH STREET NORTH), THEN 1.8 MILES SOUTH ALONG COUNTY ROAD 108 (170TH STREET NORTH), SOUTHEAST OF STATION KEENE AT THE NORTHEAST EDGE OF A CLUMP OF TREES.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.424 12B = -87.447 09 = -87.333 03 = -87.287



Mn/DOT Name: KEENE RM 3

NGS Name: KEENE RM 3

County: CLAY, MN (Sheet 1)

NGS ACRN: [CO9876](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096233/  
 USGS Quad: ULEN SW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	20	141 N	45 W	470049.56	962519.54		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1906	1964	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** **Stamping:** KEENE NO 3 1906 1954

3.0 MILES SOUTHEAST OF FELTON, 0.3 MILE EAST ALONG 4TH STREET FROM THE JUNCTION OF 4TH STREET AND ATLANTIC AVENUE IN FELTON, THEN 1.8 MILES SOUTH ALONG TRUNK HIGHWAY 9 SOUTH (140TH STREET NORTH), THEN 2.9 MILES EAST ALONG COUNTY ROAD 108 (140TH AVENUE NORTH), THEN 0.8 MILE SOUTH ALONG COUNTY ROAD 108 (170TH STREET NORTH), THEN 1.8 MILES SOUTH ALONG COUNTY ROAD 108 (170TH STREET NORTH), WEST-SOUTHWEST OF STATION KEENE RESET.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.424 12B = -87.447 09 = -87.333 03 = -87.287



Mn/DOT Name: KJONO

NGS Name: KJONO

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ2022](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096141/  
 USGS Quad: HAWLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	2	139 N	45 W	465238.58	962009.82	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 1 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 24 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: KJONO 2014

IN HAWLEY, 0.65 MILE WEST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 31 IN HAWLEY, AT TRUNK HIGHWAY 10 MILEPOINT 20.80, 0.1 MILE EAST OF LEONARD STREET, 44.0 FEET NORTH OF WESTBOUND TRUNK HIGHWAY 10 EXTENDED FOG LINE, 1.5 FEET SOUTH OF A WITNESS POST.

Station Pair: MITTET - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order</u>	<u>(/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>			
1192.422	.016	2/1					VERTICAL ADJUSTMENT		2024	00000941-3			
1192.422	.016	2/1					VERTICAL CONTROL SURVEY		2023	VMOFA			
1192.422	.016	2/1					VERTICAL ADJUSTMENT		2019	00000941			

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order</u>	<u>(/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>			
1192.422				1104.729	.024	2011	HORIZONTAL ADJUSTMENT		2024	GPS3719			
1192.422	.131			1104.860	.066	1996	GPS - STATIC		2024	HMOFA1			
1192.422				1104.729	.024	2011	GPS - STATIC		2024	HMOFA1			
1192.560	.262			1104.725	.197	2011	GPS - RTRN		2022	RTRN2022			
1192.419	.262			1104.607	.197	2011	GPS - RTRN		2014	RTRN2014			

Geoid Separations(ft): GEOID18 = -87.834 12B = -87.815 09 = -87.707 03 = -87.670

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Geodetic Position</u>				<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>						
46 52 38.57556	96 20 09.81773	591047.052	190444.143	.013		ADJUSTMENT		2024	GPS3719						
46 52 38.57556	96 20 09.81773	591047.052	190444.143	.013	C	GPS - STATIC		2024	HMOFA1						
46 52 38.57444	96 20 09.81799	591047.034	190444.030	.131	3	GPS - RTRN		2022	RTRN2022						
46 52 38.57536	96 20 09.81719	591047.089	190444.123	.131	3	GPS - RTRN		2014	RTRN2014						

<u>NAD83(1996)</u>				<u>Geodetic Position</u>				<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>						
46 52 38.57523	96 20 09.81826	591047.015	190444.109	.033	C	GPS - STATIC		2024	HMOFA1						

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>MN State Plane - Central Zone</u>				<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>						
2103026.091	1019561.869	806440.955	17050302.454	.013		ADJUSTMENT		2024	GPS3719						
2103026.091	1019561.869	806440.955	17050302.454	.013	C	GPS - STATIC		2024	HMOFA1						
2103026.070	1019561.756	806440.932	17050302.341	.131	3	GPS - RTRN		2022	RTRN2022						
2103026.127	1019561.848	806440.992	17050302.432	.131	3	GPS - RTRN		2014	RTRN2014						

<u>NAD83(1996)</u>				<u>MN State Plane - Central Zone</u>				<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>						
2103026.053	1019561.837	806440.917	17050302.422	.033	C	GPS - STATIC		2024	HMOFA1						



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KJONO-DQ2022-3N-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KJONO-DQ2022-3N-14JUN2022.jpg</a>	N	Jun 14, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KJONO-DQ2022-2-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KJONO-DQ2022-2-14JUN2022.jpg</a>		Jun 14, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KJONO-DQ2022-1-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KJONO-DQ2022-1-14JUN2022.jpg</a>		Jun 14, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: KOTA

NGS Name: KOTA

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP2178](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096441/  
 USGS Quad: FARGO NORTH

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	28	141 N	48 W	465944.96	964520.57	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2015	GOOD	Horz=NO Vert=NO	YES		FLUSH	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 40 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

**Description:** (2012) **Stamping:** KOTA 2012

0.5 MILE NORTH OF KRAGNES, 0.3 MILE NORTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND COUNTY ROAD 5/COUNTY ROAD 96 IN KRAGNES, AT TRUNK HIGHWAY 75 MILEPOINT 259.8, 80.2 FEET SOUTHWEST OF TRUNK HIGHWAY 75, 53.2 FEET NORTHEAST OF THE EAST RAIL OF THE RAILROAD TRACKS, 1.5 FEET SOUTH OF A WITNESS POST.

**Station Notes**

THE SURVEY MARK IS ON RAILROAD PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88			Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year Reference
888.181	.016	2/1				VERTICAL ADJUSTMENT	2019 00000941

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year Reference
888.502			802.052	.025	2011	HORIZONTAL ADJUSTMENT	2015 GPS3084
888.473	.131		802.193	.066	1996	GPS - STATIC	2015 HCLAY
888.502			802.052	.025	2011	GPS - STATIC	2015 HCLAY
888.305	.262		802.036	.197	2007	GPS - RTRN	2012 RTRN2012

Geoid Separations(ft): GEOID18 = -86.404 12B = -86.417 09 = -86.266 03 = -86.253

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Clay County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 59 44.95542	96 45 20.56962	486118.849	233438.114	.016		ADJUSTMENT	2015	GPS3084
46 59 44.95542	96 45 20.56962	486118.849	233438.114	.016	C	GPS - STATIC	2015	HCLAY

  

NAD83(2007)		Clay County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 59 44.95548	96 45 20.57030	486118.802	233438.120	.131	3	GPS - RTRN	2012	RTRN2012

  

NAD83(1996)		Clay County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 59 44.95489	96 45 20.57041	486118.794	233438.061	.033	C	GPS - STATIC	2015	HCLAY

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		UTM - Zone 15					Project Info	
MN State Plane - Central Zone X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1999485.956	1065779.102	703612.467	17098221.536	.016		ADJUSTMENT	2015	GPS3084
1999485.956	1065779.102	703612.467	17098221.536	.016	C	GPS - STATIC	2015	HCLAY

  

NAD83(2007)		UTM - Zone 15					Project Info	
MN State Plane - Central Zone X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1999485.909	1065779.110	703612.421	17098221.544	.131	3	GPS - RTRN	2012	RTRN2012

  

NAD83(1996)		UTM - Zone 15					Project Info	
MN State Plane - Central Zone X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1999485.899	1065779.050	703612.410	17098221.485	.033	C	GPS - STATIC	2015	HCLAY



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KOTA-DP2178-3W-10OCT2012.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KOTA-DP2178-3W-10OCT2012.jpg</a>	W	Oct 10, 2012
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KOTA-DP2178-2-10OCT2012.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KOTA-DP2178-2-10OCT2012.jpg</a>		Oct 10, 2012
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KOTA-DP2178-1-10OCT2012.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KOTA-DP2178-1-10OCT2012.jpg</a>		Oct 10, 2012

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: KRAGNES  
 County: CLAY, MN (Sheet 1)

NGS Name: KRAGNES

NGS ACRN: [RP1103](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096441/1051  
 USGS Quad: FARGO NORTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SW	6	140 N	48 W	465750.75	964719.51		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	2022	GOOD	Horz=NO Vert=YES	NO		FLUSH	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	HORIZONTAL CONTROL DISK	NGS

**Description:** (1993)                      **Stamping:** KRAGNES 1954

2.5 MILES SOUTHWEST OF KRAGNES, 0.8 MILE SOUTH ALONG TRUNK HIGHWAY 75 SOUTH FROM THE JUNCTION OF TRUNK HIGHWAY 75 SOUTH AND 98TH AVENUE NORTH IN KRAGNES, THEN 2.0 MILES WEST ALONG 90TH AVENUE NORTH, THEN 0.9 MILE SOUTH ALONG BROADWAY STREET NORTHWEST, 0.5 MILE EAST OF THE RED RIVER AND STATE LINE, 50.0 FEET EAST OF BROADWAY STREET NORTHWEST, 16.2 FEET NORTH OF A POWER POLE, 91.8 FEET SOUTH OF A CABLE MARKER, 116.0 FEET SOUTH OF DRIVEWAY NUMBER 8094, 149.46 FEET NORTH OF KRAGNES RM 1.

**Station Notes**

DUE TO TREE COVER, THIS SURVEY MARK HAS BEEN ABANDONED FOR MNDOT GEODETIC HORIZONTAL SURVEYS.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
			805.815	.035	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			805.960	.033	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
892.255	.131		806.022	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1905
892.255	.131		806.022	.066	1996	GPS - STATIC	2003	HMOOR
892.387	.131		806.573	.066	1996	HORIZONTAL ADJUSTMENT	1999	17648

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
892.387						RECIPROCAL VERTICAL ANGLE	1954	HORZ

Geoid Separations(ft): GEOID18 = -86.371 12B = -86.391 09 = -86.237 03 = -86.227

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 57 50.74587	96 47 19.50906	477860.670	221874.124	.026		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 57 50.74580	96 47 19.50982	477860.617	221874.117	.023		ADJUSTMENT	2007	GPS2300

**NAD83(1996)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 57 50.74517	96 47 19.50966	477860.628	221874.053	.033	C	ADJUSTMENT	2003	GPS1905
46 57 50.74517	96 47 19.50966	477860.628	221874.054	.033	C	GPS - STATIC	2003	HMOOR
46 57 50.74670	96 47 19.50873	477860.693	221874.208	.033	1	ADJUSTMENT	1999	17648
46 57 50.74671	96 47 19.50872	477860.694	221874.209	.033	1	ADJUSTMENT	1998	17655

**NAD83(1986)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 57 50.74566	96 47 19.50069	477861.251	221874.102	.033	1	ADJUSTMENT	1986	17289

**NAD27**

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 57 50.87500	96 47 18.21600			.100	1	CLASSICAL SURVEY	1956	11230

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1990874.710	1054476.646	694812.377	17087054.155	.026		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1990874.657	1054476.641	694812.324	17087054.150	.023		ADJUSTMENT	2007	GPS2300

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1990874.666	1054476.577	694812.332	17087054.086	.033	C	ADJUSTMENT	2003	GPS1905
1990874.667	1054476.577	694812.332	17087054.086	.033	C	GPS - STATIC	2003	HMOOR
1990874.736	1054476.730	694812.404	17087054.238	.033	1	ADJUSTMENT	1999	17648
1990874.736	1054476.731	694812.404	17087054.239	.033	1	ADJUSTMENT	1998	17655

**NAD83(1986)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1990875.290	1054476.606	694812.956	17087054.105	.033	1	ADJUSTMENT	1986	17289

**NAD27**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1366278.586	726399.459			.100	1	CLASSICAL SURVEY	1956	11230

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KRAGNES-RP1103-3E-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KRAGNES-RP1103-3E-28JUN2022.jpg</a>	E	Jun 28, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KRAGNES-RP1103-2-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KRAGNES-RP1103-2-28JUN2022.jpg</a>		Jun 28, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KRAGNES-RP1103-1-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KRAGNES-RP1103-1-28JUN2022.jpg</a>		Jun 28, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: KRAGNES AZ MK

NGS Name: KRAGNES AZ MK

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP4110](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096441/  
 USGS Quad: FARGO NORTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SW	6	140 N	48 W	465730.00	964720.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	2022	NOT FOUND	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	NGS

**Description:** **Stamping:** KRAGNES 1954

2.8 MILES SOUTHWEST OF KRAGNES, 1.8 MILES SOUTH ALONG TRUNK HIGHWAY 75 SOUTH FROM THE JUNCTION OF TRUNK HIGHWAY 75 SOUTH AND 98TH AVENUE NORTH IN KRAGNES, THEN 2.0 MILES WEST ALONG 80TH AVENUE NORTH, THEN 0.3 MILE SOUTH ALONG 47TH AVENUE NORTHWEST/BROADWAY STREET NORTHWEST, 0.4 MILE SOUTH, 50.0 FEET WEST OF A GRAVEL ROAD, 2.0 FEET NORTH OF A TELEPHONE POLE, 2.0 FEET NORTH OF A WHITE WITNESS POST.

**Station Notes**

STATION KRAGNES, KRAGNES RM 1, KRAGNES RM 2 AND KRAGNES AZ MK WERE FOUND IN 1993, TREES ARE ON LINE TO KRAGNES RM 1.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -86.388 12B = -86.411 09 = -86.250 03 = -86.243



Mn/DOT Name: KRAGNES FARMERS ELEVATOR VENT

NGS Name: KRAGNES FARMERS ELEVATOR VENT

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP1099](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096441/1067  
 USGS Quad: FARGO NORTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	34	141 N	48 W	465914.89	964505.43		4

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	1954	GOOD	Horz=NO Vert=NO	NO			SEE DESCRIPTION

  

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	ROOFTOP VENTILATOR	NGS

Description: (1954)

Stamping:

IN KRAGNES, 226.0 FEET SOUTH ALONG 21ST STREET NORTH FROM THE JUNCTION OF 21ST STREET NORTH AND 98TH AVENUE NORTH IN KRAGNES.

\* No Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -86.427 12B = -86.437 09 = -86.289 03 = -86.279

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 59 14.88847	96 45 05.43057	487166.309	230391.038	.328	4	ADJUSTMENT	1999	17648
46 59 14.88854	96 45 05.43046	487166.317	230391.045	.328	4	ADJUSTMENT	1998	17655

NAD83(1986)

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 59 14.88737	96 45 05.42222	487166.888	230390.926	.328	4	ADJUSTMENT	1986	17289

NAD27

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
46 59 15.02100	96 45 04.14100			.100	4	CLASSICAL SURVEY	1956	11230

State Plane and UTM Coordinates (Feet)

NAD83(1996)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2000438.644	1062701.273	704515.326	17095126.663	.328	4	ADJUSTMENT	1999	17648
2000438.652	1062701.279	704515.333	17095126.670	.328	4	ADJUSTMENT	1998	17655

NAD83(1986)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2000439.220	1062701.143	704515.899	17095126.524	.328	4	ADJUSTMENT	1986	17289

NAD27

<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1375842.531	734624.437			.100	4	CLASSICAL SURVEY	1956	11230



Mn/DOT Name: KRAGNES RM 1

NGS Name: KRAGNES RM 1

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP4111](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096441/  
 USGS Quad: FARGO NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	6	140 N	48 W	465749.27	964719.50		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	2023	GOOD	Horz=YES Vert=YES	NO		PROJECTS 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** **Stamping:** KRAGNES NO 1 1954

2.5 MILES SOUTHWEST OF KRAGNES, 0.8 MILE SOUTH ALONG TRUNK HIGHWAY 75 SOUTH FROM THE JUNCTION OF TRUNK HIGHWAY 75 SOUTH AND 98TH AVENUE NORTH IN KRAGNES, THEN 2.0 MILES WEST ALONG 90TH AVENUE NORTH, THEN 0.9 MILE SOUTH ALONG BROADWAY STREET NORTHWEST, 149.46 FEET SOUTH OF STATION KRAGNES, 51.8 FEET EAST OF COUNTY ROAD 1 (BROADWAY STREET NORTHWEST), 1.0 FOOT EAST OF A FENCE LINE.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>				<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>			
892.380			806.242	.025	2011	HORIZONTAL ADJUSTMENT	2024	GPS3674			
892.380			806.242	.025	2011	GPS - STATIC	2023	HMOFA3			
892.380	.131		806.337	.066	1996	GPS - STATIC	2023	HMOFA3			
892.521	.262		806.147	.197	2011	GPS - RTRN	2022	RTRN2022			

Geoid Separations(ft): GEOID18 = -86.371 12B = -86.391 09 = -86.237 03 = -86.227

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>				<u>Clay County</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
46 57 49.27265	96 47 19.50100	477861.060	221724.859	.010		ADJUSTMENT	2024	GPS3674		
46 57 49.27265	96 47 19.50100	477861.060	221724.859	.010	C	GPS - STATIC	2023	HMOFA3		
46 57 49.27304	96 47 19.50102	477861.059	221724.898	.131	3	GPS - RTRN	2022	RTRN2022		

<u>NAD83(1996)</u>		<u>Geodetic Position</u>				<u>Clay County</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
46 57 49.27250	96 47 19.50178	477861.006	221724.844	.033	C	GPS - STATIC	2023	HMOFA3		

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
1990870.486	1054327.450	694805.715	17086904.951	.010		ADJUSTMENT	2024	GPS3674		
1990870.486	1054327.450	694805.715	17086904.951	.010	C	GPS - STATIC	2023	HMOFA3		
1990870.485	1054327.489	694805.715	17086904.991	.131	3	GPS - RTRN	2022	RTRN2022		

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
1990870.431	1054327.436	694805.660	17086904.939	.033	C	GPS - STATIC	2023	HMOFA3		

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KRAGNES_RM_1-CP4111-3E-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KRAGNES_RM_1-CP4111-3E-28JUN2022.jpg</a>	E	Jun 28, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KRAGNES_RM_1-CP4111-2-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KRAGNES_RM_1-CP4111-2-28JUN2022.jpg</a>		Jun 28, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KRAGNES_RM_1-CP4111-1-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KRAGNES_RM_1-CP4111-1-28JUN2022.jpg</a>		Jun 28, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: KRAGNES RM 2

NGS Name: KRAGNES RM 2

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP4112](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096441/  
 USGS Quad: FARGO NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	6	140 N	48 W	465750.66	964720.95		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	2022	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** **Stamping:** KRAGNES NO 2 1954

2.5 MILES SOUTHWEST OF KRAGNES, 0.8 MILE SOUTH ALONG TRUNK HIGHWAY 75 SOUTH FROM THE JUNCTION OF TRUNK HIGHWAY 75 SOUTH AND 98TH AVENUE NORTH IN KRAGNES, THEN 2.0 MILES WEST ALONG 90TH AVENUE NORTH, THEN 0.9 MILE SOUTH ALONG BROADWAY STREET NORTHWEST, WEST OF STATION KRAGNES, 50.0 FEET WEST OF A GRAVEL ROAD, 2.0 FEET SOUTH OF A TELEPHONE POLE.

**Station Notes**  
 THE CONCRETE WAS TIPPED AND THE DISK MISSING.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -86.371 12B = -86.391 09 = -86.237 03 = -86.227



Mn/DOT Name: KRAUSE  
County: CLAY, MN (Sheet 1)

NGS Name: KRAUSE

NGS ACRN: [DQ1966](#) [Get Map](#)  
NGS Quad / Sta Num : 46096131/  
USGS Quad: BIG SLOUGH

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	24	137 N	45 W	463935.25	961815.81	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2014	2023	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 14 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      **Stamping:** KRAUSE 2014

5.5 MILES EAST OF BARNESVILLE, 5.5 MILES EAST ALONG TRUNK HIGHWAY 34 FROM THE JUNCTION OF TRUNK HIGHWAYS 34 AND 9 IN BARNESVILLE, AT TRUNK HIGHWAY 34 MILEPOINT 5.5, 59.1 FEET NORTH OF TRUNK HIGHWAY 34, 1.5 FEET SOUTH OF A WITNESS POST.

Station Pair: 1404 K - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88			Orthometric Height			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Year	Reference					
1162.570	.016	2/1				2019	00000941					

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Orthometric Height			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Year	Reference					
1162.570			1075.529	.023	2011	2024	GPS3671					
1162.570	.131		1075.641	.066	1996	2023	HTH9					
1162.570			1075.529	.023	2011	2023	HTH9					
1162.734	.262		1075.533	.197	2011	2022	RTRN2022					
1162.603	.262		1075.424	.197	2011	2014	RTRN2014					

Geoid Separations(ft): GEOID18 = -87.201 12B = -87.178 09 = -87.073 03 = -87.021

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Geodetic Position		Clay County		Determination Method			Project Info	
Latitude	Longitude	X	Y	Acc	Order	Year	Reference			
46 39 35.24652	96 18 15.81241	599366.775	111119.439	.013		2024	GPS3671			
46 39 35.24652	96 18 15.81241	599366.775	111119.439	.013	C	2023	HTH9			
46 39 35.24633	96 18 15.81277	599366.750	111119.419	.131	3	2022	RTRN2022			
46 39 35.24627	96 18 15.81233	599366.781	111119.413	.131	3	2014	RTRN2014			

NAD83(1996)		Geodetic Position		Clay County		Determination Method			Project Info	
Latitude	Longitude	X	Y	Acc	Order	Year	Reference			
46 39 35.24628	96 18 15.81287	599366.743	111119.414	.033	C	2023	HTH9			

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		MN State Plane - Central Zone		UTM - Zone 15		Determination Method			Project Info	
X	Y	X	Y	X	Y	Acc	Order	Year	Reference	
2108885.165	940025.906	811020.328	16970647.515	.013		2024	GPS3671			
2108885.165	940025.906	811020.328	16970647.515	.013	C	2023	HTH9			
2108885.140	940025.887	811020.302	16970647.497	.131	3	2022	RTRN2022			
2108885.170	940025.880	811020.333	16970647.489	.131	3	2014	RTRN2014			

NAD83(1996)		MN State Plane - Central Zone		UTM - Zone 15		Determination Method			Project Info	
X	Y	X	Y	Acc	Order	Year	Reference			
2108885.133	940025.882	811020.295	16970647.492	.033	C	2023	HTH9			



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KRAUSE-DQ1966-3N-13SEP2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KRAUSE-DQ1966-3N-13SEP2022.jpg</a>	N	Sep 13, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KRAUSE-DQ1966-2-13SEP2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KRAUSE-DQ1966-2-13SEP2022.jpg</a>		Sep 13, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KRAUSE-DQ1966-1-13SEP2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KRAUSE-DQ1966-1-13SEP2022.jpg</a>		Sep 13, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: KURTZ

NGS Name: KURTZ

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP1115](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/1052  
 USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	8	138 N	48 W	464645.19	964558.71	2	1

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	2009	GOOD	Horz=NO Vert=NO	YES		PROJECTS 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	NGS

**Description:** (1966)                      **Stamping:** KURTZ 1954

5.5 MILES WEST OF SABIN, 4.65 MILES SOUTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND INTERSTATE HIGHWAY 94 IN MOORHEAD, TO TRUNK HIGHWAY 75 MILEPOINT 243.70, THEN 0.05 MILE EAST ALONG A DRIVEWAY NUMBER 7638, THEN WALK 250.0 FEET NORTHEAST TO A MARK. (OLD DESCRIPTION TIES) IN THE NORTHEAST PART OF A FARMYARD, 121.0 FEET NORTH-NORTHWEST OF THE NORTHWEST CORNER OF A GARAGE, 126.94 FEET NORTH-NORTHWEST OF KURTZ RM 1, 94.41 FEET EAST OF KURTZ RM 2.

**Station Notes**

THE MARK IS UNDER A TREE. THE SURVEY MARK IS ON PRIVATE PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
909.667	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
909.913	.016	2/1					VERTICAL ADJUSTMENT	2011	00000699	
909.910	.016	2/1					VERTICAL CONTROL SURVEY	2010	VCOMS	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
906.166	.131			819.605	.066	1996	HORIZONTAL ADJUSTMENT	1999	17648	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
904.985							RECIPROCAL VERTICAL ANGLE	1954	HORZ	

Geoid Separations(ft): GEOID18 = -87.182    12B = -87.178    09 = -87.106    03 = -86.991

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(1996)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 46 45.18512	96 45 58.71427			483407.853	154435.944	.033	1	ADJUSTMENT	1999	17648
46 46 45.18511	96 45 58.71427			483407.853	154435.943	.033	1	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 46 45.18391	96 45 58.70490			483408.505	154435.821	.033	1	ADJUSTMENT	1986	17289

<u>NAD27</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 46 45.31500	96 45 57.40600					.100	1	CLASSICAL SURVEY	1956	11230



**State Plane and UTM Coordinates (Feet)**

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
1994333.860	986904.562	697175.344	17019390.702	.033	1	ADJUSTMENT	1999	17648
1994333.860	986904.561	697175.344	17019390.701	.033	1	ADJUSTMENT	1998	17655

**NAD83(1986)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
1994334.508	986904.419	697175.990	17019390.548	.033	1	ADJUSTMENT	1986	17289

**NAD27**

MN State Plane - Central Zone		<u>X</u>	<u>Y</u>	Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1369739.281	658827.720			.100	1	CLASSICAL SURVEY	1956	11230

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KURTZ-RP1115-3N-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KURTZ-RP1115-3N-15JUN2022.jpg</a>	N	Jun 15, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KURTZ-RP1115-2-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KURTZ-RP1115-2-15JUN2022.jpg</a>		Jun 15, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KURTZ-RP1115-1-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KURTZ-RP1115-1-15JUN2022.jpg</a>		Jun 15, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: KURTZ AZ MK

NGS Name: KURTZ AZ MK

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP4116](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	8	138 N	48 W	464711.00	964603.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	1967	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	NGS

**Description:** **Stamping:** KURTZ 1954

2.7 MILES SOUTH-SOUTHWEST OF FINKLE, 0.5 MILE WEST ALONG COUNTY ROAD 75 FROM THE JUNCTION OF COUNTY ROAD 75 AND 14TH STREET SOUTH (THE JUNCTION IS 0.5 MILE WEST OF FINKLE), THEN 2.2 MILES SOUTH ALONG TRUNK HIGHWAY 75 SOUTH (8TH STREET SOUTH).

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.185 12B = -87.185 09 = -87.103 03 = -86.991



Mn/DOT Name: KURTZ AZ MK 2

NGS Name: KURTZ AZ MK 2

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP4117](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	8	138 N	48 W	464711.00	964603.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1966	2022	NOT FOUND	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	NGS

**Description:** **Stamping:** KURTZ 1954 AZI 2 1966

2.7 MILES SOUTH-SOUTHWEST OF FINKLE, 0.5 MILE WEST ALONG COUNTY ROAD 75 FROM THE JUNCTION OF COUNTY ROAD 75 AND 14TH STREET SOUTH (THE JUNCTION IS 0.5 MILE WEST OF FINKLE), THEN 2.2 MILES SOUTH ALONG TRUNK HIGHWAY 75 SOUTH (8TH STREET SOUTH), 74.0 FEET EAST OF TRUNK HIGHWAY 75, 6.0 FEET WEST-SOUTHWEST OF A POWER LINE POLE, 3.0 FEET LOWER THAN THE HIGHWAY, 2.0 FEET NORTH OF A WITNESS POST.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.185 12B = -87.185 09 = -87.103 03 = -86.991



Mn/DOT Name: KURTZ RM 1

NGS Name: KURTZ RM 1

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP4118](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	8	138 N	48 W	464644.03	964558.01		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	2022	GOOD	Horz=NO Vert=NO	NO		RECESSED 4 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** **Stamping:** KURTZ NO. 1 1954

2.6 MILES SOUTH-SOUTHWEST OF FINKLE, 0.5 MILE WEST ALONG COUNTY ROAD 75 FROM THE JUNCTION OF COUNTY ROAD 75 AND 14TH STREET SOUTH (THE JUNCTION IS 0.5 MILE WEST OF FINKLE, THEN 2.7 MILES SOUTH ALONG TRUNK HIGHWAY 75 SOUTH (8TH STREET SOUTH), 4.0 FEET WEST OF THE NORTHEAST CORNER OF A SHED.

**Station Notes**

THE SURVEY MARK IS ON PRIVATE PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.182 12B = -87.178 09 = -87.106 03 = -86.991

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KURTZ_RM_1-CP4118-3E-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KURTZ_RM_1-CP4118-3E-28JUN2022.jpg</a>	E	Jun 28, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KURTZ_RM_1-CP4118-2-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KURTZ_RM_1-CP4118-2-28JUN2022.jpg</a>		Jun 28, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KURTZ_RM_1-CP4118-1-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KURTZ_RM_1-CP4118-1-28JUN2022.jpg</a>		Jun 28, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: KURTZ RM 2

NGS Name: KURTZ RM 2

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP4119](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	8	138 N	48 W	464645.38	964600.04		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	2022	GOOD	Horz=NO Vert=NO	NO		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** **Stamping:** KURTZ NO. 2 1954

2.6 MILES SOUTH-SOUTHWEST OF FINKLE, 0.5 MILE WEST ALONG COUNTY ROAD 75 FROM THE JUNCTION OF COUNTY ROAD 75 AND 14TH STREET SOUTH (THE JUNCTION IS 0.5 MILE WEST OF FINKLE), THEN 2.7 MILES SOUTH ALONG TRUNK HIGHWAY 75 SOUTH (8TH STREET SOUTH), 5.0 FEET SOUTH OF A LINE OF TREES.

**Station Notes**

THE SURVEY MARK IS ON PRIVATE PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.182 12B = -87.178 09 = -87.106 03 = -86.991

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KURTZ_RM_2-CP4119-3W-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KURTZ_RM_2-CP4119-3W-28JUN2022.jpg</a>	W	Jun 28, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KURTZ_RM_2-CP4119-2-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KURTZ_RM_2-CP4119-2-28JUN2022.jpg</a>		Jun 28, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KURTZ_RM_2-CP4119-1-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KURTZ_RM_2-CP4119-1-28JUN2022.jpg</a>		Jun 28, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: KVOX MNDT

NGS Name: KVOX

County: CLAY, MN (Sheet 1)

NGS ACRN: [AB9909](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	31	139 N	48 W	464905.30	964642.58	2	B

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1993	2014	DESTROYED	Horz=NO Vert=NO	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	SURVEY DISK	MNDT

**Description:** (1993)                      **Stamping:** KVOX 1993

2.0 MILES SOUTH OF MOORHEAD, 1.95 MILES SOUTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF INTERSTATE HIGHWAY 94 AND TRUNK HIGHWAY 75 IN MOORHEAD, TO TRUNK HIGHWAY 75 MILEPOINT 246.40, THEN 0.5 MILE WEST ALONG 50TH AVENUE SOUTH, 22.5 FEET WEST OF 3RD STREET SOUTH ROAD, 71.5 FEET SOUTH OF 50TH AVENUE SOUTH, 15.0 FEET NORTH OF AN ENTRANCE, 8.4 FEET SOUTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
907.971	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699		
907.971	.016	2/1				VERTICAL ADJUSTMENT	2011	00000685		
907.974	.016	2/1				VERTICAL CONTROL SURVEY	2010	VCOMS		
907.974	.016	2/1				VERTICAL CONTROL SURVEY	2002	VMORE		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
			820.874	.006	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
907.971	.131		820.904	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2690	
907.971	.131		820.973	.066	1996	GPS - STATIC	2010	HCOMS	
907.971	.131		820.904	.066	2007	GPS - STATIC	2010	HCOMS	
907.793	.262		820.894	.197	1996	GPS - RTRN	2009	RTRN2009	
			821.006	.008	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300	
907.905	.098		821.074	.049	1996	GPS - STATIC	2005	GPS2036	
907.938	.098		821.074	.049	1996	GPS - STATIC	2004	GPS1954	
907.971	.131		821.074	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1905	
907.971	.131		821.074	.066	1996	GPS - STATIC	2003	HMOOR	
907.544	.098		821.074	.049	1996	HORIZONTAL ADJUSTMENT	1999	17648	
907.725	.098		821.074	.049	1996	GPS - STATIC	1997	GPS805-B	

**Geoid Separations(ft):** GEOID18 = -87.116    12B = -87.136    09 = -87.027    03 = -86.899

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 49 05.29880	96 46 42.58171	480368.802	168634.475	.003		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 49 05.29946	96 46 42.58336	480368.687	168634.542	.033	C	ADJUSTMENT	2011	GPS2690
46 49 05.29946	96 46 42.58336	480368.687	168634.542	.033	C	GPS - STATIC	2010	HCOMS
46 49 05.29809	96 46 42.58206	480368.778	168634.404	.007		ADJUSTMENT	2007	GPS2300

**NAD83(1996)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 49 05.29901	96 46 42.58313	480368.703	168634.497	.033	C	GPS - STATIC	2010	HCOMS
46 49 05.29903	96 46 42.58399	480368.644	168634.499	.131	3	GPS - RTRN	2009	RTRN2009
46 49 05.29753	96 46 42.58192	480368.787	168634.347	.016	B	GPS - STATIC	2005	GPS2036
46 49 05.29753	96 46 42.58192	480368.787	168634.347	.016	B	GPS - STATIC	2004	GPS1954
46 49 05.29753	96 46 42.58192	480368.787	168634.347	.033	C	ADJUSTMENT	2003	GPS1905
46 49 05.29753	96 46 42.58192	480368.787	168634.347	.033	C	GPS - STATIC	2003	HMOOR
46 49 05.29749	96 46 42.58177	480368.798	168634.343	.016	B	ADJUSTMENT	1999	17648
46 49 05.29753	96 46 42.58192	480368.787	168634.347	.016	B	GPS - STATIC	1997	GPS805-B

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1991735.524	1001188.975	694806.905	17033724.796	.003		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1991735.412	1001189.045	694806.794	17033724.869	.033	C	ADJUSTMENT	2011	GPS2690
1991735.412	1001189.045	694806.794	17033724.869	.033	C	GPS - STATIC	2010	HCOMS
1991735.498	1001188.904	694806.877	17033724.725	.007		ADJUSTMENT	2007	GPS2300

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1991735.427	1001188.999	694806.808	17033724.822	.033	C	GPS - STATIC	2010	HCOMS
1991735.367	1001189.003	694806.748	17033724.827	.131	3	GPS - RTRN	2009	RTRN2009
1991735.506	1001188.847	694806.884	17033724.668	.016	B	GPS - STATIC	2005	GPS2036
1991735.506	1001188.847	694806.884	17033724.668	.016	B	GPS - STATIC	2004	GPS1954
1991735.506	1001188.847	694806.884	17033724.668	.033	C	ADJUSTMENT	2003	GPS1905
1991735.506	1001188.847	694806.884	17033724.668	.033	C	GPS - STATIC	2003	HMOOR
1991735.516	1001188.842	694806.895	17033724.664	.016	B	ADJUSTMENT	1999	17648
1991735.506	1001188.847	694806.884	17033724.668	.016	B	GPS - STATIC	1997	GPS805-B

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KVOX-AB9909-3W-16SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KVOX-AB9909-3W-16SEP2009.jpg</a>	W	Sep 16, 2009
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KVOX-AB9909-2-16SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KVOX-AB9909-2-16SEP2009.jpg</a>		Sep 16, 2009
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KVOX-AB9909-1-20NOV2008.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/KVOX-AB9909-1-20NOV2008.jpg</a>		Nov 20, 2008

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: L 376

NGS Name: L 376

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0713](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	22	139 N	48 W	465049.10	964318.90	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1982	2009	GOOD	Horz=NO Vert=NO	YES	9479	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE PILLAR/PIER	VERTICAL CONTROL DISK	NGS

**Description:** (2002) **Stamping:** L 376 1982

1.6 MILES SOUTH-SOUTHEAST OF MOORHEAD, SET VERTICALLY IN THE EAST FACE OF THE EAST PIER OF RAILROAD BRIDGE NUMBER 9479 OVER INTERSTATE HIGHWAY 94 ON THE SOUTH SIDE OF THE EASTBOUND LANES OF INTERSTATE HIGHWAY 94, 1.9 MILES SOUTH ALONG 8TH STREET SOUTH FROM THE JUNCTION OF 8TH STREET SOUTH AND MAIN AVENUE IN MOORHEAD, THEN 2.2 MILES EAST ALONG INTERSTATE HIGHWAY 94 EAST, 2.7 MILES EAST ON INTERSTATE HIGHWAY 94 FROM THE WEST MINNESOTA STATE LINE AT MOORHEAD, 108.0 FEET EAST THE OF SOUTHEAST PIER OF A TRUNK HIGHWAY 231 BRIDGE, 33.0 FEET SOUTH OF EASTBOUND INTERSTATE HIGHWAY 94.

**Station Notes**

SET VERTICALLY IN A BRIDGE PIER. THE SURVEY MARK IS ON RAILROAD PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
898.099	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
898.358	.016	2/1					VERTICAL ADJUSTMENT	2011	00000699	
898.318	.016	2/1					VERTICAL ADJUSTMENT	2011	00000685	
898.318	.016	2/1					VERTICAL CONTROL SURVEY	2010	VCOMS	
898.318	.016	2/1					VERTICAL CONTROL SURVEY	2002	VMORE	
898.318	.007	1					VERTICAL ADJUSTMENT	1991	00000025	

**Geoid Separations(ft):** GEOID18 = -87.178 12B = -87.191 09 = -87.063 03 = -86.975

\* No Horizontal Positions in the Database \*

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/L_376-RP0713-3W-16SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/L_376-RP0713-3W-16SEP2009.jpg</a>	W	Sep 16, 2009
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/L_376-RP0713-2-16SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/L_376-RP0713-2-16SEP2009.jpg</a>		Sep 16, 2009
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/L_376-RP0713-1-16SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/L_376-RP0713-1-16SEP2009.jpg</a>		Sep 16, 2009

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: L 49

NGS Name: L 49

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0040](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096142/  
 USGS Quad: HAWLEY SE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	14	139 N	45 W	465110.00	961943.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1934	1969	GOOD	Horz=NO Vert=NO	NO		RECESSED 2 IN.	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	BENCH MARK DISK	NGS

**Description:** (1934)                      **Stamping:** L-49 1934

2.0 MILES SOUTH OF HAWLEY, 0.2 MILE WEST ALONG 6TH STREET FROM THE JUNCTION OF 6TH STREET AND COUNTY ROAD 116 (MAIN STREET) IN HAWLEY, THEN 0.3 MILE SOUTH ALONG HOBART STREET, THEN 1.1 MILES WEST-SOUTHWEST ALONG 230TH STREET NORTH, 2.0 MILES WEST OF THE HAWLEY RAILROAD STATION, 78.0 FEET NORTH OF THE NORTH RAILROAD TRACK, 42.0 FEET NORTHWEST OF A POLE, 12.0 FEET SOUTHEAST OF A GATE POST.

**Station Notes**

THE SURVEY MARK IS ON RAILROAD PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1133.256	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1132.058	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
1132.058	.016	2				VERTICAL CONTROL SURVEY	1972	Q460961
1132.058	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A
1132.058	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A
1132.111	.007	1				VERTICAL CONTROL SURVEY	1941	Q460961
1132.111	.007	1				VERTICAL CONTROL SURVEY	1934	L98 MINN

Geoid Separations(ft): GEOID18 = -87.769    12B = -87.756    09 = -87.641    03 = -87.592

\* No Horizontal Positions in the Database \*



Mn/DOT Name: L 49 A

NGS Name: L 49 A

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0039](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096142/  
 USGS Quad: HAWLEY SE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	13	139 N	45 W	465145.00	961917.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1969	1969	GOOD	Horz=NO Vert=NO	NO		FLUSH	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE FOOTING - SMALL	SEE DESCRIPTION	MNDT

Description: (1969)

Stamping:

1.0 MILE SOUTH OF HAWLEY, 0.2 MILE SOUTH ALONG 6TH STREET FROM THE JUNCTION OF 6TH STREET AND COUNTY ROAD 116 (MAIN STREET) IN HAWLEY, THEN 0.3 MILE WEST-SOUTHWEST ALONG HOBART STREET, THEN 1.0 MILE SOUTH ALONG 230TH STREET NORTH, 45.0 FEET SOUTH WEST OF THE JUNCTION OF COUNTY ROAD 31 AND THE NORTHERN PACIFIC RAILROAD, 32.0 FEET SOUTHWEST OF A RAILROAD CROSSING SIGNAL, 65.0 FEET EAST OF A GRAVEL ROAD, STATION L 49 A IS LOCATED NEAR THE CORNERS OF SECTIONS 11, 12, 13 AND 14, 1.0 MILE SOUTH OF TRUNK HIGHWAY 10.

Station Notes

THE SET DATE IS UNKNOWN. THE MARK IS A CHISELED X IN THE SOUTHEAST CORNER OF A CONCRETE BASE OF A RAILROAD ELECTRICAL JUNCTION BOX. THE SURVEY MARK IS ON RAILROAD PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1140.090	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025	

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1138.882	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD	

Geoid Separations(ft): GEOID18 = -87.795 12B = -87.775 09 = -87.664 03 = -87.618

\* No Horizontal Positions in the Database \*



Mn/DOT Name: L 7

NGS Name: L 7

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0739](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	11	139 N	47 W	465231.00	963447.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1931	2001	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
WALL	SEE DESCRIPTION	NGS

Description: (1968)                      Stamping: 927.439 L 7 1931

AT GLYNDON, 0.1 MILE NORTH ALONG PARKE AVENUE FROM THE JUNCTION OF PARKE AVENUE AND 4TH STREET SOUTHEAST IN GLYNDON, THEN 146.0 FEET EAST ALONG 2ND STREET SOUTHEAST, IN THE SOUTH WALL OF THE FARMERS STATE BANK BUILDING, 12.5 FEET WEST OF THE SOUTHEAST CORNER OF THE BUILDING, 4.0 FEET EAST OF THE SOUTH DOOR, 5.0 FEET ABOVE THE SIDEWALK.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
928.555	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
927.426	.007	1					VERTICAL CONTROL SURVEY	1938	L39 MINN	
927.439	.007	1					VERTICAL CONTROL SURVEY	1935	CUTLER-VERT	
927.439	.007	1					VERTICAL CONTROL SURVEY	1931	L39 MINN	

Geoid Separations(ft): GEOID18 = -87.487    12B = -87.490    09 = -87.349    03 = -87.306

\* No Horizontal Positions in the Database \*



Mn/DOT Name: L 9

NGS Name: L 9

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	21	139 N	46 W	465001.00	963016.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
	2014	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	USGS

Description: Stamping: L 9

4.2 MILES SOUTHEAST OF GLYNDON, 3.0 MILES SOUTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND TRUNK HIGHWAY 10 (THE JUNCTION IS 3.5 MILES EAST OF GLYNDON), 77.0 FEET EAST TRUNK HIGHWAY 9, 48.0 FEET NORTH 40TH AVENUE, 1.5 FEET WEST OF A POWER POLE.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.690 12B = -87.703 09 = -87.565 03 = -87.487



Mn/DOT Name: LAKE

NGS Name: LAKE

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP7362](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096124/  
 USGS Quad: ROLLAG

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SE	36	137 N	44 W	463750.87	961055.71		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2013	2018	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 22 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2013)                      Stamping: LAKE 2013

5.5 MILES NORTHWEST OF PELICAN RAPIDS, 1.3 MILES SOUTH ALONG 300TH STREET SOUTH FROM THE JUNCTION OF 300TH STREET SOUTH AND TRUNK HIGHWAY 34, TO TRUNK HIGHWAY 34 MILEPOINT 11.8, THEN 0.6 MILE SOUTH AND WEST ON 155TH AVENUE, THEN 0.6 MILE WEST ON 460TH STREET, 39.4 FEET NORTH OF 460TH STREET, 0.2 MILE WEST OF 150TH AVENUE, 1.5 FEET SOUTH OF A WITNESS POST.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>						
1382.094	.131		1294.899	.066	1996	2021	HOTTE						
1382.117			1294.755	.016	2011	2020	GPS3384						
1382.117			1294.755	.016	2011	2020	HOTTE						
1382.113			1294.755	.024	2011	2015	GPS3084						
1382.067	.131		1294.899	.066	1996	2015	HCLAY						
1382.113			1294.755	.024	2011	2015	HCLAY						
1382.081	.262		1294.745	.197	2011	2013	RTRN2013						

Geoid Separations(ft): GEOID18 = -87.359 12B = -87.333 09 = -87.231 03 = -87.142

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>				<u>Clay County</u>		<u>Project Info</u>			
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>			
46 37 50.86973	96 10 55.71343	630135.308	100722.720	.010		ADJUSTMENT	2020	GPS3384			
46 37 50.86973	96 10 55.71343	630135.308	100722.720	.010	C	GPS - STATIC	2020	HOTTE			
46 37 50.86973	96 10 55.71343	630135.308	100722.720	.016		ADJUSTMENT	2015	GPS3084			
46 37 50.86973	96 10 55.71343	630135.308	100722.720	.016	C	GPS - STATIC	2015	HCLAY			
46 37 50.86938	96 10 55.71350	630135.304	100722.685	.131	3	GPS - RTRN	2013	RTRN2013			

<u>NAD83(1996)</u>		<u>Geodetic Position</u>				<u>Clay County</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
46 37 50.86927	96 10 55.71421	630135.254	100722.674	.033	C	GPS - STATIC	2021	HOTTE	
46 37 50.86927	96 10 55.71421	630135.254	100722.674	.033	C	GPS - STATIC	2015	HCLAY	

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>				<u>UTM - Zone 15</u>		<u>Project Info</u>			
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>			
2139313.332	928683.065	841275.678	16958813.898	.010		ADJUSTMENT	2020	GPS3384			
2139313.332	928683.065	841275.678	16958813.898	.010	C	GPS - STATIC	2020	HOTTE			
2139313.332	928683.065	841275.678	16958813.898	.016		ADJUSTMENT	2015	GPS3084			
2139313.332	928683.065	841275.678	16958813.898	.016	C	GPS - STATIC	2015	HCLAY			
2139313.326	928683.030	841275.671	16958813.862	.131	3	GPS - RTRN	2013	RTRN2013			

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>				<u>UTM - Zone 15</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
2139313.276	928683.020	841275.621	16958813.853	.033	C	GPS - STATIC	2021	HOTTE	
2139313.276	928683.020	841275.621	16958813.853	.033	C	GPS - STATIC	2015	HCLAY	



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LAKE-DP7362-3N-01OCT2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LAKE-DP7362-3N-01OCT2013.jpg</a>	N	Oct 1, 2013
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LAKE-DP7362-2-01OCT2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LAKE-DP7362-2-01OCT2013.jpg</a>		Oct 1, 2013
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LAKE-DP7362-1-01OCT2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LAKE-DP7362-1-01OCT2013.jpg</a>		Oct 1, 2013

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: LAURA

NGS Name: LAURA

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ1934](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/  
 USGS Quad: FELTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	9	141 N	46 W	470238.10	963000.97	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 29 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: LAURA 2014

2.4 MILES SOUTH OF FELTON, 2.4 MILES SOUTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 34 IN FELTON, AT TRUNK HIGHWAY 9 MILEPOINT 175.35, 43.4 FEET WEST OF TRUNK HIGHWAY 9, 30.5 FEET SOUTH OF A FIELD ENTRANCE, 1.5 FEET EAST OF A WITNESS POST.

Station Pair: G 377 - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
920.749	.016	2/1				VERTICAL ADJUSTMENT		2019	00000941

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
920.749			833.866	.014	2011	HORIZONTAL ADJUSTMENT		2023	GPS3618
920.749	.131		834.030	.066	1996	GPS - STATIC		2023	HFELT
920.818			833.866	.014	2011	GPS - STATIC		2023	HFELT
921.012			833.866	.018	2011	HORIZONTAL ADJUSTMENT		2018	GPS3119
921.022	.131		834.030	.066	1996	GPS - STATIC		2017	HMNCORS07
921.012			833.866	.018	2011	GPS - STATIC		2017	HMNPH
920.891	.262		833.775	.197	2011	GPS - RTRN		2015	RTRN2015
920.940	.262		833.827	.197	2011	GPS - RTRN		2014	RTRN2014

Geoid Separations(ft): GEOID18 = -87.106    12B = -87.116    09 = -86.985    03 = -86.968

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>								
47 02 38.09593	96 30 00.96927	549822.286	251039.236	.010		ADJUSTMENT		2023	GPS3618
47 02 38.09593	96 30 00.96927	549822.286	251039.236	.010	C	GPS - STATIC		2023	HFELT
47 02 38.09593	96 30 00.96927	549822.286	251039.236	.010		ADJUSTMENT		2018	GPS3119
47 02 38.09593	96 30 00.96927	549822.286	251039.236	.010	C	GPS - STATIC		2017	HMNPH
47 02 38.09607	96 30 00.96907	549822.299	251039.251	.131	3	GPS - RTRN		2015	RTRN2015
47 02 38.09522	96 30 00.96873	549822.323	251039.165	.131	3	GPS - RTRN		2014	RTRN2014

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>								
47 02 38.09564	96 30 00.96984	549822.246	251039.207	.033	C	GPS - STATIC		2023	HFELT
47 02 38.09564	96 30 00.96984	549822.246	251039.207	.033	C	GPS - STATIC		2017	HMNCORS07

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2063700.073	1081400.118	768107.989	17112799.774	.010		ADJUSTMENT	2023	GPS3618
2063700.073	1081400.118	768107.989	17112799.774	.010	C	GPS - STATIC	2023	HFELT
2063700.073	1081400.118	768107.989	17112799.774	.010		ADJUSTMENT	2018	GPS3119
2063700.073	1081400.118	768107.989	17112799.774	.010	C	GPS - STATIC	2017	HMNPH
2063700.087	1081400.131	768108.004	17112799.787	.131	3	GPS - RTRN	2015	RTRN2015
2063700.108	1081400.045	768108.023	17112799.700	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2063700.032	1081400.089	768107.949	17112799.746	.033	C	GPS - STATIC	2023	HFELT
2063700.032	1081400.089	768107.949	17112799.746	.033	C	GPS - STATIC	2017	HMNCORS07

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<b>Location:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LAURA-DQ1934-3W-23JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LAURA-DQ1934-3W-23JUN2014.jpg</a>	W	Jun 23, 2014
<b>Monument:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LAURA-DQ1934-2-14OCT2015.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LAURA-DQ1934-2-14OCT2015.jpg</a>		Oct 14, 2015
<b>Disk:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LAURA-DQ1934-1-14OCT2015.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LAURA-DQ1934-1-14OCT2015.jpg</a>		Oct 14, 2015

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: LEVEE MNDT

NGS Name: LEVEE

County: CLAY, MN (Sheet 1)

NGS ACRN: [DF7627](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096441/  
 USGS Quad: FARGO NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	33	140 N	48 W	465417.45	964520.64	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1993	2009	DESTROYED	Horz=NO Vert=NO	NO			MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 10 FT)	SURVEY DISK	MNDT

Description: (2003)                      Stamping: LEVEE 1993

2.0 MILES NORTH OF MOORHEAD, 2.0 MILES NORTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND TRUNK HIGHWAY 75 IN MOORHEAD, THEN 0.45 MILE WEST ALONG COUNTY ROAD 18, 56.5 FEET SOUTH OF COUNTY ROAD 18, 40.5 FEET EAST OF A LIGHT POLE, 132.1 FEET WEST-SOUTHWEST OF A LIGHT POLE, 78.0 FEET EAST OF A DRIVEWAY, 38.6 FEET EAST OF A WITNESS POST. THE ROD DEPTH IS UNKNOWN.

Station Notes

FOUND THE ROD WITH NO CAP, THE DISK WAS SENT IN TO THE OFFICE. THE ROD IS STILL IN THE GROUND.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
898.978	.016	2/1					VERTICAL ADJUSTMENT	2004	0000425-2	
898.994	.016	2/1					VERTICAL CONTROL SURVEY	2002	VMOOR	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
				812.183	.010	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
				812.341	.016	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300	
898.981	.131			812.403	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1905	
898.981	.131			812.403	.066	1996	GPS - STATIC	2003	HMOOR	

Geoid Separations(ft): GEOID18 = -86.791 12B = -86.788 09 = -86.650 03 = -86.624

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 54 17.45100	96 45 20.64406			486090.101	200255.885	.007		ADJUSTMENT	2012	GPS2800

  

<u>NAD83(2007)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 54 17.45089	96 45 20.64467			486090.059	200255.874	.013		ADJUSTMENT	2007	GPS2300

  

<u>NAD83(1996)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 54 17.45029	96 45 20.64450			486090.070	200255.813	.033	C	ADJUSTMENT	2003	GPS1905
46 54 17.45029	96 45 20.64450			486090.070	200255.813	.033	C	GPS - STATIC	2003	HMOOR



**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
1998431.284	1032615.806	702016.484	17065059.149	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
1998431.241	1032615.796	702016.441	17065059.139	.013		ADJUSTMENT	2007	GPS2300

**NAD83(1996)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
1998431.251	1032615.735	702016.450	17065059.078	.033	C	ADJUSTMENT	2003	GPS1905
1998431.251	1032615.735	702016.450	17065059.078	.033	C	GPS - STATIC	2003	HMOOR



Mn/DOT Name: LEVEE MNDT RESET

NGS Name: LEVEE RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM1836](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096441/  
 USGS Quad: FARGO NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	33	140 N	48 W	465417.45	964520.65	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2009	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 5 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 40 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2009)                      Stamping: LEVEE 1993 2009

2.0 MILES NORTH OF MOORHEAD, 2.0 MILES NORTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND TRUNK HIGHWAY 10 IN MOORHEAD TO TRUNK HIGHWAY 75 MILEPOINT 253.45, THEN 0.45 MILE WEST ALONG COUNTY ROAD 18, 132.1 FEET WEST-SOUTHWEST OF A LIGHT POLE, 78.0 FEET EAST OF A DRIVEWAY, 56.5 FEET SOUTH OF COUNTY ROAD 18, 40.5 FEET EAST OF A LIGHT POLE, 1.5 FEET NORTHEAST OF A WITNESS POST.

Station Pair: THOMAS - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
898.407	.016	2/1				2024	0000941-3	VERTICAL ADJUSTMENT				
898.407	.016	2/1				2023	VMOFA	VERTICAL CONTROL SURVEY				
898.407	.016	2/1				2019	00000941	VERTICAL ADJUSTMENT				
898.715	.016	2/1				2011	00000699	VERTICAL ADJUSTMENT				
898.715	.016	2/1				2010	VCOMS	VERTICAL CONTROL SURVEY				

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
898.407			811.895	.009	2011	2024	GPS3674	HORIZONTAL ADJUSTMENT				
898.407			811.895	.009	2011	2023	HMOFA3	GPS - STATIC				
898.407	.131		812.019	.066	1996	2023	HMOFA3	GPS - STATIC				
898.564	.262		811.773	.197	2011	2022	RTRN2022	GPS - RTRN				
898.607	.262		811.816	.197	2011	2021	GPSBM	GPS - OPUS				
898.574	.262		811.783	.197	2011	2021	RTRN2021	GPS - RTRN				
898.538	.262		811.885	.197	2007	2012	RTRN2012	GPS - RTRN				
			811.895	.008	2011	2012	GPS2800	HORIZONTAL ADJUSTMENT				
898.719	.131		811.921	.066	2007	2011	GPS2690	HORIZONTAL ADJUSTMENT				
898.719	.131		812.019	.066	1996	2010	HCOMS	GPS - STATIC				
898.719	.131		811.921	.066	2007	2010	HCOMS	GPS - STATIC				
898.581	.262		811.957	.197	1996	2009	RTRN2009	GPS - RTRN				

Geoid Separations(ft): GEOID18 = -86.791    12B = -86.788    09 = -86.650    03 = -86.624

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 54 17.45074	96 45 20.64367	486090.128	200255.859	.007		ADJUSTMENT	2024	GPS3674
46 54 17.45074	96 45 20.64367	486090.128	200255.859	.007	C	GPS - STATIC	2023	HMOFA3
46 54 17.45083	96 45 20.64493	486090.041	200255.868	.131	3	GPS - RTRN	2022	RTRN2022
46 54 17.45068	96 45 20.64452	486090.069	200255.852	.131	3	GPS - OPUS	2021	GPSBM
46 54 17.45061	96 45 20.64505	486090.032	200255.846	.131	3	GPS - RTRN	2021	RTRN2021
46 54 17.45074	96 45 20.64367	486090.128	200255.859	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 54 17.45066	96 45 20.64546	486090.004	200255.850	.131	3	GPS - RTRN	2012	RTRN2012
46 54 17.45094	96 45 20.64469	486090.057	200255.879	.033	C	ADJUSTMENT	2011	GPS2690
46 54 17.45094	96 45 20.64469	486090.057	200255.879	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 54 17.45050	96 45 20.64472	486090.055	200255.834	.033	C	GPS - STATIC	2023	HMOFA3
46 54 17.45050	96 45 20.64472	486090.055	200255.834	.033	C	GPS - STATIC	2010	HCOMS
46 54 17.45197	96 45 20.64436	486090.080	200255.983	.131	3	GPS - RTRN	2009	RTRN2009

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1998431.310	1032615.779	702016.510	17065059.121	.007		ADJUSTMENT	2024	GPS3674
1998431.310	1032615.779	702016.510	17065059.121	.007	C	GPS - STATIC	2023	HMOFA3
1998431.223	1032615.791	702016.423	17065059.134	.131	3	GPS - RTRN	2022	RTRN2022
1998431.251	1032615.775	702016.450	17065059.118	.131	3	GPS - OPUS	2021	GPSBM
1998431.214	1032615.769	702016.413	17065059.112	.131	3	GPS - RTRN	2021	RTRN2021
1998431.310	1032615.779	702016.510	17065059.121	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1998431.186	1032615.775	702016.385	17065059.119	.131	3	GPS - RTRN	2012	RTRN2012
1998431.240	1032615.802	702016.440	17065059.144	.033	C	ADJUSTMENT	2011	GPS2690
1998431.240	1032615.802	702016.440	17065059.144	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1998431.236	1032615.757	702016.436	17065059.100	.033	C	GPS - STATIC	2023	HMOFA3
1998431.236	1032615.757	702016.436	17065059.100	.033	C	GPS - STATIC	2010	HCOMS
1998431.266	1032615.905	702016.468	17065059.248	.131	3	GPS - RTRN	2009	RTRN2009

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LEVEE_RESET-DM1836-3S-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LEVEE_RESET-DM1836-3S-28JUN2022.jpg</a>	S	Jun 28, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LEVEE_RESET-DM1836-2-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LEVEE_RESET-DM1836-2-28JUN2022.jpg</a>		Jun 28, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LEVEE_RESET-DM1836-1-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LEVEE_RESET-DM1836-1-28JUN2022.jpg</a>		Jun 28, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: LEWER

NGS Name: LEWER

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ1954](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	2	137 N	46 W	464236.68	962654.34	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 13 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: LEWER 2014

4.1 MILES NORTH-NORTHWEST OF BARNESVILLE, 3.95 MILES NORTHWEST ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND TRUNK HIGHWAY 34 IN BARNESVILLE, AT TRUNK HIGHWAY 9 MILEPOINT 151.55, 79.4 FEET NORTHEAST OF TRUNK HIGHWAY 9, 14.1 FEET NORTHWEST OF A FIELD ENTRANCE, 5.0 FEET SOUTHEAST OF A WITNESS POST.

Station Pair:    HERBST - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
962.675	.016	2/1				2019	00000941	VERTICAL ADJUSTMENT				

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
962.675			875.694	.013	2011	2024	GPS3762	HORIZONTAL ADJUSTMENT				
962.675	.131		875.815	.066	1996	2024	HTH32	GPS - STATIC				
962.675			875.694	.013	2011	2024	HTH32	GPS - STATIC				
962.715	.262		875.553	.197	2011	2023	RTRN2023	GPS - RTRN				
962.797	.262		875.641	.197	2011	2014	RTRN2014	GPS - RTRN				

**Geoid Separations(ft): GEOID18 = -87.162    12B = -87.159    09 = -87.047    03 = -86.995**

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 42 36.67600	96 26 54.33726	563138.401	129352.153	.007		ADJUSTMENT	2024	GPS3762
46 42 36.67600	96 26 54.33726	563138.401	129352.153	.007	C	GPS - STATIC	2024	HTH32
46 42 36.67592	96 26 54.33715	563138.408	129352.145	.131	3	GPS - RTRN	2023	RTRN2023
46 42 36.67605	96 26 54.33726	563138.401	129352.158	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 42 36.67584	96 26 54.33750	563138.384	129352.137	.033	C	GPS - STATIC	2024	HTH32

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2073242.474	959369.024	775675.822	16990569.839	.007		ADJUSTMENT	2024	GPS3762
2073242.474	959369.024	775675.822	16990569.839	.007	C	GPS - STATIC	2024	HTH32
2073242.482	959369.016	775675.829	16990569.830	.131	3	GPS - RTRN	2023	RTRN2023
2073242.474	959369.029	775675.822	16990569.844	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2073242.457	959369.008	775675.804	16990569.823	.033	C	GPS - STATIC	2024	HTH32



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LEWER-DQ1954-3NE-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LEWER-DQ1954-3NE-18OCT2023.jpg</a>	NE	Oct 18, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LEWER-DQ1954-2-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LEWER-DQ1954-2-18OCT2023.jpg</a>		Oct 18, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LEWER-DQ1954-1-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LEWER-DQ1954-1-18OCT2023.jpg</a>		Oct 18, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: LEY

NGS Name: LEY

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP7363](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096142/  
 USGS Quad: HAWLEY SE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	31	139 N	44 W	464818.58	961811.60		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2013	2024	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 27 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

**Description:** (2013) **Stamping:** LEY 2013

4.5 MILES SOUTH OF HAWLEY, 5.0 MILES SOUTH ALONG COUNTY ROAD 31 FROM THE JUNCTION OF COUNTY ROAD 31 AND TRUNK HIGHWAY 10 IN HAWLEY, THEN 1.0 MILE EAST ON COUNTY ROAD 119, 61.7 FEET NORTH OF COUNTY ROAD 119 (60TH AVENUE SOUTH), 35.9 FEET EAST OF 240TH STREET SOUTH, 16.2 FEET SOUTH OF A FIELD ENTRANCE, 1.5 FEET NORTH OF A WITNESS POST.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

Orthometric Height			Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1160.605			1073.164	.009	2011	HORIZONTAL ADJUSTMENT	2024	GPS3762
1160.608	.131		1073.295	.066	1996	GPS - STATIC	2024	HTH32
1160.605			1073.164	.009	2011	GPS - STATIC	2024	HTH32
1160.752	.262		1073.164	.197	2011	GPS - RTRN	2023	RTRN2023
1160.762			1073.164	.023	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084
1160.746	.131		1073.312	.066	1996	GPS - STATIC	2015	HCLAY
1160.762			1073.164	.023	2011	GPS - STATIC	2015	HCLAY
1160.660	.262		1073.088	.197	2011	GPS - RTRN	2013	RTRN2013

Geoid Separations(ft): GEOID18 = -87.585 12B = -87.569 09 = -87.454 03 = -87.408

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 48 18.57847	96 18 11.59569	599393.544	164141.988	.007		ADJUSTMENT	2024	GPS3762
46 48 18.57847	96 18 11.59569	599393.544	164141.988	.007	C	GPS - STATIC	2024	HTH32
46 48 18.57841	96 18 11.59608	599393.517	164141.981	.131	3	GPS - RTRN	2023	RTRN2023
46 48 18.57847	96 18 11.59569	599393.544	164141.988	.016		ADJUSTMENT	2015	GPS3084
46 48 18.57847	96 18 11.59569	599393.544	164141.988	.016	C	GPS - STATIC	2015	HCLAY
46 48 18.57834	96 18 11.59618	599393.510	164141.974	.131	3	GPS - RTRN	2013	RTRN2013

**NAD83(1996)**

Geodetic Position		Clay County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 48 18.57862	96 18 11.59555	599393.554	164142.003	.033	C	GPS - STATIC	2024	HTH32
46 48 18.57799	96 18 11.59646	599393.491	164141.938	.033	C	GPS - STATIC	2015	HCLAY

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2110553.347	993016.366	813541.401	17023627.439	.007		ADJUSTMENT	2024	GPS3762
2110553.347	993016.366	813541.401	17023627.439	.007	C	GPS - STATIC	2024	HTH32
2110553.320	993016.360	813541.374	17023627.434	.131	3	GPS - RTRN	2023	RTRN2023
2110553.347	993016.366	813541.401	17023627.439	.016		ADJUSTMENT	2015	GPS3084
2110553.347	993016.366	813541.401	17023627.439	.016	C	GPS - STATIC	2015	HCLAY
2110553.312	993016.353	813541.367	17023627.427	.131	3	GPS - RTRN	2013	RTRN2013

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2110553.357	993016.380	813541.412	17023627.453	.033	C	GPS - STATIC	2024	HTH32
2110553.292	993016.318	813541.346	17023627.392	.033	C	GPS - STATIC	2015	HCLAY



**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LEY-DP7363-3E-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LEY-DP7363-3E-18OCT2023.jpg</a>	E	Oct 18, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LEY-DP7363-2-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LEY-DP7363-2-18OCT2023.jpg</a>		Oct 18, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LEY-DP7363-1-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LEY-DP7363-1-18OCT2023.jpg</a>		Oct 18, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: LITE  
 County: CLAY, MN (Sheet 1)

NGS Name: LITE

NGS ACRN: [DM1837](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096431/  
 USGS Quad: HICKSON

				Reference	Reference	Vert	Horz
1/4	Sec	Twp	Rng	Latitude	Longitude	Order	Order
NE	5	137 N	48 W	464259.68	964605.37	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2009	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 35 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2009)                      **Stamping:** LITE 2009

4.1 MILES NORTHWEST OF COMSTOCK, 4.0 MILES NORTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND COUNTY ROAD 2 (THE JUNCTION IS 0.5 MILE WEST OF COMSTOCK) TO TRUNK HIGHWAY 75 MILEPOINT 239.20, THEN 0.5 MILE WEST ON 120TH AVENUE SOUTH, 29.6 FEET SOUTH OF 120TH AVENUE SOUTH, 89.0 FEET EAST OF EXTENDED 8TH STREET SOUTH, 14.8 FEET SOUTHEAST OF A POLE WITH 2 GUY WIRES, 2.4 FEET SOUTH OF A WITNESS POST.

Station Pair: STAR - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88			Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
911.819	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941
912.049	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699
912.055	.016	2/1				VERTICAL CONTROL SURVEY	2010	VCOMS

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
911.819			825.113	.023	2011	HORIZONTAL ADJUSTMENT	2024	GPS3715
911.819			825.113	.023	2011	GPS - STATIC	2024	HMOFA2
911.819	.131		825.205	.066	1996	GPS - STATIC	2024	HMOFA2
911.796	.262		824.884	.197	2011	GPS - RTRN	2022	RTRN2022
			825.123	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
912.072	.131		825.113	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2690
912.039	.131		825.185	.066	1996	GPS - STATIC	2010	HCOMS
912.039	.131		825.113	.066	2007	GPS - STATIC	2010	HCOMS

Geoid Separations(ft): GEOID18 = -86.916 12B = -86.909 09 = -86.860 03 = -86.765

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 42 59.67609	96 46 05.36534	482925.135	131588.932	.013		ADJUSTMENT	2024	GPS3715
46 42 59.67609	96 46 05.36534	482925.135	131588.932	.013	C	GPS - STATIC	2024	HMOFA2
46 42 59.67573	96 46 05.36540	482925.131	131588.895	.131	3	GPS - RTRN	2022	RTRN2022
46 42 59.67925	96 46 05.36662	482925.046	131589.252	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 42 59.67956	96 46 05.36767	482924.973	131589.283	.033	C	ADJUSTMENT	2011	GPS2690
46 42 59.67956	96 46 05.36767	482924.973	131589.283	.033	C	GPS - STATIC	2010	HCOMS

NAD83(1996)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 42 59.67603	96 46 05.36620	482925.075	131588.926	.033	C	GPS - STATIC	2024	HMOFA2
46 42 59.67915	96 46 05.36755	482924.981	131589.242	.033	C	GPS - STATIC	2010	HCOMS

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1993145.020	964085.629	695617.322	16996578.660	.013		ADJUSTMENT	2024	GPS3715
1993145.020	964085.629	695617.322	16996578.660	.013	C	GPS - STATIC	2024	HMOFA2
1993145.014	964085.592	695617.316	16996578.624	.131	3	GPS - RTRN	2022	RTRN2022
1993144.941	964085.952	695617.248	16996578.984	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1993144.869	964085.986	695617.176	16996579.019	.033	C	ADJUSTMENT	2011	GPS2690
1993144.869	964085.986	695617.176	16996579.019	.033	C	GPS - STATIC	2010	HCOMS

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1993144.960	964085.625	695617.261	16996578.657	.033	C	GPS - STATIC	2024	HMOFA2
1993144.876	964085.944	695617.183	16996578.978	.033	C	GPS - STATIC	2010	HCOMS

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LITE-DM1837-3S-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LITE-DM1837-3S-15JUN2022.jpg</a>	S	Jun 15, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LITE-DM1837-2-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LITE-DM1837-2-15JUN2022.jpg</a>		Jun 15, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LITE-DM1837-1-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LITE-DM1837-1-15JUN2022.jpg</a>		Jun 15, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: LONEY

NGS Name: LONEY

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ1992](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096142/  
 USGS Quad: HAWLEY SE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	16	138 N	44 W	464612.45	961535.85	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2024	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 19 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: LONEY 2014

8.7 MILES SOUTHEAST OF HAWLEY, 7.35 MILES SOUTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND TRUNK HIGHWAY 10 (THE JUNCTION IS 3.0 MILES EAST OF HAWLEY), AT TRUNK HIGHWAY 32 MILEPOINT 8.1, 56.4 FEET EAST OF TRUNK HIGHWAY 32, 23.0 FEET NORTH OF A FIELD ENTRANCE, 1.5 FEET WEST OF A WITNESS POST.

Station Pair:    MAIDL - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
1293.866	.016	2/1				2019	00000941					

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
1293.866			1206.586	.011	2011	2024	GPS3762					
1293.866	.131		1206.710	.066	1996	2024	HTH32					
1293.866			1206.586	.011	2011	2024	HTH32					
1293.957	.262		1206.559	.197	2011	2023	RTRN2023					
1293.898	.262		1206.526	.197	2011	2014	RTRN2014					

Geoid Separations(ft): GEOID18 = -87.398    12B = -87.369    09 = -87.264    03 = -87.221

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 46 12.44979	96 15 35.84538	610300.262	151420.901	.007		ADJUSTMENT	2024	GPS3762
46 46 12.44979	96 15 35.84538	610300.262	151420.901	.007	C	GPS - STATIC	2024	HTH32
46 46 12.44977	96 15 35.84476	610300.305	151420.900	.131	3	GPS - RTRN	2023	RTRN2023
46 46 12.44996	96 15 35.84525	610300.271	151420.919	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 46 12.44964	96 15 35.84560	610300.247	151420.886	.033	C	GPS - STATIC	2024	HTH32

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2121059.798	979964.995	823840.481	17010402.938	.007		ADJUSTMENT	2024	GPS3762
2121059.798	979964.995	823840.481	17010402.938	.007	C	GPS - STATIC	2024	HTH32
2121059.841	979964.992	823840.524	17010402.934	.131	3	GPS - RTRN	2023	RTRN2023
2121059.807	979965.012	823840.490	17010402.955	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2121059.782	979964.980	823840.465	17010402.923	.033	C	GPS - STATIC	2024	HTH32



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LONEY-DQ1992-3E-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LONEY-DQ1992-3E-18OCT2023.jpg</a>	E	Oct 18, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LONEY-DQ1992-2-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LONEY-DQ1992-2-18OCT2023.jpg</a>		Oct 18, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LONEY-DQ1992-1-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LONEY-DQ1992-1-18OCT2023.jpg</a>		Oct 18, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: LYN AZ MK  
 County: CLAY, MN (Sheet 1)

NGS Name: LYN AZ MK

NGS ACRN: [CP4231](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	29	139 N	47 W	465000.00	963748.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1961	1993	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	NGS

**Description:** (1993)                      **Stamping:** LYN 1961

3.8 MILES SOUTH-SOUTHWEST OF GLYNDON, 1.0 MILE SOUTHEAST ALONG COUNTY ROAD 52 (OLD TRUNK HIGHWAY 52) FROM THE JUNCTION WITH INTERSTATE HIGHWAY 94, THEN EAST 3.7 MILES, 0.3 MILE EAST OF STATION LYN MNDT, 20.0 FEET SOUTH OF COUNTY ROAD 76, 110.0 FEET SOUTHEAST OF A POWER POLE WITH A GUY WIRE, 102.0 FEET SOUTH OF A CENTER POTATO SHED, 14.0 FEET WEST OF A FIELD ROAD, 108.0 FEET SOUTHWEST OF A TEE-JUNCTION.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
919.641	.033	3				1964	USGS-VERT	VERTICAL CONTROL SURVEY				

**Geoid Separations(ft): GEOID18 = -87.411    12B = -87.428    09 = -87.280    03 = -87.211**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: LYN MNDT

NGS Name: LYN

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP1063](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/1079  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	20	139 N	47 W	465000.80	963811.89	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1961	2023	GOOD	Horz=YES Vert=YES	YES		PROJECTS 2 IN.	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	TRAVERSE STATION DISK	MNDT

**Description:** (2013)                      **Stamping:** LYN U.S.C. & G.S. 1961

4.1 MILES SOUTHEAST OF MOORHEAD, 0.85 MILE SOUTH ALONG COUNTY ROAD 11 FROM THE JUNCTION OF INTERSTATE HIGHWAY 94 AND COUNTY ROAD 11 (THE JUNCTION IS 1.0 MILE EAST OF MOORHEAD), THEN 0.7 MILE EAST ON 40TH AVENUE SOUTH, 46.0 FEET NORTH OF 40TH AVENUE SOUTH, 7.0 FEET WEST OF A POWER POLE, 71.48 FEET NORTH OF LYN MNDT RM 1, 72.69 FEET EAST OF LYN MNDT RM 2, 1.0 FOOT NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
923.601	.016	2/1					VERTICAL ADJUSTMENT	2024	0000941-3	
923.597	.016	2/1					VERTICAL CONTROL SURVEY	2023	VMOFA	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
923.597				836.386	.015	2011	HORIZONTAL ADJUSTMENT	2024	GPS3715	
923.597				836.386	.015	2011	GPS - STATIC	2024	HMOFA2	
923.597	.131			836.603	.066	1996	GPS - STATIC	2024	HMOFA2	
923.948	.262			836.557	.197	2011	GPS - RTRN	2022	RTRN2022	
923.896				836.386	.018	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084	
923.840	.131			836.603	.066	1996	GPS - STATIC	2015	HCLAY	
923.896				836.422	.018	2011	GPS - STATIC	2015	HCLAY	
				836.386	.022	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
				836.553	.021	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300	
923.784	.131			836.603	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1905	
923.784	.131			836.603	.066	1996	GPS - STATIC	2003	HMOOR	
925.195	.197			838.381	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
919.585							RECIPROCAL VERTICAL ANGLE	1968	HORZ	

Geoid Separations(ft): GEOID18 = -87.392    12B = -87.411    09 = -87.260    03 = -87.195



Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Clay County		Acc	Order	Determination Method	Project Info	
Latitude	Longitude	X	Y				Year	Reference
46 50 00.79661	96 38 11.88441	515883.805	174253.884	.010		ADJUSTMENT	2024	GPS3715
46 50 00.79661	96 38 11.88441	515883.805	174253.884	.010	C	GPS - STATIC	2024	HMOFA2
46 50 00.79667	96 38 11.88558	515883.723	174253.890	.131	3	GPS - RTRN	2022	RTRN2022
46 50 00.79661	96 38 11.88441	515883.805	174253.884	.013		ADJUSTMENT	2015	GPS3084
46 50 00.79665	96 38 11.88464	515883.789	174253.888	.013	C	GPS - STATIC	2015	HCLAY
46 50 00.79661	96 38 11.88441	515883.805	174253.884	.016		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Clay County		Acc	Order	Determination Method	Project Info	
Latitude	Longitude	X	Y				Year	Reference
46 50 00.79659	96 38 11.88538	515883.738	174253.882	.016		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Clay County		Acc	Order	Determination Method	Project Info	
Latitude	Longitude	X	Y				Year	Reference
46 50 00.79605	96 38 11.88518	515883.751	174253.827	.033	C	GPS - STATIC	2024	HMOFA2
46 50 00.79605	96 38 11.88518	515883.751	174253.827	.033	C	GPS - STATIC	2015	HCLAY
46 50 00.79605	96 38 11.88518	515883.751	174253.827	.033	C	ADJUSTMENT	2003	GPS1905
46 50 00.79605	96 38 11.88518	515883.751	174253.827	.033	C	GPS - STATIC	2003	HMOOR
46 50 00.79195	96 38 11.88923	515883.470	174253.411	.066	2	ADJUSTMENT	1999	17648
46 50 00.79192	96 38 11.88875	515883.503	174253.408	.066	2	ADJUSTMENT	1998	17655

NAD83(1986)

Geodetic Position		Clay County		Acc	Order	Determination Method	Project Info	
Latitude	Longitude	X	Y				Year	Reference
46 50 00.79106	96 38 11.88047	515884.079	174253.322	.066	2	ADJUSTMENT	1986	17289

NAD27

Geodetic Position		X	Y	Acc	Order	Determination Method	Project Info	
Latitude	Longitude						Year	Reference
46 50 00.92760	96 38 10.59810			.100	2	CLASSICAL SURVEY	1962	12924

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2027404.236	1005706.937	730566.413	17037667.029	.010		ADJUSTMENT	2024	GPS3715
2027404.236	1005706.937	730566.413	17037667.029	.010	C	GPS - STATIC	2024	HMOFA2
2027404.155	1005706.946	730566.332	17037667.039	.131	3	GPS - RTRN	2022	RTRN2022
2027404.236	1005706.937	730566.413	17037667.029	.013		ADJUSTMENT	2015	GPS3084
2027404.220	1005706.942	730566.397	17037667.034	.013	C	GPS - STATIC	2015	HCLAY
2027404.236	1005706.937	730566.413	17037667.029	.016		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2027404.169	1005706.937	730566.346	17037667.030	.016		ADJUSTMENT	2007	GPS2300

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2027404.181	1005706.882	730566.357	17037666.975	.033	C	GPS - STATIC	2024	HMOFA2
2027404.181	1005706.882	730566.357	17037666.975	.033	C	GPS - STATIC	2015	HCLAY
2027404.181	1005706.882	730566.357	17037666.975	.033	C	ADJUSTMENT	2003	GPS1905
2027404.181	1005706.882	730566.357	17037666.975	.033	C	GPS - STATIC	2003	HMOOR
2027403.887	1005706.476	730566.056	17037666.573	.066	2	ADJUSTMENT	1999	17648
2027403.920	1005706.472	730566.089	17037666.568	.066	2	ADJUSTMENT	1998	17655

**NAD83(1986)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2027404.493	1005706.367	730566.661	17037666.454	.066	2	ADJUSTMENT	1986	17289

**NAD27**

MN State Plane - Central Zone						Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1402809.020	677630.287			.100	2	CLASSICAL SURVEY	1962	12924

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LYN-RP1063-3N-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LYN-RP1063-3N-05JUL2022.jpg</a>	N	Jul 5, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LYN-RP1063-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LYN-RP1063-2-05JUL2022.jpg</a>		Jul 5, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LYN-RP1063-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LYN-RP1063-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: LYN MNDT RM 1

NGS Name: LYN RM 1

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP4232](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	20	139 N	47 W	465000.09	963811.89	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1961	2022	GOOD	Horz=YES Vert=YES	NO		RECESSED 12 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	MNDT

**Description:** (1961)                      **Stamping:** LYN NO 1 1961

4.1 MILES SOUTHEAST OF MOORHEAD, 0.85 MILE SOUTH ALONG COUNTY ROAD 11 FROM THE JUNCTION OF INTERSTATE HIGHWAY 94 AND COUNTY ROAD 11 (THE JUNCTION IS 1.0 MILE EAST OF MOORHEAD), THEN 0.7 MILE EAST ON 40TH AVENUE SOUTH, 28.0 FEET SOUTH OF 40TH AVENUE SOUTH.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
922.715	.016	2/1					VERTICAL ADJUSTMENT	2024	00000941-3
922.711	.016	2/1					VERTICAL CONTROL SURVEY	2023	VMOFA

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
923.263	.262			835.871	.197	2011	GPS - RTRN	2022	RTRN2022

Geoid Separations(ft): GEOID18 = -87.395    12B = -87.411    09 = -87.264    03 = -87.195

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 50 00.09103	96 38 11.88796			515883.616	174182.397	.131	3	GPS - RTRN	2022	RTRN2022

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2027401.836	1005635.497			730562.854	17037595.595	.131	3	GPS - RTRN	2022	RTRN2022

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LYN_RM_1-CP4232-3S-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LYN_RM_1-CP4232-3S-05JUL2022.jpg</a>	S	Jul 5, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LYN_RM_1-CP4232-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LYN_RM_1-CP4232-2-05JUL2022.jpg</a>		Jul 5, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LYN_RM_1-CP4232-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/LYN_RM_1-CP4232-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: LYN MNDT RM 2

NGS Name: LYN RM 2

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP4233](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	20	139 N	47 W	465000.81	963812.93		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1961	2022	NOT FOUND	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	MNDT

**Description:** **Stamping:** LYN NO 2 1961

3.8 MILES NORTH-NORTHEAST OF SABIN, 3.7 MILES NORTH ALONG COUNTY ROAD 11 (KING TRAIL ROAD NORTH) FROM THE JUNCTION OF COUNTY ROAD 11 (KING TRAIL ROAD NORTH), THEN 0.7 MILE EAST ALONG 40TH AVENUE SOUTH, 48.0 FEET NORTH OF A GRAVEL ROAD, 79.0 FEET WEST OF THE FIFTH A POWER POLE WEST OF A TEE-INTERSECTION.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.395 12B = -87.411 09 = -87.264 03 = -87.195



Mn/DOT Name: M 376

NGS Name: M 376

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0714](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	23	139 N	48 W	465048.61	964156.16	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1982	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STEEL ROD (NO SLEEVE) (DEPTH 44 FT)	METAL ROD	NGS

Description: (2002)                      Stamping: M 376 1982

IN MOORHEAD, 3.2 MILES EAST ALONG INTERSTATE HIGHWAY 94 FROM THE JUNCTION OF INTERSTATE HIGHWAY 94 AND TRUNK HIGHWAY 75 IN MOORHEAD, AT INTERSTATE HIGHWAY MILEPOINT 3.85, 98.0 FEET SOUTH OF EASTBOUND INTERSTATE HIGHWAY 94, 1.0 FOOT NORTH OF A SOUTH RIGHT-OF-WAY FENCE, 1.0 FOOT NORTH OF A WITNESS POST.

Station Pair: PINN - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
909.929	.016	2/1				2024	00000941-3	VERTICAL ADJUSTMENT		2024	00000941-3	
909.933	.016	2/1				2023	VMOFA	VERTICAL CONTROL SURVEY		2023	VMOFA	
909.890	.016	2/1				2019	00000941	VERTICAL ADJUSTMENT		2019	00000941	
910.156	.016	2/1				2011	00000699	VERTICAL ADJUSTMENT		2011	00000699	
910.080	.016	2/1				2011	00000685	VERTICAL ADJUSTMENT		2011	00000685	
910.129	.016	2/1				2010	VCOMS	VERTICAL CONTROL SURVEY		2010	VCOMS	
910.120	.016	2/1				2002	VMORE	VERTICAL CONTROL SURVEY		2002	VMORE	
910.120	.007	1				1991	00000025	VERTICAL ADJUSTMENT		1991	00000025	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
909.933			822.928	.010	2011	2024	GPS3715	HORIZONTAL ADJUSTMENT		2024	GPS3715	
909.933			822.928	.010	2011	2024	HMOFA2	GPS - STATIC		2024	HMOFA2	
909.933	.131		822.977	.066	1996	2024	HMOFA2	GPS - STATIC		2024	HMOFA2	
910.225	.262		822.997	.197	2011	2022	RTRN2022	GPS - RTRN		2022	RTRN2022	
910.156			822.928	.009	2011	2015	GPS3084	HORIZONTAL ADJUSTMENT		2015	GPS3084	
910.156	.131		822.977	.066	1996	2015	HCLAY	GPS - STATIC		2015	HCLAY	
910.156			822.922	.009	2011	2015	HCLAY	GPS - STATIC		2015	HCLAY	
			822.928	.009	2011	2012	GPS2800	HORIZONTAL ADJUSTMENT		2012	GPS2800	
910.103	.131		822.994	.066	2007	2011	GPS2690	HORIZONTAL ADJUSTMENT		2011	GPS2690	
910.136	.131		822.977	.066	1996	2010	HCOMS	GPS - STATIC		2010	HCOMS	
910.136	.131		822.994	.066	2007	2010	HCOMS	GPS - STATIC		2010	HCOMS	
909.946	.262		822.918	.197	1996	2009	RTRN2009	GPS - RTRN		2009	RTRN2009	
910.120	.131		822.977	.066	1996	2006	GPS2296	HORIZONTAL ADJUSTMENT		2006	GPS2296	
			823.210	.066	1996	2001	DIST 4	GPS - STATIC		2001	DIST 4	

Geoid Separations(ft): GEOID18 = -87.228    12B = -87.241    09 = -87.113    03 = -87.027

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 50 48.61378	96 41 56.16085	500289.534	179092.156	.007		ADJUSTMENT	2024	GPS3715
46 50 48.61378	96 41 56.16085	500289.534	179092.156	.007	C	GPS - STATIC	2024	HMOFA2
46 50 48.61284	96 41 56.16090	500289.530	179092.060	.131	3	GPS - RTRN	2022	RTRN2022
46 50 48.61378	96 41 56.16085	500289.534	179092.156	.007		ADJUSTMENT	2015	GPS3084
46 50 48.61379	96 41 56.16086	500289.533	179092.157	.007	C	GPS - STATIC	2015	HCLAY
46 50 48.61378	96 41 56.16085	500289.534	179092.156	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 50 48.61399	96 41 56.16198	500289.455	179092.177	.033	C	ADJUSTMENT	2011	GPS2690
46 50 48.61399	96 41 56.16198	500289.455	179092.177	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 50 48.61343	96 41 56.16182	500289.466	179092.120	.033	C	GPS - STATIC	2024	HMOFA2
46 50 48.61343	96 41 56.16182	500289.466	179092.120	.033	C	GPS - STATIC	2015	HCLAY
46 50 48.61343	96 41 56.16182	500289.466	179092.120	.033	C	GPS - STATIC	2010	HCOMS
46 50 48.61469	96 41 56.16205	500289.451	179092.248	.131	3	GPS - RTRN	2009	RTRN2009
46 50 48.61343	96 41 56.16182	500289.466	179092.120	.033	C	ADJUSTMENT	2006	GPS2296
46 50 48.61305	96 41 56.16142	500289.495	179092.083	.033	C	GPS - STATIC	2001	DIST 4

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2011968.384	1011024.790	715209.514	17043237.577	.007		ADJUSTMENT	2024	GPS3715
2011968.384	1011024.790	715209.514	17043237.577	.007	C	GPS - STATIC	2024	HMOFA2
2011968.377	1011024.695	715209.506	17043237.482	.131	3	GPS - RTRN	2022	RTRN2022
2011968.384	1011024.790	715209.514	17043237.577	.007		ADJUSTMENT	2015	GPS3084
2011968.383	1011024.791	715209.513	17043237.578	.007	C	GPS - STATIC	2015	HCLAY
2011968.384	1011024.790	715209.514	17043237.577	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2011968.305	1011024.814	715209.437	17043237.602	.033	C	ADJUSTMENT	2011	GPS2690
2011968.305	1011024.814	715209.437	17043237.602	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2011968.315	1011024.757	715209.445	17043237.545	.033	C	GPS - STATIC	2024	HMOFA2
2011968.315	1011024.757	715209.445	17043237.545	.033	C	GPS - STATIC	2015	HCLAY
2011968.315	1011024.757	715209.445	17043237.545	.033	C	GPS - STATIC	2010	HCOMS
2011968.303	1011024.885	715209.435	17043237.674	.131	3	GPS - RTRN	2009	RTRN2009
2011968.315	1011024.757	715209.445	17043237.545	.033	C	ADJUSTMENT	2006	GPS2296
2011968.342	1011024.717	715209.471	17043237.505	.033	C	GPS - STATIC	2001	DIST 4

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/M_376-RP0714-3S-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/M_376-RP0714-3S-05JUL2022.jpg</a>	S	Jul 5, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/M_376-RP0714-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/M_376-RP0714-2-05JUL2022.jpg</a>		Jul 5, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/M_376-RP0714-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/M_376-RP0714-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: M 4

NGS Name: M 4

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0753](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	31	137 N	45 W	463840.00	962501.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1905	1905	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	BOLT	NGS

**Description:**

**Stamping:**

0.5 MILE SOUTH OF BARNESVILLE, 0.6 MILE SOUTH ALONG FRONT STREET SOUTH FROM THE JUNCTION OF FRONT STREET SOUTH AND 2ND AVENUE SOUTHEAST IN BARNESVILLE, AT THE CORNER OF A PUBLIC ROAD, ON THE EAST SIDE, IN A CORNER OF THE FENCE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>GA1912</u>			<u>Orthometric Height</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>				
1024.657	.007	1				VERTICAL ADJUSTMENT		1914	GA1912				

Geoid Separations(ft): GEOID18 = -87.090 12B = -87.083 09 = -86.985 03 = -86.939

\* No Horizontal Positions in the Database \*



Mn/DOT Name: M 49

NGS Name: M 49

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0042](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096142/  
 USGS Quad: HAWLEY SE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	16	139 N	45 W	465100.00	962201.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1934	1969	GOOD	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	BENCH MARK DISK	NGS

**Description:** (1934) **Stamping:** M-49 1934

3.2 MILES SOUTH-SOUTHWEST OF HAWLEY, 0.1 MILE WEST-SOUTHWEST ALONG COUNTY ROAD 116 (MAIN STREET) FROM THE JUNCTION OF COUNTY ROAD 116 (MAIN STREET) AND 6TH STREET IN HAWLEY, THEN 0.2 MILE SOUTH ALONG 8TH STREET, THEN 4.2 MILES WEST ALONG TRUNK HIGHWAY 10 WEST, THEN 2.0 MILES SOUTH ALONG 190TH STREET SOUTH, THEN 1.9 MILES EAST ALONG 28TH AVENUE SOUTH, 4.0 MILES WEST OF THE HAWLEY RAILROAD STATION, AT RAILROAD MILEPOINT 238.4, 5.5 RAILS EAST OF A FARM CROSSING, 78.0 FEET NORTH OF A NORTH TRACK, 33.0 FEET NORTHEAST OF A POLE, 5.0 FEET WEST OF A FENCE POST, 2.0 FEET SOUTH OF A FENCE.

**Station Notes**

THE SURVEY MARK IS ON RAILROAD PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1094.893	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025	

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1093.708	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD	
1093.708	.016	2				VERTICAL CONTROL SURVEY	1972	Q460961	
1093.708	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A	
1093.708	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A	
1093.574	.007	1				VERTICAL CONTROL SURVEY	1941	Q460961	
1093.574	.007	1				VERTICAL CONTROL SURVEY	1934	L98 MINN	

Geoid Separations(ft): GEOID18 = -87.785 12B = -87.772 09 = -87.657 03 = -87.608

\* No Horizontal Positions in the Database \*



Mn/DOT Name: M 49 A  
 County: CLAY, MN (Sheet 1)

NGS Name: M 49 A

NGS ACRN: <a href="#">RP0041</a>	<a href="#">Get Map</a>
NGS Quad / Sta Num : 46096142/	
USGS Quad: HAWLEY SE	

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	22	139 N	45 W	465045.00	962041.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1969	1969	GOOD	Horz=NO Vert=NO	NO		FLUSH	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE FOOTING - SMALL	SEE DESCRIPTION	MNDT

**Description:** (1969)                      **Stamping:**

3.0 MILES SOUTHWEST FROM HAWLEY, 0.2 MILE SOUTH ALONG 6TH STREET FROM THE JUNCTION OF 6TH STREET AND COUNTY ROAD 116 (MAIN STREET) IN HAWLEY, THEN 0.3 MILE WEST-SOUTHWEST ALONG HOBART STREET, THEN 1.1 MILES SOUTH ALONG 230TH STREET NORTH, THEN 1.3 MILES SOUTH-SOUTHWEST AND WEST ALONG 17TH AVENUE SOUTH, THEN 0.7 MILE SOUTH ALONG COUNTY ROAD 21 (2220TH STREET SOUTH), 8.0 FEET SOUTH OF THE NORTHERN PACIFIC RAILROAD, ABOUT 300.0 FEET WEST OF A COUNTY ROAD BRIDGE (WOOD).

**Station Notes**

THE SET DATE IS UNKNOWN. THE MARK IS A CHISELED X IN THE NORTHWEST CORNER OF AN ABANDONED RAILROAD SIGNAL BASE. THE SURVEY MARK IS ON RAILROAD PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1116.244	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025	

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1115.050	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD	

Geoid Separations(ft): GEOID18 = -87.762 12B = -87.749 09 = -87.631 03 = -87.585

\* No Horizontal Positions in the Database \*



Mn/DOT Name: M 7

NGS Name: M 7

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0344](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	11	139 N	47 W	465218.00	963452.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1931	2010	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
WALL	SURVEY DISK	NGS

**Description:** (1982)                      **Stamping:** 928.391 M 7 1931

AT GLYNDON, 0.1 MILE SOUTH ALONG PARKE AVENUE FROM THE JUNCTION OF PARKE AVENUE AND 4TH STREET SOUTHEAST, IN THE EAST WALL OF A SCHOOL BUILDING, 11.0 FEET SOUTH OF THE NORTHEAST CORNER OF AN ORIGINAL SCHOOL BUILDING, 32.0 FEET NORTH OF THE CENTER OF A MAIN ENTRANCE.

**Station Notes**

5.0 FEET ABOVE GROUND. A NEW AUDITORIUM WAS ADDED TO THE NORTH SIDE OF A SCHOOL AND A NEW ANNEX WAS ADDED TO THE SOUTH SIDE OF THE BUILDING.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
929.522	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
928.578	.016	2				VERTICAL CONTROL SURVEY	1972	Q460964
928.578	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A
928.578	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A
928.391	.007	1				VERTICAL CONTROL SURVEY	1940	Q460964
928.391	.007	1				VERTICAL CONTROL SURVEY	1938	L39 MINN
928.391	.016	2				VERTICAL CONTROL SURVEY	1935	CUTLER-VERT

**Geoid Separations(ft): GEOID18 = -87.493    12B = -87.493    09 = -87.355    03 = -87.310**

**\* No Horizontal Positions in the Database \***



Mn/DOT Name: MAIDL

NGS Name: MAIDL

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ1993](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096142/  
 USGS Quad: HAWLEY SE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	8	138 N	44 W	464634.69	961537.67	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2024	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 12 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: MAIDL 2014

7.2 MILES SOUTHEAST OF HAWLEY, 6.95 MILES SOUTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND TRUNK HIGHWAY 10 (THE JUNCTION IS 3.0 MILES EAST OF HAWLEY), AT TRUNK HIGHWAY 32 MILEPOINT 8.5, 70.8 FEET WEST OF TRUNK HIGHWAY 32, 63.7 FEET NORTH OF 80TH AVENUE SOUTH, 5.0 FEET SOUTHEAST OF A RIGHT-OF-WAY POST, 1.5 FEET EAST OF A WITNESS POST.

Station Pair: LONEY - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
1314.233	.016	2/1				2019	00000941					

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
1314.233			1226.930	.010	2011	2024	GPS3762					
1314.233	.131		1227.051	.066	1996	2024	HTH32					
1314.233			1226.930	.010	2011	2024	HTH32					
1314.299	.262		1226.877	.197	2011	2023	RTRN2023					
1314.226	.262		1226.835	.197	2011	2014	RTRN2014					

Geoid Separations(ft): GEOID18 = -87.418    12B = -87.392    09 = -87.287    03 = -87.244

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>					
46 46 34.68560	96 15 37.66902	610160.720	153673.015	.007		2024	GPS3762					
46 46 34.68560	96 15 37.66902	610160.720	153673.015	.007	C	2024	HTH32					
46 46 34.68549	96 15 37.66892	610160.727	153673.004	.131	3	2023	RTRN2023					
46 46 34.68576	96 15 37.66877	610160.738	153673.031	.131	3	2014	RTRN2014					

<u>NAD83(1996)</u>		<u>Geodetic Position</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>					
46 46 34.68545	96 15 37.66926	610160.704	153672.999	.033	C	2024	HTH32					

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>					
2120990.074	982220.106	823807.063	17012659.805	.007		2024	GPS3762					
2120990.074	982220.106	823807.063	17012659.805	.007	C	2024	HTH32					
2120990.081	982220.095	823807.070	17012659.794	.131	3	2023	RTRN2023					
2120990.092	982220.122	823807.081	17012659.820	.131	3	2014	RTRN2014					

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>					
2120990.057	982220.092	823807.046	17012659.790	.033	C	2024	HTH32					



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MAIDL-DQ1993-3W-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MAIDL-DQ1993-3W-18OCT2023.jpg</a>	W	Oct 18, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MAIDL-DQ1993-2-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MAIDL-DQ1993-2-18OCT2023.jpg</a>		Oct 18, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MAIDL-DQ1993-1-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MAIDL-DQ1993-1-18OCT2023.jpg</a>		Oct 18, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: MARTIN  
County: CLAY, MN (Sheet 1)

NGS Name: MARTIN

NGS ACRN: [DM7599](#) [Get Map](#)  
NGS Quad / Sta Num : 46096441/  
USGS Quad: FARGO NORTH

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	32	140 N	38 W	465326.37	964600.58	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2009	2023	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 44 FT)	METAL ROD	MN4880

**Description:** (2009)                      **Stamping:** MARTIN 2009

IN MOORHEAD, 1.0 MILE NORTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND INTERSTATE HIGHWAY 94 IN MOORHEAD, THEN 0.99 MILE WEST ON 15TH AVENUE NORTH, 110.0 FEET NORTHEAST OF THE JUNCTION OF 15TH AVENUE NORTH AND 9TH STREET NORTH, 60.0 FEET NORTH OF THE CENTERLINE OF 15TH AVENUE NORTH, 25.4 FEET NORTHEAST OF A 15.0 INCH DIAMETER ELM TREE, 7.7 FEET NORTH OF A SIDEWALK.

**Station Notes**

NO WITNESS POST, THE SURVEY MARK IS IN A MOWED AREA.

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88			Orthometric Height			Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference		
899.854	.016	2/1				VERTICAL ADJUSTMENT	2024	0000941-3		
899.851	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA		
899.870	.016	2/1				VERTICAL ADJUSTMENT	2019	0000941		
900.172	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699		
900.172	.016	2/1				VERTICAL CONTROL SURVEY	2010	VCOMS		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Orthometric Height			Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference		
899.851			813.447	.026	2011	HORIZONTAL ADJUSTMENT	2024	GPS3674		
899.851			813.447	.026	2011	GPS - STATIC	2023	HMOFA3		
900.061	.131		813.542	.066	1996	GPS - STATIC	2023	HMOFA3		
900.070	.262		813.223	.197	2011	GPS - RTRN	2022	RTRN2022		

Geoid Separations(ft): GEOID18 = -86.850    12B = -86.837    09 = -86.709    03 = -86.670

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Geodetic Position				Clay County			Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference		
46 53 26.37052	96 46 00.58286	483312.376	195082.705	.013		ADJUSTMENT	2024	GPS3674		
46 53 26.37052	96 46 00.58286	483312.376	195082.705	.013	C	GPS - STATIC	2023	HMOFA3		
46 53 26.37023	96 46 00.58542	483312.198	195082.676	.131	3	GPS - RTRN	2022	RTRN2022		

NAD83(1996)		Geodetic Position				Clay County			Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference		
46 53 26.37039	96 46 00.58364	483312.322	195082.692	.033	C	GPS - STATIC	2023	HMOFA3		

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		MN State Plane - Central Zone				UTM - Zone 15			Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference		
1995495.152	1027531.371	698996.157	17060019.900	.013		ADJUSTMENT	2024	GPS3674		
1995495.152	1027531.371	698996.157	17060019.900	.013	C	GPS - STATIC	2023	HMOFA3		
1995494.973	1027531.347	698995.978	17060019.880	.131	3	GPS - RTRN	2022	RTRN2022		

NAD83(1996)		MN State Plane - Central Zone				UTM - Zone 15			Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference		
1995495.097	1027531.359	698996.102	17060019.890	.033	C	GPS - STATIC	2023	HMOFA3		



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MARTIN-DM7599-3N-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MARTIN-DM7599-3N-28JUN2022.jpg</a>	N	Jun 28, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MARTIN-DM7599-2-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MARTIN-DM7599-2-28JUN2022.jpg</a>		Jun 28, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MARTIN-DM7599-1-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MARTIN-DM7599-1-28JUN2022.jpg</a>		Jun 28, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: MATZ

NGS Name: MATZ

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ2037](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	5	139 N	47 W	465237.37	963751.86	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 74 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDDT

Description: (2014)                      Stamping: MATZ 2014

3.0 MILES EAST OF DILWORTH, 0.9 MILE EAST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND TRUNK HIGHWAY 336 (THE JUNCTION IS 2.0 MILES EAST OF DILWORTH), AT TRUNK HIGHWAY 10 MILEPOINT 6.80, 46.9 FEET NORTH OF WESTBOUND TRUNK HIGHWAY 10, 42.0 FEET EAST OF DRIVEWAY NUMBER 8004, 1.5 FEET SOUTH OF A WITNESS POST.

Station Pair:    SOMMERS - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
914.713	.016	2/1				2024	00000941-3	VERTICAL ADJUSTMENT				
914.713	.016	2/1				2023	VMOFA	VERTICAL CONTROL SURVEY				
914.713	.016	2/1				2019	00000941	VERTICAL ADJUSTMENT				

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
914.713			827.662	.020	2011	2024	GPS3715	HORIZONTAL ADJUSTMENT				
914.713			827.662	.020	2011	2024	HMOFA2	GPS - STATIC				
914.713	.131		827.767	.066	1996	2024	HMOFA2	GPS - STATIC				
914.969	.262		827.662	.197	2011	2022	RTRN2022	GPS - RTRN				
914.910	.262		827.593	.197	2011	2014	RTRN2014	GPS - RTRN				

Geoid Separations(ft): GEOID18 = -87.303    12B = -87.313    09 = -87.159    03 = -87.119

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u> <u>Reference</u>
46 52 37.36625	96 37 51.85442	517262.589	190118.181	.013		ADJUSTMENT	2024    GPS3715
46 52 37.36625	96 37 51.85442	517262.589	190118.181	.013	C	GPS - STATIC	2024    HMOFA2
46 52 37.36613	96 37 51.85407	517262.614	190118.169	.131	3	GPS - RTRN	2022    RTRN2022
46 52 37.36665	96 37 51.85371	517262.639	190118.222	.131	3	GPS - RTRN	2014    RTRN2014

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u> <u>Reference</u>
46 52 37.36608	96 37 51.85523	517262.533	190118.164	.033	C	GPS - STATIC	2024    HMOFA2

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u> <u>Determination Method</u> <u>Year</u> <u>Reference</u>
2029272.965	1021519.688	732692.395	17053456.569	.013		ADJUSTMENT	2024    GPS3715
2029272.965	1021519.688	732692.395	17053456.569	.013	C	GPS - STATIC	2024    HMOFA2
2029272.989	1021519.675	732692.418	17053456.556	.131	3	GPS - RTRN	2022    RTRN2022
2029273.016	1021519.727	732692.446	17053456.607	.131	3	GPS - RTRN	2014    RTRN2014

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u> <u>Reference</u>
2029272.908	1021519.673	732692.337	17053456.554	.033	C	GPS - STATIC	2024    HMOFA2



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MATZ-DQ2037-3N-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MATZ-DQ2037-3N-05JUL2022.jpg</a>	N	Jul 5, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MATZ-DQ2037-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MATZ-DQ2037-2-05JUL2022.jpg</a>		Jul 5, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MATZ-DQ2037-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MATZ-DQ2037-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: MAUL MNDT

NGS Name: MAUL

County: CLAY, MN (Sheet 1)

NGS ACRN: [DF7616](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096441/  
 USGS Quad: FARGO NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	7	140 N	48 W	465654.90	964749.37		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1993	2021	GOOD	Horz=NO Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 20 FT)	SURVEY DISK	MNDT

**Description:** (1993)                      **Stamping:** MAUL 1993

5.0 MILES NORTH OF FARGO, 5.0 MILES NORTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND TRUNK HIGHWAY 75 IN MOORHEAD, THEN 2.0 MILES WEST ALONG COUNTY ROAD 93 (70TH AVENUE NORTHWEST), THEN 0.4 MILE WEST ON 70TH AVENUE NORTHWEST, 29.0 FEET NORTH OF 70TH AVENUE NORTHWEST, 13.3 FEET EAST-SOUTHEAST OF A POWER POLE, 3.3 FEET WEST OF A WITNESS POST.

**Station Notes**

DUE TO TREE COVER, THIS SURVEY MARK HAS BEEN ABANDONED FOR MNDOT GEODETIC HORIZONTAL SURVEYS. THE SURVEY MARK MIGHT BE ON PRIVATE PROPERTY.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
893.272	.131		806.826	.010	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
893.272	.131		806.914	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2690
893.272	.131		806.977	.066	1996	GPS - STATIC	2010	HCOMS
893.272	.131		806.914	.066	2007	GPS - STATIC	2010	HCOMS
893.158	.262		806.905	.197	1996	GPS - RTRN	2009	RTRN2009
			806.914	.023	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
893.240	.131		806.977	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1905
893.207	.131		806.977	.066	1996	GPS - STATIC	2003	HMOOR

Geoid Separations(ft): GEOID18 = -86.401    12B = -86.420    09 = -86.263    03 = -86.253

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 56 54.89594	96 47 49.37352	475782.188	216217.947	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 56 54.89600	96 47 49.37460	475782.113	216217.953	.033	C	ADJUSTMENT	2011	GPS2690
46 56 54.89600	96 47 49.37460	475782.113	216217.953	.033	C	GPS - STATIC	2010	HCOMS
46 56 54.89600	96 47 49.37460	475782.113	216217.953	.016		ADJUSTMENT	2007	GPS2300

**NAD83(1996)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 56 54.89534	96 47 49.37444	475782.124	216217.886	.033	C	GPS - STATIC	2010	HCOMS
46 56 54.89621	96 47 49.37544	475782.055	216217.974	.131	3	GPS - RTRN	2009	RTRN2009
46 56 54.89534	96 47 49.37444	475782.124	216217.886	.033	C	ADJUSTMENT	2003	GPS1905
46 56 54.89534	96 47 49.37444	475782.124	216217.886	.033	C	GPS - STATIC	2003	HMOOR

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
1988622.505	1048887.793	692467.825	17081499.203	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
1988622.430	1048887.801	692467.751	17081499.213	.033	C	ADJUSTMENT	2011	GPS2690
1988622.430	1048887.801	692467.751	17081499.213	.033	C	GPS - STATIC	2010	HCOMS
1988622.430	1048887.801	692467.751	17081499.213	.016		ADJUSTMENT	2007	GPS2300

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
1988622.439	1048887.734	692467.759	17081499.146	.033	C	GPS - STATIC	2010	HCOMS
1988622.372	1048887.825	692467.693	17081499.237	.131	3	GPS - RTRN	2009	RTRN2009
1988622.439	1048887.734	692467.759	17081499.146	.033	C	ADJUSTMENT	2003	GPS1905
1988622.439	1048887.734	692467.758	17081499.146	.033	C	GPS - STATIC	2003	HMOOR

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MAUL-DF7616-3NW-21SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MAUL-DF7616-3NW-21SEP2009.jpg</a>	NW	Sep 21, 2009
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MAUL-DF7616-2-21SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MAUL-DF7616-2-21SEP2009.jpg</a>		Sep 21, 2009
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MAUL-DF7616-1-21SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MAUL-DF7616-1-21SEP2009.jpg</a>		Sep 21, 2009

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: MIKE

NGS Name: MIKE

County: CLAY, MN (Sheet 1)

NGS ACRN: [DR9257](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096232/  
 USGS Quad: ULEN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	21	141 N	44 W	470105.43	961529.45		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2022	2022	GOOD	Horz=YES Vert=YES	NO		RECESSED 1 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 22 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2022)                      Stamping: MIKE 2022

2.8 MILES NORTH OF HITTERDAL, 2.8 MILES NORTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND COUNTY ROAD 26 IN HITTERDAL, AT TRUNK HIGHWAY 32 MILEPOINT 25.35, 66.5 FEET WEST OF TRUNK HIGHWAY 32, 39.6 FEET SOUTH OF DRIVEWAY NUMBER 11839, 10.7 FEET EAST OF A POWER POLE, 10.7 FEET EAST OF A WITNESS POST.

Station Pair: DEEP - CLAY, MN

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order</u> (/Class)		<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
1218.584	.131			1131.041	.066	1996		GPS - STATIC	2023	HHITT
1218.584				1130.913	.013	2011		GPS - STATIC	2023	HHITT
1218.584				1130.913	.013	2011		HORIZONTAL ADJUSTMENT	2023	GPS3626
1218.672	.262			1130.864	.197	2011		GPS - RTRN	2022	RTRN2022

Geoid Separations(ft): GEOID18 = -87.808    03 = -87.647

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
47 01 05.42675	96 15 29.44987			610236.103	241897.356	.010	C	GPS - STATIC	2023	HHITT
47 01 05.42675	96 15 29.44987			610236.103	241897.356	.010		ADJUSTMENT	2023	GPS3626
47 01 05.42716	96 15 29.44960			610236.121	241897.398	.131	3	GPS - RTRN	2022	RTRN2022

<u>NAD83(1996)</u>				<u>Clay County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
47 01 05.42658	96 15 29.45027			610236.075	241897.339	.033	C	GPS - STATIC	2023	HHITT

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2123798.313	1070391.988			828043.699	17100808.751	.010	C	GPS - STATIC	2023	HHITT
2123798.313	1070391.988			828043.699	17100808.751	.010		ADJUSTMENT	2023	GPS3626
2123798.332	1070392.029			828043.719	17100808.792	.131	3	GPS - RTRN	2022	RTRN2022

<u>NAD83(1996)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2123798.285	1070391.971			828043.670	17100808.735	.033	C	GPS - STATIC	2023	HHITT



Mn/DOT Name: MIKJEN MNDT

NGS Name: MIKJEN

County: CLAY, MN (Sheet 1)

NGS ACRN: [DF7617](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	34	139 N	47 W	464856.15	963520.45	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1993	2008	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 45 FT)	SURVEY DISK	MNDT

**Description:** (2008)                      **Stamping:** MIKJEN 1993

3.75 MILES SOUTH OF GLYNDON, 0.5 MILE NORTH ALONG COUNTY ROAD 17 FROM THE JUNCTION OF INTERSTATE HIGHWAY 94 AND COUNTY ROAD 17, 3.5 MILES WEST AND NORTHWEST ALONG COUNTY ROAD 10 FROM THE JUNCTION OF COUNTY ROAD 10 AND INTERSTATE HIGHWAY 94 WEST OF DOWNER, THEN 3.75 MILES NORTH ON COUNTY ROAD 17, AT INTERSTATE HIGHWAY 94 MILEPOINT 10.15, 43.5 FEET WEST OF COUNTY ROAD 17, 10.5 FEET SOUTH OF AN ENTRANCE, 40.6 FEET SOUTH-SOUTHEAST OF A POWER POLE, 10.8 FEET NORTH-NORTHWEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order/(Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
927.541	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
927.715	.016	2/1					VERTICAL ADJUSTMENT	2011	00000685	
927.715	.016	2/1					VERTICAL CONTROL SURVEY	2008	VCL94	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order/(Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
				840.159	.022	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
				840.323	.021	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300	
927.688	.131			840.369	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1905	
927.688	.131			840.369	.066	1996	GPS - STATIC	2003	HMOOR	

Geoid Separations(ft): GEOID18 = -87.516    12B = -87.523    09 = -87.392    03 = -87.323

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 48 56.14637	96 35 20.44769	527813.254	167716.997	.016		ADJUSTMENT	2012	GPS2800	

  

<u>NAD83(2007)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 48 56.14633	96 35 20.44865	527813.187	167716.993	.016		ADJUSTMENT	2007	GPS2300	

  

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 48 56.14578	96 35 20.44843	527813.203	167716.937	.033	C	ADJUSTMENT	2003	GPS1905	
46 48 56.14578	96 35 20.44843	527813.203	167716.937	.033	C	GPS - STATIC	2003	HMOOR	

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2039124.724	998804.727	742180.358	17030572.004	.016		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2039124.657	998804.725	742180.291	17030572.003	.016		ADJUSTMENT	2007	GPS2300

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2039124.670	998804.669	742180.304	17030571.946	.033	C	ADJUSTMENT	2003	GPS1905
2039124.670	998804.669	742180.304	17030571.946	.033	C	GPS - STATIC	2003	HMOOR

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MIKJEN-DF7617-3W-09APR2008.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MIKJEN-DF7617-3W-09APR2008.jpg</a>	W	Apr 9, 2008
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MIKJEN-DF7617-2-09APR2008.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MIKJEN-DF7617-2-09APR2008.jpg</a>		Apr 9, 2008
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MIKJEN-DF7617-1-24APR2008.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MIKJEN-DF7617-1-24APR2008.jpg</a>		Apr 24, 2008

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: MINN 1303

NGS Name: MINN 1303

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096131/  
 USGS Quad: BIG SLOUGH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	16	137 N	44 W	464027.00	961524.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1912	2014	DESTROYED	Horz=NO Vert=NO	YES			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
PIPE (<10 FT)	SEE DESCRIPTION	USGS

**Description:** (1950)                      **Stamping:** MINN 1303 FT

7.2 MILES EAST OF BARNESVILLE, 0.9 MILE NORTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND TRUNK HIGHWAY 34 (THE JUNCTION IS 8.7 MILES EAST OF BARNESVILLE), THEN 0.9 MILE WEST ON 150TH AVENUE, 28.0 FEET NORTH OF 150TH AVENUE, 28.0 FEET EAST OF 260TH STREET.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1301.257	.033	3				VERTICAL CONTROL SURVEY	1974	USGS-VERT	

**Geoid Separations(ft): GEOID18 = -87.218    12B = -87.175    09 = -87.090    03 = -87.034**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: MINSKE  
County: CLAY, MN (Sheet 1)

NGS Name: MINSKE

NGS ACRN: [DQ1969](#) [Get Map](#)  
NGS Quad / Sta Num : 46096124/  
USGS Quad: ROLLAG

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	28	137 N	44 W	463932.85	961432.95	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 19 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: MINSKE 2014

8.45 MILES EAST OF BARNESVILLE, 8.45 MILES EAST ALONG TRUNK HIGHWAY 34 FROM THE JUNCTION OF TRUNK HIGHWAYS 34 AND 9 IN BARNESVILLE, AT TRUNK HIGHWAY 34 MILEPOINT 8.45, 62.3 FEET SOUTH OF TRUNK HIGHWAY 34, 62.7 WEST OF A RIGHT-OF-WAY POST, 1.5 FEET NORTH OF A WITNESS POST.

Station Pair: 1404 L - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order /Class</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
1287.737	.016	2/1				2019	00000941	VERTICAL ADJUSTMENT				

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order /Class</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
1287.737			1200.591	.021	2011	2024	GPS3671	HORIZONTAL ADJUSTMENT				
1287.737	.131		1200.703	.066	1996	2023	HTH9	GPS - STATIC				
1287.737			1200.591	.021	2011	2023	HTH9	GPS - STATIC				
1287.911	.262		1200.660	.197	2011	2022	RTRN2022	GPS - RTRN				
1287.704	.262		1200.486	.197	2011	2014	RTRN2014	GPS - RTRN				

Geoid Separations(ft): GEOID18 = -87.250 12B = -87.218 09 = -87.116 03 = -87.050

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 39 32.85177	96 14 32.94682	614914.142	110960.996	.013		ADJUSTMENT	2024	GPS3671
46 39 32.85177	96 14 32.94682	614914.142	110960.996	.013	C	GPS - STATIC	2023	HTH9
46 39 32.85152	96 14 32.94635	614914.175	110960.971	.131	3	GPS - RTRN	2022	RTRN2022
46 39 32.85178	96 14 32.94648	614914.166	110960.997	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 39 32.85153	96 14 32.94725	614914.112	110960.971	.033	C	GPS - STATIC	2023	HTH9

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2124418.306	939386.323	826547.944	16969758.703	.013		ADJUSTMENT	2024	GPS3671
2124418.306	939386.323	826547.944	16969758.703	.013	C	GPS - STATIC	2023	HTH9
2124418.338	939386.296	826547.976	16969758.677	.131	3	GPS - RTRN	2022	RTRN2022
2124418.330	939386.323	826547.968	16969758.703	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2124418.275	939386.299	826547.913	16969758.680	.033	C	GPS - STATIC	2023	HTH9



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MINSKE-DQ1969-3S-13SEP2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MINSKE-DQ1969-3S-13SEP2022.jpg</a>	S	Sep 13, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MINSKE-DQ1969-2-13SEP2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MINSKE-DQ1969-2-13SEP2022.jpg</a>		Sep 13, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MINSKE-DQ1969-1-13SEP2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MINSKE-DQ1969-1-13SEP2022.jpg</a>		Sep 13, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: MITTENS  
County: CLAY, MN (Sheet 1)

NGS Name: MITTENS

NGS ACRN: DO9536	<a href="#">Get Map</a>
NGS Quad / Sta Num : 47096331/	
USGS Quad: PERLEY	

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SE	6	142 N	48 W	470834.90	964755.54	2	C

  

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2012	2013	GOOD	Horz=YES Vert=YES	YES		RECESSED 1 IN.	BAR MAG IN DRILL HOLE

**Monument Type**: ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 25 FT)  
**Disk Type**: METAL ROD (WITH REMOVABLE ID DISK)  
**Mon. Agency**: MNDDT

**Description:** (2012)      **Stamping:** MITTENS 2012

4.4 MILES NORTH OF GEORGETOWN, 4.35 MILES NORTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND COUNTY ROAD 100/ COUNTY ROAD 34 IN GEORGETOWN, AT TRUNK HIGHWAY 75 MILEPOINT 270.25, 0.4 MILE NORTH OF COUNTY ROAD 101/ 200TH AVENUE NORTHWEST, 72.2 FEET WEST OF TRUNK HIGHWAY 75, 3.5 FEET EAST OF A RIGHT-OF-WAY POST, 3.5 FEET EAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
873.994	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
874.168			787.699	.024	2011	HORIZONTAL ADJUSTMENT	2013	GPS2963	
874.244	.131		787.892	.066	1996	GPS - STATIC	2013	HGEOR	
874.168			787.699	.024	2011	GPS - STATIC	2013	HGEOR	
874.017	.262		787.656	.197	2007	GPS - RTRN	2012	RTRN2012	

Geoid Separations(ft): GEOID18 = -86.457    12B = -86.460    09 = -86.361    03 = -86.355

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>			<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
47 08 34.89547	96 47 55.54057		475443.777	287142.516	.016		ADJUSTMENT	2013	GPS2963
47 08 34.89547	96 47 55.54057		475443.777	287142.516	.016	C	GPS - STATIC	2013	HGEOR

  

<u>NAD83(2007)</u>			<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
47 08 34.89515	96 47 55.54229		475443.659	287142.483	.131	3	GPS - RTRN	2012	RTRN2012

  

<u>NAD83(1996)</u>			<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
47 08 34.89437	96 47 55.54117		475443.736	287142.404	.033	C	GPS - STATIC	2013	HGEOR

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>UTM - Zone 15</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
1990476.662	1119785.635	695484.820	17152401.337	.016		ADJUSTMENT	2013	GPS2963
1990476.662	1119785.635	695484.820	17152401.337	.016	C	GPS - STATIC	2013	HGEOR

  

<u>NAD83(2007)</u>		<u>UTM - Zone 15</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
1990476.542	1119785.607	695484.699	17152401.310	.131	3	GPS - RTRN	2012	RTRN2012

  

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
1990476.617	1119785.526	695484.773	17152401.227	.033	C	GPS - STATIC	2013	HGEOR



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MITTENS-DO9536-3W-10OCT2012.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MITTENS-DO9536-3W-10OCT2012.jpg</a>	W	Oct 10, 2012
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MITTENS-DO9536-2-10OCT2012.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MITTENS-DO9536-2-10OCT2012.jpg</a>		Oct 10, 2012
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MITTENS-DO9536-1-10OCT2012.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MITTENS-DO9536-1-10OCT2012.jpg</a>		Oct 10, 2012

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: MITTET

NGS Name: MITTET

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ2023](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096141/  
 USGS Quad: HAWLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	11	139 N	45 W	465236.48	962036.25	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 24 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: MITTET 2014

1.0 MILE WEST OF HAWLEY, 1.0 MILE WEST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 31 IN HAWLEY, AT TRUNK HIGHWAY 10 MILEPOINT 20.45, 62.0 FEET SOUTH OF EASTBOUND TRUNK HIGHWAY 10, 85.4 FEET EAST OF 220TH STREET SOUTH, 1.5 FEET NORTH OF A WITNESS POST.

Station Pair: KJONO - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
1201.021	.016	2/1				2024	00000941-3	VERTICAL ADJUSTMENT		2024	00000941-3	
1201.021	.016	2/1				2023	VMOFA	VERTICAL CONTROL SURVEY		2023	VMOFA	
1201.021	.016	2/1				2019	00000941	VERTICAL ADJUSTMENT		2019	00000941	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
1201.021			1113.357	.029	2011	2024	GPS3719	HORIZONTAL ADJUSTMENT		2024	GPS3719	
1201.021	.131		1113.489	.066	1996	2024	HMOFA1	GPS - STATIC		2024	HMOFA1	
1201.021			1113.357	.029	2011	2024	HMOFA1	GPS - STATIC		2024	HMOFA1	
1201.182	.262		1113.348	.197	2011	2022	RTRN2022	GPS - RTRN		2022	RTRN2022	
1201.005	.262		1113.190	.197	2011	2014	RTRN2014	GPS - RTRN		2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.834 12B = -87.812 09 = -87.707 03 = -87.670

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 52 36.47582	96 20 36.24714	589211.847	190222.977	.016		ADJUSTMENT	2024	GPS3719
46 52 36.47582	96 20 36.24714	589211.847	190222.977	.016	C	GPS - STATIC	2024	HMOFA1
46 52 36.47619	96 20 36.24672	589211.876	190223.014	.131	3	GPS - RTRN	2022	RTRN2022
46 52 36.47616	96 20 36.24737	589211.831	190223.011	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 52 36.47549	96 20 36.24766	589211.811	190222.943	.033	C	GPS - STATIC	2024	HMOFA1

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>				
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2101185.078	1019397.657	804596.736	17050167.998	.016		ADJUSTMENT	2024	GPS3719	2024	GPS3719
2101185.078	1019397.657	804596.736	17050167.998	.016	C	GPS - STATIC	2024	HMOFA1	2024	HMOFA1
2101185.108	1019397.693	804596.766	17050168.034	.131	3	GPS - RTRN	2022	RTRN2022	2022	RTRN2022
2101185.063	1019397.692	804596.721	17050168.033	.131	3	GPS - RTRN	2014	RTRN2014	2014	RTRN2014

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2101185.041	1019397.624	804596.698	17050167.966	.033	C	GPS - STATIC	2024	HMOFA1



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MITTET-DQ2023-3S-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MITTET-DQ2023-3S-14JUN2022.jpg</a>	S	Jun 14, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MITTET-DQ2023-2-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MITTET-DQ2023-2-14JUN2022.jpg</a>		Jun 14, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MITTET-DQ2023-1-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MITTET-DQ2023-1-14JUN2022.jpg</a>		Jun 14, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: MNCORS HAWL HAWLEY ARP

NGS Name: HAWLEY MNCORS ARP

County: CLAY, MN (Sheet 1)

NGS ACRN: [DR9258](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096141/  
 USGS Quad: HAWLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	6	139 N	44 W	465241.24	961800.59	3	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2003	2025	DESTROYED	Horz=NO Vert=NO	YES			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	SEE DESCRIPTION	MNDT

**Description:** (2012)

**Stamping:**

1.0 MILE EAST OF HAWLEY, 1.0 MILE EAST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 31/COUNTY ROAD 33 IN HAWLEY, TO TRUNK HIGHWAY 10 MILEPOINT 22.4, THEN NORTH ON THE ENTRANCE TO THE MINNESOTA DEPARTMENT OF TRANSPORTATION MAINTENANCE SHOP, ATTACHED TO THE WEST SIDE OF A BUILDING. STATION MNCORS HAWL HAWLEY ARP IS THE TOP OF A BRACKET OF A GPS ANTENNA MOUNT.

**Station Notes**

THE NATIONAL GEODETIC SURVEY (NGS) SITE ID IS MNHL.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1177.704	.033	3					NON-RECIPROCAL VERTICAL ANGLE	2004	VTRIG1	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1177.557				1089.873	.004	2011	HORIZONTAL ADJUSTMENT	2024	GPS3762	
1177.557				1089.873	.006	2011	HORIZONTAL ADJUSTMENT	2024	GPS3755	
1177.560	.131			1089.998	.066	1996	GPS - STATIC	2024	HTH32	
1177.557				1089.873	.004	2011	GPS - STATIC	2024	HTH32	
1177.557				1089.873	.006	2011	GPS - STATIC	2024	HMNARP4	
1177.553	.131			1089.998	.066	1996	GPS - STATIC	2023	HHITT	
1177.567				1089.873	.007	2011	GPS - STATIC	2023	HHITT	
1177.567				1089.873	.007	2011	HORIZONTAL ADJUSTMENT	2023	GPS3626	
1177.678	.131			1089.998	.066	1996	GPS - STATIC	2017	HMNCORS07	
				1089.821	.007	2011	GPS - STATIC	2015	HMNCORS15	
1177.655	.098			1089.847	.049	2011	GPS - STATIC	2012	HMNCORS05	
1177.688	.098			1089.896	.049	1996	GPS - STATIC	2006	HMNCORS02	
1177.688	.098			1089.968	.049	1996	GPS - STATIC	2005	HMNCORS01	

Geoid Separations(ft): GEOID18 = -87.831 12B = -87.812 09 = -87.700 03 = -87.657

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 52 41.23978	96 18 00.58862	600023.809	190757.752	.003		ADJUSTMENT	2024	GPS3762
46 52 41.23978	96 18 00.58862	600023.809	190757.752	.003		ADJUSTMENT	2024	GPS3755
46 52 41.23978	96 18 00.58862	600023.809	190757.752	.003	C	GPS - STATIC	2024	HTH32
46 52 41.23978	96 18 00.58862	600023.809	190757.752	.003	C	GPS - STATIC	2024	HMNARP4
46 52 41.23978	96 18 00.58862	600023.809	190757.752	.003	C	GPS - STATIC	2023	HHITT
46 52 41.23978	96 18 00.58862	600023.809	190757.752	.003		ADJUSTMENT	2023	GPS3626
46 52 41.23983	96 18 00.58852	600023.816	190757.757	.003	A	GPS - STATIC	2015	HMNCORS15
46 52 41.23975	96 18 00.58872	600023.802	190757.749	.016	B	GPS - STATIC	2012	HMNCORS05

**NAD83(1996)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 52 41.23961	96 18 00.58901	600023.782	190757.735	.033	C	GPS - STATIC	2024	HTH32
46 52 41.23961	96 18 00.58901	600023.782	190757.735	.033	C	GPS - STATIC	2023	HHITT
46 52 41.23961	96 18 00.58901	600023.782	190757.735	.033	C	GPS - STATIC	2017	HMNCORS07
46 52 41.23969	96 18 00.58977	600023.729	190757.742	.016	B	GPS - STATIC	2006	HMNCORS02
46 52 41.23979	96 18 00.58973	600023.732	190757.753	.016	B	GPS - STATIC	2005	HMNCORS01

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2112007.456	1019597.306	815425.480	17050192.517	.003		ADJUSTMENT	2024	GPS3762
2112007.456	1019597.306	815425.480	17050192.517	.003		ADJUSTMENT	2024	GPS3755
2112007.456	1019597.306	815425.480	17050192.517	.003	C	GPS - STATIC	2024	HTH32
2112007.456	1019597.306	815425.480	17050192.517	.003	C	GPS - STATIC	2024	HMNARP4
2112007.456	1019597.306	815425.480	17050192.517	.003	C	GPS - STATIC	2023	HHITT
2112007.456	1019597.306	815425.480	17050192.517	.003		ADJUSTMENT	2023	GPS3626
2112007.463	1019597.311	815425.487	17050192.522	.003	A	GPS - STATIC	2015	HMNCORS15
2112007.449	1019597.303	815425.473	17050192.515	.016	B	GPS - STATIC	2012	HMNCORS05

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2112007.429	1019597.290	815425.452	17050192.501	.033	C	GPS - STATIC	2024	HTH32
2112007.429	1019597.290	815425.452	17050192.501	.033	C	GPS - STATIC	2023	HHITT
2112007.429	1019597.290	815425.452	17050192.501	.033	C	GPS - STATIC	2017	HMNCORS07
2112007.376	1019597.299	815425.400	17050192.512	.016	B	GPS - STATIC	2006	HMNCORS02
2112007.379	1019597.309	815425.403	17050192.522	.016	B	GPS - STATIC	2005	HMNCORS01

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAWLEY_CORS_ARP-!52117-3E-30AUG2006.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAWLEY_CORS_ARP-!52117-3E-30AUG2006.jpg</a>	E	Aug 30, 2006
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAWLEY_CORS_ARP-!52117-2-30AUG2006.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAWLEY_CORS_ARP-!52117-2-30AUG2006.jpg</a>		Aug 30, 2006
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAWLEY_CORS_ARP-!52117-1-30AUG2006.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAWLEY_CORS_ARP-!52117-1-30AUG2006.jpg</a>		Aug 30, 2006

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: MNCORS HAWL HAWLEY L1PC1

NGS Name: HAWLEY CORS L1 PHASE CENTER

County: CLAY, MN (Sheet 1)

NGS ACRN: [!95636](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096141/  
 USGS Quad: HAWLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	6	139 N	44 W	465241.24	961800.59		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2005	2008	DESTROYED	Horz=NO Vert=NO	YES			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	SEE DESCRIPTION	MNDT

Description: (2010)

Stamping:

1.0 MILE EAST OF HAWLEY, 1.0 MILE EAST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 31/COUNTY ROAD 33 IN HAWLEY, TO TRUNK HIGHWAY 10 MILEPOINT 22.4, THEN NORTH ON THE ENTRANCE TO THE MINNESOTA DEPARTMENT OF TRANSPORTATION MAINTENANCE SHOP, ATTACHED TO THE WEST SIDE OF A BUILDING. THE STATION IS IN A ZEPHYR GEODETIC ANTENNA SERIAL NUMBER 12422802.

Station Notes

THE NATIONAL GEODETIC SURVEY (NGS) SITE ID IS MNHL.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.828 12B = -87.812 09 = -87.700 03 = -87.657

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAWLEY_CORS_L1_PHASE_CENTER-195636-3E-31AUG2006.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAWLEY_CORS_L1_PHASE_CENTER-195636-3E-31AUG2006.jpg</a>	E	Aug 31, 2006
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAWLEY_CORS_L1_PHASE_CENTER-195636-2-30AUG2006.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAWLEY_CORS_L1_PHASE_CENTER-195636-2-30AUG2006.jpg</a>		Aug 30, 2006
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAWLEY_CORS_L1_PHASE_CENTER-195636-1-30AUG2006.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAWLEY_CORS_L1_PHASE_CENTER-195636-1-30AUG2006.jpg</a>		Aug 30, 2006

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: MNCORS HAWL HAWLEY L1PC2

NGS Name: HAWLEY CORS L1 PHASE CENTER

County: CLAY, MN (Sheet 1)

NGS ACRN: [I95637](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096141/  
 USGS Quad: HAWLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	6	139 N	44 W	465241.24	961800.59		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2008	2008	GOOD	Horz=YES Vert=YES	YES			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	SEE DESCRIPTION	MNDT

**Description:** (2010)

**Stamping:**

1.0 MILE EAST OF HAWLEY, 1.0 MILE EAST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 31/COUNTY ROAD 33 IN HAWLEY, TO TRUNK HIGHWAY 10 MILEPOINT 22.4, THEN NORTH ON AN ENTRANCE TO THE MINNESOTA DEPARTMENT OF TRANSPORTATION MAINTENANCE SHOP, ATTACHED TO THE WEST SIDE OF A BUILDING. STATION MNCORS HAWL HAWLEY L1PC2 IS IN A ZEPHYR GEODETIC LF MODEL ANTENNA SERIAL NUMBER 30973205.

**Station Notes**

THE NATIONAL GEODETIC SURVEY (NGS) SITE ID IS MNHL.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.828 12B = -87.812 09 = -87.700 03 = -87.657

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAWLEY_CORS_L1_PHASE_CENTER-195637-3E-31AUG2006.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAWLEY_CORS_L1_PHASE_CENTER-195637-3E-31AUG2006.jpg</a>	E	Aug 31, 2006
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAWLEY_CORS_L1_PHASE_CENTER-195637-2-30AUG2006.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAWLEY_CORS_L1_PHASE_CENTER-195637-2-30AUG2006.jpg</a>		Aug 30, 2006
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAWLEY_CORS_L1_PHASE_CENTER-195637-1-08SEP2008.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAWLEY_CORS_L1_PHASE_CENTER-195637-1-08SEP2008.jpg</a>		Sep 8, 2008

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: MNCORS HWL2 HAWLEY 2 ARP

NGS Name: HAWLEY MNCORS 2 ARP

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096141/  
 USGS Quad: HAWLEY

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SW	6	139 N	44 W	465241.24	961800.59		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2003	2025	GOOD	Horz=YES Vert=?	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	SEE DESCRIPTION	MNDT

**Description:** (2025)                      **Stamping:**

1.0 MILE EAST OF HAWLEY, 1.0 MILE EAST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 31/COUNTY ROAD 33 IN HAWLEY, TO TRUNK HIGHWAY 10 MILEPOINT 22.4, THEN NORTH ON THE ENTRANCE TO THE MINNESOTA DEPARTMENT OF TRANSPORTATION MAINTENANCE SHOP, ATTACHED TO THE WEST SIDE OF A BUILDING. STATION MNCORS HAWL HAWLEY ARP IS THE TOP OF A BRACKET OF A GPS ANTENNA MOUNT.

**Station Notes**

THE NATIONAL GEODETIC SURVEY (NGS) SITE ID IS MNHL.

\* No Horizontal or Vertical Positions in the Database \*

No Geoid Separations Available

<u>Type</u>	<u>Station Photos</u> <u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:			
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAWLEY_MNCORS_2_ARP-2-22MAY2025.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAWLEY_MNCORS_2_ARP-2-22MAY2025.jpg</a>		May 22, 2025
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAWLEY_MNCORS_2_ARP-1-22MAY2025.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/HAWLEY_MNCORS_2_ARP-1-22MAY2025.jpg</a>		May 22, 2025

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: MNCORS MORH MOORHEAD ARP

NGS Name: CLAY COUNTY COOP CORS ARP

County: CLAY, MN (Sheet 1)

NGS ACRN: [DI0729](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096441/  
 USGS Quad: FARGO NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	5	139 N	48 W	465303.13	964549.59	3	A

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2003	2015	GOOD	Horz=YES Vert=YES	YES			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	SEE DESCRIPTION	MNDT

Description: (2012)

Stamping:

IN MOORHEAD, 0.55 MILE NORTH ALONG 11TH STREET NORTH FROM THE JUNCTION OF 1ST AVENUE NORTH AND 11 TH STREET NORTH, THEN 0.05 MILE WEST ON 8TH AVENUE NORTH, AT THE CLAY COUNTY GOVERNMENT CENTER, ATTACHED TO THE ROOF ON THE WEST SIDE OF A BUILDING. STATION MNCORS MORH MOORHEAD ARP IS THE TOP OF THE BRACKET A OF GPS ANTENNA MOUNT.

**Station Notes**

SENT BY CLAY COUNTY WITH THE NATIONAL GEODETIC SURVEY (NGS) SITE ID MORH, PREVIOUSLY PROPOSED AS MNMO.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
959.768	.033	3				NON-RECIPROCAL VERTICAL ANGLE	2005	VTRIG1	



**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

Orthometric Height			Ellipsoid (NAD83)			Determination Method	Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj		Year	Reference
			872.836	.006	2011	HORIZONTAL ADJUSTMENT	2025	GPS3854
959.440			872.836	.006	2011	HORIZONTAL ADJUSTMENT	2025	GPS3838
959.552			872.836	.006	2011	GPS - STATIC	2025	HWAHP
959.503			872.836	.006	2011	HORIZONTAL ADJUSTMENT	2025	GPS3805
959.440	.131		872.856	.066	1996	GPS - STATIC	2025	HTH94A
959.503			872.836	.006	2011	GPS - STATIC	2025	HTH94A
959.490			872.836	.007	2011	HORIZONTAL ADJUSTMENT	2024	GPS3762
			872.836	.007	2011	HORIZONTAL ADJUSTMENT	2024	GPS3755
959.496	.131		872.856	.066	1996	GPS - STATIC	2024	HTH32
959.490			872.836	.007	2011	GPS - STATIC	2024	HTH32
959.526			872.836	.007	2011	GPS - STATIC	2024	HMNARP4
959.440			872.836	.006	2011	GPS - STATIC	2024	HENLOE
959.775			872.836	.009	2011	HORIZONTAL ADJUSTMENT	2024	GPS3738
959.775			872.836	.009	2011	GPS - STATIC	2024	HMNARP1
959.493			872.836	.009	2011	HORIZONTAL ADJUSTMENT	2024	GPS3719
959.398			872.836	.008	2011	HORIZONTAL ADJUSTMENT	2024	GPS3715
959.526	.131		872.856	.066	1996	GPS - STATIC	2024	HMOFA1
959.493			872.836	.009	2011	GPS - STATIC	2024	HMOFA1
959.398			872.836	.008	2011	GPS - STATIC	2024	HMOFA2
959.408	.131		872.856	.066	1996	GPS - STATIC	2024	HMOFA2
959.598			872.836	.009	2011	HORIZONTAL ADJUSTMENT	2024	GPS3689
			872.836	.009	2011	HORIZONTAL ADJUSTMENT	2024	GPS3674
959.513			872.836	.007	2011	HORIZONTAL ADJUSTMENT	2024	GPS3671
			872.836	.007	2011	HORIZONTAL ADJUSTMENT	2024	GPS3672
959.591	.131		872.856	.066	1996	GPS - STATIC	2024	HTH108
959.598			872.836	.009	2011	GPS - STATIC	2024	HTH108
959.591	.131		872.856	.066	1996	GPS - STATIC	2023	HTH59
959.516	.131		872.856	.066	1996	GPS - STATIC	2023	HTH9
959.513			872.836	.007	2011	GPS - STATIC	2023	HTH9
959.614			872.836	.007	2011	GPS - STATIC	2023	HTH59
959.447			872.836	.009	2011	GPS - STATIC	2023	HMOFA3
959.467	.131		872.856	.066	1996	GPS - STATIC	2023	HMOFA3
959.490	.131		872.856	.066	1996	GPS - STATIC	2023	HHITT
959.490			872.836	.008	2011	GPS - STATIC	2023	HHITT
959.490			872.836	.008	2011	HORIZONTAL ADJUSTMENT	2023	GPS3626
			872.790	.006	2011	HORIZONTAL ADJUSTMENT	2019	CORS-MYCS2
			872.761	.006	2011	HORIZONTAL ADJUSTMENT	2018	GPS3119
959.598	.131		872.856	.066	1996	GPS - STATIC	2017	HMNCORS07
959.618			872.761	.006	2011	GPS - STATIC	2017	HMNPH
			872.771	.002	2011	GPS - STATIC	2015	HMNCORS15
			872.761	.006	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084
959.634	.131		872.889	.066	1996	GPS - STATIC	2015	HCLAY
959.775			872.761	.019	2011	HORIZONTAL ADJUSTMENT	2015	GPS3080
959.667			872.748	.006	2011	GPS - STATIC	2015	HCLAY
959.611	.131		872.944	.066	1996	GPS - STATIC	2015	HWILK
959.775			872.764	.019	2011	GPS - STATIC	2015	HWILK
959.775			872.761	.014	2011	HORIZONTAL ADJUSTMENT	2013	GPS2975
959.775			872.771	.014	2011	GPS - STATIC	2013	HPLK2
959.775			872.761	.014	2011	HORIZONTAL ADJUSTMENT	2013	GPS2970
959.775	.131		872.846	.066	1996	GPS - STATIC	2013	HPLK1
959.775			872.777	.014	2011	GPS - STATIC	2013	HPLK1
959.775			872.761	.021	2011	HORIZONTAL ADJUSTMENT	2013	GPS2961
959.775			872.767	.021	2011	GPS - STATIC	2013	HOILY
959.775			872.761	.012	2011	HORIZONTAL ADJUSTMENT	2013	GPS2946
959.775			872.754	.012	2011	GPS - STATIC	2013	HTERR
959.644	.098		872.761	.049	2011	GPS - STATIC	2012	HMNCORS05
			872.761	.000	2011	HORIZONTAL ADJUSTMENT	2012	CORS-MYCS
			872.761	.000	2011	HORIZONTAL ADJUSTMENT	2011	CORS4512



959.775	.131	872.803	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2690
959.775	.131	872.944	.066	1996	GPS - STATIC	2010	HCOMS
959.775	.131	872.803	.066	2007	GPS - STATIC	2010	HCOMS
959.775	.098	872.846	.049	1996	GPS - STATIC	2006	HMNCORS02
		872.803	.000	2007	HORIZONTAL ADJUSTMENT	2006	CORS2713
959.742	.098	872.954	.049	1996	GPS - STATIC	2005	HMNCORS01

Geoid Separations(ft): GEOID18 = -86.899 12B = -86.886 09 = -86.765 03 = -86.719

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Clay County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 53 03.12748	96 45 49.58744	484074.177	192727.147	.003		ADJUSTMENT	2025	GPS3854
46 53 03.12748	96 45 49.58744	484074.177	192727.147	.003		ADJUSTMENT	2025	GPS3838
46 53 03.12748	96 45 49.58744	484074.177	192727.147	.003	C	GPS - STATIC	2025	HWAHP
46 53 03.12748	96 45 49.58744	484074.177	192727.147	.003		ADJUSTMENT	2025	GPS3805
46 53 03.12748	96 45 49.58744	484074.177	192727.147	.003	C	GPS - STATIC	2025	HTH94A
46 53 03.12748	96 45 49.58744	484074.177	192727.147	.003		ADJUSTMENT	2024	GPS3762
46 53 03.12748	96 45 49.58744	484074.177	192727.147	.003		ADJUSTMENT	2024	GPS3755
46 53 03.12748	96 45 49.58744	484074.177	192727.147	.003	C	GPS - STATIC	2024	HTH32
46 53 03.12748	96 45 49.58744	484074.177	192727.147	.003	C	GPS - STATIC	2024	HMNARP4
46 53 03.12748	96 45 49.58744	484074.177	192727.147	.003	C	GPS - STATIC	2024	HENLOE
46 53 03.12748	96 45 49.58744	484074.177	192727.147	.003		ADJUSTMENT	2024	GPS3738
46 53 03.12748	96 45 49.58744	484074.177	192727.147	.003	C	GPS - STATIC	2024	HMNARP1
46 53 03.12748	96 45 49.58744	484074.177	192727.147	.003		ADJUSTMENT	2024	GPS3719
46 53 03.12748	96 45 49.58744	484074.177	192727.147	.003		ADJUSTMENT	2024	GPS3715
46 53 03.12748	96 45 49.58744	484074.177	192727.147	.003	C	GPS - STATIC	2024	HMOFA1
46 53 03.12748	96 45 49.58744	484074.177	192727.147	.003	C	GPS - STATIC	2024	HMOFA2
46 53 03.12748	96 45 49.58744	484074.177	192727.147	.003		ADJUSTMENT	2024	GPS3689
46 53 03.12748	96 45 49.58744	484074.177	192727.147	.003		ADJUSTMENT	2024	GPS3674
46 53 03.12748	96 45 49.58744	484074.177	192727.147	.003		ADJUSTMENT	2024	GPS3671
46 53 03.12748	96 45 49.58744	484074.177	192727.147	.003		ADJUSTMENT	2024	GPS3672
46 53 03.12748	96 45 49.58744	484074.177	192727.147	.003	C	GPS - STATIC	2024	HTH108
46 53 03.12748	96 45 49.58744	484074.177	192727.147	.003	C	GPS - STATIC	2023	HTH9
46 53 03.12748	96 45 49.58744	484074.177	192727.147	.003	C	GPS - STATIC	2023	HMOFA3
46 53 03.12748	96 45 49.58744	484074.177	192727.147	.003	C	GPS - STATIC	2023	HTH59
46 53 03.12748	96 45 49.58744	484074.177	192727.147	.003	C	GPS - STATIC	2023	HHITT
46 53 03.12748	96 45 49.58744	484074.177	192727.147	.003		ADJUSTMENT	2023	GPS3626
46 53 03.12746	96 45 49.58745	484074.177	192727.145	.003		ADJUSTMENT	2019	CORS-MYCS2
46 53 03.12745	96 45 49.58743	484074.178	192727.144	.003		ADJUSTMENT	2018	GPS3119
46 53 03.12745	96 45 49.58743	484074.178	192727.144	.003	C	GPS - STATIC	2017	HMNPH
46 53 03.12747	96 45 49.58746	484074.176	192727.146	.003	A	GPS - STATIC	2015	HMNCORS15
46 53 03.12745	96 45 49.58743	484074.178	192727.144	.003		ADJUSTMENT	2015	GPS3084
46 53 03.12745	96 45 49.58743	484074.178	192727.144	.007		ADJUSTMENT	2015	GPS3080
46 53 03.12751	96 45 49.58738	484074.181	192727.150	.003	C	GPS - STATIC	2015	HCLAY
46 53 03.12746	96 45 49.58733	484074.185	192727.145	.007	C	GPS - STATIC	2015	HWILK
46 53 03.12745	96 45 49.58743	484074.178	192727.144	.010		ADJUSTMENT	2013	GPS2975
46 53 03.12750	96 45 49.58753	484074.171	192727.149	.010	C	GPS - STATIC	2013	HPLK2
46 53 03.12745	96 45 49.58743	484074.178	192727.144	.010		ADJUSTMENT	2013	GPS2970
46 53 03.12748	96 45 49.58745	484074.177	192727.147	.010	C	GPS - STATIC	2013	HPLK1
46 53 03.12745	96 45 49.58743	484074.178	192727.144	.010		ADJUSTMENT	2013	GPS2961
46 53 03.12747	96 45 49.58732	484074.185	192727.146	.010	C	GPS - STATIC	2013	HOILY
46 53 03.12745	96 45 49.58743	484074.178	192727.144	.007		ADJUSTMENT	2013	GPS2946
46 53 03.12758	96 45 49.58729	484074.188	192727.157	.007	C	GPS - STATIC	2013	HTERR
46 53 03.12745	96 45 49.58743	484074.178	192727.144	.016	B	GPS - STATIC	2012	HMNCORS05
46 53 03.12745	96 45 49.58743	484074.178	192727.144	.003		ADJUSTMENT	2012	CORS-MYCS
46 53 03.12745	96 45 49.58743	484074.178	192727.144	.003	A	ADJUSTMENT	2011	CORS4512

NAD83(2007)

Geodetic Position		Clay County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 53 03.12750	96 45 49.58809	484074.132	192727.149	.033	C	ADJUSTMENT	2011	GPS2690
46 53 03.12750	96 45 49.58809	484074.132	192727.149	.033	C	GPS - STATIC	2010	HCOMS
46 53 03.12750	96 45 49.58809	484074.132	192727.149	.003	A	ADJUSTMENT	2006	CORS2713



**NAD83(1996)**

Geodetic Position		Clay County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 53 03.12726	96 45 49.58849	484074.104	192727.125	.066		NCAT	2025	HWAHP
46 53 03.12734	96 45 49.58774	484074.156	192727.133	.033	C	GPS - STATIC	2025	HTH94A
46 53 03.12734	96 45 49.58774	484074.156	192727.133	.033	C	GPS - STATIC	2024	HTH32
46 53 03.12726	96 45 49.58849	484074.104	192727.125	.066		NCAT	2024	HENLOE
46 53 03.12734	96 45 49.58774	484074.156	192727.133	.033	C	GPS - STATIC	2024	HMOFA1
46 53 03.12734	96 45 49.58774	484074.156	192727.133	.033	C	GPS - STATIC	2024	HMOFA2
46 53 03.12734	96 45 49.58774	484074.156	192727.133	.033	C	GPS - STATIC	2024	HTH108
46 53 03.12734	96 45 49.58774	484074.156	192727.133	.033	C	GPS - STATIC	2023	HTH59
46 53 03.12734	96 45 49.58774	484074.156	192727.133	.033	C	GPS - STATIC	2023	HTH9
46 53 03.12734	96 45 49.58774	484074.156	192727.133	.033	C	GPS - STATIC	2023	HMOFA3
46 53 03.12734	96 45 49.58774	484074.156	192727.133	.033	C	GPS - STATIC	2023	HHITT
46 53 03.12734	96 45 49.58774	484074.156	192727.133	.033	C	GPS - STATIC	2017	HMNCORS07
46 53 03.12702	96 45 49.58816	484074.127	192727.100	.033	C	GPS - STATIC	2015	HCLAY
46 53 03.12748	96 45 49.58874	484074.087	192727.147	.033	C	GPS - STATIC	2015	HWILK
46 53 03.12748	96 45 49.58871	484074.089	192727.147	.033	C	GPS - STATIC	2013	HPLK1
46 53 03.12748	96 45 49.58871	484074.089	192727.147	.033	C	GPS - STATIC	2010	HCOMS
46 53 03.12748	96 45 49.58871	484074.089	192727.147	.016	B	GPS - STATIC	2006	HMNCORS02
46 53 03.12766	96 45 49.58872	484074.088	192727.165	.016	B	GPS - STATIC	2005	HMNCORS01



**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15						Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference	
1996183.702	1025153.568	699646.396	17057629.687	.003		ADJUSTMENT	2025	GPS3854	
1996183.702	1025153.568	699646.396	17057629.687	.003		ADJUSTMENT	2025	GPS3838	
1996183.702	1025153.568	699646.396	17057629.687	.003	C	GPS - STATIC	2025	HWAHP	
1996183.702	1025153.568	699646.396	17057629.687	.003		ADJUSTMENT	2025	GPS3805	
1996183.702	1025153.568	699646.396	17057629.687	.003	C	GPS - STATIC	2025	HTH94A	
1996183.702	1025153.568	699646.396	17057629.687	.003		ADJUSTMENT	2024	GPS3762	
1996183.702	1025153.568	699646.396	17057629.687	.003		ADJUSTMENT	2024	GPS3755	
1996183.702	1025153.568	699646.396	17057629.687	.003	C	GPS - STATIC	2024	HTH32	
1996183.702	1025153.568	699646.396	17057629.687	.003	C	GPS - STATIC	2024	HMNARP4	
1996183.702	1025153.568	699646.396	17057629.687	.003	C	GPS - STATIC	2024	HENLOE	
1996183.702	1025153.568	699646.396	17057629.687	.003		ADJUSTMENT	2024	GPS3738	
1996183.702	1025153.568	699646.396	17057629.687	.003	C	GPS - STATIC	2024	HMNARP1	
1996183.702	1025153.568	699646.396	17057629.687	.003		ADJUSTMENT	2024	GPS3719	
1996183.702	1025153.568	699646.396	17057629.687	.003		ADJUSTMENT	2024	GPS3715	
1996183.702	1025153.568	699646.396	17057629.687	.003	C	GPS - STATIC	2024	HMOFA1	
1996183.702	1025153.568	699646.396	17057629.687	.003	C	GPS - STATIC	2024	HMOFA2	
1996183.702	1025153.568	699646.396	17057629.687	.003		ADJUSTMENT	2024	GPS3689	
1996183.702	1025153.568	699646.396	17057629.687	.003		ADJUSTMENT	2024	GPS3674	
1996183.702	1025153.568	699646.396	17057629.687	.003		ADJUSTMENT	2024	GPS3671	
1996183.702	1025153.568	699646.396	17057629.687	.003		ADJUSTMENT	2024	GPS3672	
1996183.702	1025153.568	699646.396	17057629.687	.003	C	GPS - STATIC	2024	HTH108	
1996183.702	1025153.568	699646.396	17057629.687	.003	C	GPS - STATIC	2023	HTH9	
1996183.702	1025153.568	699646.396	17057629.687	.003	C	GPS - STATIC	2023	HMOFA3	
1996183.702	1025153.568	699646.396	17057629.687	.003	C	GPS - STATIC	2023	HTH59	
1996183.702	1025153.568	699646.396	17057629.687	.003	C	GPS - STATIC	2023	HHITT	
1996183.702	1025153.568	699646.396	17057629.687	.003		ADJUSTMENT	2023	GPS3626	
1996183.701	1025153.566	699646.396	17057629.685	.003		ADJUSTMENT	2019	CORS-MYCS2	
1996183.702	1025153.565	699646.397	17057629.684	.003		ADJUSTMENT	2018	GPS3119	
1996183.702	1025153.565	699646.397	17057629.684	.003	C	GPS - STATIC	2017	HMNPH	
1996183.700	1025153.567	699646.395	17057629.686	.003	A	GPS - STATIC	2015	HMNCORS15	
1996183.702	1025153.565	699646.397	17057629.684	.003		ADJUSTMENT	2015	GPS3084	
1996183.702	1025153.565	699646.397	17057629.684	.007		ADJUSTMENT	2015	GPS3080	
1996183.706	1025153.571	699646.401	17057629.690	.003	C	GPS - STATIC	2015	HCLAY	
1996183.709	1025153.566	699646.404	17057629.685	.007	C	GPS - STATIC	2015	HWILK	
1996183.702	1025153.565	699646.397	17057629.684	.010		ADJUSTMENT	2013	GPS2975	
1996183.695	1025153.570	699646.390	17057629.689	.010	C	GPS - STATIC	2013	HPLK2	
1996183.702	1025153.565	699646.397	17057629.684	.010		ADJUSTMENT	2013	GPS2970	
1996183.701	1025153.568	699646.396	17057629.687	.010	C	GPS - STATIC	2013	HPLK1	
1996183.702	1025153.565	699646.397	17057629.684	.010		ADJUSTMENT	2013	GPS2961	
1996183.710	1025153.566	699646.405	17057629.686	.010	C	GPS - STATIC	2013	HOILY	
1996183.702	1025153.565	699646.397	17057629.684	.007		ADJUSTMENT	2013	GPS2946	
1996183.712	1025153.578	699646.407	17057629.697	.007	C	GPS - STATIC	2013	HTERR	
1996183.702	1025153.565	699646.397	17057629.684	.016	B	GPS - STATIC	2012	HMNCORS05	
1996183.702	1025153.565	699646.397	17057629.684	.003		ADJUSTMENT	2012	CORS-MYCS	
1996183.702	1025153.565	699646.397	17057629.684	.003	A	ADJUSTMENT	2011	CORS4512	

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15						Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference	
1996183.656	1025153.571	699646.351	17057629.691	.033	C	ADJUSTMENT	2011	GPS2690	
1996183.656	1025153.571	699646.351	17057629.691	.033	C	GPS - STATIC	2010	HCOMS	
1996183.656	1025153.571	699646.351	17057629.691	.003	A	ADJUSTMENT	2006	CORS2713	



**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15						Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
1996183.628	1025153.548	699646.322	17057629.668	.066		NCAT	2025	HWAHP	
1996183.680	1025153.554	699646.375	17057629.674	.033	C	GPS - STATIC	2025	HTH94A	
1996183.680	1025153.554	699646.375	17057629.674	.033	C	GPS - STATIC	2024	HTH32	
1996183.628	1025153.548	699646.322	17057629.668	.066		NCAT	2024	HENLOE	
1996183.680	1025153.554	699646.375	17057629.674	.033	C	GPS - STATIC	2024	HMOFA1	
1996183.680	1025153.554	699646.375	17057629.674	.033	C	GPS - STATIC	2024	HMOFA2	
1996183.680	1025153.554	699646.375	17057629.674	.033	C	GPS - STATIC	2024	HTH108	
1996183.680	1025153.554	699646.375	17057629.674	.033	C	GPS - STATIC	2023	HTH59	
1996183.680	1025153.554	699646.375	17057629.674	.033	C	GPS - STATIC	2023	HTH9	
1996183.680	1025153.554	699646.375	17057629.674	.033	C	GPS - STATIC	2023	HMOFA3	
1996183.680	1025153.554	699646.375	17057629.674	.033	C	GPS - STATIC	2023	HHITT	
1996183.680	1025153.554	699646.375	17057629.674	.033	C	GPS - STATIC	2017	HMNCORS07	
1996183.650	1025153.523	699646.344	17057629.643	.033	C	GPS - STATIC	2015	HCLAY	
1996183.611	1025153.571	699646.306	17057629.691	.033	C	GPS - STATIC	2015	HWILK	
1996183.613	1025153.570	699646.308	17057629.691	.033	C	GPS - STATIC	2013	HPLK1	
1996183.613	1025153.570	699646.308	17057629.691	.033	C	GPS - STATIC	2010	HCOMS	
1996183.613	1025153.570	699646.308	17057629.691	.016	B	GPS - STATIC	2006	HMNCORS02	
1996183.613	1025153.589	699646.308	17057629.710	.016	B	GPS - STATIC	2005	HMNCORS01	

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CLAY_COUNTY_COOP_CORS_ARP-DI0729-3NE-30AUG2006.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CLAY_COUNTY_COOP_CORS_ARP-DI0729-3NE-30AUG2006.jpg</a>	NE	Aug 30, 2006
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CLAY_COUNTY_COOP_CORS_ARP-DI0729-2-15MAY2003.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CLAY_COUNTY_COOP_CORS_ARP-DI0729-2-15MAY2003.jpg</a>		May 15, 2003
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CLAY_COUNTY_COOP_CORS_ARP-DI0729-1-30AUG2006.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CLAY_COUNTY_COOP_CORS_ARP-DI0729-1-30AUG2006.jpg</a>		Aug 30, 2006

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: MNCORS MORH MOORHEAD L1PC1

NGS Name: CLAY COUNTY COOP CORS L1 PHASE

County: CLAY, MN (Sheet 1)

NGS ACRN: [DI0730](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096441/  
 USGS Quad: FARGO NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	5	139 N	48 W	465303.13	964549.59		A

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2003	2008	DESTROYED	Horz=NO Vert=NO	YES			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	SEE DESCRIPTION	MNDT

Description: (2012)

Stamping:

IN MOORHEAD, 0.55 MILE NORTH ALONG 11TH STREET NORTH FROM THE JUNCTION OF 1ST AVENUE NORTH AND 11TH STREET NORTH, THEN 0.05 MILE WEST ON 8TH AVENUE NORTH, AT THE CLAY COUNTY GOVERNMENT CENTER, ATTACHED TO THE ROOF ON THE WEST SIDE OF A BUILDING. THE STATION IS IN A ZEPHYR GEODETIC ANTENNA SERIAL NUMBER 12399255.

Station Notes

SENT BY CLAY COUNTY WITH THE NATIONAL GEODETIC SURVEY (NGS) SITE ID MORH, PREVIOUSLY PROPOSED AS MNMO.

\* No Leveling-Derived Orthometric Heights in the Database \*

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
			872.981	.000	2011	HORIZONTAL ADJUSTMENT	2011	CORS4512
			873.023	.000	2007	HORIZONTAL ADJUSTMENT	2006	CORS2713

Geoid Separations(ft): GEOID18 = -86.903 12B = -86.886 09 = -86.765 03 = -86.719

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 53 03.12749	96 45 49.58745	484074.177	192727.148	.003	A	ADJUSTMENT	2011	CORS4512

NAD83(2007)

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 53 03.12754	96 45 49.58810	484074.131	192727.153	.003	A	ADJUSTMENT	2006	CORS2713

State Plane and UTM Coordinates (Feet)

NAD83(2011)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1996183.701	1025153.569	699646.396	17057629.688	.003	A	ADJUSTMENT	2011	CORS4512

NAD83(2007)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1996183.656	1025153.575	699646.351	17057629.695	.003	A	ADJUSTMENT	2006	CORS2713

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CLAY_COUNTY_COOP_CORS_L1_PHASE-DI0730-3E-30AUG2006.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CLAY_COUNTY_COOP_CORS_L1_PHASE-DI0730-3E-30AUG2006.jpg</a>	E	Aug 30, 2006
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CLAY_COUNTY_COOP_CORS_L1_PHASE-DI0730-2-30AUG2006.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CLAY_COUNTY_COOP_CORS_L1_PHASE-DI0730-2-30AUG2006.jpg</a>		Aug 30, 2006
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CLAY_COUNTY_COOP_CORS_L1_PHASE-DI0730-1-30AUG2006.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CLAY_COUNTY_COOP_CORS_L1_PHASE-DI0730-1-30AUG2006.jpg</a>		Aug 30, 2006

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: MNCORS MORH MOORHEAD L1PC2

NGS Name: CLAY COUNTY COOP CORS L1 PHASE

County: CLAY, MN (Sheet 1)

NGS ACRN: [DK6921](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096441/  
 USGS Quad: FARGO NORTH

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	5	139 N	48 W	465303.13	964549.59		A

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2008	2008	DESTROYED	Horz=NO Vert=NO	YES			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
SEE DESCRIPTIVE TEXT	SEE DESCRIPTION	MNDT

**Description:** (2012)

**Stamping:**

IN MOORHEAD, 0.55 MILE NORTH ALONG 11TH STREET NORTH FROM THE JUNCTION OF 1ST AVENUE NORTH AND 11 TH STREET NORTH, THEN 0.05 MILE WEST ON 8TH AVENUE NORTH, AT THE CLAY COUNTY GOVERNMENT CENTER, ATTACHED TO THE ROOF ON THE WEST SIDE OF A BUILDING.

**Station Notes**

THIS PHASE CENTER IS IN THE NATIONAL GEODETIC SURVEY (NGS) RECORDS AND THE MNDOT RECORDS DUE TO A MISTAKE IN AN EARLIER SITE LOG WHICH CLAIMED THAT A TRM55971.00 ANTENNA HAD BEEN INSTALLED ON 9-15-2008. THAT WAS NOT TRUE. THE ACTUAL ANTENNA WAS A TRM57971.00. THE NATIONAL GEODETIC SURVEY (NGS) CREATED PID DK6921 BEFORE THE ERROR WAS DISCOVERED. THE PID, ONCE CREATED, CANNOT EASILY BE REMOVED, SO IT REMAINS IN THE RECORDS. SEE DL7383 FOR THE CORRECT ANTENNA.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

Orthometric Height			Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year Reference
			872.981	.000	2011	HORIZONTAL ADJUSTMENT	2011 CORS4512
			873.023	.000	2007	HORIZONTAL ADJUSTMENT	2006 CORS2713

Geoid Separations(ft): GEOID18 = -86.903 12B = -86.886 09 = -86.765 03 = -86.719

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 53 03.12749	96 45 49.58745	484074.177	192727.148	.003	A	ADJUSTMENT	2011	CORS4512

**NAD83(2007)**

Geodetic Position		Clay County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 53 03.12754	96 45 49.58810	484074.131	192727.153	.003	A	ADJUSTMENT	2006	CORS2713

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1996183.701	1025153.569	699646.396	17057629.688	.003	A	ADJUSTMENT	2011	CORS4512

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1996183.656	1025153.575	699646.351	17057629.695	.003	A	ADJUSTMENT	2006	CORS2713

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CLAY_COUNTY_COOP_CORS_L1_PHASE-DK6921-3E-30AUG2006.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CLAY_COUNTY_COOP_CORS_L1_PHASE-DK6921-3E-30AUG2006.jpg</a>	E	Aug 30, 2006
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CLAY_COUNTY_COOP_CORS_L1_PHASE-DK6921-2-09SEP2008.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CLAY_COUNTY_COOP_CORS_L1_PHASE-DK6921-2-09SEP2008.jpg</a>		Sep 9, 2008
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CLAY_COUNTY_COOP_CORS_L1_PHASE-DK6921-1-08SEP2008.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CLAY_COUNTY_COOP_CORS_L1_PHASE-DK6921-1-08SEP2008.jpg</a>		Sep 8, 2008

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: MNCORS MORH MOORHEAD L1PC3

NGS Name: CLAY COUNTY COOP CORS L1 PHASE

County: CLAY, MN (Sheet 1)

NGS ACRN: [DL7383](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096441/  
 USGS Quad: FARGO NORTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SW	5	139 N	48 W	465303.13	964549.59		A

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2008	2010	GOOD	Horz=YES Vert=YES	YES			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	SEE DESCRIPTION	MNDT

**Description:** (2005)

**Stamping:**

IN MOORHEAD, 0.55 MILE NORTH ALONG 11TH STREET NORTH FROM THE JUNCTION OF 1ST AVENUE NORTH AND 11 TH STREET NORTH, THEN 0.05 MILE WEST ON 8TH AVENUE NORTH, AT THE CLAY COUNTY GOVERNMENT CENTER, ATTACHED TO THE ROOF ON THE WEST SIDE OF A BUILDING. STATION MNCORS MORH MOORHEAD L1PC3 IS IN A ZEPHYR GEODETIC LF MODEL 2 ANTENNA SERIAL NUMBER 30962944.

**Station Notes**

SENT BY CLAY COUNTY WITH THE NATIONAL GEODETIC SURVEY (NGS) SITE ID MORH, PREVIOUSLY PROPOSED AS MNMO. STATION IS THE PHASE CENTER OF THE ANTENNA.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
			872.981	.000	2011	HORIZONTAL ADJUSTMENT	2011	CORS4512
			873.023	.000	2007	HORIZONTAL ADJUSTMENT	2006	CORS2713

Geoid Separations(ft): GEOID18 = -86.903 12B = -86.886 09 = -86.765 03 = -86.719

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

<u>Geodetic Position</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 53 03.12749	96 45 49.58745	484074.177	192727.148	.003	A	ADJUSTMENT	2011	CORS4512

**NAD83(2007)**

<u>Geodetic Position</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 53 03.12754	96 45 49.58810	484074.131	192727.153	.003	A	ADJUSTMENT	2006	CORS2713

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>					<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1996183.701	1025153.569	699646.396	17057629.688	.003	A	ADJUSTMENT	2011	CORS4512

**NAD83(2007)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>					<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1996183.656	1025153.575	699646.351	17057629.695	.003	A	ADJUSTMENT	2006	CORS2713

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CLAY_COUNTY_COOP_CORS_L1_PHASE-DL7383-3E-30AUG2006.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CLAY_COUNTY_COOP_CORS_L1_PHASE-DL7383-3E-30AUG2006.jpg</a>	E	Aug 30, 2006
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CLAY_COUNTY_COOP_CORS_L1_PHASE-DL7383-2-09SEP2008.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CLAY_COUNTY_COOP_CORS_L1_PHASE-DL7383-2-09SEP2008.jpg</a>		Sep 9, 2008
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CLAY_COUNTY_COOP_CORS_L1_PHASE-DL7383-1-08SEP2008.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/CLAY_COUNTY_COOP_CORS_L1_PHASE-DL7383-1-08SEP2008.jpg</a>		Sep 8, 2008

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



**Mn/DOT Name:** MOLAND

**NGS Name:** MOLAND

**County:** CLAY, MN (Sheet 1)

<b>NGS ACRN:</b> <a href="#">DP7364</a>	<a href="#">Get Map</a>
<b>NGS Quad / Sta Num :</b> 46096411/	
<b>USGS Quad:</b> GLYNDON NORTH	

		<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Lat</u>	<u>Long</u>	<u>Order</u>	<u>Order</u>
SE	36	140 N 47 W	465334.04 963250.54		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2013	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 86 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

**Description:** (2013) **Stamping:** MOLAND 2013

1.5 MILES NORTH-NORTHEAST OF GLYNDON, 1.0 MILE NORTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND TRUNK HIGHWAY 10 (THE JUNCTION IS 3.5 MILES EAST OF GLYNDON) TO TRUNK HIGHWAY 9 MILEPOINT 164.75, THEN 1.9 MILES WEST ON 15TH AVENUE WEST, THEN 0.07 MILE NORTH ON 120TH STREET NORTH, 27.4 FEET WEST OF 120TH STREET NORTH, 15.1 FEET SOUTH OF A FIELD ENTRANCE, 3.0 FEET NORTH OF A WITNESS POST.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>		<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>
924.280			836.898	.023	2011	2024	GPS3719	HORIZONTAL ADJUSTMENT		2024	GPS3719
924.276	.131		837.039	.066	1996	2024	HMOFA1	GPS - STATIC		2024	HMOFA1
924.280			836.898	.023	2011	2024	HMOFA1	GPS - STATIC		2024	HMOFA1
924.457	.262		836.921	.197	2011	2022	RTRN2022	GPS - RTRN		2022	RTRN2022
924.470			836.908	.025	2011	2015	GPS3084	HORIZONTAL ADJUSTMENT		2015	GPS3084
924.440	.131		837.039	.066	1996	2015	HCLAY	GPS - STATIC		2015	HCLAY
924.470			836.908	.025	2011	2015	HCLAY	GPS - STATIC		2015	HCLAY
924.404	.262		836.859	.197	2011	2013	RTRN2013	GPS - RTRN		2013	RTRN2013

**Geoid Separations(ft):** GEOID18 = -87.539 12B = -87.546 09 = -87.395 03 = -87.355

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>			<u>Clay County</u>				<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>					
46 53 34.04324	96 32 50.54434	538184.958	195890.079	.010		ADJUSTMENT	2024	GPS3719
46 53 34.04324	96 32 50.54434	538184.958	195890.079	.010	C	GPS - STATIC	2024	HMOFA1
46 53 34.04322	96 32 50.54372	538185.001	195890.077	.131	3	GPS - RTRN	2022	RTRN2022
46 53 34.04367	96 32 50.54354	538185.014	195890.123	.016		ADJUSTMENT	2015	GPS3084
46 53 34.04367	96 32 50.54354	538185.014	195890.123	.016	C	GPS - STATIC	2015	HCLAY
46 53 34.04323	96 32 50.54427	538184.963	195890.078	.131	3	GPS - RTRN	2013	RTRN2013

<u>NAD83(1996)</u>			<u>Clay County</u>				<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>					
46 53 34.04327	96 32 50.54441	538184.953	195890.082	.033	C	GPS - STATIC	2024	HMOFA1
46 53 34.04327	96 32 50.54441	538184.953	195890.082	.033	C	GPS - STATIC	2015	HCLAY

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>					
2050362.254	1026641.078	753873.656	17058237.798	.010		ADJUSTMENT	2024	GPS3719
2050362.254	1026641.078	753873.656	17058237.798	.010	C	GPS - STATIC	2024	HMOFA1
2050362.297	1026641.075	753873.699	17058237.794	.131	3	GPS - RTRN	2022	RTRN2022
2050362.310	1026641.120	753873.713	17058237.839	.016		ADJUSTMENT	2015	GPS3084
2050362.310	1026641.120	753873.713	17058237.839	.016	C	GPS - STATIC	2015	HCLAY
2050362.259	1026641.077	753873.661	17058237.797	.131	3	GPS - RTRN	2013	RTRN2013

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>					
2050362.249	1026641.081	753873.651	17058237.801	.033	C	GPS - STATIC	2024	HMOFA1
2050362.249	1026641.081	753873.651	17058237.801	.033	C	GPS - STATIC	2015	HCLAY



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MOLAND-DP7364-3W-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MOLAND-DP7364-3W-05JUL2022.jpg</a>	W	Jul 5, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MOLAND-DP7364-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MOLAND-DP7364-2-05JUL2022.jpg</a>		Jul 5, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MOLAND-DP7364-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MOLAND-DP7364-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: MOOR MNDT

NGS Name: MOOR

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0417](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/1077  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	15	139 N	48 W	465052.46	964254.84	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1961	2022	POOR	Horz=NO Vert=NO	YES		PROJECTS 12 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	TRAVERSE STATION DISK	MNMT

**Description:** (2022) **Stamping:** MOOR U.S.C.&G.S. 1961

IN MOORHEAD, 0.15 MILE NORTH ALONG 34TH STREET SOUTH FROM THE JUNCTION OF 34TH STREET AND INTERSTATE HIGHWAY 94 IN MOORHEAD, THEN 0.4 MILE EAST AND SOUTH ON 28TH AVENUE SOUTH, 80.05 FEET SOUTH OF MOOR RM 1, 31.3 FEET SOUTH OF 28TH AVENUE SOUTH, 4.8 FEET EAST OF A WITNESS POST.

**Station Notes**

THE SURVEY MARK HAS BEEN HIT AND IS LEANING TO THE EAST AND NO LONGER USABLE FOR GEODETIC WORK.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
910.369	.016	2/0					VERTICAL ADJUSTMENT	1991	00000025	

  

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
909.454	.016	2/0					UNKNOWN/APPROXIMATE	1992	UNCHECKED	
909.454	.016	2					VERTICAL CONTROL SURVEY	1972	Q460964	
909.454	.016	2					VERTICAL CONTROL SURVEY	1972	L22167-A	
909.454	.016	2					VERTICAL CONTROL SURVEY	1971	L22167-A	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
910.464	.262			823.276	.197	2011	GPS - RTRN	2022	RTRN2022	
				823.240	.066	1996	GPS - STATIC	2001	DIST 4	
910.366	.197			823.791	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648	

Geoid Separations(ft): GEOID18 = -87.191 12B = -87.205 09 = -87.073 03 = -86.988

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 50 52.45525	96 42 54.83906			496210.650	179481.728	.131	3	GPS - RTRN	2022	RTRN2022

  

<u>NAD83(1996)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 50 52.45450	96 42 54.85187			496209.759	179481.652	.033	C	GPS - STATIC	2001	DIST 4
46 50 52.45451	96 42 54.85049			496209.855	179481.653	.066	2	ADJUSTMENT	1999	17648
46 50 52.45457	96 42 54.85048			496209.856	179481.659	.066	2	ADJUSTMENT	1998	17655

  

<u>NAD83(1986)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 50 52.45340	96 42 54.84148			496210.481	179481.541	.066	2	ADJUSTMENT	1986	17289

  

<u>NAD27</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 50 52.58600	96 42 53.55320					.100	2	CLASSICAL SURVEY	1962	12924

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2007903.837	1011540.280	711151.344	17043819.246	.131	3	GPS - RTRN	2022	RTRN2022

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2007902.945	1011540.232	711150.450	17043819.212	.033	C	GPS - STATIC	2001	DIST 4
2007903.041	1011540.230	711150.546	17043819.209	.066	2	ADJUSTMENT	1999	17648
2007903.042	1011540.236	711150.547	17043819.215	.066	2	ADJUSTMENT	1998	17655

**NAD83(1986)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2007903.663	1011540.098	711151.167	17043819.067	.066	2	ADJUSTMENT	1986	17289

**NAD27**

MN State Plane - Central Zone		<u>X</u>	<u>Y</u>	Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1383307.971	683463.513			.100	2	CLASSICAL SURVEY	1962	12924

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MOOR-RP0417-3S-29JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MOOR-RP0417-3S-29JUN2022.jpg</a>	S	Jun 29, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MOOR-RP0417-2-29JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MOOR-RP0417-2-29JUN2022.jpg</a>		Jun 29, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MOOR-RP0417-1-29JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MOOR-RP0417-1-29JUN2022.jpg</a>		Jun 29, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: MOOR RM 1  
 County: CLAY, MN (Sheet 1)

NGS Name: MOOR RM 1

NGS ACRN: [RP0418](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	15	139 N	48 W	465053.17	964254.37	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1961	2022	GOOD	Horz=NO Vert=NO	YES		FLUSH	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	MNDT

**Description:** (2008)                      **Stamping:** MOOR NO 1 1961

IN MOORHEAD, 0.15 MILE NORTH ALONG 34TH STREET SOUTH FROM THE JUNCTION OF 34TH STREET SOUTH AND INTERSTATE HIGHWAY 94, THEN 0.4 MILE EAST AND SOUTH ON 28TH AVENUE SOUTH, 80.0 FEET NORTH-NORTHEAST OF STATION MOOR MNDT, 48.7 FEET NORTH OF 28TH AVENUE SOUTH, 82.0 FEET NORTH-NORTHEAST OF A WITNESS POST.

**Station Notes**

DUE TO THE PROXIMITY TO TREE COVER AND BECAUSE THE CONCRETE IS LEANING, THIS SURVEY MARK HAS BEEN ABANDONED FOR MNDOT GEODETIC SURVEYS.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
910.740	.016	2/0					VERTICAL ADJUSTMENT	1991	00000025	

  

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
909.821	.016	2/0					UNKNOWN/APPROXIMATE	1992	UNCHECKD	
909.821	.016	2					VERTICAL CONTROL SURVEY	1972	Q460964	
909.821	.016	2					VERTICAL CONTROL SURVEY	1972	L22167-A	
909.821	.016	2					VERTICAL CONTROL SURVEY	1971	L22167-A	

Geoid Separations(ft): GEOID18 = -87.188    12B = -87.201    09 = -87.070    03 = -86.985

\* No Horizontal Positions in the Database \*

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MOOR_RM_1-RP0418-3N-29JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MOOR_RM_1-RP0418-3N-29JUN2022.jpg</a>	N	Jun 29, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MOOR_RM_1-RP0418-2-29JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MOOR_RM_1-RP0418-2-29JUN2022.jpg</a>		Jun 29, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MOOR_RM_1-RP0418-1-29JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MOOR_RM_1-RP0418-1-29JUN2022.jpg</a>		Jun 29, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: MOOR RM 2

NGS Name: MOOR RM 2

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP4308](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SE	15	139 N	48 W	465052.41	964255.96		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1961	1968	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

**Monument Type**

CONCRETE MONUMENT (CAST-IN-PLACE)

**Disk Type**

REFERENCE MARK DISK

**Mon. Agency**

MNDT

**Description:**

**Stamping:**

1.8 MILES SOUTHEAST OF MOORHEAD, 1.9 MILES EAST ALONG TRUNK HIGHWAY 10 EAST (CENTER AVENUE EAST) FROM THE JUNCTION OF TRUNK HIGHWAY 10 EAST (CENTER AVENUE EAST) IN DILWORTH, THEN 2.3 MILES SOUTH ALONG TRUNK HIGHWAY 336 SOUTH (70TH STREET SOUTH), THEN 2.9 MILES WEST ALONG INTERSTATE HIGHWAY 94 WEST.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.191    12B = -87.205    09 = -87.073    03 = -86.988



Mn/DOT Name: MOORHEAD

NGS Name: MOORHEAD

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP1096](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096441/1053  
 USGS Quad: FARGO NORTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	8	139 N	48 W	465234.91	964540.95		2

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	2008	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	NGS

Description: (1993)                      Stamping: MOORHEAD 1954

IN MOORHEAD, AT THE SOUTHWEST CORNER OF THE JUNCTION OF 1ST AVENUE NORTH AND 12TH STREET NORTH, 152.35 FEET EAST OF THE CITY WATER TANK, 105.0 FEET NORTH OF 1ST AVENUE NORTH, 59.0 FEET WEST OF 12TH STREET NORTH, 84.29 FEET SOUTH OF MOORHEAD RM 1, 130.43 FEET EAST OF MOORHEAD RM 2.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>		
902.229	.197		815.874	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648	

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>		
902.196						RECIPROCAL VERTICAL ANGLE	1954	HORZ	

Geoid Separations(ft): GEOID18 = -86.955 12B = -86.942 09 = -86.824 03 = -86.771

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
46 52 34.90622	96 45 40.94930	484671.997	189867.370	.066	2	ADJUSTMENT	1999	17648	
46 52 34.90623	96 45 40.94929	484671.998	189867.371	.066	2	ADJUSTMENT	1998	17655	

<u>NAD83(1986)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
46 52 34.90540	96 45 40.94085	484672.584	189867.287	.066	2	ADJUSTMENT	1986	17289	

<u>NAD27</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
46 52 35.03500	96 45 39.64900			.100	2	CLASSICAL SURVEY	1956	11230	

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
1996692.770	1022276.899	700108.969	17054743.274	.066	2	ADJUSTMENT	1999	17648	
1996692.771	1022276.900	700108.970	17054743.275	.066	2	ADJUSTMENT	1998	17655	

<u>NAD83(1986)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
1996693.354	1022276.797	700109.552	17054743.163	.066	2	ADJUSTMENT	1986	17289	

<u>NAD27</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
1372097.504	694199.816			.100	2	CLASSICAL SURVEY	1956	11230	



Mn/DOT Name: MOORHEAD AZ MK

NGS Name: MOORHEAD AZ MK

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP4312](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096441/  
 USGS Quad: FARGO NORTH

	<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u> <u>Sec</u> <u>Twp</u> <u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE 8 139 N 48 W	465245.00	964539.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	2009	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	NGS

**Description:** **Stamping:** MOORHEAD 1954

IN MOORHEAD, AT THE SOUTHEAST CORNER OF THE JUNCTION OF 4TH AVENUE NORTH AND NORTH 12TH STREET, 0.2 MILE NORTH OF STATION MOORHEAD, 68.0 FEET SOUTH OF THE CENTER OF 4TH AVENUE NORTH, 23.0 FEET EAST OF THE CENTER OF NORTH 12TH STREET.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -86.939 12B = -86.929 09 = -86.808 03 = -86.758



Mn/DOT Name: MOORHEAD CITY LIGHT POWER STK

NGS Name: MOORHEAD CITY LIGHT POWER STK

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP1126](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/1068  
 USGS Quad: FARGO SOUTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SE	7	139 N	48 W	465207.32	964644.39		4

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	1954	GOOD	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	STACK	NGS

Description: (1954)

Stamping:

IN THE SOUTHWEST PART OF MOORHEAD, 0.3 MILE SOUTH ALONG 8TH STREET SOUTH FROM THE JUNCTION OF 8TH STREET SOUTH AND MAIN AVENUE IN MOORHEAD, THEN 0.3 MILE WEST ALONG 5TH AVENUE SOUTH, THEN 384.0 FEET SOUTH ALONG 4TH STREET SOUTH, THEN 0.3 MILE WEST ALONG 6TH AVENUE SOUTH, JUST EAST OF THE RED RIVER.

\* No Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -86.932 12B = -86.922 09 = -86.811 03 = -86.745

Lat/Lon and County Coordinates (Feet)

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 52 07.32341	96 46 44.39033	480261.559	187076.702	.328	4	ADJUSTMENT	1999	17648
46 52 07.32341	96 46 44.39030	480261.561	187076.702	.328	4	ADJUSTMENT	1998	17655

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 52 07.32263	96 46 44.38218	480262.126	187076.623	.328	4	ADJUSTMENT	1986	17289

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
46 52 07.45100	96 46 43.08600			.100	4	CLASSICAL SURVEY	1956	11230

State Plane and UTM Coordinates (Feet)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1992198.513	1019624.145	695569.286	17052162.176	.328	4	ADJUSTMENT	1999	17648
1992198.515	1019624.145	695569.288	17052162.176	.328	4	ADJUSTMENT	1998	17655

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1992199.076	1019624.048	695569.848	17052162.069	.328	4	ADJUSTMENT	1986	17289

<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1367603.402	691546.929			.100	4	CLASSICAL SURVEY	1956	11230



Mn/DOT Name: MOORHEAD CITY LIGHT POWER TANK

NGS Name: MOORHEAD CITY LIGHT POWER TANK

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP1125](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/1069  
 USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	7	139 N	48 W	465208.60	964644.22		4

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	1954	GOOD	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	ELEVATED TANK	NGS

Description: (1954)

Stamping:

IN THE SOUTHWEST PART OF MOORHEAD, 0.3 MILE WEST ALONG MAIN AVENUE FROM THE JUNCTION OF MAIN AVENUE AND 8TH STREET SOUTH IN MOORHEAD, THEN 387.0 FEET SOUTH ALONG 4TH STREET SOUTH, THEN 246.0 FEET WEST ALONG 2ND AVENUE SOUTH, THEN 0.4 MILE WEST AND SOUTH ALONG WOODLAWN PARK DRIVE, THEN 200.0 FEET WEST ALONG 5TH AVENUE SOUTH, JUST EAST OF THE RED RIVER.

\* No Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -86.929 12B = -86.919 09 = -86.808 03 = -86.745

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 52 08.59660	96 46 44.22229	480273.366	187205.686	.328	4	ADJUSTMENT	1999	17648
46 52 08.59661	96 46 44.22227	480273.367	187205.687	.328	4	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 52 08.59566	96 46 44.21371	480273.962	187205.590	.328	4	ADJUSTMENT	1986	17289

<u>NAD27</u>						<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 52 08.72400	96 46 42.92000			.100	4	CLASSICAL SURVEY	1956	11230

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1992214.300	1019752.692	695587.170	17052290.533	.328	4	ADJUSTMENT	1999	17648
1992214.301	1019752.693	695587.171	17052290.534	.328	4	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1992214.893	1019752.578	695587.761	17052290.409	.328	4	ADJUSTMENT	1986	17289

<u>NAD27</u>						<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1367619.047	691675.461			.100	4	CLASSICAL SURVEY	1956	11230



Mn/DOT Name: MOORHEAD MUNICIPAL TANK

NGS Name: MOORHEAD MUNICIPAL TANK

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP1097](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096441/1070  
 USGS Quad: FARGO NORTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SE	5	139 N	48 W	465235.35	964542.99		4

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	1954	GOOD	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	ELEVATED TANK	NGS

Description: (1954)

Stamping:

IN THE NORTHWEST PART OF MOORHEAD, 0.2 MILE EAST ALONG MAIN AVENUE FROM THE JUNCTION OF MAIN AVENUE AND 8TH STREET SOUTH IN MOORHEAD, THEN 0.2 MILE NORTH ALONG 11TH STREET SOUTH, THEN 387.0 FEET EAST ALONG 1ST AVENUE NORTH, THEN 246.0 FEET WEST ALONG 1ST AVENUE NORTH AT 12TH STREET NORTH, JUST NORTH OF TRUNK HIGHWAY 10.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
902.229	.328		815.878	.328	1996	1999	17648	HORIZONTAL ADJUSTMENT		1999	17648	

Geoid Separations(ft): GEOID18 = -86.952 12B = -86.942 09 = -86.824 03 = -86.768

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>	
46 52 35.34967	96 45 42.99107	484530.179	189912.411	.328	4	ADJUSTMENT		1999	17648	
46 52 35.34967	96 45 42.99106	484530.179	189912.411	.328	4	ADJUSTMENT		1998	17655	

  

<u>NAD83(1986)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>	
46 52 35.34930	96 45 42.98257	484530.769	189912.373	.328	4	ADJUSTMENT		1986	17289	

  

<u>NAD27</u>		<u>Geodetic Position</u>		<u>Determination Method</u>			<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
46 52 35.47800	96 45 41.69000			.100	4	CLASSICAL SURVEY		1956	11230

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>	
1996552.423	1022326.299	699969.353	17054794.980	.328	4	ADJUSTMENT		1999	17648	
1996552.424	1022326.299	699969.354	17054794.980	.328	4	ADJUSTMENT		1998	17655	

  

<u>NAD83(1986)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>	
1996553.012	1022326.242	699969.942	17054794.914	.328	4	ADJUSTMENT		1986	17289	

  

<u>NAD27</u>		<u>MN State Plane - Central Zone</u>		<u>Determination Method</u>			<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
1371957.204	694249.168			.100	4	CLASSICAL SURVEY		1956	11230



Mn/DOT Name: MOORHEAD RM 1

NGS Name: MOORHEAD RM 1

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP4313](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096441/  
 USGS Quad: FARGO NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	8	139 N	48 W	465235.73	964540.82		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	2022	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** **Stamping:** MOORHEAD NO 1 1954

IN MOORHEAD, 0.2 MILE EAST ALONG MAIN AVENUE FROM THE JUNCTION OF MAIN AVENUE AND 8TH STREET SOUTH IN MOORHEAD, THEN 0.2 MILE NORTH ALONG 11TH STREET SOUTH, THEN 387.0 FEET EAST ALONG 1ST AVENUE NORTH, THEN 36.0 FEET NORTH ALONG 12TH STREET NORTH.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -86.955 12B = -86.945 09 = -86.827 03 = -86.771



Mn/DOT Name: MOORHEAD RM 2

NGS Name: MOORHEAD RM 2

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP4314](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096441/  
 USGS Quad: FARGO NORTH

	<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
<u>1/4</u> NE	<u>Sec</u> 8	<u>Twp</u> 139 N	<u>Rng</u> 48 W	
	465235.08	964542.81		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	2022	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STRUCTURE (MASSIVE)	REFERENCE MARK DISK	NGS

**Description:** **Stamping:** MOORHEAD NO 2 1954

IN MOORHEAD, 0.2 MILE EAST ALONG MAIN AVENUE FROM THE JUNCTION OF MAIN AVENUE AND 8TH STREET SOUTH IN MOORHEAD, THEN 0.2 MILE NORTH ALONG 11TH STREET SOUTH, THEN 387.0 FEET EAST ALONG 1ST AVENUE NORTH, THEN 36.0 FEET NORTH ALONG 12TH STREET NORTH.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -86.955 12B = -86.945 09 = -86.827 03 = -86.771



Mn/DOT Name: MOORHEAD STANDARD OIL CO MAST

NGS Name: MOORHEAD STANDARD OIL CO MAST

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP1066](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/1071  
 USGS Quad: SABIN

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SE	9	139 N	48 W	465146.43	964439.63		4

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	2009	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	MICROWAVE MAST	NGS

Description: (1954)

Stamping:

AT THE SOUTHEAST EDGE OF MOORHEAD, 0.8 MILE SOUTH ALONG 8TH STREET SOUTH FROM THE JUNCTION OF 8TH STREET SOUTH AND MAIN AVENUE IN MOORHEAD, THEN 1.1 MILES EAST ALONG 12TH AVENUE SOUTH, WEST OF TRUNK HIGHWAY 52.

\* No Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.070 12B = -87.070 09 = -86.949 03 = -86.880

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u> <u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 51 46.43365	96 44 39.62768	488929.601	184953.406	.328	4	ADJUSTMENT	1999	17648
46 51 46.43364	96 44 39.62765	488929.603	184953.405	.328	4	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u> <u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 51 46.43288	96 44 39.61919	488930.191	184953.328	.328	4	ADJUSTMENT	1986	17289

<u>NAD27</u> <u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
46 51 46.56300	96 44 38.32600			.100	4	CLASSICAL SURVEY	1956	11230

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u> <u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2000796.062	1017234.036	704132.430	17049631.196	.328	4	ADJUSTMENT	1999	17648
2000796.064	1017234.034	704132.433	17049631.195	.328	4	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u> <u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2000796.649	1017233.939	704133.016	17049631.090	.328	4	ADJUSTMENT	1986	17289

<u>NAD27</u> <u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1376201.045	689157.043			.100	4	CLASSICAL SURVEY	1956	11230



Mn/DOT Name: MORK

NGS Name: MORK

County: CLAY, MN (Sheet 1)

NGS ACRN: [DO9537](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096332/  
 USGS Quad: GEORGETOWN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	20	142 N	48 W	470535.02	964740.79	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2012	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 35 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012)                      Stamping: MORK 2012

1.0 MILE NORTH OF GEORGETOWN, 0.9 MILE NORTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND COUNTY ROAD 100/COUNTY ROAD 34 IN GEORGETOWN, AT TRUNK HIGHWAY 75 MILEPOINT 266.8, 99.1 FEET WEST OF TRUNK HIGHWAY 75, 33.7 FEET NORTH OF COUNTY ROAD 36/170TH AVENUE NORTHWEST, 26.6 FEET EAST OF AN OLD RAILROAD BED, 1.5 FEET SOUTH OF A WITNESS POST.

Station Pair:    CORK - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
881.547	.016	2/1				2024	00000941-3	VERTICAL ADJUSTMENT				
881.583	.016	2/1				2023	VMOFA	VERTICAL CONTROL SURVEY				
881.547	.016	2/1				2019	00000941	VERTICAL ADJUSTMENT				

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
881.583			795.464	.020	2011	2024	GPS3674	HORIZONTAL ADJUSTMENT				
881.583			795.464	.020	2011	2023	HMOFA3	GPS - STATIC				
881.583	.131		795.632	.066	1996	2023	HMOFA3	GPS - STATIC				
881.662	.262		795.379	.197	2011	2022	RTRN2022	GPS - RTRN				
881.793			795.464	.025	2011	2013	GPS2963	HORIZONTAL ADJUSTMENT				
881.829	.131		795.664	.066	1996	2013	HGEOR	GPS - STATIC				
881.793			795.464	.025	2011	2013	HGEOR	GPS - STATIC				
881.616	.262		795.428	.197	2007	2012	RTRN2012	GPS - RTRN				

Geoid Separations(ft): GEOID18 = -86.283    12B = -86.312    09 = -86.187    03 = -86.165

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>					
47 05 35.01971	96 47 40.78556	476441.742	268915.989	.010		2024	GPS3674	ADJUSTMENT				
47 05 35.01971	96 47 40.78556	476441.742	268915.989	.010	C	2023	HMOFA3	GPS - STATIC				
47 05 35.02044	96 47 40.78463	476441.807	268916.063	.131	3	2022	RTRN2022	GPS - RTRN				
47 05 35.01971	96 47 40.78556	476441.742	268915.989	.013		2013	GPS2963	ADJUSTMENT				
47 05 35.01971	96 47 40.78556	476441.742	268915.989	.013	C	2013	HGEOR	GPS - STATIC				

<u>NAD83(2007)</u>		<u>Geodetic Position</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>					
47 05 35.01975	96 47 40.78614	476441.702	268915.993	.131	3	2012	RTRN2012	GPS - RTRN				

<u>NAD83(1996)</u>		<u>Geodetic Position</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>					
47 05 35.01980	96 47 40.78575	476441.729	268915.998	.033	C	2023	HMOFA3	GPS - STATIC				
47 05 35.01902	96 47 40.78616	476441.701	268915.920	.033	C	2013	HGEOR	GPS - STATIC				

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
1990910.723	1101537.525	695618.991	17134137.534	.010		ADJUSTMENT	2024	GPS3674
1990910.723	1101537.525	695618.991	17134137.534	.010	C	GPS - STATIC	2023	HMOFA3
1990910.789	1101537.596	695619.059	17134137.605	.131	3	GPS - RTRN	2022	RTRN2022
1990910.723	1101537.525	695618.991	17134137.534	.013		ADJUSTMENT	2013	GPS2963
1990910.723	1101537.525	695618.991	17134137.534	.013	C	GPS - STATIC	2013	HGEOR

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
1990910.683	1101537.530	695618.951	17134137.540	.131	3	GPS - RTRN	2012	RTRN2012

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
1990910.710	1101537.534	695618.978	17134137.544	.033	C	GPS - STATIC	2023	HMOFA3
1990910.679	1101537.456	695618.946	17134137.466	.033	C	GPS - STATIC	2013	HGEOR

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MORK-DO9537-3W-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MORK-DO9537-3W-28JUN2022.jpg</a>	W	Jun 28, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MORK-DO9537-2-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MORK-DO9537-2-28JUN2022.jpg</a>		Jun 28, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MORK-DO9537-1-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/MORK-DO9537-1-28JUN2022.jpg</a>		Jun 28, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: MORKEN

NGS Name: MORKEN

County: CLAY, MN (Sheet 1)

NGS ACRN: [AC5804](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/  
 USGS Quad: FELTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	15	141 N	47 W	470206.00	963622.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1906	1954	DESTROYED	Horz=NO Vert=NO	NO			MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	NGS

**Description:** (1935)                      **Stamping:** MORKEN 1906

5.6 MILES SOUTHWEST OF FELTON, 0.2 MILE NORTH ALONG ATLANTIC AVENUE FROM THE JUNCTION OF ATLANTIC AVENUE AND 4TH STREET IN FELTON, THEN 4.7 MILES WEST ALONG 160TH AVENUE NORTH/7TH STREET, THEN 3.0 MILES SOUTH ALONG 90TH STREET NORTH, 5.0 MILES WEST AND 3.0 MILES SOUTH OF TOWN OF FELTON ON THE GREAT NORTHERN RAILWAY, ON LAND OWNED BY THE WHEELER LAND COMPANY OF MOORHEAD, 43.6 FEET SOUTH OF THE CENTER OF AN EAST-AND-WEST ROAD, 98.0 FEET WEST OF THE CENTER OF A NORTH-AND-SOUTH ROAD.

\* No Horizontal or Vertical Positions in the Database \*

**Geoid Separations(ft): GEOID18 = -86.844    12B = -86.844    09 = -86.712    03 = -86.689**



Mn/DOT Name: MORKEN AZ MK

NGS Name: MORKEN AZ MK

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP4315](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/  
 USGS Quad: FELTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	15	141 N	47 W	470232.00	963621.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	1963	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	MNDT

**Description:** (1954)                      **Stamping:** MORKEN 1906 1954

5.3 MILES SOUTHWEST OF FELTON, 0.2 MILE NORTH ALONG ATLANTIC AVENUE FROM THE JUNCTION OF ATLANTIC AVENUE AND 4TH STREET IN FELTON, THEN 4.7 MILES WEST ALONG 160TH AVENUE NORTH/7TH STREET, THEN 2.5 MILES SOUTH ALONG 90TH STREET NORTH, 0.4 MILE NORTH OF STATION MORKEN RESET, 21.0 FEET WEST OF THE CENTER OF 90TH STREET NORTH, 2.0 FEET SOUTH OF A FENCE-CORNER, 2.0 FEET WEST OF A WHITE WITNESS POST.

\* No Horizontal or Vertical Positions in the Database \*

**Geoid Separations(ft): GEOID18 = -86.847    12B = -86.847    09 = -86.722    03 = -86.696**



Mn/DOT Name: MORKEN AZ MK RESET

NGS Name: MORKEN AZ MK RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP4316](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/1018  
 USGS Quad: FELTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	10	141 N	47 W	470232.00	963620.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1963	1963	GOOD	Horz=? Vert=YES	NO		PROJECTS 2 IN.	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	NGS

**Description:** (1963)                      **Stamping:** MORKEN 1906 1954 RESET 1963

5.3 MILES SOUTHWEST OF FELTON, 0.2 MILE NORTH ALONG ATLANTIC AVENUE FROM THE JUNCTION OF ATLANTIC AVENUE AND 4TH STREET IN FELTON, THEN 4.7 MILES WEST ALONG 160TH AVENUE NORTH/7TH STREET, THEN 2.5 MILES SOUTH ALONG 90TH STREET NORTH, 0.5 MILE NORTH-NORTHEAST OF THE STATION MORKEN RESET, 34.0 FEET WEST OF A NORTH-SOUTH ROAD, 14.0 FEET SOUTH OF A FIELD ENTRANCE, 1.3 FEET NORTH OF A WITNESS POST.

\* No Horizontal or Vertical Positions in the Database \*

**Geoid Separations(ft): GEOID18 = -86.850    12B = -86.847    09 = -86.722    03 = -86.699**



Mn/DOT Name: MORKEN RESET

NGS Name: MORKEN RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [SL1521](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/1018  
 USGS Quad: FELTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	15	141 N	47 W	470206.07	963622.88		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	2021	NOT FOUND	Horz=NO Vert=NO	NO		RECESSED 10 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	MNDT

**Description:** (1994)                      **Stamping:** MORKEN 1906 1954

5.6 MILES SOUTHWEST OF FELTON, 0.2 MILE NORTH ALONG ATLANTIC AVENUE FROM THE JUNCTION OF ATLANTIC AVENUE AND 4TH STREET IN FELTON, THEN 4.7 MILES WEST ALONG 160TH AVENUE NORTH/7TH STREET, THEN 3.0 MILES SOUTH ALONG 90TH STREET NORTH, THEN 95.0 FEET WEST ALONG 130TH AVENUE NORTH, 96.0 FEET WEST OF A NORTH-SOUTH ROAD, 43.0 FEET SOUTH OF AN EAST-WEST ROAD, 99.0 FEET EAST OF A POWER POLE, 100.3 FEET EAST OF A POWER POLE, 66.07 FEET WEST-NORTHWEST OF MORKEN RM 4, 2.5 FEET NORTH OF A POWER LINE, 14.1 FEET SOUTH OF A WITNESS POST.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
			814.149	.045	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			814.254	.047	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
900.851	.131		814.549	.066	1996	HORIZONTAL ADJUSTMENT	1999	17648
900.854	.131		814.293	.066	1996	GPS - STATIC	1997	GPS805-C

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
906.986						RECIPROCAL VERTICAL ANGLE	1954	HORZ

Geoid Separations(ft): GEOID18 = -86.844    12B = -86.844    09 = -86.709    03 = -86.689

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 02 06.07485	96 36 22.87801	523375.404	247745.298	.026		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 02 06.07471	96 36 22.87878	523375.351	247745.284	.026		ADJUSTMENT	2007	GPS2300

**NAD83(1996)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 02 06.07438	96 36 22.87886	523375.345	247745.251	.033	C	ADJUSTMENT	1999	17648
47 02 06.07438	96 36 22.87886	523375.345	247745.251	.033	C	GPS - STATIC	1997	GPS805-C

**NAD83(1986)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 02 06.07310	96 36 22.87026	523375.941	247745.122	.033	1	ADJUSTMENT	1986	17289

**NAD27**

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
47 02 06.21000	96 36 21.60200			.100	1	CLASSICAL SURVEY	1956	11230

**USSD**

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
47 02 06.43000	96 36 21.99000				3	CLASSICAL SURVEY		17389-73



**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2037165.221	1078926.388	741523.045	17110758.714	.026		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2037165.167	1078926.376	741522.991	17110758.702	.026		ADJUSTMENT	2007	GPS2300

**NAD83(1996)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2037165.161	1078926.342	741522.984	17110758.669	.033	C	ADJUSTMENT	1999	17648
2037165.161	1078926.342	741522.984	17110758.669	.033	C	GPS - STATIC	1997	GPS805-C

**NAD83(1986)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2037165.752	1078926.195	741523.573	17110758.512	.033	1	ADJUSTMENT	1986	17289

**NAD27**

<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1412569.192	750849.908			.100	1	CLASSICAL SURVEY	1956	11230



Mn/DOT Name: MORKEN RM

NGS Name: MORKEN RM

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP4317](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/  
 USGS Quad: FELTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	15	141 N	47 W	470206.22	963621.95		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1906	1954	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	REFERENCE MARK DISK	MNDT

**Description:** (1935)

**Stamping:**

5.6 MILES SOUTHWEST OF FELTON, 0.2 MILE NORTH ALONG ATLANTIC AVENUE FROM THE JUNCTION OF ATLANTIC AVENUE AND 4TH STREET IN FELTON, THEN 4.7 MILES WEST ALONG 160TH AVENUE NORTH/7TH STREET, THEN 3.0 MILES SOUTH ALONG 90TH STREET NORTH, 30.0 FEET SOUTH OF THE CENTER OF AN EAST-AND-WEST SECTION ROAD, 34.0 FEET WEST OF THE CENTER OF A NORTH-AND-SOUTH ROAD, 26.75 FEET WEST OF THE WEST END OF A LARGE, GALVANIZED CULVERT UNDER A NORTH-AND-SOUTH ROAD, 65.85 FEET NORTHEAST FROM STATION MORKEN.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -86.844 12B = -86.844 09 = -86.712 03 = -86.689



Mn/DOT Name: MORKEN RM 2

NGS Name: MORKEN RM 2

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP4318](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/  
 USGS Quad: FELTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	15	141 N	47 W	470206.87	963623.14		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	1963	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	MNDT

**Description:** (1954)                      **Stamping:** MORKEN NO 2 1906 1954

5.6 MILES SOUTHWEST OF FELTON, 0.2 MILE NORTH ALONG ATLANTIC AVENUE FROM THE JUNCTION OF ATLANTIC AVENUE AND 4TH STREET IN FELTON, THEN 4.7 MILES WEST ALONG 160TH AVENUE NORTH/7TH STREET, THEN 3.0 MILES SOUTH ALONG 90TH STREET NORTH, NORTH OF THE STATION MORKEN RESET, 40.0 FEET NORTH OF THE CENTER OF A GRAVEL ROAD, 1.0 FOOT EAST OF A TELEPHONE POLE.

\* No Horizontal or Vertical Positions in the Database \*

**Geoid Separations(ft): GEOID18 = -86.844    12B = -86.844    09 = -86.712    03 = -86.689**



Mn/DOT Name: MORKEN RM 3

NGS Name: MORKEN RM 3

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP4319](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/  
 USGS Quad: FELTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	15	141 N	47 W	470205.87	963621.96		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	1963	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	MNDT

**Description:** (1954)                      **Stamping:** MORKEN NO 3 1906 1954

5.6 MILES SOUTHWEST OF FELTON, 0.2 MILE NORTH ALONG ATLANTIC AVENUE FROM THE JUNCTION OF ATLANTIC AVENUE AND 4TH STREET IN FELTON, THEN 4.7 MILES WEST ALONG 160TH AVENUE NORTH/7TH STREET, THEN 3.0 MILES SOUTH ALONG 90TH STREET NORTH, EAST-SOUTHEAST OF THE STATION MORKEN RESET, 55.0 FEET SOUTH OF THE CENTER OF 130TH AVENUE NORTH, 33.0 FEET WEST OF THE CENTER OF 90TH STREET NORTH.

\* No Horizontal or Vertical Positions in the Database \*

**Geoid Separations(ft): GEOID18 = -86.844    12B = -86.844    09 = -86.712    03 = -86.689**



Mn/DOT Name: MORKEN RM 4

NGS Name: MORKEN RM 4

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP4320](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/1018  
 USGS Quad: FELTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	15	141 N	47 W	470206.00	963621.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1963	1994	NOT FOUND	Horz=? Vert=YES	NO		PROJECTS 3 IN.	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** (1963)                      **Stamping:** MORKEN 1906 1954 NO 4

5.6 MILES SOUTHWEST OF FELTON, 0.2 MILE NORTH ALONG ATLANTIC AVENUE FROM THE JUNCTION OF ATLANTIC AVENUE AND 4TH STREET IN FELTON, THEN 4.7 MILES WEST ALONG 160TH AVENUE NORTH/7TH STREET, THEN 3.0 MILES SOUTH ALONG 90TH STREET NORTH, 66.07 FEET EAST-SOUTHEAST OF STATION MORKEN RESET, 65.0 FEET SOUTH OF AN EAST-WEST ROAD, 36.0 FEET WEST OF A NORTH-SOUTH ROAD.

\* No Horizontal or Vertical Positions in the Database \*

**Geoid Separations(ft): GEOID18 = -86.844    12B = -86.847    09 = -86.712    03 = -86.689**



Mn/DOT Name: MORKEN RM 5

NGS Name: MORKEN RM 5

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP4321](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/1018  
 USGS Quad: FELTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	15	141 N	47 W	470206.00	963622.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1963	1994	GOOD	Horz=? Vert=YES	NO		PROJECTS 10 IN.	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** (1963)                      **Stamping:** MORKEN NO 5 1906 1954

5.6 MILES SOUTHWEST OF FELTON, 0.2 MILE NORTH ALONG ATLANTIC AVENUE FROM THE JUNCTION OF ATLANTIC AVENUE AND 4TH STREET IN FELTON, THEN 4.7 MILES WEST ALONG 160TH AVENUE NORTH/7TH STREET, THEN 3.0 MILES SOUTH ALONG 90TH STREET NORTH, NORTH-NORTHWEST OF THE STATION MORKEN RESET, 38.0 FEET NORTH OF AN EAST-WEST ROAD, 1.4 FEET WEST OF A WOODEN WITNESS POST.

\* No Horizontal or Vertical Positions in the Database \*

**Geoid Separations(ft): GEOID18 = -86.844    12B = -86.844    09 = -86.712    03 = -86.689**



Mn/DOT Name: MUSKODA ELEVATOR

NGS Name: MUSKODA ELEVATOR

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0943](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096143/1026  
 USGS Quad: DOWNER

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	7	139 N	45 W	465213.27	962424.96		4

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1906	1906	GOOD	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	GRAIN ELEVATOR	NGS

Description: (1906)

Stamping:

0.6 MILE NORTH OF MUSKODA, 0.6 MILE NORTH ALONG 190TH STREET SOUTH FROM THE JUNCTION OF 190TH STREET SOUTH AND 12TH AVENUE SOUTH IN MUSKODA, THEN 59.0 FEET EAST ALONG 4TH AVENUE SOUTH.

\* No Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.818 12B = -87.808 09 = -87.690 03 = -87.647

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 52 13.27223	96 24 24.95891	573330.801	187806.306	.328	4	ADJUSTMENT	1999	17648
46 52 13.27208	96 24 24.95897	573330.797	187806.290	.328	4	ADJUSTMENT	1998	17655

NAD83(1986)

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 52 13.27125	96 24 24.95134	573331.328	187806.208	.328	4	ADJUSTMENT	1986	17289

NAD27

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 52 13.41500	96 24 23.70600			.100	4	CLASSICAL SURVEY	1928	00155

USSD

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 52 13.62700	96 24 24.08800				3	CLASSICAL SURVEY		17389-73

State Plane and UTM Coordinates (Feet)

NAD83(1996)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2085238.200	1017474.055	788613.672	17048502.006	.328	4	ADJUSTMENT	1999	17648
2085238.195	1017474.040	788613.667	17048501.991	.328	4	ADJUSTMENT	1998	17655

NAD83(1986)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2085238.723	1017473.942	788614.193	17048501.884	.328	4	ADJUSTMENT	1986	17289

NAD27

<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1460642.368	689398.813			.100	4	CLASSICAL SURVEY	1928	00155



Mn/DOT Name: N 315

NGS Name: N 315

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0378](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	24	140 N	47 W	465604.00	963342.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1938	2005	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE FOOTING - SMALL	BENCH MARK DISK	MNDT

Description: (1938)                      Stamping: N 315 1938

2.6 MILES SOUTH-SOUTHWEST OF AVERILL, 2.0 MILES SOUTH ALONG 120TH STREET NORTH FROM THE JUNCTION OF 120TH STREET NORTH AND COUNTY ROAD 93 (80TH AVENUE NORTH) 0.5 MILE SOUTH OF AVERILL, THEN 0.7 MILE WEST ALONG COUNTY ROAD 91 (57TH AVENUE NORTH), 2.4 MILES SOUTH OF THE RAILROAD STATION AT AVERILL, 0.3 MILE SOUTH OF RAILROAD MILEPOST 23, 15.0 FEET SOUTH OF AN EAST-WEST ROAD, 10.0 FEET EAST OF THE EAST RAIL OF A RAILROAD, ON THE TOP OF A 24.0 INCH DIAMETER CONCRETE CULVERT.

Station Notes

A NEW CONCRETE CULVERT IS IN PLACE NOW. 11-16-04.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
918.810	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025	

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
917.656	.007	1				VERTICAL CONTROL SURVEY	1940	Q460964	
917.656	.007	1				VERTICAL CONTROL SURVEY	1938	L45 MINN	

Geoid Separations(ft): GEOID18 = -87.323 12B = -87.313 09 = -87.178 03 = -87.162

\* No Horizontal Positions in the Database \*



Mn/DOT Name: N 376

NGS Name: N 376

County: CLAY, MN (Sheet 1)

NGS ACRN: <a href="#">RP0715</a>	<a href="#">Get Map</a>
NGS Quad / Sta Num : 46096413/	
USGS Quad: SABIN	

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	24	139 N	48 W	465048.60	964040.67	1	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1982	2009	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
STEEL ROD (IN SLEEVE)	SEE DESCRIPTION	NGS

Description: (1993)                      **Stamping:** N 376 1982

2.4 MILES SOUTH-SOUTHEAST OF DILWORTH, 5.2 MILES EAST ON INTERSTATE HIGHWAY 94 FROM THE WEST END OF INTERSTATE HIGHWAY 94 BRIDGE OVER THE RED RIVER AT MOORHEAD, 1.2 MILES WEST ALONG CENTER AVENUE EAST FROM THE JUNCTION OF CENTER AVENUE EAST AND 2ND STREET SOUTHEAST IN DILWORTH, THEN 2.2 MILES SOUTH ALONG 34TH STREET SOUTH, THEN 1.9 MILES WEST ALONG INTERSTATE HIGHWAY 94 EAST, 98.0 FEET SOUTH OF EASTBOUND INTERSTATE HIGHWAY 94, AT INTERSTATE HIGHWAY 94 MILEPOINT 4.9, 1.0 FOOT NORTH OF A SOUTH RIGHT-OF-WAY FENCE AND A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88			Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
908.282	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
			820.989	.011	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			821.173	.016	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
908.299	.131		821.232	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1905
908.266	.131		821.232	.066	1996	GPS - STATIC	2003	HMOOR

Geoid Separations(ft): GEOID18 = -87.273 12B = -87.290 09 = -87.149 03 = -87.073

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Clay County		Project Info				
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 50 48.60274	96 40 40.67042	505537.180	179091.809	.010		ADJUSTMENT	2012	GPS2800

  

NAD83(2007)		Clay County		Project Info				
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 50 48.60273	96 40 40.67141	505537.111	179091.808	.010		ADJUSTMENT	2007	GPS2300

  

NAD83(1996)		Clay County		Project Info				
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 50 48.60215	96 40 40.67124	505537.122	179091.749	.033	C	ADJUSTMENT	2003	GPS1905
46 50 48.60215	96 40 40.67124	505537.122	179091.749	.033	C	GPS - STATIC	2003	HMOOR

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		UTM - Zone 15		Project Info				
MN State Plane - Central Zone X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2017213.070	1010862.154	720454.074	17042989.810	.010		ADJUSTMENT	2012	GPS2800

  

NAD83(2007)		UTM - Zone 15		Project Info				
MN State Plane - Central Zone X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2017213.002	1010862.155	720454.006	17042989.813	.010		ADJUSTMENT	2007	GPS2300

  

NAD83(1996)		UTM - Zone 15		Project Info				
MN State Plane - Central Zone X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2017213.011	1010862.096	720454.014	17042989.753	.033	C	ADJUSTMENT	2003	GPS1905
2017213.012	1010862.096	720454.014	17042989.754	.033	C	GPS - STATIC	2003	HMOOR



Mn/DOT Name: N 4

NGS Name: N 4

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0754](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	30	137 N	45 W	463902.00	962449.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1905	1905	DESTROYED	Horz=NO Vert=NO	NO			NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE DECK	DRILL HOLE	NGS

Description:

Stamping:

IN BARNESVILLE, 0.3 MILE EAST ALONG 2ND AVENUE SOUTHEAST FROM THE JUNCTION OF 2ND AVENUE SOUTHEAST AND COUNTY ROAD 22 IN BARNESVILLE, THEN 0.1 MILE SOUTH ALONG 5TH STREET SOUTHEAST, AT THE WEST ENTRANCE OF THE PUBLIC SCHOOL BUILDING, AT THE NORTH END OF THE HORIZONTAL SURFACE OF THE TOP STEP.

Leveling-Derived Orthometric Heights (Feet)

<u>GA1912</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1034.043	.007	1					VERTICAL ADJUSTMENT	1914	GA1912	

Geoid Separations(ft): GEOID18 = -87.083 12B = -87.077 09 = -86.978 03 = -86.932

\* No Horizontal Positions in the Database \*



Mn/DOT Name: N 49

NGS Name: N 49

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0044](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096143/  
 USGS Quad: DOWNER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	17	139 N	45 W	465132.00	962357.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1934	1969	GOOD	Horz=NO Vert=NO	NO		PROJECTS 3 IN.	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	BENCH MARK DISK	NGS

**Description:** (1934)                      **Stamping:** N-49 1934

0.4 MILE SOUTHEAST OF MUSKODA, 0.4 MILE SOUTHEAST ALONG 12TH AVENUE SOUTH FROM THE JUNCTION OF 12TH AVENUE SOUTH AND 190TH STREET SOUTH IN MUSKODA, 5.7 MILES WEST OF THE HAWLEY RAILROAD STATION, 16 RAILS WEST OF RAILROAD MILEPOST 240, 42.0 FEET SOUTHWEST OF A POLE, 27.0 FEET NORTH OF A NORTH TRACK.

**Station Notes**

THE SURVEY MARK IS ON RAILROAD PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1069.394	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1068.223	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
1068.223	.016	2				VERTICAL CONTROL SURVEY	1972	Q460961
1068.223	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A
1068.223	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A
1068.266	.007	1				VERTICAL CONTROL SURVEY	1941	Q460961
1068.266	.007	1				VERTICAL CONTROL SURVEY	1934	L98 MINN

**Geoid Separations(ft): GEOID18 = -87.808    12B = -87.798    09 = -87.680    03 = -87.628**

**\* No Horizontal Positions in the Database \***



Mn/DOT Name: N 49 A

NGS Name: N 49 A

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0043](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096143/  
 USGS Quad: DOWNER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	16	139 N	45 W	465113.00	962254.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1969	1969	GOOD	Horz=NO Vert=NO	NO		FLUSH	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE FOOTING - SMALL	SEE DESCRIPTION	MNDT

**Description:** (1969)                      **Stamping:**

3.0 MILES SOUTHWEST FROM HAWLEY, 1.3 MILES SOUTHEAST OF MUSKODA, 1.5 MILES EAST-SOUTHEAST ALONG 12TH AVENUE SOUTH FROM THE JUNCTION OF 12TH AVENUE SOUTH AND 190TH STREET SOUTH IN MUSKODA, THEN 118.0 FEET SOUTH ALONG 14TH AVENUE SOUTH, STATION N 49 A IS LOCATED IN HAWLEY TOWNSHIP, 1.7 MILES SOUTH OF TRUNK HIGHWAY 10, 1.4 MILES EAST OF COUNTY ROAD 23, 65.0 FEET EAST OF MILEPOST 239, 7.0 FEET NORTH OF THE NORTH RAILROAD.

**Station Notes**

THE SET DATE IS UNKNOWN. THE MARK IS A CHISELED X IN A STEEL BASE PLATE BOLTED TO A CONCRETE BASE OF RAILROAD SIGNAL NUMBER 2391. THE SURVEY MARK IS ON RAILROAD PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1090.405	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1089.224	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD

Geoid Separations(ft): GEOID18 = -87.798    12B = -87.789    09 = -87.667    03 = -87.618

\* No Horizontal Positions in the Database \*



Mn/DOT Name: N 7

NGS Name: N 7

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0343](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	11	139 N	47 W	465232.00	963443.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1931	2022	NOT FOUND	Horz=NO Vert=NO	NO		FLUSH	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	NGS

Description: (1982)                      Stamping: 921.757 N 7 1931

AT GLYNDON, 0.1 MILE NORTH ALONG PARKE AVENUE SOUTH FROM THE JUNCTION OF PARKE AVENUE SOUTH AND 4TH STREET SOUTHEAST IN GLYNDON, THEN 0.1 MILE EAST ALONG 2ND STREET SOUTHEAST, AT THE NORTHWEST CORNER OF A CITY PARK, 60.0 FEET EAST OF STREET ON THE WEST SIDE OF THE PARK, 36.0 FEET SOUTH OF A ROAD ON THE NORTH SIDE OF THE PARK.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
922.980	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
921.993	.007	1/2					UNKNOWN/APPROXIMATE	1992	UNCHECKD	
921.993	.016	2					VERTICAL CONTROL SURVEY	1972	Q460964	
921.993	.016	2					VERTICAL CONTROL SURVEY	1972	L22167-A	
921.993	.016	2					VERTICAL CONTROL SURVEY	1971	L22167-A	
921.757	.007	1					VERTICAL CONTROL SURVEY	1940	Q460964	
921.757	.007	1					VERTICAL CONTROL SURVEY	1938	L39 MINN	
921.757	.016	2					VERTICAL CONTROL SURVEY	1935	CUTLER-VERT	

Geoid Separations(ft): GEOID18 = -87.493    12B = -87.497    09 = -87.352    03 = -87.310

\* No Horizontal Positions in the Database \*



Mn/DOT Name: NALA  
County: CLAY, MN (Sheet 1)

NGS Name: NALA

NGS ACRN: [DO9538](#) [Get Map](#)  
NGS Quad / Sta Num : 47096331/  
USGS Quad: PERLEY

1/4	Sec	Twp	Rng	Reference	Reference	Vert	Horz
				Latitude	Longitude	Order	Order
SE	6	142 N	48 W	470811.53	964751.67	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2013	GOOD	Horz=YES Vert=YES	YES		RECESSED 1 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 25 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

**Description:** (2012)                                      **Stamping:** NALA 2012

4.1 MILES NORTH OF GEORGETOWN, 3.9 MILES NORTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND COUNTY ROAD 100/COUNTY ROAD 34 IN GEORGETOWN, AT TRUNK HIGHWAY 75 MILEPOINT 269.8, 60.3 FEET EAST OF TRUNK HIGHWAY 75, 43.9 FEET NORTH OF COUNTY ROAD 101/200TH AVENUE NORTHWEST, 1.5 FEET SOUTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88				Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference	
876.002	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88				Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference	
876.170			789.720	.029	2011	HORIZONTAL ADJUSTMENT	2013	GPS2963	
876.245	.131		789.910	.066	1996	GPS - STATIC	2013	HGEOR	
876.170			789.720	.029	2011	GPS - STATIC	2013	HGEOR	
876.009	.262		789.664	.197	2007	GPS - RTRN	2012	RTRN2012	

**Geoid Separations(ft):** GEOID18 = -86.434    12B = -86.434    09 = -86.342    03 = -86.335

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)			Clay County			Project Info			
Latitude	Longitude		X	Y	Acc	Order	Determination Method	Year	Reference
47 08 11.52721	96 47 51.67036		475708.370	284774.466	.016		ADJUSTMENT	2013	GPS2963
47 08 11.52721	96 47 51.67036		475708.370	284774.466	.016	C	GPS - STATIC	2013	HGEOR
NAD83(2007)			Clay County			Project Info			
Latitude	Longitude		X	Y	Acc	Order	Determination Method	Year	Reference
47 08 11.52729	96 47 51.67170		475708.278	284774.474	.131	3	GPS - RTRN	2012	RTRN2012
NAD83(1996)			Clay County			Project Info			
Latitude	Longitude		X	Y	Acc	Order	Determination Method	Year	Reference
47 08 11.52648	96 47 51.67096		475708.328	284774.392	.033	C	GPS - STATIC	2013	HGEOR

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		MN State Plane - Central Zone		UTM - Zone 15		Project Info				
X	Y	X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1990667.924	1117410.598	695637.072	17150022.050	695637.072	17150022.050	.016		ADJUSTMENT	2013	GPS2963
1990667.924	1117410.598	695637.072	17150022.050	695637.072	17150022.050	.016	C	GPS - STATIC	2013	HGEOR
NAD83(2007)		MN State Plane - Central Zone		UTM - Zone 15		Project Info				
X	Y	X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1990667.832	1117410.609	695636.979	17150022.063	695636.979	17150022.063	.131	3	GPS - RTRN	2012	RTRN2012
NAD83(1996)		MN State Plane - Central Zone		UTM - Zone 15		Project Info				
X	Y	X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1990667.881	1117410.525	695637.026	17150021.978	695637.026	17150021.978	.033	C	GPS - STATIC	2013	HGEOR



**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/NALA-DO9538-3E-10OCT2012.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/NALA-DO9538-3E-10OCT2012.jpg</a>	E	Oct 10, 2012
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/NALA-DO9538-2-10OCT2012.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/NALA-DO9538-2-10OCT2012.jpg</a>		Oct 10, 2012
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/NALA-DO9538-1-10OCT2012.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/NALA-DO9538-1-10OCT2012.jpg</a>		Oct 10, 2012

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: NO 19

NGS Name: NO 19

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096141/  
 USGS Quad: HAWLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	4	139 N	46 W	465237.00	962935.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
	2014	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE HEADWALL	BENCH MARK DISK	MNDT

Description: (2008)

Stamping:

4.2 MILES EAST OF GLYNDON, IN THE SOUTH END OF THE EAST HEADWALL, 0.3 MILE NORTH ALONG PARKE AVENUE FROM THE JUNCTION OF PARKE AVENUE AND 4TH STREET SOUTHEAST IN GLYNDON, THEN 4.1 MILES EAST ALONG TRUNK HIGHWAY 10 (STATE STREET NORTHEAST), AT A CONCRETE BRIDGE OVER THE BUFFALO RIVER.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
952.633	.033	3				VERTICAL CONTROL SURVEY	1964	USGS-VERT	

Geoid Separations(ft): GEOID18 = -87.713 12B = -87.726 09 = -87.579 03 = -87.520

\* No Horizontal Positions in the Database \*



Mn/DOT Name: O 4

NGS Name: O 4

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0016](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	25	137 N	46 W	463908.00	962513.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1905	2005	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE FOOTING - LARGE	BENCH MARK DISK	NGS

**Description:** (1966)                      **Stamping:** 1024.010 FT

AT BARNESVILLE, 49.0 FEET SOUTH ALONG FRONT STREET SOUTH FROM THE JUNCTION OF FRONT STREET SOUTH AND 2ND AVENUE SOUTHWEST IN BARNESVILLE, IN THE SILL OF A DEPARTMENT STORE BUILDING, ON THE WEST SIDE OF FRONT STREET, BETWEEN SECOND STREET AND THIRD STREET, 3.0 FEET NORTH OF THE MIDDLE ENTRANCE.

**Station Notes**

THE BUILDINGS HAVE BEEN REFACED; THE STATION WAS BRICKED OVER.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1024.968	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1024.102	.016	2				VERTICAL CONTROL SURVEY	1972	Q460961
1024.102	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A
1024.102	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A
1024.010	.007	1				VERTICAL CONTROL SURVEY	1929	Q460961
1024.010	.007	1				VERTICAL CONTROL SURVEY	1905	L36 MINN

**GA1912**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1024.506	.007	1				VERTICAL ADJUSTMENT	1914	GA1912

Geoid Separations(ft): GEOID18 = -87.070    12B = -87.063    09 = -86.968    03 = -86.922

\* No Horizontal Positions in the Database \*



Mn/DOT Name: OAKPORT  
County: CLAY, MN (Sheet 1)

NGS Name: OAKPORT

NGS ACRN: [RP1071](#) [Get Map](#)  
NGS Quad / Sta Num : 46096414/1054  
USGS Quad: DILWORTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	13	140 N	48 W	465655.23	964100.40		2

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	1991	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	NGS

Description: (1991)                      Stamping: OAKPORT 1954

5.1 MILES NORTH-NORTHEAST OF DILWORTH, 0.2 MILE EAST ALONG 1ST AVENUE SOUTHEAST FROM THE JUNCTION OF 4TH STREET SOUTHEAST AND 4TH STREET SOUTHEAST IN DILWORTH, THEN 0.7 MILE NORTH ALONG 7TH STREET SOUTHEAST, THEN 4.3 MILES NORTH ALONG 50TH STREET NORTH, THEN 0.5 MILE EAST ALONG 70TH AVENUE NORTH, AT THE WEST EDGE OF A BARNYARD, 150.0 FEET WEST OF A HOUSE, 34.0 FEET WEST OF A DRIVEWAY, 17.0 FEET EAST OF A FENCE, 96.93 FEET WEST-SOUTHWEST OF OAKPORT RM 1, 129.69 FEET NORTH OF OAKPORT RM 2.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
905.510	.197		819.319	.131	1996	1999	17648					

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
905.510						1954	HORZ					

Geoid Separations(ft): GEOID18 = -86.742    12B = -86.758    09 = -86.581    03 = -86.575

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 56 55.22977	96 41 00.39657	504158.098	216237.205	.066	2	ADJUSTMENT	1999	17648
46 56 55.22978	96 41 00.39657	504158.098	216237.206	.066	2	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 56 55.22866	96 41 00.38747	504158.729	216237.092	.066	2	ADJUSTMENT	1986	17289

<u>NAD27</u>		<u>Geodetic Position</u>		<u>Project Info</u>				
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 56 55.36300	96 40 59.11400			.100	2	CLASSICAL SURVEY	1956	11230

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2016983.566	1048029.648	720828.611	17080178.268	.066	2	ADJUSTMENT	1999	17648
2016983.566	1048029.649	720828.611	17080178.269	.066	2	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2016984.193	1048029.516	720829.236	17080178.126	.066	2	ADJUSTMENT	1986	17289

<u>NAD27</u>		<u>MN State Plane - Central Zone</u>		<u>Project Info</u>				
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1392387.549	719953.015			.100	2	CLASSICAL SURVEY	1956	11230



Mn/DOT Name: OAKPORT AZ MK

NGS Name: OAKPORT AZ MK

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP4410](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	13	140 N	48 W	465657.00	964137.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	1991	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	NGS

**Description:** **Stamping:** OAKPORT 1954

5.0 MILES NORTH-NORTHEAST OF DILWORTH, 0.2 MILE EAST ALONG 1ST AVENUE SOUTHEAST FROM THE JUNCTION OF 4TH STREET SOUTHEAST AND 4TH STREET SOUTHEAST IN DILWORTH, THEN 0.7 MILE NORTH ALONG 7TH STREET SOUTHEAST, THEN 4.3 MILES NORTH ALONG 50TH STREET NORTH, THEN 151.0 FEET EAST ALONG 70TH AVENUE NORTH.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -86.703 12B = -86.722 09 = -86.548 03 = -86.542



Mn/DOT Name: OAKPORT RM 1

NGS Name: OAKPORT RM 1

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP4411](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	13	140 N	48 W	465655.00	964100.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	1991	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** **Stamping:**

5.1 MILES NORTH-NORTHEAST OF DILWORTH, 0.2 MILE EAST ALONG 1ST AVENUE SOUTHEAST FROM THE JUNCTION OF 4TH STREET SOUTHEAST AND 4TH STREET SOUTHEAST IN DILWORTH, THEN 0.7 MILE NORTH ALONG 7TH STREET SOUTHEAST, THEN 4.3 MILES NORTH ALONG 50TH STREET NORTH, THEN 0.5 MILE EAST ALONG 70TH AVENUE NORTH.

\* No Horizontal or Vertical Positions in the Database \*

**Geoid Separations(ft): GEOID18 = -86.742 12B = -86.758 09 = -86.581 03 = -86.575**



Mn/DOT Name: OAKPORT RM 2

NGS Name: OAKPORT RM 2

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP4412](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	13	140 N	48 W	465655.00	964100.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	1991	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description: (2011)                      Stamping:

5.1 MILES NORTH-NORTHEAST OF DILWORTH, 0.2 MILE EAST ALONG 1ST AVENUE SOUTHEAST FROM THE JUNCTION OF 4TH STREET SOUTHEAST AND 4TH STREET SOUTHEAST IN DILWORTH, THEN 0.7 MILE NORTH ALONG 7TH STREET SOUTHEAST, THEN 4.3 MILES NORTH ALONG 50TH STREET NORTH, THEN 0.5 MILE EAST ALONG 70TH AVENUE NORTH.

\* No Horizontal or Vertical Positions in the Database \*

**Geoid Separations(ft): GEOID18 = -86.742    12B = -86.758    09 = -86.581    03 = -86.575**



Mn/DOT Name: ORK  
 County: CLAY, MN (Sheet 1)

NGS Name: ORK

NGS ACRN: [DP7365](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096323/  
 USGS Quad: FELTON SW

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	36	142 N	48 W	470351.84	964124.35		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2013	2013	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 57 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2015)                      Stamping: ORK 2013

5.0 MILES EAST OF GEORGETOWN, 4.8 MILES EAST ALONG COUNTY ROAD 34 (160TH AVENUE NORTH) FROM THE JUNCTION OF COUNTY ROAD 34 AND TRUNK HIGHWAY 75 IN GEORGETOWN (THE JUNCTION TIE AT TRUNK HIGHWAY 75 MILEPOST 265.9), THEN 0.95 MILE SOUTH ON 50TH STREET NORTH, 24.5 FEET WEST OF 50TH STREET NORTH, 23.4 FEET NORTH OF 150TH AVENUE NORTH, 1.5 FEET EAST OF A WITNESS POST.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Orthometric Height				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference			
894.185			807.531	.027	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084			
894.162	.131		807.669	.066	1996	GPS - STATIC	2015	HCLAY			
894.185			807.531	.027	2011	GPS - STATIC	2015	HCLAY			
894.126	.262		807.505	.197	2011	GPS - RTRN	2013	RTRN2013			

Geoid Separations(ft): GEOID18 = -86.614 12B = -86.621 09 = -86.496 03 = -86.466

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
47 03 51.84270	96 41 24.34988	502490.819	258447.909	.016		ADJUSTMENT	2015	GPS3084
47 03 51.84270	96 41 24.34988	502490.819	258447.909	.016	C	GPS - STATIC	2015	HCLAY
47 03 51.84296	96 41 24.35003	502490.809	258447.935	.131	3	GPS - RTRN	2013	RTRN2013

NAD83(1996)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
47 03 51.84217	96 41 24.35067	502490.764	258447.855	.033	C	GPS - STATIC	2015	HCLAY

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2016622.656	1090269.429	721157.681	17122442.573	.016		ADJUSTMENT	2015	GPS3084
2016622.656	1090269.429	721157.681	17122442.573	.016	C	GPS - STATIC	2015	HCLAY
2016622.647	1090269.455	721157.672	17122442.600	.131	3	GPS - RTRN	2013	RTRN2013

NAD83(1996)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2016622.600	1090269.377	721157.624	17122442.522	.033	C	GPS - STATIC	2015	HCLAY

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ORK-DP7365-3W-21AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ORK-DP7365-3W-21AUG2013.jpg</a>	W	Aug 21, 2013
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ORK-DP7365-2-21AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ORK-DP7365-2-21AUG2013.jpg</a>		Aug 21, 2013
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ORK-DP7365-1-21AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ORK-DP7365-1-21AUG2013.jpg</a>		Aug 21, 2013

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: ORT

NGS Name: ORT

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP7366](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	T LOT	141 N	47 W	465838.17	964043.69		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2013	2013	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 59 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

**Description:** (2013)                      **Stamping:** ORT 2013

7.0 MILES NORTH OF MOORHEAD, 7.0 MILES NORTH ALONG COUNTY ROAD 11 FROM THE JUNCTION OF COUNTY ROAD 11 AND TRUNK HIGHWAY 336 AND TRUNK HIGHWAY 10 IN MOORHEAD, (THE JUNCTION TIE AT TRUNK HIGHWAY 336 MILEPOST 2.1,) THEN 1.45 MILES WEST ON COUNTY ROAD 26, 51.0 FEET NORTH OF COUNTY ROAD 26, 1.5 FEET EAST OF A WITNESS POST.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Orthometric Height				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference			
904.263			817.564	.020	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084			
904.237	.131		817.705	.066	1996	GPS - STATIC	2015	HCLAY			
904.263			817.564	.020	2011	GPS - STATIC	2015	HCLAY			
904.178	.262		817.502	.197	2011	GPS - RTRN	2013	RTRN2013			

Geoid Separations(ft): GEOID18 = -86.663    12B = -86.676    09 = -86.512    03 = -86.506

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 58 38.16751	96 40 43.69382	505314.157	226666.997	.013		ADJUSTMENT	2015	GPS3084
46 58 38.16751	96 40 43.69382	505314.157	226666.997	.013	C	GPS - STATIC	2015	HCLAY
46 58 38.16778	96 40 43.69374	505314.163	226667.024	.131	3	GPS - RTRN	2013	RTRN2013

NAD83(1996)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 58 38.16706	96 40 43.69465	505314.100	226666.952	.033	C	GPS - STATIC	2015	HCLAY

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2018461.573	1058418.037	722476.658	17090547.223	.013		ADJUSTMENT	2015	GPS3084
2018461.573	1058418.037	722476.658	17090547.223	.013	C	GPS - STATIC	2015	HCLAY
2018461.579	1058418.064	722476.665	17090547.250	.131	3	GPS - RTRN	2013	RTRN2013

NAD83(1996)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2018461.514	1058417.993	722476.599	17090547.180	.033	C	GPS - STATIC	2015	HCLAY

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ORT-DP7366-3N-21AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ORT-DP7366-3N-21AUG2013.jpg</a>	N	Aug 21, 2013
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ORT-DP7366-2-21AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ORT-DP7366-2-21AUG2013.jpg</a>		Aug 21, 2013
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ORT-DP7366-1-21AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ORT-DP7366-1-21AUG2013.jpg</a>		Aug 21, 2013

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: P 315  
County: CLAY, MN (Sheet 1)

NGS Name: P 315

NGS ACRN: [RP0381](#) [Get Map](#)  
NGS Quad / Sta Num : 46096411/  
USGS Quad: GLYNDON NORTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	32	141 N	46 W	465909.40	963229.80	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1938	2004	GOOD	Horz=NO Vert=NO	YES	RR	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE ABUTMENT	BENCH MARK DISK	NGS

**Description:** (1938)                      **Stamping:** P 315 1938

1.1 MILES NORTH-NORTHEAST OF AVERILL, IN THE SOUTHWEST ABUTMENT OF A RAILROAD BRIDGE, 0.6 MILE NORTH-NORTHEAST ALONG 120TH STREET NORTH FROM THE JUNCTION OF 120TH STREET NORTH AND 90TH AVENUE NORTH, (THE JUNCTION IS 0.5 MILE NORTH OF AVERILL), 180.0 FEET EAST-NORTHEAST OF COUNTY ROAD 19, 181.5 FEET NORTH OF RAILROAD MILEPOST 26, 21.5 FEET NORTH OF THE STATION ONE MILE SIGN, 6.0 FEET WEST OF THE WEST RAIL OF A RAILROAD.

**Station Notes**

THE SURVEY MARK IS ON RAILROAD PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
919.398	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025	

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
918.217	.007	1/2				UNKNOWN/APPROXIMATE	1992	UNCHECKD	
918.217	.033	3				VERTICAL CONTROL SURVEY	1965	USGS-VERT	
918.217	.007	1				VERTICAL CONTROL SURVEY	1940	Q460964	
918.217	.007	1				VERTICAL CONTROL SURVEY	1938	L45 MINN	

Geoid Separations(ft): GEOID18 = -87.109    12B = -87.132    09 = -86.972    03 = -86.939

\* No Horizontal Positions in the Database \*

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/P_315-RP0381-3N-16NOV2004.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/P_315-RP0381-3N-16NOV2004.jpg</a>	N	Nov 16, 2004
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/P_315-RP0381-2-16NOV2004.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/P_315-RP0381-2-16NOV2004.jpg</a>		Nov 16, 2004
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/P_315-RP0381-1-16NOV2004.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/P_315-RP0381-1-16NOV2004.jpg</a>		Nov 16, 2004

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: P 376  
 County: CLAY, MN (Sheet 1)

NGS Name: P 376

NGS ACRN: [RP0716](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	20	139 N	47 W	465045.00	963905.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1982	2009	DESTROYED	Horz=NO Vert=NO	NO	14801		NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE PILLAR/PIER	VERTICAL CONTROL DISK	NGS

**Description:** (1982)                      **Stamping:** P 376 1982

4.5 MILES EAST-SOUTHEAST OF MOORHEAD, SET VERTICALLY IN THE EAST FACE OF THE SOUTH PIER OF COUNTY ROAD 11 BRIDGE NUMBER 14801 OVER INTERSTATE HIGHWAY 94, AT THE JUNCTION OF COUNTY ROAD 11 AND INTERSTATE HIGHWAY 94, 6.1 MILES EAST ON INTERSTATE HIGHWAY 94 FROM THE WEST END OF INTERSTATE HIGHWAY 94 BRIDGE OVER THE RED RIVER AT MOORHEAD, ON THE SOUTH SIDE OF THE EASTBOUND LANES, 25.0 FEET SOUTH OF EASTBOUND INTERSTATE HIGHWAY 94.

**Station Notes**  
 NEW BRIDGE IN PLACE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
923.896	.016	2/1				VERTICAL ADJUSTMENT	2011	00000685
923.938	.016	2/1				VERTICAL CONTROL SURVEY	2002	VMORE
923.896	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025

**Geoid Separations(ft): GEOID18 = -87.336    12B = -87.352    09 = -87.201    03 = -87.136**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: P 4

NGS Name: P 4

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0017](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SW	13	137 N	46 W	464046.59	962559.27	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1905	2010	GOOD	Horz=NO Vert=NO	YES		FLUSH	MARK IS STEEL PIPE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
PIPE (CAPPED) DRIVEN IN GROUND (<10 FT)	PIPE CAP	NGS

**Description:** (1968) **Stamping:** 987.446 FT

2.0 MILES NORTH OF BARNESVILLE, 0.5 MILE NORTH ALONG FRONT STREET SOUTH FROM THE JUNCTION OF FRONT STREET SOUTH AND 2ND AVENUE SOUTHEAST IN BARNESVILLE, THEN 1.0 MILE NORTH ALONG TRUNK HIGHWAY 9 NORTH, THEN 0.5 MILE WEST ALONG COUNTY ROAD 55 (150TH AVENUE SOUTH), THEN 0.4 MILE NORTHWEST ALONG 175TH STREET SOUTH, 300.0 FEET SOUTH OF THE JUNCTION OF INTERSTATE HIGHWAY 94 AND A RAILROAD, 35.0 FEET WEST OF A RAILROAD, 33.0 FEET NORTH OF RAILROAD MILEPOST 3, OPPOSITE A WOODEN CULVERT, 20.0 FEET EAST OF A POLE ROW, 1.0 FOOT EAST OF A WITNESS POST.

**Station Notes**

THE SURVEY MARK IS ON RAILROAD PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
988.167	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941
988.318	.016	2/1				VERTICAL ADJUSTMENT	2012	00000717
988.318	.016	2/1				VERTICAL CONTROL SURVEY	2010	VBARN
988.318	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
987.446	.007	1/2				UNKNOWN/APPROXIMATE	1992	UNCHECKD
987.446	.007	1				VERTICAL CONTROL SURVEY	1972	Q460961
987.446	.007	1				VERTICAL CONTROL SURVEY	1972	L22167-A
987.446	.007	1				VERTICAL CONTROL SURVEY	1971	L22167-A
987.446	.007	1				VERTICAL CONTROL SURVEY	1929	Q460961
987.446	.007	1				VERTICAL CONTROL SURVEY	1905	L36 MINN

**GA1912**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
987.944	.007	1				VERTICAL ADJUSTMENT	1914	GA1912

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
988.318			901.274	.021	2011	HORIZONTAL ADJUSTMENT	2014	GPS2750
988.318			901.274	.021	2011	GPS - STATIC	2014	HBARN
988.318	.131		901.350	.066	2007	GPS - STATIC	2010	HBARN
988.318	.131		901.409	.066	1996	GPS - STATIC	2010	HBARN

Geoid Separations(ft): GEOID18 = -87.054 12B = -87.054 09 = -86.952 03 = -86.896

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 40 46.58634	96 25 59.27243	567013.679	118211.186	.013		ADJUSTMENT	2014	GPS2750
46 40 46.58634	96 25 59.27243	567013.679	118211.186	.013	C	GPS - STATIC	2014	HBARN

NAD83(2007)

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 40 46.58652	96 25 59.27346	567013.607	118211.204	.033	C	GPS - STATIC	2010	HBARN

NAD83(1996)

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 40 46.58612	96 25 59.27319	567013.626	118211.163	.033	C	GPS - STATIC	2010	HBARN

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2076770.733	948114.685	779024.519	16979254.512	.013		ADJUSTMENT	2014	GPS2750
2076770.733	948114.685	779024.519	16979254.512	.013	C	GPS - STATIC	2014	HBARN

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2076770.662	948114.705	779024.448	16979254.533	.033	C	GPS - STATIC	2010	HBARN

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2076770.679	948114.664	779024.465	16979254.492	.033	C	GPS - STATIC	2010	HBARN

Station Photos

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/P_4-RP0017-3W-30JUN2010.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/P_4-RP0017-3W-30JUN2010.jpg</a>	W	Jun 30, 2010
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/P_4-RP0017-2-30JUN2010.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/P_4-RP0017-2-30JUN2010.jpg</a>		Jun 30, 2010
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/P_4-RP0017-1-30JUN2010.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/P_4-RP0017-1-30JUN2010.jpg</a>		Jun 30, 2010

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: P 49

NGS Name: P 49

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0046](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096143/  
 USGS Quad: DOWNER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	11	139 N	46 W	465222.00	962635.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1934	1969	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	NGS

Description: (1969)                      Stamping: P-49 1934

1.9 MILES NORTHWEST OF MUSKODA, 1.0 MILE NORTH ALONG 190TH STREET SOUTH FROM THE JUNCTION OF 190TH STREET SOUTH AND 12TH AVENUE SOUTH IN MUSKODA, THEN 1.9 MILES WEST ALONG TRUNK HIGHWAY 10 WEST, THEN 0.2 MILE EAST ALONG TRUNK HIGHWAY 10 EAST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1034.762	.016	2/0					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1033.623	.033	3					VERTICAL CONTROL SURVEY	1964	USGS-VERT	
1033.623	.007	1					VERTICAL CONTROL SURVEY	1941	Q460961	
1033.623	.007	1					VERTICAL CONTROL SURVEY	1934	L98 MINN	

Geoid Separations(ft): GEOID18 = -87.792    12B = -87.792    09 = -87.661    03 = -87.611

\* No Horizontal Positions in the Database \*



Mn/DOT Name: PAPKE

NGS Name: PAPKE

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ1950](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SW	9	138 N	46 W	464658.67	963017.08	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 37 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: PAPKE 2014

2.1 MILES NORTHWEST OF DOWNER, 2.2 MILES NORTHWEST ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 10 IN DOWNER, AT TRUNK HIGHWAY 9 MILEPOINT 157.25, 59.5 FEET EAST OF TRUNK HIGHWAY 9, 16.0 FEET NORTH OF A FIELD ENTRANCE, 3.6 FEET NORTHWEST OF A WITNESS POST.

Station Pair: 1409 J - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
951.586	.016	2/1				2019	00000941					

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
951.586			864.224	.013	2011	2024	GPS3762					
951.586	.131		864.349	.066	1996	2024	HTH32					
951.586			864.224	.013	2011	2024	HTH32					
951.730	.262		864.175	.197	2011	2023	RTRN2023					
951.757	.262		864.201	.197	2011	2014	RTRN2014					

Geoid Separations(ft): GEOID18 = -87.556 12B = -87.556 09 = -87.434 03 = -87.365

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			
46 46 58.67249	96 30 17.08002	548943.354	155856.165	.007		2024	GPS3762			
46 46 58.67249	96 30 17.08002	548943.354	155856.165	.007	C	2024	HTH32			
46 46 58.67215	96 30 17.07975	548943.373	155856.130	.131	3	2023	RTRN2023			
46 46 58.67256	96 30 17.08001	548943.355	155856.172	.131	3	2014	RTRN2014			

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			
46 46 58.67233	96 30 17.08025	548943.338	155856.149	.033	C	2024	HTH32			

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	
2059875.790	986296.912	762737.884	17017723.612	.007		2024	GPS3762			
2059875.790	986296.912	762737.884	17017723.612	.007	C	2024	HTH32			
2059875.808	986296.876	762737.901	17017723.577	.131	3	2023	RTRN2023			
2059875.791	986296.918	762737.885	17017723.619	.131	3	2014	RTRN2014			

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			
2059875.774	986296.896	762737.867	17017723.597	.033	C	2024	HTH32			



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PAPKE-DQ1950-3E-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PAPKE-DQ1950-3E-18OCT2023.jpg</a>	E	Oct 18, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PAPKE-DQ1950-2-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PAPKE-DQ1950-2-18OCT2023.jpg</a>		Oct 18, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PAPKE-DQ1950-1-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PAPKE-DQ1950-1-18OCT2023.jpg</a>		Oct 18, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: PARKE

NGS Name: PARKE

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP7367](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096113/  
 USGS Quad: LAKE PARK SW

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	1	138 N	44 W	464817.08	961047.55		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2013	2013	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 18 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

**Description:** (2013)                      **Stamping:** PARKE 2013

7.0 MILES SOUTHWEST OF LAKE PARK, 5.9 MILES SOUTH AND WEST ALONG COUNTY ROAD 1 FROM THE JUNCTION OF COUNTY ROAD 1 AND TRUNK HIGHWAY 10, WEST OF LAKE PARK, (THE JUNCTION TIE AT TRUNK HIGHWAY 10 MILEPOST 30.55,) THEN 1.0 MILE WEST ON COUNTY ROAD 146, THEN 0.1 MILE WEST ON COUNTY ROAD 119, 33.7 FEET SOUTH OF COUNTY ROAD 119, 15.8 FEET EAST OF A FIELD ENTRANCE 4.4 FEET WEST OF A WITNESS POST.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Orthometric Height				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference			
1401.211			1313.820	.023	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084			
1401.208	.131		1313.964	.066	1996	GPS - STATIC	2015	HCLAY			
1401.211			1313.820	.023	2011	GPS - STATIC	2015	HCLAY			
1401.086	.262		1313.721	.197	2011	GPS - RTRN	2013	RTRN2013			

Geoid Separations(ft): GEOID18 = -87.398    12B = -87.365    09 = -87.264    03 = -87.218

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Geodetic Position				Clay County			Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference		
46 48 17.08302	96 10 47.55228	630285.605	164170.677	.016		ADJUSTMENT	2015	GPS3084		
46 48 17.08302	96 10 47.55228	630285.605	164170.677	.016	C	GPS - STATIC	2015	HCLAY		
46 48 17.08365	96 10 47.55348	630285.521	164170.740	.131	3	GPS - RTRN	2013	RTRN2013		

NAD83(1996)		Geodetic Position				Clay County			Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference		
46 48 17.08254	96 10 47.55305	630285.552	164170.628	.033	C	GPS - STATIC	2015	HCLAY		

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		MN State Plane - Central Zone				UTM - Zone 15			Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference		
2141428.240	992088.327	844409.551	17022201.219	.016		ADJUSTMENT	2015	GPS3084		
2141428.240	992088.327	844409.551	17022201.219	.016	C	GPS - STATIC	2015	HCLAY		
2141428.158	992088.393	844409.470	17022201.286	.131	3	GPS - RTRN	2013	RTRN2013		

NAD83(1996)		MN State Plane - Central Zone				UTM - Zone 15			Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference		
2141428.185	992088.280	844409.496	17022201.172	.033	C	GPS - STATIC	2015	HCLAY		

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PARKE-DP7367-3S-11SEP2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PARKE-DP7367-3S-11SEP2013.jpg</a>	S	Sep 11, 2013
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PARKE-DP7367-2-11SEP2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PARKE-DP7367-2-11SEP2013.jpg</a>		Sep 11, 2013
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PARKE-DP7367-1-11SEP2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PARKE-DP7367-1-11SEP2013.jpg</a>		Sep 11, 2013

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: PBM 4172

NGS Name: 4172

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0014](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	31	137 N	45 W	463817.90	962454.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1968	2022	DESTROYED	Horz=NO Vert=NO	YES	4172		NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	SEE DESCRIPTION	MNDT

Description: (1968)

Stamping:

0.5 MILE SOUTH OF BARNESVILLE, IN THE SOUTHEAST CORNER OF COUNTY ROAD 52 BOX CULVERT 4172 AT A DRAINAGE DITCH, 1.0 MILE SOUTH ALONG COUNTY ROAD 52 (FRONT STREET SOUTH) FROM THE JUNCTION OF COUNTY ROAD 52 (FRONT STREET SOUTH) AND 2ND AVENUE SOUTHEAST IN BARNESVILLE.

Station Notes

THE DISK IS A BRASS PLUG. THE CULVERT HAS BEEN REPLACED.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1025.375	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025	

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1024.512	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD	
1024.512	.016	2				VERTICAL CONTROL SURVEY	1972	Q460961	
1024.512	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A	

Geoid Separations(ft): GEOID18 = -87.109 12B = -87.100 09 = -87.008 03 = -86.958

\* No Horizontal Positions in the Database \*

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/4172-RP0014-3N-07JUN2005.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/4172-RP0014-3N-07JUN2005.jpg</a>	N	Jun 7, 2005
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/4172-RP0014-2-07JUN2005.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/4172-RP0014-2-07JUN2005.jpg</a>		Jun 7, 2005
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/4172-RP0014-1-07JUN2005.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/4172-RP0014-1-07JUN2005.jpg</a>		Jun 7, 2005

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: PIEPER

NGS Name: PIEPER

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ2009](#) [Get Map](#)  
 NGS Quad / Sta Num : 4609614/  
 USGS Quad: HAWLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	8	140 N	44 W	465744.12	961534.99	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 29 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: PIEPER 2014

1.1 MILES SOUTH OF HITTERDAL, 1.05 MILES SOUTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND COUNTY ROAD 26 IN HITTERDAL, AT TRUNK HIGHWAY 32 MILEPOINT 21.4, 53.5 FEET WEST OF TRUNK HIGHWAY 32, 32.0 FEET SOUTH OF A FIELD ENTRANCE, 51.3 FEET NORTH-NORTHEAST OF A POWER POLE, 5.0 FEET NORTH OF A WITNESS POST.

Station Pair: PRIEM - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
1245.001	.016	2/1				2019	00000941	VERTICAL ADJUSTMENT				

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
1245.001	.131		1157.350	.066	1996	2023	HHITT	GPS - STATIC				
1245.001			1157.222	.011	2011	2023	HHITT	GPS - STATIC				
1245.001			1157.222	.011	2011	2023	GPS3626	HORIZONTAL ADJUSTMENT				
1245.109	.262		1157.196	.197	2011	2022	RTRN2022	GPS - RTRN				
1245.066	.262		1157.153	.197	2011	2014	RTRN2014	GPS - RTRN				

Geoid Separations(ft): GEOID18 = -87.913    12B = -87.916    09 = -87.798    03 = -87.733

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 57 44.12266	96 15 34.98467	609967.191	221499.280	.007	C	GPS - STATIC	2023	HHITT
46 57 44.12266	96 15 34.98467	609967.191	221499.280	.007		ADJUSTMENT	2023	GPS3626
46 57 44.12274	96 15 34.98515	609967.158	221499.288	.131	3	GPS - RTRN	2022	RTRN2022
46 57 44.12294	96 15 34.98446	609967.206	221499.309	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 57 44.12248	96 15 34.98506	609967.164	221499.262	.033	C	GPS - STATIC	2023	HHITT

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>				
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2122897.499	1050013.500	826811.428	17080440.114	.007	C	GPS - STATIC	2023	HHITT		
2122897.499	1050013.500	826811.428	17080440.114	.007		ADJUSTMENT	2023	GPS3626		
2122897.466	1050013.509	826811.395	17080440.123	.131	3	GPS - RTRN	2022	RTRN2022		
2122897.515	1050013.528	826811.444	17080440.141	.131	3	GPS - RTRN	2014	RTRN2014		

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2122897.472	1050013.483	826811.400	17080440.097	.033	C	GPS - STATIC	2023	HHITT



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PIEPER-DQ2009-3W-03JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PIEPER-DQ2009-3W-03JUN2014.jpg</a>	W	Jun 3, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PIEPER-DQ2009-2-03JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PIEPER-DQ2009-2-03JUN2014.jpg</a>		Jun 3, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PIEPER-DQ2009-1-03JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PIEPER-DQ2009-1-03JUN2014.jpg</a>		Jun 3, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: PIETILA MNDT

NGS Name: PIETILA

County: CLAY, MN (Sheet 1)

NGS ACRN: [AB9913](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	29	139 N	46 W	465000.49	963019.47	2	B

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1994	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 5 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STEEL ROD (NO SLEEVE) (DEPTH 24 FT)	METAL ROD	MNDT

**Description:** (2008)                      **Stamping:** PIETILA 1994

4.5 MILES SOUTHEAST OF GLYNDON, 3.0 MILES SOUTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND TRUNK HIGHWAY 10 (THE JUNCTION IS 3.5 MILES EAST OF GLYNDON), AT TRUNK HIGHWAY 9 MILEPOINT 160.75, 62.0 FEET WEST OF TRUNK HIGHWAY 9, 16.0 FEET SOUTH OF A FIELD ENTRANCE, 68.0 FEET SOUTH OF A DRAINAGE DITCH ON THE SOUTH SIDE OF 40TH AVENUE SOUTH, 15.4 FEET WEST-NORTHWEST OF THE SOUTH END OF A 36.0 INCH DIAMETER METAL CULVERT, 5.1 FEET NORTH OF A WITNESS POST.

**Station Pair:**    RIPLE - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
942.236	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941
942.416	.016	2/1				VERTICAL ADJUSTMENT	2006	00000425-10
942.410	.016	2/1				VERTICAL CONTROL SURVEY	2005	VPIET

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
942.236			854.746	.008	2011	HORIZONTAL ADJUSTMENT	2025	GPS3805
942.236	.131		854.877	.066	1996	GPS - STATIC	2025	HTH94A
942.236			854.746	.008	2011	GPS - STATIC	2025	HTH94A
942.236			854.746	.008	2011	HORIZONTAL ADJUSTMENT	2024	GPS3762
942.236	.131		854.877	.066	1996	GPS - STATIC	2024	HTH32
942.236			854.746	.008	2011	GPS - STATIC	2024	HTH32
942.383	.262		854.693	.197	2011	GPS - RTRN	2023	RTRN2023
942.416			854.746	.009	2011	HORIZONTAL ADJUSTMENT	2018	GPS3119
942.416	.131		854.877	.066	1996	GPS - STATIC	2017	HMNCORS07
942.416			854.746	.009	2011	GPS - STATIC	2017	HMNPH
942.393	.262		854.693	.197	2011	GPS - RTRN	2015	RTRN2015
942.416			854.746	.009	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084
942.416	.131		854.877	.066	1996	GPS - STATIC	2015	HCLAY
942.416			854.736	.009	2011	GPS - STATIC	2015	HCLAY
942.416			854.746	.009	2011	HORIZONTAL ADJUSTMENT	2014	GPS2750
942.416			854.742	.009	2011	GPS - STATIC	2014	HBARN
942.416	.262		854.716	.197	2011	GPS - RTRN	2014	RTRN2014
			854.746	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
942.419	.131		854.844	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2690
942.419	.131		854.844	.066	2007	GPS - STATIC	2010	HBARN
942.416	.131		854.877	.066	1996	GPS - STATIC	2010	HBARN
942.419	.131		854.877	.066	1996	GPS - STATIC	2010	HCOMS
942.419	.131		854.844	.066	2007	GPS - STATIC	2010	HCOMS
942.285	.262		854.798	.197	1996	GPS - RTRN	2009	RTRN2009
			854.844	.010	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
942.354	.098		854.877	.049	1996	GPS - STATIC	2005	GPS2036
942.387	.098		854.877	.049	1996	GPS - STATIC	2004	GPS1954
942.190	.098		854.877	.049	1996	GPS - STATIC	1997	GPS805-B
942.190	.131		854.877	.066	1996	GPS - STATIC	1997	GPS805-C

**Geoid Separations(ft): GEOID18 = -87.690    12B = -87.700    09 = -87.562    03 = -87.487**



Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Clay County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 50 00.48926	96 30 19.46956	548731.438	174276.676	.003		ADJUSTMENT	2025	GPS3805
46 50 00.48926	96 30 19.46956	548731.438	174276.676	.003	C	GPS - STATIC	2025	HTH94A
46 50 00.48926	96 30 19.46956	548731.438	174276.676	.007		ADJUSTMENT	2024	GPS3762
46 50 00.48926	96 30 19.46956	548731.438	174276.676	.007	C	GPS - STATIC	2024	HTH32
46 50 00.48941	96 30 19.46919	548731.464	174276.691	.131	3	GPS - RTRN	2023	RTRN2023
46 50 00.48926	96 30 19.46956	548731.438	174276.676	.007		ADJUSTMENT	2018	GPS3119
46 50 00.48926	96 30 19.46956	548731.438	174276.676	.007	C	GPS - STATIC	2017	HMNPH
46 50 00.48961	96 30 19.46927	548731.458	174276.712	.131	3	GPS - RTRN	2015	RTRN2015
46 50 00.48926	96 30 19.46956	548731.438	174276.676	.007		ADJUSTMENT	2015	GPS3084
46 50 00.48924	96 30 19.46954	548731.440	174276.674	.007	C	GPS - STATIC	2015	HCLAY
46 50 00.48926	96 30 19.46956	548731.438	174276.676	.007		ADJUSTMENT	2014	GPS2750
46 50 00.48927	96 30 19.46956	548731.438	174276.677	.007	C	GPS - STATIC	2014	HBARN
46 50 00.48964	96 30 19.47012	548731.399	174276.715	.131	3	GPS - RTRN	2014	RTRN2014
46 50 00.48926	96 30 19.46956	548731.438	174276.676	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Clay County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 50 00.48937	96 30 19.47077	548731.354	174276.687	.033	C	ADJUSTMENT	2011	GPS2690
46 50 00.48937	96 30 19.47077	548731.354	174276.687	.033	C	GPS - STATIC	2010	HBARN
46 50 00.48937	96 30 19.47077	548731.354	174276.687	.033	C	GPS - STATIC	2010	HCOMS
46 50 00.48937	96 30 19.47077	548731.354	174276.687	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Clay County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 50 00.48900	96 30 19.47064	548731.363	174276.650	.033	C	GPS - STATIC	2025	HTH94A
46 50 00.48900	96 30 19.47064	548731.363	174276.650	.033	C	GPS - STATIC	2024	HTH32
46 50 00.48900	96 30 19.47064	548731.363	174276.650	.033	C	GPS - STATIC	2017	HMNCORS07
46 50 00.48900	96 30 19.47064	548731.363	174276.650	.033	C	GPS - STATIC	2015	HCLAY
46 50 00.48900	96 30 19.47064	548731.363	174276.650	.033	C	GPS - STATIC	2010	HBARN
46 50 00.48900	96 30 19.47064	548731.363	174276.650	.033	C	GPS - STATIC	2010	HCOMS
46 50 00.48922	96 30 19.47055	548731.369	174276.672	.131	3	GPS - RTRN	2009	RTRN2009
46 50 00.48900	96 30 19.47064	548731.363	174276.650	.016	B	GPS - STATIC	2005	GPS2036
46 50 00.48900	96 30 19.47064	548731.363	174276.650	.016	B	GPS - STATIC	2004	GPS1954
46 50 00.48900	96 30 19.47064	548731.363	174276.650	.016	B	GPS - STATIC	1997	GPS805-B
46 50 00.48900	96 30 19.47064	548731.363	174276.650	.033	C	GPS - STATIC	1997	GPS805-C

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15			Project Info			
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2060234.000	1004713.466	763393.907	17036141.603	.003		ADJUSTMENT	2025	GPS3805
2060234.000	1004713.466	763393.907	17036141.603	.003	C	GPS - STATIC	2025	HTH94A
2060234.000	1004713.466	763393.907	17036141.603	.007		ADJUSTMENT	2024	GPS3762
2060234.000	1004713.466	763393.907	17036141.603	.007	C	GPS - STATIC	2024	HTH32
2060234.026	1004713.481	763393.934	17036141.617	.131	3	GPS - RTRN	2023	RTRN2023
2060234.000	1004713.466	763393.907	17036141.603	.007		ADJUSTMENT	2018	GPS3119
2060234.000	1004713.466	763393.907	17036141.603	.007	C	GPS - STATIC	2017	HMNPH
2060234.021	1004713.501	763393.929	17036141.637	.131	3	GPS - RTRN	2015	RTRN2015
2060234.000	1004713.466	763393.907	17036141.603	.007		ADJUSTMENT	2015	GPS3084
2060234.002	1004713.464	763393.909	17036141.601	.007	C	GPS - STATIC	2015	HCLAY
2060234.000	1004713.466	763393.907	17036141.603	.007		ADJUSTMENT	2014	GPS2750
2060234.000	1004713.467	763393.907	17036141.604	.007	C	GPS - STATIC	2014	HBARN
2060233.962	1004713.506	763393.870	17036141.643	.131	3	GPS - RTRN	2014	RTRN2014
2060234.000	1004713.466	763393.907	17036141.603	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15			Project Info			
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2060233.916	1004713.480	763393.824	17036141.618	.033	C	ADJUSTMENT	2011	GPS2690
2060233.916	1004713.480	763393.824	17036141.618	.033	C	GPS - STATIC	2010	HBARN
2060233.916	1004713.480	763393.824	17036141.618	.033	C	GPS - STATIC	2010	HCOMS
2060233.916	1004713.480	763393.824	17036141.618	.010		ADJUSTMENT	2007	GPS2300

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15			Project Info			
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2060233.924	1004713.442	763393.831	17036141.580	.033	C	GPS - STATIC	2025	HTH94A
2060233.924	1004713.442	763393.831	17036141.580	.033	C	GPS - STATIC	2024	HTH32
2060233.924	1004713.442	763393.831	17036141.580	.033	C	GPS - STATIC	2017	HMNCORS07
2060233.924	1004713.442	763393.831	17036141.580	.033	C	GPS - STATIC	2015	HCLAY
2060233.924	1004713.442	763393.831	17036141.580	.033	C	GPS - STATIC	2010	HBARN
2060233.924	1004713.442	763393.831	17036141.580	.033	C	GPS - STATIC	2010	HCOMS
2060233.931	1004713.464	763393.838	17036141.602	.131	3	GPS - RTRN	2009	RTRN2009
2060233.924	1004713.442	763393.831	17036141.580	.016	B	GPS - STATIC	2005	GPS2036
2060233.924	1004713.442	763393.831	17036141.580	.016	B	GPS - STATIC	2004	GPS1954
2060233.924	1004713.442	763393.831	17036141.580	.016	B	GPS - STATIC	1997	GPS805-B
2060233.924	1004713.442	763393.831	17036141.580	.033	C	GPS - STATIC	1997	GPS805-C

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PIETILA-AB9913-3W-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PIETILA-AB9913-3W-18OCT2023.jpg</a>	W	Oct 18, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PIETILA-AB9913-2-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PIETILA-AB9913-2-18OCT2023.jpg</a>		Oct 18, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PIETILA-AB9913-1-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PIETILA-AB9913-1-18OCT2023.jpg</a>		Oct 18, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: PINN

NGS Name: PINN

County: CLAY, MN (Sheet 1)

NGS ACRN: [DR9706](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SW	13	139 N	48 W	465050.93	964134.41	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2022	2023	GOOD	Horz=YES Vert=YES	NO		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 79 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2022)                      Stamping: PINN 2022

3.6 MILES EAST OF MOORHEAD, 1.95 MILES WEST ALONG INTERSTATE HIGHWAY 94 FROM THE JUNCTION OF INTERSTATE HIGHWAY 94 AND TRUNK HIGHWAY 336 (THE JUNCTION IS 5.0 MILES EAST OF MOORHEAD), AT INTERSTATE HIGHWAY 94 MILEPOINT 4.15, 41.4 FEET NORTH OF THE WESTBOUND INTERSTATE HIGHWAY 94 FOG LINE, 242.2 FEET EAST OF COUNTY ROAD 78 (50TH STREET SOUTH), 1.5 FEET SOUTH OF A WITNESS POST.

Station Pair:    M 376 - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
911.356	.016	2/1				2024	00000941-3					
911.360	.016	2/1				2023	VMOFA					

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
911.360			824.372	.020	2011	2024	GPS3715					
911.360			824.372	.020	2011	2024	HMOFA2					
911.360	.131		824.477	.066	1996	2024	HMOFA2					
911.603	.262		824.362	.197	2011	2022	RTRN2022					

Geoid Separations(ft): GEOID18 = -87.237    03 = -87.037

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 50 50.93176	96 41 34.40518	501801.837	179327.084	.013		ADJUSTMENT	2024	GPS3715
46 50 50.93176	96 41 34.40518	501801.837	179327.084	.013	C	GPS - STATIC	2024	HMOFA2
46 50 50.93165	96 41 34.40533	501801.827	179327.073	.131	3	GPS - RTRN	2022	RTRN2022

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 50 50.93160	96 41 34.40598	501801.781	179327.068	.033	C	GPS - STATIC	2024	HMOFA2

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2013487.103	1011212.818	716732.016	17043401.065	.013		ADJUSTMENT	2024	GPS3715
2013487.103	1011212.818	716732.016	17043401.065	.013	C	GPS - STATIC	2024	HMOFA2
2013487.092	1011212.808	716732.005	17043401.055	.131	3	GPS - RTRN	2022	RTRN2022

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2013487.047	1011212.804	716731.960	17043401.052	.033	C	GPS - STATIC	2024	HMOFA2



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PINN-DR9706-3N-27JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PINN-DR9706-3N-27JUL2022.jpg</a>	N	Jul 27, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PINN-DR9706-2-27JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PINN-DR9706-2-27JUL2022.jpg</a>		Jul 27, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PINN-DR9706-1-27JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PINN-DR9706-1-27JUL2022.jpg</a>		Jul 27, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: PIT

NGS Name: PIT

County: CLAY, MN (Sheet 1)

NGS ACRN: <a href="#">DP7368</a>	<a href="#">Get Map</a>
NGS Quad / Sta Num : 47096233/	
USGS Quad: ULEN SW	

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	12	141 N	46 W	470258.02	962615.55		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2013	2013	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 27 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2013)                      Stamping: PIT

3.5 MILES EAST-SOUTHEAST OF FELTON, 2.0 MILES SOUTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 34 IN FELTON, TO TRUNK HIGHWAY 9 MILEPOST 175.7, THEN 3.0 MILES EAST ON COUNTY ROAD 108 (140TH AVENUE), 31.3 FEET SOUTH OF COUNTY ROAD 108, 100.0 FEET EAST OF 170TH STREET NORTH, 1.5 FEET NORTH OF A WITNESS POST.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Orthometric Height				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference			
1006.304			918.958	.019	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084			
1006.294	.131		919.099	.066	1996	GPS - STATIC	2015	HCLAY			
1006.304			918.958	.019	2011	GPS - STATIC	2015	HCLAY			
1006.327	.262		919.011	.197	2011	GPS - RTRN	2013	RTRN2013			

Geoid Separations(ft): GEOID18 = -87.310 12B = -87.316 09 = -87.182 03 = -87.175

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Geodetic Position				Clay County			Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference		
47 02 58.02222	96 26 15.54642	565428.161	253104.246	.013		ADJUSTMENT	2015	GPS3084		
47 02 58.02222	96 26 15.54642	565428.161	253104.246	.013	C	GPS - STATIC	2015	HCLAY		
47 02 58.02156	96 26 15.54598	565428.192	253104.179	.131	3	GPS - RTRN	2013	RTRN2013		

NAD83(1996)		Geodetic Position				Clay County			Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference		
47 02 58.02170	96 26 15.54724	565428.104	253104.193	.033	C	GPS - STATIC	2015	HCLAY		

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		MN State Plane - Central Zone				UTM - Zone 15			Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference		
2079361.622	1082980.871	783800.377	17114125.283	.013		ADJUSTMENT	2015	GPS3084		
2079361.622	1082980.871	783800.377	17114125.283	.013	C	GPS - STATIC	2015	HCLAY		
2079361.651	1082980.803	783800.404	17114125.215	.131	3	GPS - RTRN	2013	RTRN2013		

NAD83(1996)		MN State Plane - Central Zone				UTM - Zone 15			Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference		
2079361.564	1082980.820	783800.318	17114125.233	.033	C	GPS - STATIC	2015	HCLAY		

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PIT-DP7368-3N-21AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PIT-DP7368-3N-21AUG2013.jpg</a>	N	Aug 21, 2013
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PIT-DP7368-2-21AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PIT-DP7368-2-21AUG2013.jpg</a>		Aug 21, 2013
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PIT-DP7368-1-21AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PIT-DP7368-1-21AUG2013.jpg</a>		Aug 21, 2013

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: POND

NGS Name: POND

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP7369](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096131/  
 USGS Quad: BIG SLOUGH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SE	31	137 N	44 W	463752.07	961647.26		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2013	2018	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 25 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2013)                      Stamping: POND 2013

6.5 MILES EAST OF BARNESVILLE, 2.0 MILES SOUTHWEST ALONG COUNTY ROAD 127 FROM THE JUNCTION OF COUNTY ROAD 127 AND TRUNK HIGHWAY 34 IN BARNESVILLE, (THE JUNCTION TIE AT TRUNK HIGHWAY 34 MILEPOINT 6.75), 26.3 FEET NORTH-NORTHEAST OF COUNTY ROAD 127, 11.9 FEET NORTHWEST OF A FIELD ENTRANCE, 2.3 FEET SOUTHEAST OF A WITNESS POST.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>						
1207.301	.131		1120.181	.066	1996	2021	HOTTE						
1207.347			1120.040	.016	2011	2020	GPS3384						
1207.347			1120.040	.016	2011	2020	HOTTE						
1207.347			1120.040	.025	2011	2015	GPS3084						
1207.314	.131		1120.181	.066	1996	2015	HCLAY						
1207.347			1120.040	.025	2011	2015	HCLAY						
1207.448	.262		1120.172	.197	2011	2013	RTRN2013						

Geoid Separations(ft): GEOID18 = -87.293 12B = -87.277 09 = -87.168 03 = -87.103

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>				<u>Clay County</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
46 37 52.06515	96 16 47.25992	605599.489	100697.823	.010		ADJUSTMENT	2020	GPS3384		
46 37 52.06515	96 16 47.25992	605599.489	100697.823	.010	C	GPS - STATIC	2020	HOTTE		
46 37 52.06515	96 16 47.25992	605599.489	100697.823	.016		ADJUSTMENT	2015	GPS3084		
46 37 52.06515	96 16 47.25992	605599.489	100697.823	.016	C	GPS - STATIC	2015	HCLAY		
46 37 52.06642	96 16 47.26045	605599.452	100697.951	.131	3	GPS - RTRN	2013	RTRN2013		

<u>NAD83(1996)</u>		<u>Geodetic Position</u>				<u>Clay County</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
46 37 52.06474	96 16 47.26069	605599.436	100697.781	.033	C	GPS - STATIC	2021	HOTTE		
46 37 52.06474	96 16 47.26069	605599.436	100697.781	.033	C	GPS - STATIC	2015	HCLAY		

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
2114791.588	929417.636	816758.619	16959941.253	.010		ADJUSTMENT	2020	GPS3384		
2114791.588	929417.636	816758.619	16959941.253	.010	C	GPS - STATIC	2020	HOTTE		
2114791.588	929417.636	816758.619	16959941.253	.016		ADJUSTMENT	2015	GPS3084		
2114791.588	929417.636	816758.619	16959941.253	.016	C	GPS - STATIC	2015	HCLAY		
2114791.555	929417.765	816758.588	16959941.384	.131	3	GPS - RTRN	2013	RTRN2013		

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
2114791.534	929417.596	816758.564	16959941.214	.033	C	GPS - STATIC	2021	HOTTE		
2114791.534	929417.596	816758.564	16959941.214	.033	C	GPS - STATIC	2015	HCLAY		



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/POND-DP7369-3NE-11SEP2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/POND-DP7369-3NE-11SEP2013.jpg</a>	NE	Sep 11, 2013
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/POND-DP7369-2-11SEP2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/POND-DP7369-2-11SEP2013.jpg</a>		Sep 11, 2013
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/POND-DP7369-1-11SEP2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/POND-DP7369-1-11SEP2013.jpg</a>		Sep 11, 2013

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: PORT

NGS Name: PORT

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP2173](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	16	140 N	48 W	465642.39	964445.71	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2012	2023	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 65 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012)                      Stamping: PORT 2012

5.0 MILES NORTH OF MOORHEAD, 4.75 MILES NORTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND TRUNK HIGHWAY 10 IN MOORHEAD, AT TRUNK HIGHWAY 75 MILEPOINT 256.25, 0.2 MILE SOUTH OF COUNTY ROAD 93, 38.6 FEET EAST OF TRUNK HIGHWAY 75, 17.2 FEET NORTH OF A FIELD ENTRANCE, 1.5 FEET SOUTH OF A WITNESS POST.

Station Pair: 1407 X RESET - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order</u>	<u>(/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
895.976	.016	2/1					2024	00000941-3	VERTICAL ADJUSTMENT				
895.996	.016	2/1					2023	VMOFA	VERTICAL CONTROL SURVEY				
895.963	.016	2/1					2019	00000941	VERTICAL ADJUSTMENT				

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order</u>	<u>(/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
895.996				809.677	.023	2011	2024	GPS3674	HORIZONTAL ADJUSTMENT				
895.996				809.677	.023	2011	2023	HMOFA3	GPS - STATIC				
895.996	.131			809.772	.066	1996	2023	HMOFA3	GPS - STATIC				
896.127	.262			809.562	.197	2011	2022	RTRN2022	GPS - RTRN				
896.081	.262			809.664	.197	2007	2012	RTRN2012	GPS - RTRN				

Geoid Separations(ft): GEOID18 = -86.565 12B = -86.584 09 = -86.417 03 = -86.401

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Geodetic Position</u>				<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>				
46 56 42.38645	96 44 45.70907	488524.575	214938.879	.010		2024	GPS3674	ADJUSTMENT							
46 56 42.38645	96 44 45.70907	488524.575	214938.879	.010	C	2023	HMOFA3	GPS - STATIC							
46 56 42.38633	96 44 45.70896	488524.583	214938.866	.131	3	2022	RTRN2022	GPS - RTRN							

  

<u>NAD83(2007)</u>				<u>Geodetic Position</u>				<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>				
46 56 42.38632	96 44 45.71144	488524.411	214938.865	.131	3	2012	RTRN2012	GPS - RTRN							

  

<u>NAD83(1996)</u>				<u>Geodetic Position</u>				<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>				
46 56 42.38631	96 44 45.70988	488524.519	214938.864	.033	C	2023	HMOFA3	GPS - STATIC							

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2001318.407	1047215.474	705142.813	17079619.017	.010		ADJUSTMENT	2024	GPS3674
2001318.407	1047215.474	705142.813	17079619.017	.010	C	GPS - STATIC	2023	HMOFA3
2001318.415	1047215.461	705142.820	17079619.004	.131	3	GPS - RTRN	2022	RTRN2022

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2001318.243	1047215.466	705142.648	17079619.012	.131	3	GPS - RTRN	2012	RTRN2012

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2001318.351	1047215.461	705142.757	17079619.005	.033	C	GPS - STATIC	2023	HMOFA3

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PORT-DP2173-3E-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PORT-DP2173-3E-28JUN2022.jpg</a>	E	Jun 28, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PORT-DP2173-2-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PORT-DP2173-2-28JUN2022.jpg</a>		Jun 28, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PORT-DP2173-1-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PORT-DP2173-1-28JUN2022.jpg</a>		Jun 28, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: PRAIRIE  
 County: CLAY, MN (Sheet 1)

NGS Name: PRAIRIE

NGS ACRN: [DP7370](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/  
 USGS Quad: FELTON

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	6	141 N	46 W	470351.58	963347.91		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2013	2013	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 79 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2013)                      Stamping: PRAIRIE 2013

2.5 WEST-SOUTHWEST OF FELTON, 3.0 MILES WEST ALONG COUNTY ROAD 34 FROM THE JUNCTION OF COUNTY ROAD 34 AND TRUNK HIGHWAY 9 IN FELTON, THEN 0.95 MILE SOUTH ON 110TH STREET NORTH, 138.1 FEET EAST OF 110TH STREET NORTH, 16.3 FEET SOUTH OF 150TH AVENUE NORTH, 1.5 FEET NORTH OF A WITNESS POST.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Orthometric Height				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference			
904.749			817.761	.024	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084			
904.742	.131		817.902	.066	1996	GPS - STATIC	2015	HCLAY			
904.749			817.761	.024	2011	GPS - STATIC	2015	HCLAY			
904.644	.262		817.682	.197	2011	GPS - RTRN	2013	RTRN2013			

Geoid Separations(ft): GEOID18 = -86.958    12B = -86.958    09 = -86.840    03 = -86.817

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
47 03 51.57848	96 33 47.90750	534091.683	258450.735	.016		ADJUSTMENT	2015	GPS3084
47 03 51.57848	96 33 47.90750	534091.683	258450.735	.016	C	GPS - STATIC	2015	HCLAY
47 03 51.57820	96 33 47.90888	534091.588	258450.707	.131	3	GPS - RTRN	2013	RTRN2013

NAD83(1996)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
47 03 51.57793	96 33 47.90832	534091.627	258450.679	.033	C	GPS - STATIC	2015	HCLAY

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2048207.134	1089294.605	752738.678	17120950.279	.016		ADJUSTMENT	2015	GPS3084
2048207.134	1089294.605	752738.678	17120950.279	.016	C	GPS - STATIC	2015	HCLAY
2048207.038	1089294.579	752738.581	17120950.255	.131	3	GPS - RTRN	2013	RTRN2013

NAD83(1996)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2048207.076	1089294.551	752738.619	17120950.226	.033	C	GPS - STATIC	2015	HCLAY

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PRAIRIE-DP7370-3S-21AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PRAIRIE-DP7370-3S-21AUG2013.jpg</a>	S	Aug 21, 2013
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PRAIRIE-DP7370-2-21AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PRAIRIE-DP7370-2-21AUG2013.jpg</a>		Aug 21, 2013
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PRAIRIE-DP7370-1-21AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PRAIRIE-DP7370-1-21AUG2013.jpg</a>		Aug 21, 2013

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: PRIEBE

NGS Name: PRIEBE

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ2005](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096141/  
 USGS Quad: HAWLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	20	140 N	44 W	465516.26	961610.14	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 19 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: PRIEBE 2014

3.8 MILES SOUTH OF HITTERDAL, 3.85 MILES SOUTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND COUNTY ROAD 26 IN HITTERDAL, TO TRUNK HIGHWAY 32 MILEPOINT 18.5, THEN 0.5 MILE WEST ON 43RD AVENUE NORTH, 44.3 FEET NORTH OF 43RD AVENUE NORTH, 16.0 FEET EAST OF A FIELD ENTRANCE, 1.5 FEET SOUTH OF A WITNESS POST.

Station Pair: 1403 T - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
1217.225	.016	2/1				VERTICAL ADJUSTMENT		2019	00000941

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
1217.225	.131		1129.558	.066	1996	GPS - STATIC		2023	HHITT
1217.225			1129.433	.013	2011	GPS - STATIC		2023	HHITT
1217.225			1129.433	.013	2011	HORIZONTAL ADJUSTMENT		2023	GPS3626
1217.301	.262		1129.381	.197	2011	GPS - RTRN		2022	RTRN2022
1217.334	.262		1129.417	.197	2011	GPS - OPUS		2021	GPSBM
1217.317	.262		1129.401	.197	2011	GPS - OPUS		2021	GPSBM
1217.311	.262		1129.391	.197	2011	GPS - RTRN		2021	RTRN2021
1217.222	.262		1129.322	.197	2011	GPS - RTRN		2014	RTRN2014

Geoid Separations(ft): GEOID18 = -87.916 12B = -87.900 09 = -87.795 03 = -87.743

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>								
46 55 16.26485	96 16 10.13846	607611.000	206505.066	.010	C	GPS - STATIC		2023	HHITT
46 55 16.26485	96 16 10.13846	607611.000	206505.066	.010		ADJUSTMENT		2023	GPS3626
46 55 16.26523	96 16 10.13859	607610.991	206505.104	.131	3	GPS - RTRN		2022	RTRN2022
46 55 16.26424	96 16 10.13902	607610.962	206505.004	.131	3	GPS - OPUS		2021	GPSBM
46 55 16.26442	96 16 10.13880	607610.977	206505.022	.131	3	GPS - OPUS		2021	GPSBM
46 55 16.26491	96 16 10.13771	607611.052	206505.072	.131	3	GPS - RTRN		2021	RTRN2021
46 55 16.26503	96 16 10.13847	607611.000	206505.084	.131	3	GPS - RTRN		2014	RTRN2014

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>								
46 55 16.26468	96 16 10.13886	607610.973	206505.048	.033	C	GPS - STATIC		2023	HHITT

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2120078.104	1035100.688	823749.402	17065569.326	.010	C	GPS - STATIC	2023	HHITT
2120078.104	1035100.688	823749.402	17065569.326	.010		ADJUSTMENT	2023	GPS3626
2120078.096	1035100.727	823749.394	17065569.365	.131	3	GPS - RTRN	2022	RTRN2022
2120078.063	1035100.628	823749.360	17065569.266	.131	3	GPS - OPUS	2021	GPSBM
2120078.079	1035100.645	823749.376	17065569.284	.131	3	GPS - OPUS	2021	GPSBM
2120078.156	1035100.693	823749.454	17065569.330	.131	3	GPS - RTRN	2021	RTRN2021
2120078.103	1035100.707	823749.402	17065569.345	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2120078.075	1035100.672	823749.373	17065569.310	.033	C	GPS - STATIC	2023	HHITT

Station Photos

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PRIEBE-DQ2005-3N-14JUL2021.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PRIEBE-DQ2005-3N-14JUL2021.jpg</a>	N	Jul 14, 2021
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PRIEBE-DQ2005-2-14JUL2021.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PRIEBE-DQ2005-2-14JUL2021.jpg</a>		Jul 14, 2021
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PRIEBE-DQ2005-1-14JUL2021.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PRIEBE-DQ2005-1-14JUL2021.jpg</a>		Jul 14, 2021

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: PRIEM

NGS Name: PRIEM

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ2008](#) [Get Map](#)  
 NGS Quad / Sta Num : 4609614/  
 USGS Quad: HAWLEY

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	8	140 N	44 W	465728.38	961534.89	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 4 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 24 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: PRIEM 2014

1.5 MILES SOUTH OF HITTERDAL, 1.35 MILES SOUTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND COUNTY ROAD 26 IN HITTERDAL, AT TRUNK HIGHWAY 32 MILEPOINT 21.1, 51.2 FEET WEST OF TRUNK HIGHWAY 32, 54.8 FEET NORTH-NORTHEAST OF A POWER POLE, 1.5 FEET EAST OF A WITNESS POST.

Station Pair:    PIEPER - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1241.041	.016	2/1							VERTICAL ADJUSTMENT	2019	00000941	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1241.041	.131		1153.387	.066	1996	1153.387	.066	1996	GPS - STATIC	2023	HHITT	
1241.041			1153.259	.012	2011	1153.259	.012	2011	GPS - STATIC	2023	HHITT	
1241.041			1153.259	.012	2011	1153.259	.012	2011	HORIZONTAL ADJUSTMENT	2023	GPS3626	
1241.126	.262		1153.210	.197	2011	1153.210	.197	2011	GPS - RTRN	2022	RTRN2022	
1241.090	.262		1153.170	.197	2011	1153.170	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.916    12B = -87.920    09 = -87.802    03 = -87.736

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>
46 57 28.37759	96 15 34.88729	609982.906	219904.053	.010	C	GPS - STATIC	2023
46 57 28.37759	96 15 34.88729	609982.906	219904.053	.010		ADJUSTMENT	2023
46 57 28.37733	96 15 34.88784	609982.868	219904.026	.131	3	GPS - RTRN	2022
46 57 28.37783	96 15 34.88753	609982.889	219904.077	.131	3	GPS - RTRN	2014

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>
46 57 28.37742	96 15 34.88768	609982.879	219904.036	.033	C	GPS - STATIC	2023

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>
2122863.781	1048418.675	826751.810	17078845.449	826751.810	17078845.449	.010	C
2122863.781	1048418.675	826751.810	17078845.449	826751.810	17078845.449	.010	
2122863.742	1048418.650	826751.771	17078845.425	826751.771	17078845.425	.131	3
2122863.765	1048418.700	826751.795	17078845.474	826751.795	17078845.474	.131	3

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>
2122863.754	1048418.659	826751.783	17078845.433	826751.783	17078845.433	.033	C



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PRIEM-DQ2008-3W-03JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PRIEM-DQ2008-3W-03JUN2014.jpg</a>	W	Jun 3, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PRIEM-DQ2008-2-03JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PRIEM-DQ2008-2-03JUN2014.jpg</a>		Jun 3, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PRIEM-DQ2008-1-03JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/PRIEM-DQ2008-1-03JUN2014.jpg</a>		Jun 3, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: PRIM TRAV STA NO 34 MINN

NGS Name: PRIM TRAV STA NO 34

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096144/  
 USGS Quad: HAWLEY NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	4	139 N	44 W	465239.40	961532.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1911	2014	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE ABUTMENT	BENCH MARK DISK	USGS

**Description:** (2007)                      **Stamping:** PRIM TRAV STA NO 34 MINN 1911

2.3 MILES EAST HAWLEY, 2.9 MILES EAST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 31 IN HAWLEY, ON THE NORTH SIDE OF A ROAD, NEAR TRUNK HIGHWAY 32.

\* No Horizontal or Vertical Positions in the Database \*

**Geoid Separations(ft): GEOID18 = -87.798    12B = -87.782    09 = -87.674    03 = -87.618**



Mn/DOT Name: PRIM TRAV STA NO 5 RESET

NGS Name: PRIM TRAV STA NO 5 RSET

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096131/  
 USGS Quad: BIG SLOUGH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	28	138 N	44 W	464448.76	961535.94		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1939	2014	GOOD	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ROCK OUTCROP (OVER 3 METERS)	BENCH MARK DISK	USGS

**Description:** **Stamping:** PRIM TRAV STA NO 5 1911 RESET 1939

19.0 MILES SOUTHWEST OF DETROIT LAKES, 19.0 MILES NORTHWEST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND TRUNK HIGHWAY 59 IN DETROIT LAKES, THEN 7.7 MILES SOUTH ON TRUNK HIGHWAY 32, THEN 1.5 MILES SOUTH ON COUNTY ROAD 124, 258.0 FEET EAST OF THE CROSSROADS, 300.0 FEET SOUTHEAST OF A BARN, IN A LINE WITH A FENCE EAST AT THE NORTH END OF A SMALL LAKE.

**Station Notes**

THE SURVEY MARK IS ON RAILROAD PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.319 12B = -87.296 09 = -87.185 03 = -87.136



Mn/DOT Name: PTS 35

NGS Name: PTS 35

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 47096232/  
 USGS Quad: ULEN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	15	141 N	44 W	470115.00	961522.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1912	2014	NOT FOUND	Horz=NO Vert=NO	YES			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
PIPE (<10 FT)	SEE DESCRIPTION	USGS

**Description:** (1984)                      **Stamping:** PRIM TRAV STA NO 35 1161

3.0 MILES NORTH OF HITTERDAL, 3.4 MILES NORTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND COUNTY ROAD 26 IN HITTERDAL, AT TRUNK HIGHWAY 32 MILEPOINT 25.85, 132.0 FEET EAST OF TRUNK HIGHWAY 32, 39.5 FEET EAST OF THE EAST RAIL OF A RAILROAD, 0.5 FOOT WEST-SOUTHWEST OF A WITNESS POST.

**Station Notes**

THE SURVEY MARK IS ON RAILROAD PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1206.520	.033	3					VERTICAL CONTROL SURVEY	1953	CS1403	

**Geoid Separations(ft): GEOID18 = -87.802    12B = -87.802    09 = -87.690    03 = -87.641**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: PTS 4

NGS Name: PTS 4

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096131/  
 USGS Quad: BIG SLOUGH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	30	137 N	44 W	463855.00	961641.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1911	2014	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON POST	SEE DESCRIPTION	USGS

**Description:** (1911)                      **Stamping:** PTS 4 1241 MINN 1911

6.0 MILES EAST OF BARNESVILLE, 0.5 MILE NORTH ALONG FRONT STREET SOUTH FROM THE JUNCTION OF FRONT STREET SOUTH AND 2ND AVENUE SOUTHEAST IN BARNESVILLE, THEN 6.7 MILES EAST ALONG TRUNK HIGHWAY 34 EAST (160TH AVENUE SOUTH), THEN 0.8 MILE SOUTH ALONG COUNTY ROAD 127 (250TH STREET SOUTH), 30.0 FEET NORTH AND 50.0 FEET WEST OF THE CROSSROADS.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>		
1237.721	.033	3							VERTICAL CONTROL SURVEY	1974	USGS-VERT	

Geoid Separations(ft): GEOID18 = -87.244    12B = -87.221    09 = -87.116    03 = -87.054

\* No Horizontal Positions in the Database \*



Mn/DOT Name: PTS 5 RESET

NGS Name: PTS 5 RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096131/  
 USGS Quad: BIG SLOUGH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	29	138 N	44 W	464448.00	961535.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1939	2014	GOOD	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ROCK (1 TO 3 METERS)	SEE DESCRIPTION	USGS

**Description:** (1950)                      **Stamping:** PTS 5 MINN 1911 RESET 1939

1.1 MILES NORTHWEST OF ROLLAG, 1.7 MILES NORTH AND NORTHWEST ALONG TRUNK HIGHWAY 32 NORTH (270TH STREET SOUTH) FROM THE JUNCTION OF TRUNK HIGHWAY 32 NORTH (270TH STREET SOUTH) AND 103RD AVENUE SOUTH IN ROLLAG, THEN 0.3 MILE WEST ALONG 90TH AVENUE SOUTH, THEN 1.0 MILE SOUTH ALONG COUNTY ROAD 124 (260TH STREET SOUTH), 258.0 FEET EAST OF A CROSSROADS, AT A DIM ROAD EAST, 300.0 FEET SOUTHEAST OF A BARN IN LINE WITH A FENCE EAST, AT THE NORTH END OF A SMALL LAKE.

**Station Notes**

THE SURVEY MARK IS ON RAILROAD PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

**Leveling-Derived Orthometric Heights (Feet)**

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1215.099	.033	3				VERTICAL CONTROL SURVEY	1964	USGS-VERT	

**Geoid Separations(ft):** GEOID18 = -87.319    12B = -87.293    09 = -87.182    03 = -87.132

\* No Horizontal Positions in the Database \*



Mn/DOT Name: Q 315

NGS Name: Q 315

County: CLAY, MN (Sheet 1)

NGS ACRN: [SL0162](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/  
 USGS Quad: FELTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	17	141 N	46 W	470114.50	963139.70	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1938	2013	DESTROYED	Horz=NO Vert=NO	YES		RECESSED 2 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	BENCH MARK DISK	NGS

Description: (1938) Stamping: Q 315 1938

4.1 MILES SOUTH-SOUTHWEST OF FELTON, 3.1 MILES SOUTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 34 IN FELTON, TO TRUNK HIGHWAY 9 MILEPOINT 173.70, THEN 1.30 MILES WEST ALONG 120TH AVENUE NORTH, 82.5 FEET SOUTH OF RAILROAD MILEPOST 29, 45.0 FEET NORTH OF 120TH AVENUE NORTH, 38.0 FEET WEST OF THE WEST RAIL OF THE RAILROAD TRACKS, 11.0 FEET NORTHEAST OF A POWER POLE, 1.0 FOOT SOUTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
916.225	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

  

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
915.106	.033	3					VERTICAL CONTROL SURVEY	1964	USGS-VERT	
915.182	.007	1					VERTICAL CONTROL SURVEY	1941	Q470963	
915.182	.007	1					VERTICAL CONTROL SURVEY	1938	L45 MINN	

Geoid Separations(ft): GEOID18 = -87.057 12B = -87.070 09 = -86.929 03 = -86.913

\* No Horizontal Positions in the Database \*

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/Q_315-SL0162-3N-16NOV2004.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/Q_315-SL0162-3N-16NOV2004.jpg</a>	N	Nov 16, 2004
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/Q_315-SL0162-2-16NOV2004.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/Q_315-SL0162-2-16NOV2004.jpg</a>		Nov 16, 2004
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/Q_315-SL0162-1-16NOV2004.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/Q_315-SL0162-1-16NOV2004.jpg</a>		Nov 16, 2004

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: Q 376

NGS Name: Q 376

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0717](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	17	139 N	47 W	465143.00	963907.00	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1982	2022	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STEEL ROD (NO SLEEVE) (DEPTH 40 FT)	METAL ROD	NGS

Description: (2003)                      Stamping: Q 376 1982

7.3 MILES EAST OF MOORHEAD, 6.1 MILES EAST ON INTERSTATE HIGHWAY 94 FROM THE WEST END OF A BRIDGE OVER THE RED RIVER, THEN 1.15 MILES NORTH ON COUNTY ROAD 11, AT THE JUNCTION OF COUNTY ROAD 11 AND A GRAVEL ROAD, 50.0 FEET EAST OF COUNTY ROAD 11, 52.0 FEET SOUTH OF 12TH AVENUE SOUTH, 27.0 FEET WEST-SOUTHWEST OF A TELEPHONE JUNCTION BOX, 22.0 FEET SOUTH OF A POWER POLE, 7.0 FEET SOUTH OF A FENCE CORNER, 1.0 FOOT WEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
919.946	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941		
920.113	.016	2/1					VERTICAL ADJUSTMENT	2011	00000685		
920.116	.007	1/2					VERTICAL ADJUSTMENT	2004	00000425-2		
920.116	.016	2/1					VERTICAL CONTROL SURVEY	2002	VMOOR		
920.116	.016	2/1					VERTICAL CONTROL SURVEY	2002	VMOOR		
920.116	.007	1					VERTICAL ADJUSTMENT	1991	00000025		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
				833.118	.066	1996	GPS - STATIC	2001	DIST 4		

Geoid Separations(ft): GEOID18 = -87.293    12B = -87.303    09 = -87.155    03 = -87.103

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(1996)</u>				<u>Geodetic Position</u>			<u>Clay County</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>			
46 51 43.75882	96 39 07.29024	512025.000	184682.934	.033	C	GPS - STATIC	2001	DIST 4			

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(1996)</u>				<u>MN State Plane - Central Zone</u>			<u>UTM - Zone 15</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>			
2023870.180	1016249.485	727201.658	17048271.671	.033	C	GPS - STATIC	2001	DIST 4			



Mn/DOT Name: Q 4

NGS Name: Q 4

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0755](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	2	137 N	46 W	464254.00	962716.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1905	2014	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
PIPE (CAPPED) DRIVEN IN GROUND (<10 FT)	PIPE CAP	NGS

Description: (1935) Stamping: 951.455 FT

4.5 MILES NORTHWEST OF BARNESVILLE, 0.5 MILE NORTH ALONG FRONT STREET SOUTH FROM THE JUNCTION OF FRONT STREET SOUTH AND 2ND AVENUE SOUTHEAST IN BARNESVILLE, THEN 4.4 MILES NORTH AND NORTHWEST ALONG TRUNK HIGHWAY 9 NORTH, 82.5 FEET EAST OF RAILROAD MILEPOST 4, ON THE NORTH SIDE OF A TRACK.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
952.347	.007	1					VERTICAL CONTROL SURVEY	1993	POSTED	

  

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
951.455	.007	1					VERTICAL CONTROL SURVEY	1905	L36 MINN	

  

<u>GA1912</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
951.953	.007	1					VERTICAL ADJUSTMENT	1914	GA1912	

Geoid Separations(ft): GEOID18 = -87.185 12B = -87.182 09 = -87.077 03 = -87.021

\* No Horizontal Positions in the Database \*



Mn/DOT Name: Q 49

NGS Name: Q 49

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0049](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096144/  
 USGS Quad: HAWLEY NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	3	139 N	46 W	465236.00	962845.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1934	2014	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	BENCH MARK DISK	NGS

**Description:** (1934)                      **Stamping:** Q-49 1934

4.0 MILES EAST OF GLYNDON, 0.3 MILE NORTH ALONG PARKE AVENUE SOUTH FROM THE JUNCTION OF PARKE AVENUE SOUTH AND 4TH STREET SOUTHEAST IN GLYNDON, THEN 4.8 MILES EAST ALONG TRUNK HIGHWAY 10 (STATE STREET NORTHEAST), IN THE FRONT OF A JUNKYARD, IN LINE WITH A NORTH ROW OF TREES, 66.0 FEET NORTH OF TRUNK HIGHWAY 10, 78.0 FEET EAST OF A ROAD NORTH TO WALKER.

**Station Notes**

THE MARK IS TIPPED TO THE SOUTH AND MOVABLE.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
954.191	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
953.108	.016	2				VERTICAL CONTROL SURVEY	1972	Q460961
953.108	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A
953.108	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A
953.030	.033	3				VERTICAL CONTROL SURVEY	1964	USGS-VERT
953.030	.007	1				VERTICAL CONTROL SURVEY	1941	Q460964
953.030	.007	1				VERTICAL CONTROL SURVEY	1934	L98 MINN

**Geoid Separations(ft): GEOID18 = -87.739 12B = -87.749 09 = -87.608 03 = -87.549**

**\* No Horizontal Positions in the Database \***



Mn/DOT Name: R 315

NGS Name: R 315

County: CLAY, MN (Sheet 1)

NGS ACRN: [SL0168](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/  
 USGS Quad: FELTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	28	142 N	46 W	470446.00	963024.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1938	2005	DESTROYED	Horz=NO Vert=NO	YES			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE FOOTING - SMALL	BENCH MARK DISK	NGS

Description: (1938)                      Stamping: R 315 1938

IN FELTON, 0.2 MILE NORTH ALONG ATLANTIC AVENUE FROM THE JUNCTION OF ATLANTIC AVENUE AND 4TH STREET IN FELTON, AT THE JUNCTION OF ATLANTIC AVENUE AND COUNTY HIGHWAY 34 (7TH STREET/160TH AVENUE NORTH), 0.2 MILE NORTH OF A RAILROAD STATION AT FELTON, 0.1 MILE NORTHEAST OF RAILROAD MILEPOST 33, 225.0 FEET NORTH OF AN EAST-WEST SECTION LINE ROAD, 145.0 FEET EAST OF THE EAST RAIL OF A RAILROAD, IN THE WEST END OF THE NORTH 1 OF 3 CONCRETE FOOTINGS OF PIERS FOR THE GAS STORAGE TANKS.

**Station Notes**

NEW TANKS IN THE AREA.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
911.655	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
910.418	.007	1				VERTICAL CONTROL SURVEY	1941	Q470963
910.418	.007	1				VERTICAL CONTROL SURVEY	1938	L45 MINN

Geoid Separations(ft): GEOID18 = -87.073 12B = -87.090 09 = -86.958 03 = -86.942

\* No Horizontal Positions in the Database \*



Mn/DOT Name: R 376

NGS Name: R 376

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0725](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	2	139 N	47 W	465329.00	963449.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1982	1995	DESTROYED	Horz=NO Vert=NO	YES			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STEEL ROD (NO SLEEVE)	METAL ROD	NGS

**Description:** (1995)                      **Stamping:** R 376 1982

1.1 MILES NORTH OF GLYNDON, 1.05 MILES NORTH ON COUNTY ROAD 19 FROM THE JUNCTION OF COUNTY ROAD 19 AND TRUNK HIGHWAY 10 IN GLYNDON, THEN 0.1 MILE WEST COUNTY ROAD 18, 118.0 FEET SOUTH OF COUNTY ROAD 84, 35.0 FEET WEST OF THE WEST RAIL OF THE RAILROAD TRACKS, 3.0 FEET NORTH OF A TELEPHONE POLE, 1.0 FOOT EAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			
921.553	.007	1/2							VERTICAL ADJUSTMENT	1991	00000025		

**Geoid Separations(ft): GEOID18 = -87.428    12B = -87.437    09 = -87.280    03 = -87.247**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: R 4

NGS Name: R 4

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0756](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096143/  
 USGS Quad: DOWNER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	21	138 N	46 W	464506.00	962902.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1905	1905	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE FOOTING - LARGE	BOLT	NGS

**Description:**

**Stamping:**

0.2 MILE SOUTHEAST OF DOWNER, 0.2 MILE EAST ALONG 90TH AVENUE SOUTH FROM THE JUNCTION OF 90TH AVENUE SOUTH AND 148TH STREET SOUTH IN DOWNER, THEN 0.2 MILE SOUTH-SOUTHEAST ALONG TRUNK HIGHWAY 9 SOUTH, ON THE ELEVATOR OF THE HENNEPIN ELEVATOR COMPANY, ON THE HORIZONTAL SURFACE OF THE FOUNDATION, ON THE NORTH SIDE.

**Leveling-Derived Orthometric Heights (Feet)**

**GA1912**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
965.677	.007	1				VERTICAL ADJUSTMENT	1914	GA1912	

Geoid Separations(ft): GEOID18 = -87.424 12B = -87.398 09 = -87.293 03 = -87.260

\* No Horizontal Positions in the Database \*



Mn/DOT Name: R 49

NGS Name: R 49

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0290](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	8	139 N	46 W	465235.00	963135.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1934	1950	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	NGS

Description: (1950)                      Stamping: R 49 1934

0.3 MILE NORTH ALONG PARKE AVENUE SOUTH FROM THE JUNCTION OF PARKE AVENUE SOUTH AND 4TH STREET  
 SOUTHEAST IN GLYNDON, THEN 2.5 MILES EAST ALONG TRUNK HIGHWAY 10 (STATE STREET NORTHEAST), THEN 285.0  
 FEET SOUTH ALONG 130TH STREET SOUTH/TALLY HO ROAD.

Station Notes

THE STATION WAS RESET IN 1964.

Leveling-Derived Orthometric Heights (Feet)

<u>NAVD88</u>							<u>Project Info</u>	
<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			
932.091	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025
<u>NGVD29</u>							<u>Project Info</u>	
<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			
930.923	.007	1				VERTICAL CONTROL SURVEY	1934	L3620

Geoid Separations(ft): GEOID18 = -87.634 12B = -87.647 09 = -87.500 03 = -87.444

\* No Horizontal Positions in the Database \*



Mn/DOT Name: R 49 RESET

NGS Name: R 49 RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0292](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	7	139 N	46 W	465236.81	963136.15	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1964	2022	GOOD	Horz=YES Vert=YES	YES		FLUSH	STEEL ROD IMBED IN MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	NGS

**Description:** (2014)                      **Stamping:** R 49 RESET 1964

2.0 MILES EAST OF GLYNDON, 0.3 MILE NORTH ALONG PARKE AVENUE SOUTH FROM THE JUNCTION OF PARKE AVENUE SOUTH AND 4TH STREET SOUTHEAST IN GLYNDON, THEN 2.5 MILES EAST ALONG TRUNK HIGHWAY 10 (STATE STREET NORTHEAST), 98.0 FEET SOUTH OF EASTBOUND TRUNK HIGHWAY 10, AT TRUNK HIGHWAY 10 MILEPOINT 11.8, 50.0 FEET WEST OF 130TH STREET SOUTH, 7.0 FEET WEST OF A POWER POLE NUMBER 330, 1.0 FOOT EAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

Orthometric Height			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj		Year	Reference	
930.799	.016	2/1				VERTICAL ADJUSTMENT	2024	00000941-3	
930.799	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA	
930.887	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941	
931.025	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025	

**NGVD29**

Orthometric Height			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj		Year	Reference	
929.955	.007	1/2				UNKNOWN/APPROXIMATE	1992	UNCHECKD	
929.955	.016	2				VERTICAL CONTROL SURVEY	1972	Q460964	
929.955	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A	
929.955	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A	
929.759	.016	2				VERTICAL CONTROL SURVEY	1964	Q460964	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

Orthometric Height			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj		Year	Reference	
931.048	.262		843.414	.197	2011	GPS - RTRN	2022	RTRN2022	
931.160	.262		843.515	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.634    12B = -87.647    09 = -87.497    03 = -87.441

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County				Determination Method		Project Info	
Latitude	Longitude	X	Y	Acc	Order		Year	Reference	
46 52 36.80710	96 31 36.15381	543364.535	190101.801	.131	3	GPS - RTRN	2022	RTRN2022	
46 52 36.80791	96 31 36.15251	543364.625	190101.883	.131	3	GPS - RTRN	2014	RTRN2014	

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Determination Method		Project Info	
X	Y	X	Y	Acc	Order		Year	Reference	
2055359.829	1020695.753	758776.739	17052209.057	.131	3	GPS - RTRN	2022	RTRN2022	
2055359.921	1020695.832	758776.833	17052209.135	.131	3	GPS - RTRN	2014	RTRN2014	

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/R_49_RESET-RP0292-3S-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/R_49_RESET-RP0292-3S-05JUL2022.jpg</a>	S	Jul 5, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/R_49_RESET-RP0292-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/R_49_RESET-RP0292-2-05JUL2022.jpg</a>		Jul 5, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/R_49_RESET-RP0292-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/R_49_RESET-RP0292-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: R 49 RESET 2

NGS Name: R 49 RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0291](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	8	139 N	46 W	465235.00	963134.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1950	1964	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	MNDT

**Description:** **Stamping:** R 49 RESET 1950

2.5 MILES EAST OF GLYNDON, 0.3 MILE NORTH ALONG PARKE AVENUE SOUTH FROM THE JUNCTION OF PARKE AVENUE SOUTH AND 4TH STREET SOUTHEAST IN GLYNDON, THEN 2.5 MILES EAST ALONG TRUNK HIGHWAY 10 (STATE STREET NORTHEAST), THEN 285.0 FEET SOUTH ALONG 130TH STREET SOUTH/TALLY HO ROAD, AT THE INTERSECTION OF A ROAD LEADING SOUTH, 70.0 FEET SOUTH OF THE CENTERLINE OF THE HIGHWAY AT SURVEY STATION 634+12, 15.0 FEET EAST OF THE SIDE ROAD.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.634 12B = -87.651 09 = -87.500 03 = -87.444



Mn/DOT Name: RADIO STATION KVOX SOUTH MAST

NGS Name: RADIO STATION KVOX SOUTH MAST

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP1121](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/1072  
 USGS Quad: FARGO SOUTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SE	29	139 N	48 W	464908.75	964557.08		4

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	1954	GOOD	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	RADIO/TV MAST	NGS

Description: (1954)

Stamping:

3.1 MILES SOUTH-SOUTHWEST OF MOORHEAD, 3.8 MILES SOUTH ALONG 8TH STREET SOUTH FROM THE JUNCTION OF 8TH STREET SOUTH AND MAIN AVENUE IN MOORHEAD, THEN 0.1 MILE EAST ALONG COUNTY ROAD 75.

\* No Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.145 12B = -87.168 09 = -87.057 03 = -86.926

Lat/Lon and County Coordinates (Feet)

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 49 08.75461	96 45 57.07838	483533.900	168981.697	.328	4	ADJUSTMENT	1999	17648
46 49 08.75460	96 45 57.07838	483533.900	168981.696	.328	4	ADJUSTMENT	1998	17655

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 49 08.75372	96 45 57.06880	483534.566	168981.607	.328	4	ADJUSTMENT	1986	17289

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
46 49 08.87200	96 45 55.75900			.100	4	CLASSICAL SURVEY	1956	11230

State Plane and UTM Coordinates (Feet)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1994909.566	1001438.143	697986.664	17033922.656	.328	4	ADJUSTMENT	1999	17648
1994909.566	1001438.142	697986.663	17033922.655	.328	4	ADJUSTMENT	1998	17655

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1994910.229	1001438.032	697987.325	17033922.534	.328	4	ADJUSTMENT	1986	17289

<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1370315.653	673359.949			.100	4	CLASSICAL SURVEY	1956	11230



Mn/DOT Name: RADTKE  
 County: CLAY, MN (Sheet 1)

NGS Name: RADTKE

NGS ACRN: [DQ1986](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096124/  
 USGS Quad: ROLLAG

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	16	137 N	44 W	464116.39	961413.22	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 30 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: RADTKE 2014

9.0 MILES EAST-NORTHEAST OF BARNESVILLE, 8.75 MILES EAST ALONG TRUNK HIGHWAY 34 FROM THE JUNCTION OF TRUNK HIGHWAY 34 AND TRUNK HIGHWAY 9 IN BARNESVILLE, THEN 2.0 MILES NORTH ON TRUNK HIGHWAY 32, AT TRUNK HIGHWAY 32 MILEPOST 2.0, 54.5 FEET WEST OF TRUNK HIGHWAY 32, 52.4 FEET SOUTH OF 140TH AVENUE SOUTH, 1.5 FEET EAST OF A WITNESS POST.

Station Pair: DRAHEIM - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
1413.921	.016	2/1				VERTICAL ADJUSTMENT		2019	00000941

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
1413.921			1326.838	.013	2011	HORIZONTAL ADJUSTMENT		2025	GPS3805
1413.921	.131		1326.949	.066	1996	GPS - STATIC		2025	HTH94A
1413.921			1326.838	.013	2011	GPS - STATIC		2025	HTH94A
1413.921			1326.838	.021	2011	HORIZONTAL ADJUSTMENT		2024	GPS3671
1413.921	.131		1326.949	.066	1996	GPS - STATIC		2023	HTH9
1413.921			1326.838	.021	2011	GPS - STATIC		2023	HTH9
1414.046	.262		1326.838	.197	2011	GPS - RTRN		2022	RTRN2022
1413.908	.262		1326.743	.197	2011	GPS - RTRN		2014	RTRN2014

Geoid Separations(ft): GEOID18 = -87.208 12B = -87.165 09 = -87.083 03 = -87.031

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>								
46 41 16.39379	96 14 13.21980	616228.547	121459.221	.010		ADJUSTMENT		2025	GPS3805
46 41 16.39379	96 14 13.21980	616228.547	121459.221	.010	C	GPS - STATIC		2025	HTH94A
46 41 16.39379	96 14 13.21980	616228.547	121459.221	.013		ADJUSTMENT		2024	GPS3671
46 41 16.39379	96 14 13.21980	616228.547	121459.221	.013	C	GPS - STATIC		2023	HTH9
46 41 16.39354	96 14 13.21926	616228.585	121459.196	.131	3	GPS - RTRN		2022	RTRN2022
46 41 16.39396	96 14 13.21939	616228.576	121459.239	.131	3	GPS - RTRN		2014	RTRN2014

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>								
46 41 16.39355	96 14 13.22024	616228.517	121459.197	.033	C	GPS - STATIC		2025	HTH94A
46 41 16.39355	96 14 13.22024	616228.517	121459.197	.033	C	GPS - STATIC		2023	HTH9



State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2126056.911	949837.555	828354.643	16980186.652	.010		ADJUSTMENT	2025	GPS3805
2126056.911	949837.555	828354.643	16980186.652	.010	C	GPS - STATIC	2025	HTH94A
2126056.911	949837.555	828354.643	16980186.652	.013		ADJUSTMENT	2024	GPS3671
2126056.911	949837.555	828354.643	16980186.652	.013	C	GPS - STATIC	2023	HTH9
2126056.947	949837.529	828354.679	16980186.625	.131	3	GPS - RTRN	2022	RTRN2022
2126056.939	949837.572	828354.672	16980186.668	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2126056.879	949837.532	828354.611	16980186.629	.033	C	GPS - STATIC	2025	HTH94A
2126056.879	949837.532	828354.611	16980186.629	.033	C	GPS - STATIC	2023	HTH9

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RADTKE-DQ1986-3W-13SEP2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RADTKE-DQ1986-3W-13SEP2022.jpg</a>	W	Sep 13, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RADTKE-DQ1986-2-13SEP2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RADTKE-DQ1986-2-13SEP2022.jpg</a>		Sep 13, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RADTKE-DQ1986-1-13SEP2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RADTKE-DQ1986-1-13SEP2022.jpg</a>		Sep 13, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: RAG  
 County: CLAY, MN (Sheet 1)

NGS Name: RAG

NGS ACRN: [DP7371](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096441/  
 USGS Quad: FARGO NORTH

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	31	141 N	48 W	465849.37	964859.02		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2013	2023	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 15 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: RAG 2013

7.0 MILES NORTHWEST OF MOORHEAD, 3.25 MILES WEST ALONG COUNTY ROAD 26 (90TH AVENUE NORTH), FROM THE JUNCTION OF COUNTY ROAD 26 AND TRUNK HIGHWAY 75 IN MOORHEAD (THE JUNCTION TIE AT TRUNK HIGHWAY 75 MILEPOST 258.4), THEN 0.25 MILES NORTH ON COUNTY ROAD 100, 35.6 FEET EAST OF 15TH STREET NORTHWEST, 18.8 FEET SOUTH OF A FIELD ENTRANCE, 3.0 FEET NORTH OF A WITNESS POST.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Orthometric Height				Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Year	Reference						
889.076			803.007	.019	2011	2024	GPS3674						
889.076			803.007	.019	2011	2023	HMOFA3						
889.073	.131		803.145	.066	1996	2023	HMOFA3						
889.171	.262		802.915	.197	2011	2022	RTRN2022						
889.313			803.007	.025	2011	2015	GPS3084						
889.283	.131		803.145	.066	1996	2015	HCLAY						
889.313			803.007	.025	2011	2015	HCLAY						
889.244	.262		802.968	.197	2011	2013	RTRN2013						

Geoid Separations(ft): GEOID18 = -86.260 12B = -86.276 09 = -86.135 03 = -86.112

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Clay County				Project Info	
Latitude	Longitude	X	Y	Acc	Order	Year	Reference
46 58 49.37382	96 48 59.02104	470967.079	227823.270	.010		2024	GPS3674
46 58 49.37382	96 48 59.02104	470967.079	227823.270	.010	C	2023	HMOFA3
46 58 49.37286	96 48 59.02197	470967.014	227823.173	.131	3	2022	RTRN2022
46 58 49.37382	96 48 59.02104	470967.079	227823.270	.016		2015	GPS3084
46 58 49.37382	96 48 59.02104	470967.079	227823.270	.016	C	2015	HCLAY
46 58 49.37393	96 48 59.02190	470967.020	227823.282	.131	3	2013	RTRN2013

NAD83(1996)		Clay County				Project Info	
Latitude	Longitude	X	Y	Acc	Order	Year	Reference
46 58 49.37327	96 48 59.02182	470967.025	227823.215	.033	C	2023	HMOFA3
46 58 49.37327	96 48 59.02182	470967.025	227823.215	.033	C	2015	HCLAY

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		MN State Plane - Central Zone				UTM - Zone 15		Project Info	
X	Y	X	Y	Acc	Order	Year	Reference		
1984168.742	1060635.674	688203.570	17093325.851	.010		2024	GPS3674		
1984168.742	1060635.674	688203.570	17093325.851	.010	C	2023	HMOFA3		
1984168.674	1060635.579	688203.501	17093325.757	.131	3	2022	RTRN2022		
1984168.742	1060635.674	688203.570	17093325.851	.016		2015	GPS3084		
1984168.742	1060635.674	688203.570	17093325.851	.016	C	2015	HCLAY		
1984168.683	1060635.687	688203.511	17093325.865	.131	3	2013	RTRN2013		

NAD83(1996)		MN State Plane - Central Zone				UTM - Zone 15		Project Info	
X	Y	X	Y	Acc	Order	Year	Reference		
1984168.686	1060635.620	688203.513	17093325.798	.033	C	2023	HMOFA3		
1984168.686	1060635.620	688203.513	17093325.798	.033	C	2015	HCLAY		



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RAG-DP7371-3E-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RAG-DP7371-3E-28JUN2022.jpg</a>	E	Jun 28, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RAG-DP7371-2-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RAG-DP7371-2-28JUN2022.jpg</a>		Jun 28, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RAG-DP7371-1-28JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RAG-DP7371-1-28JUN2022.jpg</a>		Jun 28, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: RDO  
County: CLAY, MN (Sheet 1)

NGS Name: RDO

NGS ACRN: [DM7607](#) [Get Map](#)  
NGS Quad / Sta Num : 46096442/  
USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	22	139 N	48 W	465030.88	964259.55	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2009	2022	GOOD	Horz=NO Vert=NO	YES		FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	SURVEY DISK	MNDT

Description: (2009)                      Stamping: RDO 2009

IN MOORHEAD, IN THE HEADWALL IN THE MOST EASTERLY CORNER OF THE EAST CULVERT OF TWO BOX CULVERTS UNDER 30TH AVENUE SOUTH, 0.59 MILE SOUTHEAST ALONG MAIN AVENUE SOUTHEAST FROM THE JUNCTION OF MAIN AVENUE SOUTHEAST AND INTERSTATE HIGHWAY 94 IN MOORHEAD, THEN 170.0 FEET NORTHEAST ON 34TH AVENUE SOUTH, 58.1 FEET NORTH-NORTHEAST OF A RAILROAD SHACK, 51.6 FEET SOUTHWEST OF 34TH STREET SOUTH, 26.0 FEET WEST OF A GREEN TELEPHONE PEDESTAL, 24.2 FEET SOUTHEAST OF THE BACK OF A CURB.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
910.428	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
910.684	.016	2/1					VERTICAL ADJUSTMENT	2011	00000699	
910.651	.016	2/1					VERTICAL CONTROL SURVEY	2010	VCOMS	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
910.635	.262			823.433	.197	2011	GPS - RTRN	2022	RTRN2022	

Geoid Separations(ft): GEOID18 = -87.201 12B = -87.221 09 = -87.093 03 = -86.995

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 50 30.87875	96 42 59.55242			495882.551	177295.738	.131	3	GPS - RTRN	2022	RTRN2022

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2007508.325	1009365.664			710720.366	17041649.972	.131	3	GPS - RTRN	2022	RTRN2022

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RDO-DM7607-3S-29JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RDO-DM7607-3S-29JUN2022.jpg</a>	S	Jun 29, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RDO-DM7607-2-29JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RDO-DM7607-2-29JUN2022.jpg</a>		Jun 29, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RDO-DM7607-1-29JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RDO-DM7607-1-29JUN2022.jpg</a>		Jun 29, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: REIMER MNDT

NGS Name: REIMER

County: CLAY, MN (Sheet 1)

NGS ACRN: [DF7618](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096441/  
 USGS Quad: FARGO NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	9	139 N	48 W	465230.02	964515.55	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1993	2013	NOT FOUND	Horz=NO Vert=NO	YES		RECESSED 1 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 50 FT)	SURVEY DISK	MNDT

**Description:** (2013)                      **Stamping:** REIMER 1993

IN MOORHEAD, 0.15 MILE EAST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND 14TH STREET, AT TRUNK HIGHWAY 10 MILEPOINT 1.0, 82.0 FEET NORTH OF WESTBOUND TRUNK HIGHWAY 10, 25.8 FEET NORTH-NORTHEAST OF THE NORTH RAIL OF THE RAILROAD TRACKS, 47.5 FEET SOUTH OF THE SOUTH RAIL OF THE RAILROAD TRACKS, 17.7 FEET NORTH-NORTHEAST OF THE NORTHWEST CORNER OF RAILROAD BRIDGE NUMBER 9477 OVER TRUNK HIGHWAY 10, 7.6 FEET NORTH-NORTHEAST OF A WITNESS POST.

**Station Notes**

THE SURVEY MARK IS ON RAILROAD PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
906.888	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941
907.177	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699
907.193	.016	2/1				VERTICAL ADJUSTMENT	2010	00000660
907.177	.016	2/1				VERTICAL CONTROL SURVEY	2010	VCOMS
907.223	.016	2/1				VERTICAL ADJUSTMENT	2004	00000425-2
907.203	.016	2/1				VERTICAL CONTROL SURVEY	2004	VHEAD
907.232	.016	2/1				VERTICAL CONTROL SURVEY	2002	VMOOR

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
			820.192	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
907.183	.131		820.182	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2690
907.183	.131		820.303	.066	1996	GPS - STATIC	2010	HCOMS
907.183	.131		820.182	.066	2007	GPS - STATIC	2010	HCOMS
907.016	.262		820.215	.197	1996	GPS - RTRN	2009	RTRN2009
			820.382	.015	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
907.216	.131		820.441	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1905
907.216	.131		820.441	.066	1996	GPS - STATIC	2003	HMOOR

Geoid Separations(ft): GEOID18 = -86.985    12B = -86.975    09 = -86.857    03 = -86.798

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 52 30.01636	96 45 15.55289	486436.094	189370.644	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 52 30.01656	96 45 15.55387	486436.026	189370.664	.033	C	ADJUSTMENT	2011	GPS2690
46 52 30.01656	96 45 15.55387	486436.026	189370.664	.033	C	GPS - STATIC	2010	HCOMS
46 52 30.01683	96 45 15.55407	486436.012	189370.691	.010		ADJUSTMENT	2007	GPS2300

**NAD83(1996)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 52 30.01625	96 45 15.55389	486436.025	189370.632	.033	C	GPS - STATIC	2010	HCOMS
46 52 30.01735	96 45 15.55343	486436.056	189370.744	.131	3	GPS - RTRN	2009	RTRN2009
46 52 30.01625	96 45 15.55389	486436.025	189370.632	.033	C	ADJUSTMENT	2003	GPS1905
46 52 30.01625	96 45 15.55389	486436.025	189370.632	.033	C	GPS - STATIC	2003	HMOOR

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1998440.526	1021725.905	701848.662	17054163.601	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1998440.458	1021725.928	701848.595	17054163.624	.033	C	ADJUSTMENT	2011	GPS2690
1998440.458	1021725.928	701848.595	17054163.624	.033	C	GPS - STATIC	2010	HCOMS
1998440.446	1021725.956	701848.583	17054163.652	.010		ADJUSTMENT	2007	GPS2300

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1998440.456	1021725.896	701848.592	17054163.593	.033	C	GPS - STATIC	2010	HCOMS
1998440.492	1021726.007	701848.629	17054163.703	.131	3	GPS - RTRN	2009	RTRN2009
1998440.456	1021725.896	701848.592	17054163.593	.033	C	ADJUSTMENT	2003	GPS1905
1998440.456	1021725.897	701848.592	17054163.593	.033	C	GPS - STATIC	2003	HMOOR

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/REIMER-DF7618-3W-17SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/REIMER-DF7618-3W-17SEP2009.jpg</a>	W	Sep 17, 2009
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/REIMER-DF7618-2-17SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/REIMER-DF7618-2-17SEP2009.jpg</a>		Sep 17, 2009
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/REIMER-DF7618-1-17SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/REIMER-DF7618-1-17SEP2009.jpg</a>		Sep 17, 2009

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: RIPLE

NGS Name: RIPLE

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ1947](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	21	139 N	46 W	465024.42	963017.66	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 84 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: RIPLE 2014

4.45 MILES SOUTHEAST OF GLYNDON, 2.55 MILES SOUTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND TRUNK HIGHWAY 10, (THE JUNCTION IS 3.5 MILES EAST OF GLYNDON), AT TRUNK HIGHWAY 9 MILEPOINT 161.25, 67.3 FEET EAST OF TRUNK HIGHWAY 9, 7.8 FEET WEST OF A CABLE BOX, 1.5 FEET WEST OF A WITNESS POST.

Station Pair: PIETILA MNDT - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
942.193	.016	2/1							VERTICAL ADJUSTMENT	2019	00000941	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
942.193			854.690	.015	2011	HORIZONTAL ADJUSTMENT				2024	GPS3762	
942.193	.131		854.815	.066	1996	GPS - STATIC				2024	HTH32	
942.193			854.690	.015	2011	GPS - STATIC				2024	HTH32	
942.354	.262		854.657	.197	2011	GPS - RTRN				2023	RTRN2023	
942.285	.262		854.578	.197	2011	GPS - RTRN				2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.697    12B = -87.710    09 = -87.569    03 = -87.493

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 50 24.41652	96 30 17.65487	548851.595	176701.213	.010		ADJUSTMENT	2024	GPS3762
46 50 24.41652	96 30 17.65487	548851.595	176701.213	.010	C	GPS - STATIC	2024	HTH32
46 50 24.41650	96 30 17.65549	548851.552	176701.210	.131	3	GPS - RTRN	2023	RTRN2023
46 50 24.41705	96 30 17.65498	548851.587	176701.266	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 50 24.41636	96 30 17.65510	548851.579	176701.196	.033	C	GPS - STATIC	2024	HTH32

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>				
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2060429.117	1007132.910	763628.256	17038558.825	.010		ADJUSTMENT	2024	GPS3762		
2060429.117	1007132.910	763628.256	17038558.825	.010	C	GPS - STATIC	2024	HTH32		
2060429.074	1007132.910	763628.213	17038558.825	.131	3	GPS - RTRN	2023	RTRN2023		
2060429.111	1007132.964	763628.251	17038558.879	.131	3	GPS - RTRN	2014	RTRN2014		

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>				
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2060429.100	1007132.895	763628.239	17038558.810	.033	C	GPS - STATIC	2024	HTH32		



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RIPLE-DQ1947-3E-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RIPLE-DQ1947-3E-18OCT2023.jpg</a>	E	Oct 18, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RIPLE-DQ1947-2-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RIPLE-DQ1947-2-18OCT2023.jpg</a>		Oct 18, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RIPLE-DQ1947-1-09JUN2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RIPLE-DQ1947-1-09JUN2014.jpg</a>		Jun 9, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: RIVERSHORES

NGS Name: RIVERSHORES

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM7596](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

				Reference	Reference	Vert	Horz
1/4	Sec	Twp	Rng	Latitude	Longitude	Order	Order
SW	17	139 N	48 W	465105.77	964616.62	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2009	2023	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 48 FT)	METAL ROD	MNDT

**Description:** (2009) **Stamping:** RIVERSHORES 2009

IN MOORHEAD, 0.21 MILE NORTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND INTERSTATE HIGHWAY 94 IN MOORHEAD, THEN 0.15 MILE WEST ON SOUTH 24TH AVENUE, 76.5 FEET NORTH OF SOUTH 24TH AVENUE, 68.7 FEET EAST OF SOUTH RIVERSHORE DRIVE, 61.5 FEET WEST OF SOUTH 6TH STREET, 56.5 FEET NORTHWEST OF A FIRE HYDRANT, 47.2 FEET NORTH OF A BUS SHELTER.

**Station Notes**

IN A GRASS AREA BETWEEN SOUTH 24TH AVENUE & SOUTH 23RD AVENUE AND SOUTH 6TH STREET & SOUTH RIVERSHORE ROAD.

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88			Orthometric Height			Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference		
905.576	.016	2/1				VERTICAL ADJUSTMENT	2024	0000941-3		
905.576	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA		
905.576	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941		
905.809	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699		
905.815	.016	2/1				VERTICAL CONTROL SURVEY	2010	VCOMS		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Orthometric Height			Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference		
905.576			818.771	.027	2011	HORIZONTAL ADJUSTMENT	2024	GPS3674		
905.576			818.771	.027	2011	GPS - STATIC	2023	HMOFA3		
905.576	.131		818.870	.066	1996	GPS - STATIC	2023	HMOFA3		
905.891	.262		818.853	.197	2011	GPS - RTRN	2022	RTRN2022		

Geoid Separations(ft): GEOID18 = -87.037 12B = -87.037 09 = -86.926 03 = -86.837

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Geodetic Position		Clay County		Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 51 05.77054	96 46 16.61711	482185.743	180838.514	.013		ADJUSTMENT	2024	GPS3674
46 51 05.77054	96 46 16.61711	482185.743	180838.514	.013	C	GPS - STATIC	2023	HMOFA3
46 51 05.76963	96 46 16.61758	482185.710	180838.422	.131	3	GPS - RTRN	2022	RTRN2022

NAD83(1996)		Geodetic Position		Clay County		Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 51 05.77044	96 46 16.61794	482185.686	180838.504	.033	C	GPS - STATIC	2023	HMOFA3

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		MN State Plane - Central Zone		UTM - Zone 15		Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1993928.755	1013329.960	697198.216	17045836.606	.013		ADJUSTMENT	2024	GPS3674
1993928.755	1013329.960	697198.216	17045836.606	.013	C	GPS - STATIC	2023	HMOFA3
1993928.719	1013329.868	697198.179	17045836.516	.131	3	GPS - RTRN	2022	RTRN2022

NAD83(1996)		MN State Plane - Central Zone		UTM - Zone 15		Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1993928.697	1013329.951	697198.158	17045836.599	.033	C	GPS - STATIC	2023	HMOFA3



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RIVERSHORES-DM7596-3N-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RIVERSHORES-DM7596-3N-15JUN2022.jpg</a>	N	Jun 15, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RIVERSHORES-DM7596-2-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RIVERSHORES-DM7596-2-15JUN2022.jpg</a>		Jun 15, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RIVERSHORES-DM7596-1-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RIVERSHORES-DM7596-1-15JUN2022.jpg</a>		Jun 15, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: RIVERTON

NGS Name: RIVERTON

County: CLAY, MN (Sheet 1)

NGS ACRN: [AC5806](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096143/  
 USGS Quad: DOWNER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	23	139 N	46 W	465004.00	962715.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1906	1954	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
PIPE (TILE OR CLAY) FILLED WITH CONCRETE	NAIL	NGS

Description: Stamping: RIVERTON 1907 1954

2.9 MILES SOUTHWEST OF MUSKODA, 2.0 MILES SOUTH ALONG 190TH STREET SOUTH FROM THE JUNCTION OF 190TH STREET SOUTH AND 12TH AVENUE SOUTH IN MUSKODA, THEN 2.1 MILES WEST ALONG COUNTY ROAD 12 (40TH AVENUE SOUTH).

\* No Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.736 12B = -87.743 09 = -87.618 03 = -87.539

Lat/Lon and County Coordinates (Feet)

<u>NAD27</u>							<u>Project Info</u>	
<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>							
46 50 04.01100	96 27 14.68500			.100	3	CLASSICAL SURVEY	1964	USGS-HORZ

State Plane and UTM Coordinates (Feet)

<u>NAD27</u>							<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>							
1448402.441	676621.222			.100	3	CLASSICAL SURVEY	1964	USGS-HORZ



Mn/DOT Name: RIVERTON AZ MK

NGS Name: RIVERTON AZ MK

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP3942](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096143/  
 USGS Quad: DOWNER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	23	139 N	46 W	464933.00	962709.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1906	1994	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	NGS

**Description:** **Stamping:** RIVERTON 1906 1954

3.3 MILES SOUTHWEST OF MUSKODA, 2.0 MILES SOUTH ALONG 190TH STREET SOUTH FROM THE JUNCTION OF 190TH STREET SOUTH AND 12TH AVENUE SOUTH IN MUSKODA, THEN 2.5 MILES WEST ALONG COUNTY ROAD 12 (40TH AVENUE SOUTH), 0.6 MILE SOUTH-SOUTHEAST, 112.0 FEET WEST OF THE CENTER OF A GRAVEL ROAD, 13.0 FEET SOUTH OF THE CENTER OF A SIDE ROAD, 1.5 FEET EAST OF A WHITE WITNESS POST.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.720 12B = -87.726 09 = -87.602 03 = -87.520



Mn/DOT Name: RIVERTON RESET

NGS Name: RIVERTON RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0945](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096143/1007  
 USGS Quad: DOWNER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	23	139 N	46 W	465003.87	962715.94		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	2010	GOOD	Horz=YES Vert=YES	YES		RECESSED 12 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	NGS

Description: (2010)                      Stamping: RIVERTON 1906 1954

6.5 MILES SOUTHEAST OF GLYNDON, 4.75 MILES NORTH AND NORTHWEST ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 10 (IN DOWNER), TO TRUNK HIGHWAY 9 MILEPOINT 159.75, THEN 3.45 MILES EAST AND NORTH ON COUNTY ROAD 12, THEN 0.05 MILE NORTH TO THE BLUE STEM PRAIRIE PARKING AREA, THEN WALK 0.2 MILE NORTHWEST TO A MARK, ON DEPARTMENT OF NATURAL RESOURCE LAND, 477.4 FEET NORTH OF RIVERTON RM 1, 684.40 FEET NORTHWEST OF RIVERTON RESET RM 2, 479.60 FEET NORTH-NORTHEAST OF RIVERTON RESET RM 3, 4.0 FEET NORTH OF A WITNESS POST.

**Station Notes**

IN 1993 THE GEODETIC UNIT COULD NOT FIND RIVERTON RM 1. RIVERTON RESET RM 2 IS 1.3 FEET WEST OF A WITNESS POST, 1.0 FEET SOUTH OF THE EAST GATE POST, 149.0 FEET NORTHWEST OF A ROAD, 50.5 FEET EAST OF A FENCE CORNER, RIVERTON RESET RM 3 IS 1.2 FEET WEST OF A WITNESS POST, THE DISTANCE BETWEEN RIVERTON RESET RM 2 AND RIVERTON RESET RM 3 IS 624.0 FEET.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1069.165			981.406	.019	2011	HORIZONTAL ADJUSTMENT	2014	GPS2750
			981.415	.019	2011	GPS - STATIC	2014	HBARN
			981.406	.021	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1069.158	.131		981.560	.066	2007	GPS - STATIC	2010	HBARN
1069.155	.131		981.599	.066	1996	GPS - STATIC	2010	HBARN
			981.560	.018	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
1069.191	.131		981.599	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1905
1069.191	.131		981.599	.066	1996	GPS - STATIC	2003	HMOOR
1068.994	.131		981.770	.066	1996	HORIZONTAL ADJUSTMENT	1999	17648
1068.984	.131		981.599	.066	1996	GPS - STATIC	1997	GPS805-C

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1074.014						RECIPROCAL VERTICAL ANGLE	1954	HORZ

Geoid Separations(ft): GEOID18 = -87.736    12B = -87.743    09 = -87.618    03 = -87.539



Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 50 03.86852	96 27 15.94421	561491.116	174654.801	.013		ADJUSTMENT	2014	GPS2750
46 50 03.86842	96 27 15.94413	561491.122	174654.791	.013	C	GPS - STATIC	2014	HBARN
46 50 03.86852	96 27 15.94421	561491.116	174654.801	.013		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 50 03.86848	96 27 15.94517	561491.050	174654.797	.033	C	GPS - STATIC	2010	HBARN
46 50 03.86848	96 27 15.94517	561491.050	174654.797	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 50 03.86796	96 27 15.94492	561491.067	174654.745	.033	C	GPS - STATIC	2010	HBARN
46 50 03.86796	96 27 15.94492	561491.067	174654.745	.033	C	ADJUSTMENT	2003	GPS1905
46 50 03.86796	96 27 15.94492	561491.067	174654.745	.033	C	GPS - STATIC	2003	HMOOR
46 50 03.86796	96 27 15.94492	561491.067	174654.745	.033	C	ADJUSTMENT	1999	17648
46 50 03.86796	96 27 15.94492	561491.067	174654.745	.033	C	GPS - STATIC	1997	GPS805-C

NAD83(1986)

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 50 03.86729	96 27 15.93623	561491.671	174654.678	.033	1	ADJUSTMENT	1986	17289

NAD27

Geodetic Position						Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 50 04.01100	96 27 14.68500			.100	1	CLASSICAL SURVEY	1956	11230

USSD

Geodetic Position						Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 50 04.22100	96 27 15.06900				3	CLASSICAL SURVEY		17389-73

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2072998.134	1004696.493	776162.552	17035918.116	.013		ADJUSTMENT	2014	GPS2750
2072998.139	1004696.482	776162.558	17035918.106	.013	C	GPS - STATIC	2014	HBARN
2072998.134	1004696.493	776162.552	17035918.116	.013		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2072998.068	1004696.491	776162.485	17035918.115	.033	C	GPS - STATIC	2010	HBARN
2072998.068	1004696.491	776162.485	17035918.115	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2072998.083	1004696.437	776162.500	17035918.062	.033	C	GPS - STATIC	2010	HBARN
2072998.083	1004696.437	776162.500	17035918.062	.033	C	ADJUSTMENT	2003	GPS1905
2072998.083	1004696.437	776162.500	17035918.062	.033	C	GPS - STATIC	2003	HMOOR
2072998.083	1004696.437	776162.500	17035918.062	.033	C	ADJUSTMENT	1999	17648
2072998.083	1004696.437	776162.500	17035918.062	.033	C	GPS - STATIC	1997	GPS805-C

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2072998.685	1004696.352	776163.102	17035917.967	.033	1	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone						Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1448402.441	676621.222			.100	1	CLASSICAL SURVEY	1956	11230



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RIVERTON_RESET-RP0945-3N-30JUN2010.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RIVERTON_RESET-RP0945-3N-30JUN2010.jpg</a>	N	Jun 30, 2010
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RIVERTON_RESET-RP0945-2-30JUN2010.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RIVERTON_RESET-RP0945-2-30JUN2010.jpg</a>		Jun 30, 2010
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RIVERTON_RESET-RP0945-1-30JUN2010.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RIVERTON_RESET-RP0945-1-30JUN2010.jpg</a>		Jun 30, 2010

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: RIVERTON RESET RM 2

NGS Name: RIVERTON RESET RM 2

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP3945](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096143/  
 USGS Quad: DOWNER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	23	139 N	46 W	464959.29	962708.70		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1906	2001	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** **Stamping:** RIVERTON NO 2 1906 1954

6.5 MILES SOUTHEAST OF GLYNDON, 0.3 MILE NORTH ALONG PARKE AVENUE SOUTH FROM THE JUNCTION OF PARKE AVENUE SOUTH AND 4TH STREET SOUTHEAST IN GLYNDON, THEN 3.5 MILES EAST ALONG TRUNK HIGHWAY 10 (STATE STREET NORTHEAST), THEN 4.0 MILES SOUTH TRUNK HIGHWAY 9 SOUTH (140TH STREET SOUTH), THEN 3.4 MILES EAST AND NORTH ALONG COUNTY ROAD 12 (50TH AVENUE SOUTH), SOUTHEAST OF AND APPROXIMATELY 10.0 FEET LOWER THAN STATION RIVERTON RESET, 20.0 FEET EAST OF A GATE POST, 10.0 FEET WEST OF A FENCE-CORNER.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.736 12B = -87.743 09 = -87.618 03 = -87.539



Mn/DOT Name: RIVERTON RESET RM 3

NGS Name: RIVERTON RESET RM 3

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP3946](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096143/  
 USGS Quad: DOWNER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	23	139 N	46 W	464959.29	962717.68		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1906	2001	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** **Stamping:** RIVERTON NO 3 1906 1954

6.5 MILES SOUTHEAST OF GLYNDON, 0.3 MILE NORTH ALONG PARKE AVENUE SOUTH FROM THE JUNCTION OF PARKE AVENUE SOUTH AND 4TH STREET SOUTHEAST IN GLYNDON, THEN 3.5 MILES EAST ALONG TRUNK HIGHWAY 10 (STATE STREET NORTHEAST), THEN 4.0 MILES SOUTH TRUNK HIGHWAY 9 SOUTH (140TH STREET SOUTH), THEN 3.4 MILES EAST AND NORTH ALONG COUNTY ROAD 12 (50TH AVENUE SOUTH), SOUTH-SOUTHWEST OF AND APPROXIMATELY 8.0 FEET LOWER THAN STATION RIVERTON RESET, 0.5 FOOT NORTH OF A FENCE.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.736 12B = -87.743 09 = -87.618 03 = -87.539



Mn/DOT Name: RIVERTON RM

NGS Name: RIVERTON RM

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP3943](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096143/  
 USGS Quad: DOWNER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	23	139 N	46 W	464959.17	962716.53		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1906	1994	NOT FOUND	Horz=NO Vert=NO	NO		FLUSH	SEE DESCRIPTION

**Monument Type**

PIPE (<10 FT)

**Disk Type**

REFERENCE MARK DISK

**Mon. Agency**

NGS

**Description:** (1954)

**Stamping:**

6.5 MILES SOUTHEAST OF GLYNDON, 0.3 MILE NORTH ALONG PARKE AVENUE SOUTH FROM THE JUNCTION OF PARKE AVENUE SOUTH AND 4TH STREET SOUTHEAST IN GLYNDON, THEN 3.5 MILES EAST ALONG TRUNK HIGHWAY 10 (STATE STREET NORTHEAST), THEN 4.0 MILES SOUTH TRUNK HIGHWAY 9 SOUTH (140TH STREET SOUTH), THEN 3.4 MILES EAST AND NORTH ALONG COUNTY ROAD 12 (50TH AVENUE SOUTH), 10.5 FEET SOUTH OF AN EAST-AND-WEST FENCE IN THE SOUTH TRACK OF A FARM ROAD.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.733 12B = -87.743 09 = -87.615 03 = -87.536



Mn/DOT Name: ROLLAG ATT MICROWAVE TR KAK 49  
 County: CLAY, MN (Sheet 1)

NGS Name: ROLLAG ATT MICROWAVE TR KAK 49

NGS ACRN: [RP0908](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096124/1050  
 USGS Quad: ROLLAG

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	10	137 N	44 W	464202.77	961301.50		4

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	2014	GOOD	Horz=NO Vert=NO	YES			NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	MICROWAVE TOWER	NGS

Description: (1964)

Stamping:

9.2 MILES EAST-NORTHEAST OF BARNESVILLE, 1.7 MILES SOUTH ALONG TRUNK HIGHWAY 32 SOUTH/ 270TH STREET SOUTH FROM THE JUNCTION OF TRUNK HIGHWAY 32 SOUTH AND 103RD AVENUE SOUTH IN ROLLAG, THEN 1.0 MILE EAST ALONG 120TH AVENUE SOUTH, THEN 1.2 MILES SOUTH ALONG 280TH STREET SOUTH.

\* No Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.195 12B = -87.162 09 = -87.070 03 = -87.018

Lat/Lon and County Coordinates (Feet)

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 42 02.76817	96 13 01.50077	621199.886	126187.613	.328	4	ADJUSTMENT	1999	17648
46 42 02.76743	96 13 01.50064	621199.896	126187.538	.328	4	ADJUSTMENT	1998	17655

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 42 02.76734	96 13 01.49482	621200.302	126187.531	.328	4	ADJUSTMENT	1986	17289

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
46 42 02.91467	96 13 00.27475			.100	4	CLASSICAL SURVEY	1964	13522

State Plane and UTM Coordinates (Feet)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2131171.660	954409.204	833544.195	16984677.472	.328	4	ADJUSTMENT	1999	17648
2131171.667	954409.129	833544.201	16984677.396	.328	4	ADJUSTMENT	1998	17655

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2131172.072	954409.110	833544.606	16984677.370	.328	4	ADJUSTMENT	1986	17289

<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1506575.672	626334.829			.100	4	CLASSICAL SURVEY	1964	13522

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ROLLAG_ATT_MICROWAVE_TR_KAK_49-RP0908-3SW-13MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ROLLAG_ATT_MICROWAVE_TR_KAK_49-RP0908-3SW-13MAY2014.jpg</a>	SW	May 13, 2014

Monument:

Disk:

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: ROLLAG CHURCH SPIRE

NGS Name: ROLLAG CHURCH SPIRE

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0905](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096124/1029  
 USGS Quad: ROLLAG

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	28	138 N	44 W	464423.72	961418.86		4

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1906	1906	GOOD	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	CHURCH SPIRE	NGS

Description: (1906)

Stamping:

IN ROLLAG, 0.1 MILE SOUTH ALONG TRUNK HIGHWAY 32 SOUTH (270TH STREET SOUTH) FROM THE JUNCTION OF TRUNK HIGHWAY 32 SOUTH (270TH STREET SOUTH) IN ROLLAG.

\* No Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.273 12B = -87.247 09 = -87.142 03 = -87.086

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 44 23.71911	96 14 18.86098	615723.988	140435.597	.328	4	ADJUSTMENT	1999	17648
46 44 23.71914	96 14 18.86123	615723.971	140435.599	.328	4	ADJUSTMENT	1998	17655

NAD83(1986)

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 44 23.72039	96 14 18.85495	615724.407	140435.729	.328	4	ADJUSTMENT	1986	17289

NAD27

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
46 44 23.84000	96 14 17.61000			.100	4	CLASSICAL SURVEY	1928	00155

USSD

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
46 44 24.04000	96 14 17.98000				3	CLASSICAL SURVEY		17389-73

State Plane and UTM Coordinates (Feet)

NAD83(1996)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2126140.174	968818.239	828742.868	16999171.309	.328	4	ADJUSTMENT	1999	17648
2126140.157	968818.242	828742.851	16999171.312	.328	4	ADJUSTMENT	1998	17655

NAD83(1986)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2126140.597	968818.358	828743.293	16999171.421	.328	4	ADJUSTMENT	1986	17289

NAD27

<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1501545.634	640741.143			.100	4	CLASSICAL SURVEY	1928	00155



Mn/DOT Name: RUEDY

NGS Name: RUEDY

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ2031](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	5	139 N	46 W	465239.19	963038.04	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 1 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 92 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: RUEDY 2014

3.2 MILES EAST OF GLYNDON, 0.25 MILE WEST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND TRUNK HIGHWAY 9 (THE JUNCTION IS 3.5 MILES EAST OF GLYNDON), AT TRUNK HIGHWAY 10 MILEPOINT 13.45, 46.2 FEET NORTH OF WESTBOUND TRUNK HIGHWAY 10, 2.3 FEET SOUTH OF A RIGHT-OF-WAY POST, 2.3 FEET SOUTH OF A WITNESS POST.

Station Pair:    A 377 - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
936.871	.016	2/1				2024	00000941-3	VERTICAL ADJUSTMENT		2024	00000941-3	
936.871	.016	2/1				2023	VMOFA	VERTICAL CONTROL SURVEY		2023	VMOFA	
936.871	.016	2/1				2019	00000941	VERTICAL ADJUSTMENT		2019	00000941	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
936.871			849.342	.018	2011	2024	GPS3719	HORIZONTAL ADJUSTMENT		2024	GPS3719	
936.871	.131		849.473	.066	1996	2024	HMOFA1	GPS - STATIC		2024	HMOFA1	
936.871			849.342	.018	2011	2024	HMOFA1	GPS - STATIC		2024	HMOFA1	
936.871			849.342	.026	2011	2023	GPS3618	HORIZONTAL ADJUSTMENT		2023	GPS3618	
936.871	.131		849.473	.066	1996	2023	HFELT	GPS - STATIC		2023	HFELT	
936.871			849.342	.026	2011	2023	HFELT	GPS - STATIC		2023	HFELT	
936.990	.262		849.316	.197	2011	2022	RTRN2022	GPS - RTRN		2022	RTRN2022	
937.058	.262		849.372	.197	2011	2014	RTRN2014	GPS - RTRN		2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.674    12B = -87.687    09 = -87.536    03 = -87.480

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
46 52 39.19158	96 30 38.04236	547401.260	190352.717	.010		2024	GPS3719	ADJUSTMENT		2024	GPS3719	
46 52 39.19158	96 30 38.04236	547401.260	190352.717	.010	C	2024	HMOFA1	GPS - STATIC		2024	HMOFA1	
46 52 39.19158	96 30 38.04236	547401.260	190352.717	.016		2023	GPS3618	ADJUSTMENT		2023	GPS3618	
46 52 39.19158	96 30 38.04236	547401.260	190352.717	.016	C	2023	HFELT	GPS - STATIC		2023	HFELT	
46 52 39.19140	96 30 38.04203	547401.282	190352.698	.131	3	2022	RTRN2022	GPS - RTRN		2022	RTRN2022	
46 52 39.19169	96 30 38.04242	547401.255	190352.728	.131	3	2014	RTRN2014	GPS - RTRN		2014	RTRN2014	

<u>NAD83(1996)</u>		<u>Geodetic Position</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
46 52 39.19126	96 30 38.04292	547401.220	190352.684	.033	C	2024	HMOFA1	GPS - STATIC		2024	HMOFA1	
46 52 39.19126	96 30 38.04292	547401.220	190352.684	.033	C	2023	HFELT	GPS - STATIC		2023	HFELT	

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2059402.058	1020821.610	762822.567	17052269.416	.010		ADJUSTMENT	2024	GPS3719
2059402.058	1020821.610	762822.567	17052269.416	.010	C	GPS - STATIC	2024	HMOFA1
2059402.058	1020821.610	762822.567	17052269.416	.016		ADJUSTMENT	2023	GPS3618
2059402.058	1020821.610	762822.567	17052269.416	.016	C	GPS - STATIC	2023	HFELT
2059402.080	1020821.591	762822.589	17052269.397	.131	3	GPS - RTRN	2022	RTRN2022
2059402.054	1020821.621	762822.564	17052269.428	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2059402.018	1020821.578	762822.527	17052269.386	.033	C	GPS - STATIC	2024	HMOFA1
2059402.018	1020821.578	762822.527	17052269.386	.033	C	GPS - STATIC	2023	HFELT

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<b>Location:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RUEDY-DQ2031-3N-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RUEDY-DQ2031-3N-05JUL2022.jpg</a>	N	Jul 5, 2022
<b>Monument:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RUEDY-DQ2031-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RUEDY-DQ2031-2-05JUL2022.jpg</a>		Jul 5, 2022
<b>Disk:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RUEDY-DQ2031-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RUEDY-DQ2031-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: RUSTAD  
 County: CLAY, MN (Sheet 1)

NGS Name: RUSTAD

NGS ACRN: [RP1084](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096431/1056  
 USGS Quad: HICKSON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	4	137 N	48 W	464212.36	964527.99	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	2023	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	NGS

Description: (1966)                      Stamping: RUSTAD 1954

2.5 MILES SOUTH-SOUTHWEST OF RUSTAD, 2.0 MILES SOUTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND COUNTY ROAD 8 (THE JUNCTION IS 0.5 MILES WEST OF RUSTAD), AT TRUNK HIGHWAY 75 MILEPOINT 238.25, 72.5 FEET EAST OF TRUNK HIGHWAY 75, 215.0 FEET NORTH OF COUNTY ROAD 60 (130TH AVENUE), 284.00 FEET NORTH-NORTHWEST OF RUSTAD RM 2, 56.77 FEET SOUTH OF RUSTAD RM 1, 22.0 FEET NORTH OF A POWER POLE, 1.2 FEET WEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
914.785	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
915.011	.016	2/1					VERTICAL ADJUSTMENT	2011	00000699	
915.021	.016	2/1					VERTICAL CONTROL SURVEY	2010	VCOMS	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
913.666	.033	3					VERTICAL CONTROL SURVEY	1964	USGS-VERT	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
914.742	.262			827.902	.197	2011	GPS - RTRN	2023	RTRN2023	
				828.168	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
915.024	.131			828.158	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2690	
915.024	.131			828.227	.066	1996	GPS - STATIC	2010	HCOMS	
915.024	.131			828.158	.066	2007	GPS - STATIC	2010	HCOMS	
914.867	.262			828.174	.197	1996	GPS - RTRN	2009	RTRN2009	
				828.410	.066	1996	GPS - STATIC	2001	DIST 4	
914.729	.262			828.492	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648	

Geoid Separations(ft): GEOID18 = -86.837    12B = -86.840    09 = -86.791    03 = -86.696

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 42 12.35754	96 45 27.98763	485526.166	126792.809	.131	3	GPS - RTRN	2023	RTRN2023
46 42 12.35765	96 45 27.98780	485526.155	126792.821	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 42 12.35789	96 45 27.98879	485526.085	126792.845	.033	C	ADJUSTMENT	2011	GPS2690
46 42 12.35789	96 45 27.98879	485526.085	126792.845	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 42 12.35745	96 45 27.98863	485526.097	126792.800	.033	C	GPS - STATIC	2010	HCOMS
46 42 12.35835	96 45 27.99036	485525.976	126792.891	.131	3	GPS - RTRN	2009	RTRN2009
46 42 12.35722	96 45 27.98885	485526.083	126792.778	.033	C	GPS - STATIC	2001	DIST 4
46 42 12.35614	96 45 27.98920	485526.057	126792.668	.131	3	ADJUSTMENT	1999	17648
46 42 12.35613	96 45 27.98921	485526.056	126792.666	.131	3	ADJUSTMENT	1998	17655

**NAD83(1986)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 42 12.35479	96 45 27.97972	485526.718	126792.530	.131	3	ADJUSTMENT	1986	17289

**NAD27**

Geodetic Position						Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 42 12.49000	96 45 26.67900			.100	3	CLASSICAL SURVEY	1956	11230

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1995596.248	959211.867	697991.315	16991662.734	.131	3	GPS - RTRN	2023	RTRN2023
1995596.236	959211.879	697991.304	16991662.746	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1995596.168	959211.905	697991.236	16991662.773	.033	C	ADJUSTMENT	2011	GPS2690
1995596.168	959211.905	697991.236	16991662.773	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1995596.178	959211.860	697991.245	16991662.728	.033	C	GPS - STATIC	2010	HCOMS
1995596.061	959211.955	697991.129	16991662.825	.131	3	GPS - RTRN	2009	RTRN2009
1995596.162	959211.837	697991.228	16991662.706	.033	C	GPS - STATIC	2001	DIST 4
1995596.134	959211.729	697991.199	16991662.597	.131	3	ADJUSTMENT	1999	17648
1995596.133	959211.728	697991.198	16991662.597	.131	3	ADJUSTMENT	1998	17655

**NAD83(1986)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1995596.790	959211.571	697991.853	16991662.429	.131	3	ADJUSTMENT	1986	17289

**NAD27**

MN State Plane - Central Zone						Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1371001.897	631135.416			.100	3	CLASSICAL SURVEY	1956	11230

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RUSTAD-RP1084-3E-11OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RUSTAD-RP1084-3E-11OCT2023.jpg</a>	E	Oct 11, 2023
Moment:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RUSTAD-RP1084-2-11OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RUSTAD-RP1084-2-11OCT2023.jpg</a>		Oct 11, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RUSTAD-RP1084-1-11OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RUSTAD-RP1084-1-11OCT2023.jpg</a>		Oct 11, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: RUSTAD AZ MK

NGS Name: RUSTAD AZ MK

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP3972](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096424/  
 USGS Quad: COMSTOCK

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	4	137 N	48 W	464210.00	964449.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	2009	NOT FOUND	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	NGS

**Description:** **Stamping:** RUSTAD 1954

0.5 MILE SOUTHEAST, 2.1 MILES SOUTH OF RUSTAD, 0.5 MILE EAST ALONG 110TH AVENUE SOUTH FROM THE JUNCTION OF 110TH AVENUE SOUTH AND 18TH STREET SOUTH IN RUSTAD, THEN 2.0 MILES SOUTH ALONG 28TH STREET SOUTH, THEN 0.5 MILE WEST ALONG COUNTY ROAD 60 (130TH AVENUE SOUTH), 300.0 FEET WEST OF A RAILROAD TRACK, 23.0 FEET NORTH OF THE CENTER OF A GRAVEL ROAD, 2.0 FEET WEST OF A POWER POLE AND A WHITE WITNESS POST.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -86.844 12B = -86.844 09 = -86.794 03 = -86.699



Mn/DOT Name: RUSTAD RM 1

NGS Name: RUSTAD RM 1

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP3973](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096431/  
 USGS Quad: HICKSON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	4	137 N	48 W	464212.92	964527.96	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	2009	GOOD	Horz=YES Vert=YES	YES		FLUSH	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** (2009)                      **Stamping:** RUSTAD NO 1 1954

2.5 MILES SOUTH-SOUTHWEST OF RUSTAD, 2.0 MILES SOUTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND COUNTY ROAD 8 (THE JUNCTION IS 0.5 MILES WEST OF RUSTAD), AT TRUNK HIGHWAY 75 MILEPOINT 238.25, 56.77 FEET NORTH OF STATION RUSTAD, 79.0 FEET NORTH OF A POWER POLE NUMBER 1, 74.8 FEET EAST OF THE CENTERLINE OF TRUNK HIGHWAY 75.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
914.582	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941		
914.805	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699		
914.818	.016	2/1				VERTICAL CONTROL SURVEY	2010	VCOMS		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
914.631	.262		827.938	.197	1996	GPS - RTRN	2009	RTRN2009		

Geoid Separations(ft): GEOID18 = -86.837    12B = -86.840    09 = -86.791    03 = -86.696

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(1996)</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 42 12.91953	96 45 27.95898			485528.205	126849.745	.131	3	GPS - RTRN	2009	RTRN2009

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(1996)</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
1995600.046	959268.707			697996.031	16991719.543	.131	3	GPS - RTRN	2009	RTRN2009

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RUSTAD_RM_1-CP3973-3E-15SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RUSTAD_RM_1-CP3973-3E-15SEP2009.jpg</a>	E	Sep 15, 2009
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RUSTAD_RM_1-CP3973-2-15SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RUSTAD_RM_1-CP3973-2-15SEP2009.jpg</a>		Sep 15, 2009
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RUSTAD_RM_1-CP3973-1-15SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/RUSTAD_RM_1-CP3973-1-15SEP2009.jpg</a>		Sep 15, 2009

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: RUSTAD RM 2

NGS Name: RUSTAD RM 2

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP3974](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096431/  
 USGS Quad: HICKSON

	<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u> <u>Sec</u> <u>Twp</u> <u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW 4 137 N 48 W	464210.24	964525.33		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	2009	NOT FOUND	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** **Stamping:** RUSTAD NO 2 1954

2.5 MILES SOUTH-SOUTHWEST OF RUSTAD, 0.5 MILE WEST ALONG 110TH AVENUE SOUTH FROM THE JUNCTION OF 110TH AVENUE SOUTH AND 18TH STREET SOUTH IN RUSTAD, THEN 1.9 MILES SOUTH ALONG TRUNK HIGHWAY 75 SOUTH (14TH STREET SOUTH), THEN 2.0 MILES SOUTH, SOUTH-SOUTHEAST OF STATION RUSTAD, 25.0 FEET NORTH OF A GRAVEL ROAD, 2.0 FEET NORTH OF THE SECOND A POWER POLE EAST OF THE CROSSROADS.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -86.837 12B = -86.840 09 = -86.791 03 = -86.693



Mn/DOT Name: RUTHRUFF

NGS Name: RUTHRUFF

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP1068](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/1057  
 USGS Quad: SABIN

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	23	139 N	48 W	465021.36	964253.78		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	2007	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	NGS

**Description:** (1993)                      **Stamping:** RUTHRUFF 1954

2.3 MILES NORTHWEST OF FINKLE, 1.0 MILE NORTH ALONG 28TH STREET SOUTH FROM THE JUNCTION OF 28TH STREET SOUTH AND COUNTY ROAD 75, THE JUNCTION IS 0.5 MILE EAST OF FINKLE, THEN 1.3 MILES EAST ALONG COUNTY ROAD 76 (40TH AVENUE SOUTH), THEN 0.5 MILE NORTHWEST ALONG COUNTY ROAD 52, 63.6 FEET SOUTHWEST OF COUNTY HIGHWAY 52, 43.8 FEET EAST OF COUNTY ROAD 7, 74.5 FEET SOUTH OF A CONCRETE CULVERT, 15.09 FEET SOUTHEAST OF A RIGHT-OF-WAY MONUMENT, 121.67 FEET SOUTHWEST OF RUTHRUFF RM 1, 146.68 FEET WEST OF RUTHRUFF RM 2, 7.2 FEET WEST OF A WITNESS POST.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
			823.545	.010	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			823.725	.014	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
910.759	.131		823.788	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1905
910.759	.131		823.788	.066	1996	GPS - STATIC	2003	HMOOR
908.791	.131		822.193	.066	1996	HORIZONTAL ADJUSTMENT	1999	17648

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
908.791						RECIPROCAL VERTICAL ANGLE	1954	HORZ

Geoid Separations(ft): GEOID18 = -87.211 12B = -87.231 09 = -87.103 03 = -87.001

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

<u>Geodetic Position</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 50 21.36023	96 42 53.78488	496283.329	176331.274	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

<u>Geodetic Position</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 50 21.36023	96 42 53.78590	496283.258	176331.275	.010		ADJUSTMENT	2007	GPS2300

**NAD83(1996)**

<u>Geodetic Position</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 50 21.35966	96 42 53.78574	496283.269	176331.217	.033	C	ADJUSTMENT	2003	GPS1905
46 50 21.35966	96 42 53.78574	496283.270	176331.217	.033	C	GPS - STATIC	2003	HMOOR
46 50 21.35911	96 42 53.78270	496283.481	176331.161	.033	1	ADJUSTMENT	1999	17648
46 50 21.35912	96 42 53.78268	496283.482	176331.162	.033	1	ADJUSTMENT	1998	17655

**NAD83(1986)**

<u>Geodetic Position</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 50 21.35803	96 42 53.77365	496284.110	176331.052	.033	1	ADJUSTMENT	1986	17289

**NAD27**

<u>Geodetic Position</u>							<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 50 21.49100	96 42 52.48400			.100	1	CLASSICAL SURVEY	1962	12924



**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2007879.053	1008389.350	711075.445	17040667.163	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2007878.982	1008389.353	711075.374	17040667.167	.010		ADJUSTMENT	2007	GPS2300

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2007878.992	1008389.295	711075.383	17040667.109	.033	C	ADJUSTMENT	2003	GPS1905
2007878.992	1008389.295	711075.383	17040667.109	.033	C	GPS - STATIC	2003	HMOOR
2007879.201	1008389.232	711075.592	17040667.043	.033	1	ADJUSTMENT	1999	17648
2007879.203	1008389.233	711075.593	17040667.044	.033	1	ADJUSTMENT	1998	17655

**NAD83(1986)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2007879.827	1008389.103	711076.215	17040666.904	.033	1	ADJUSTMENT	1986	17289

**NAD27**

MN State Plane - Central Zone		<u>X</u>	<u>Y</u>	Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1383284.248	680312.567			.100	1	CLASSICAL SURVEY	1962	12924



Mn/DOT Name: RUTHRUFF AZ MK

NGS Name: RUTHRUFF AZ MK 2

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP3976](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	22	139 N	48 W	465042.29	964314.05		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1960	1993	DESTROYED	Horz=NO Vert=NO	NO		PROJECTS 4 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	NGS

**Description:** (1993) **Stamping:** RUTHRUFF RESET 1960

2.55 MILES SOUTH OF DILWORTH, 2.5 MILES NORTHWEST OF FINKLE, 2.65 MILES SOUTHEAST ALONG TRUNK HIGHWAY 52 FROM THE JUNCTION OF TRUNK HIGHWAY 52 AND TRUNK HIGHWAY 75, 0.45 MILE NORTH-NORTHWEST OF STATION RUTHRUFF, 35.0 FEET NORTHEAST OF TRUNK HIGHWAY 52, 38.6 FEET SOUTHWEST OF THE SOUTHWEST RAIL OF THE RAILROAD TRACKS, 2.0 FEET SOUTH OF A TELEPHONE POLE, 2.0 FEET NORTH OF A WITNESS POST.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
			822.751	.011	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800		
			822.935	.016	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300		
909.939	.131		822.997	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1905		
909.939	.131		822.997	.066	1996	GPS - STATIC	2003	HMOOR		

Geoid Separations(ft): GEOID18 = -87.185 12B = -87.201 09 = -87.073 03 = -86.981

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 50 42.29089	96 43 14.04688	494875.193	178452.214	.007		ADJUSTMENT	2012	GPS2800

  

<u>NAD83(2007)</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 50 42.29089	96 43 14.04788	494875.123	178452.214	.010		ADJUSTMENT	2007	GPS2300

  

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 50 42.29032	96 43 14.04771	494875.135	178452.157	.033	C	ADJUSTMENT	2003	GPS1905
46 50 42.29032	96 43 14.04771	494875.135	178452.156	.033	C	GPS - STATIC	2003	HMOOR

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2006537.295	1010552.641	709768.106	17042853.285	.007		ADJUSTMENT	2012	GPS2800

  

<u>NAD83(2007)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2006537.225	1010552.643	709768.036	17042853.289	.010		ADJUSTMENT	2007	GPS2300

  

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2006537.236	1010552.585	709768.046	17042853.230	.033	C	ADJUSTMENT	2003	GPS1905
2006537.236	1010552.585	709768.046	17042853.230	.033	C	GPS - STATIC	2003	HMOOR



Mn/DOT Name: RUTHRUFF AZ MK 1954

NGS Name: RUTHRUFF AZ MK

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP3975](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	22	139 N	48 W	465047.00	964318.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	1960	DESTROYED	Horz=NO Vert=NO	NO		PROJECTS 6 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	NGS

**Description:** (1954) **Stamping:** RUTHRUFF 1954

2.6 MILES NORTHWEST OF FINKLE, 1.5 MILES NORTH ALONG 28TH STREET SOUTH FROM THE JUNCTION OF 28TH STREET SOUTH AND COUNTY ROAD 75, 0.5 MILE EAST OF FINKLE, THEN 0.9 MILE EAST ALONG 30TH AVENUE SOUTH/VILLAGE GREEN BOULEVARD, THEN 0.4 MILE NORTHWEST OF MAIN AVENUE SOUTHEAST, 0.6 MILE NORTH-NORTHWEST OF STATION RUTHRUFF, 38.6 FEET SOUTHWEST OF THE SOUTHWEST RAIL, 35.0 FEET NORTHEAST OF A CENTER OF HIGHWAY 52, 2.0 FEET SOUTH OF A TELEPHONE POLE, 2.0 FEET NORTH OF A WITNESS POST.

\* No Horizontal or Vertical Positions in the Database \*

**Geoid Separations(ft): GEOID18 = -87.178 12B = -87.195 09 = -87.067 03 = -86.975**



Mn/DOT Name: RUTHRUFF RM 1

NGS Name: RUTHRUFF RM 1

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP3977](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	23	139 N	48 W	465021.00	964253.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	2009	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** **Stamping:** RUTHRUFF NO 1 1954

2.3 MILES NORTHWEST OF FINKLE, 1.0 MILE NORTH ALONG 28TH STREET SOUTH FROM THE JUNCTION OF 28TH STREET SOUTH AND COUNTY ROAD 75 (THE JUNCTION IS 0.5 MILE EAST OF FINKLE), THEN 1.3 MILES NORTH ALONG COUNTY ROAD 76 (40TH AVENUE SOUTH), THEN 0.5 MILE NORTHWEST ALONG COUNTY HIGHWAY 52/HIGHWAY 52, 121.67 FEET NORTHEAST OF STATION RUTHRUFF, 51.2 FEET NORTHEAST OF THE CENTERLINE OF TRUNK HIGHWAY 52, 2.0 FEET SOUTHWEST OF A TELEPHONE POLE, 2.0 FEET NORTHWEST OF A WITNESS POST.

**Station Notes**  
 THE TIES FALL INTO A DITCH DUE TO NEW ROAD CONSTRUCTION.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.211 12B = -87.231 09 = -87.106 03 = -87.004



Mn/DOT Name: RUTHRUFF RM 2

NGS Name: RUTHRUFF RM 2

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP3978](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	23	139 N	48 W	465021.00	964253.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	2009	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** **Stamping:** RUTHRUFF NO 2 1954

2.3 MILES NORTHWEST OF FINKLE, 1.0 MILE NORTH ALONG 28TH STREET SOUTH FROM THE JUNCTION OF 28TH STREET SOUTH AND COUNTY ROAD 75 (THE JUNCTION IS 0.5 MILE EAST OF FINKLE), THEN 1.3 MILES NORTH ALONG COUNTY ROAD 76 (40TH AVENUE SOUTH), THEN 0.5 MILE NORTHWEST ALONG COUNTY HIGHWAY 52/HIGHWAY 52, 146.68 FEET EAST OF STATION RUTHRUFF, 52.4 FEET NORTHEAST OF THE CENTERLINE OF TRUNK HIGHWAY 52, 2.0 FEET NORTH OF A WITNESS POST, 1.0 FOOT WEST OF A TELEPHONE POLE.

**Station Notes**

THE TIES FALL INTO A DITCH DUE TO NEW ROAD CONSTRUCTION.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.211 12B = -87.231 09 = -87.106 03 = -87.004



Mn/DOT Name: S 314

NGS Name: S 314

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0324](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	9	139 N	48 W	465227.00	964449.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1938	1968	NOT FOUND	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE FOUNDATION	BENCH MARK DISK	NGS

**Description:** (2001)                      **Stamping:** S 314 1938

0.9 MILE EAST OF MOORHEAD, 1.0 MILE EAST ALONG MAIN AVENUE FROM THE JUNCTION OF MAIN AVENUE AND 8TH STREET SOUTH IN MOORHEAD, THEN 0.3 MILE NORTH ALONG 21ST STREET SOUTH, 0.9 MILE EAST ALONG A RAILROAD FROM THE STATION IN MOORHEAD, 0.3 MILE EAST OF TRUNK HIGHWAY 10 MILEPOINT 6, 0.2 MILE EAST OF A RAILROAD CROSSING, 450.0 FEET WEST OF TRUNK HIGHWAY 10, 6.0 FEET NORTH OF A RAIL.

**Station Notes**

IN THE TOP OF A CONCRETE BLOCK FOR THE SIGNAL LEVERS, THE EDGES HAVE BEEN BROKEN OFF THE CONCRETE BLOCK. THE SURVEY MARK IS ON RAILROAD PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
908.256	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025	

**Geoid Separations(ft):** GEOID18 = -87.011    12B = -87.004    09 = -86.883    03 = -86.827

\* No Horizontal Positions in the Database \*



Mn/DOT Name: S 315

NGS Name: S 315

County: CLAY, MN (Sheet 1)

NGS ACRN: [SL0169](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/  
 USGS Quad: FELTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	21	142 N	46 W	470555.00	963026.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1938	1982	NOT FOUND	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	BENCH MARK DISK	NGS

**Description:** (1938)                      **Stamping:** S 315 1938

1.4 MILES NORTH OF FELTON, 0.2 MILE NORTH ALONG ATLANTIC AVENUE FROM THE JUNCTION OF ATLANTIC AVENUE AND 4TH STREET IN FELTON, THEN 0.3 MILE EAST ALONG 160TH AVENUE NORTH/7TH STREET, THEN 1.4 MILES NORTH ALONG TRUNK HIGHWAY 9 NORTH (140TH STREET NORTH), 1.6 MILES NORTH OF A RAILROAD STATION AT FELTON, 0.3 MILE NORTH OF RAILROAD MILEPOST 34, 0.1 MILE NORTH OF A ROAD CROSSING, 12.0 FEET EAST OF THE EAST RAIL OF A RAILROAD, IN THE TOP OF A CONCRETE CULVERT FLANGE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			
910.385	.007	1/2							VERTICAL ADJUSTMENT	1991	00000025		

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			
909.145	.007	1/2							UNKNOWN/APPROXIMATE	1992	UNCHECKD		
909.145	.007	1							VERTICAL CONTROL SURVEY	1941	Q470963		
909.145	.007	1							VERTICAL CONTROL SURVEY	1938	L45 MINN		

**Geoid Separations(ft): GEOID18 = -87.093    12B = -87.109    09 = -86.985    03 = -86.965**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: S 376

NGS Name: S 376

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0723](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	10	139 N	47 W	465236.16	963522.98	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1982	2022	GOOD	Horz=NO Vert=NO	YES		FLUSH	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STEEL ROD (NO SLEEVE) (DEPTH 32 FT)	METAL ROD	NGS

Description: (1982)                      Stamping: S 376 1982

0.5 MILE WEST-NORTHWEST OF GLYNDON, AT THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 17 SOUTH IN GLYNDON, AT TRUNK HIGHWAY 10 MILEPOINT 8.8, 115.0 FEET WEST OF COUNTY ROAD 17 IN THE MIDDLE OF 4 ROUND GRAIN BINS, 102.0 FEET SOUTH OF EASTBOUND TRUNK HIGHWAY 10, 4.0 FEET WEST OF A POWER POLE, 1.0 FOOT NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
920.871	.016	2/1					VERTICAL ADJUSTMENT	2024	0000941-3
920.871	.016	2/1					VERTICAL CONTROL SURVEY	2023	VMOFA
920.871	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941
921.058	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
921.140	.262			833.693	.197	2011	GPS - RTRN	2022	RTRN2022

Geoid Separations(ft): GEOID18 = -87.447 12B = -87.451 09 = -87.306 03 = -87.267

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>			<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 52 36.16065	96 35 22.98191		527605.688	190007.840	.131	3	GPS - RTRN	2022	RTRN2022

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>			<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>							<u>Year</u>	<u>Reference</u>	
<u>X</u>	<u>Y</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>		
2039606.881	1021089.442		743023.792	17052858.433	.131	3	GPS - RTRN	2022	RTRN2022

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/S_376-RP0723-3S-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/S_376-RP0723-3S-05JUL2022.jpg</a>	S	Jul 5, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/S_376-RP0723-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/S_376-RP0723-2-05JUL2022.jpg</a>		Jul 5, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/S_376-RP0723-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/S_376-RP0723-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: S 4

NGS Name: S 4

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0757](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096143/  
 USGS Quad: DOWNER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	21	138 N	46 W	464516.00	962907.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1905	2014	DESTROYED	Horz=NO Vert=NO	NO			MARKER IS STEEL ROD

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	DRILL HOLE	NGS

Description: (1905)                      Stamping:

IN DOWNER, 0.2 MILE EAST ALONG 90TH AVENUE SOUTH FROM THE JUNCTION OF 90TH AVENUE SOUTH AND 148TH STREET SOUTH IN DOWNER, THEN 180.0 FEET NORTH-NORTHWEST ALONG TRUNK HIGHWAY 9 NORTH, 575.0 FEET NORTH OF A RAILROAD STATION, 63.0 FEET NORTH OF A ROAD, 34.0 FEET WEST OF A TRACK, 40.0 FEET EAST OF A POWER POLE, AT THE NORTHWEST CORNER OF A GRADE CROSSING ON A RIGHT-OF-WAY.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
968.003	.007	1					VERTICAL CONTROL SURVEY	1993	POSTED	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
967.019	.007	1					VERTICAL CONTROL SURVEY	1905	L36 MINN	

<u>GA1912</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
967.528	.007	1					VERTICAL ADJUSTMENT	1914	GA1912	

Geoid Separations(ft): GEOID18 = -87.441 12B = -87.415 09 = -87.310 03 = -87.273

\* No Horizontal Positions in the Database \*



Mn/DOT Name: S 49

NGS Name: S 49

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0301](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	1	139 N	47 W	465237.00	963407.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1934	2022	NOT FOUND	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	NGS

Description: (1969)                      Stamping: S 49 1934

AT THE EAST LIMITS OF GLYNDON, 0.3 MILE NORTH ALONG PARKE AVENUE SOUTH FROM THE JUNCTION OF PARKE AVENUE SOUTH AND 4TH STREET SOUTHEAST IN GLYNDON, THEN 1.2 MILES EAST ALONG TRUNK HIGHWAY 10 (STATE STREET NORTHEAST), THEN 0.5 MILE WEST ALONG TRUNK HIGHWAY 10, 45.0 FEET NORTH OF TRUNK HIGHWAY 10, IN LINE WITH A FENCE EAST, 2.0 FEET WEST OF A FENCE POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
923.072	.016	2/0					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
921.927	.016	2/0					UNKNOWN/APPROXIMATE	1992	UNCHECKD	
921.931	.007	1					VERTICAL CONTROL SURVEY	1941	Q460964	
921.931	.007	1					VERTICAL CONTROL SURVEY	1934	L98 MINN	

Geoid Separations(ft): GEOID18 = -87.523    12B = -87.526    09 = -87.382    03 = -87.339

\* No Horizontal Positions in the Database \*



Mn/DOT Name: S GABLE MCWILLIAMS HOUSE

NGS Name: S GABLE MCWILLIAMS HOUSE

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP3979](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	15	137 N	46 W	464102.72	962754.12		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
	2010	UNKNOWN	Horz=? Vert=?	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	UNSPECIFIC DISK TYPE (SEE TEXT)	UNK

**Description:** 3.1 MILES NORTHWEST OF BARNESVILLE, 0.5 MILE NORTH ALONG FRONT STREET SOUTH FROM THE JUNCTION OF FRONT STREET SOUTH AND 2ND AVENUE SOUTHEAST IN BARNESVILLE, THEN 0.1 MILE NORTH ALONG TRUNK HIGHWAY 9 NORTH, THEN 2.3 MILES NORTHWEST ALONG COUNTY ROAD 52, THEN 0.5 MILE NORTH ALONG COUNTY ROAD 56 (160TH STREET SOUTH).

**Stamping:**

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.024 12B = -87.027 09 = -86.922 03 = -86.863



Mn/DOT Name: SAB MNDT

NGS Name: SAB

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0399](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/1081  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	12	138 N	47 W	464633.47	963342.50	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1961	2021	GOOD	Horz=YES Vert=YES	YES		FLUSH	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	TRAVERSE STATION DISK	MNDT

**Description:** (2010)                      **Stamping:** SAB U.S.C.& G.S. 1961

4.3 MILES EAST-SOUTHEAST OF SABIN, 4.1 MILES EAST ON COUNTY ROAD 67 (80TH AVENUE SOUTH, GRAVEL) FROM THE JUNCTION OF COUNTY ROAD 67 AND COUNTY ROAD 52 (OLD TRUNK HIGHWAY 52) (THE JUNCTION IS 0.3 MILE SOUTH OF SABIN), 42.0 FEET NORTH OF COUNTY ROAD 67, 74.55 FEET NORTH OF SAB RM 1, 68.30 FEET EAST OF SAB RM 2, 1.1 FEET SOUTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
931.730	.016	2/0					VERTICAL ADJUSTMENT	1991	00000025	

  

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
930.831	.016	2/0					UNKNOWN/APPROXIMATE	1992	UNCHECKD	
930.831	.016	2					VERTICAL CONTROL SURVEY	1972	Q460964	
930.831	.016	2					VERTICAL CONTROL SURVEY	1972	L22167-A	
930.831	.016	2					VERTICAL CONTROL SURVEY	1971	L22167-A	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
931.767	.262			844.303	.197	2011	GPS - OPUS	2021	GPSBM	
931.793	.262			844.329	.197	2011	GPS - RTRN	2021	RTRN2021	
931.730				844.283	.023	2011	HORIZONTAL ADJUSTMENT	2014	GPS2750	
931.730				844.283	.023	2011	GPS - STATIC	2014	HBARN	
931.724	.131			844.372	.066	2007	GPS - STATIC	2010	HBARN	
931.730	.131			844.418	.066	1996	GPS - STATIC	2010	HBARN	
				844.532	.066	1996	GPS - STATIC	2001	DIST 4	
931.724	.197			844.792	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648	

Geoid Separations(ft): GEOID18 = -87.464    12B = -87.454    09 = -87.352    03 = -87.287

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 46 33.46511	96 33 42.50052	534651.319	153271.952	.131	3	GPS - OPUS	2021	GPSBM
46 46 33.46486	96 33 42.49981	534651.368	153271.927	.131	3	GPS - RTRN	2021	RTRN2021
46 46 33.46519	96 33 42.50021	534651.340	153271.960	.020		ADJUSTMENT	2014	GPS2750
46 46 33.46519	96 33 42.50021	534651.340	153271.960	.020	C	GPS - STATIC	2014	HBARN

**NAD83(2007)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 46 33.46523	96 33 42.50115	534651.275	153271.964	.033	C	GPS - STATIC	2010	HBARN

**NAD83(1996)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 46 33.46477	96 33 42.50113	534651.276	153271.917	.033	C	GPS - STATIC	2010	HBARN
46 46 33.46461	96 33 42.50098	534651.286	153271.901	.033	C	GPS - STATIC	2001	DIST 4
46 46 33.46610	96 33 42.50113	534651.276	153272.052	.066	2	ADJUSTMENT	1999	17648
46 46 33.46609	96 33 42.50124	534651.269	153272.051	.066	2	ADJUSTMENT	1998	17655

**NAD83(1986)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 46 33.46545	96 33 42.49200	534651.912	153271.987	.066	2	ADJUSTMENT	1986	17289

**NAD27**

Geodetic Position						Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 46 33.60560	96 33 41.22600			.100	2	CLASSICAL SURVEY	1962	12924

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2045512.003	984156.379	748333.620	17015814.115	.131	3	GPS - OPUS	2021	GPSBM
2045512.052	984156.353	748333.668	17015814.087	.131	3	GPS - RTRN	2021	RTRN2021
2045512.025	984156.387	748333.642	17015814.122	.020		ADJUSTMENT	2014	GPS2750
2045512.025	984156.387	748333.642	17015814.122	.020	C	GPS - STATIC	2014	HBARN

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2045511.960	984156.393	748333.577	17015814.129	.033	C	GPS - STATIC	2010	HBARN

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2045511.960	984156.346	748333.576	17015814.082	.033	C	GPS - STATIC	2010	HBARN
2045511.970	984156.330	748333.586	17015814.066	.033	C	GPS - STATIC	2001	DIST 4
2045511.964	984156.481	748333.582	17015814.217	.066	2	ADJUSTMENT	1999	17648
2045511.956	984156.480	748333.575	17015814.216	.066	2	ADJUSTMENT	1998	17655

**NAD83(1986)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2045512.597	984156.397	748334.214	17015814.123	.066	2	ADJUSTMENT	1986	17289

**NAD27**

MN State Plane - Central Zone						Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1420916.657	656080.873			.100	2	CLASSICAL SURVEY	1962	12924

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SAB-RP0399-3N-30JUN2010.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SAB-RP0399-3N-30JUN2010.jpg</a>	N	Jun 30, 2010
Moment:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SAB-RP0399-2-30JUN2010.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SAB-RP0399-2-30JUN2010.jpg</a>		Jun 30, 2010
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SAB-RP0399-1-30JUN2010.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SAB-RP0399-1-30JUN2010.jpg</a>		Jun 30, 2010

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: SAB MNDT AZ MK

NGS Name: SAB AZ MK

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0398](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/1081  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	7	138 N	47 W	464633.93	963248.56	2	2

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1961	1991	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE FOOTING - SMALL	SURVEY DISK	MNDT

**Description:** (1991) **Stamping:** SAB AZIMUTH MARK 1961

0.3 MILE SOUTH AND 4.8 MILES EAST OF SABIN, 0.4 MILE SOUTHEAST ALONG HOLLOWAY AVENUE NORTH FORM THE JUNCTION OF HOLLOWAY AVENUE NORTH AND 2ND STREET NORTH IN SABIN, THEN 121.0 FEET SOUTH ALONG OSBORN AVENUE SOUTH, THEN 4.7 FEET EAST ALONG 80TH AVENUE SOUTH, 500.0 FEET WEST OF INTERSTATE HIGHWAY 94, 960.0 FEET SOUTH FROM THE CENTERLINE OF INTERSTATE HIGHWAY 94, 5.3 FEET SOUTH OF A POWER POLE, 35.2 FEET NORTHEAST OF THE SOUTH END OF A METAL CULVERT.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>		<u>Year</u>	<u>Reference</u>	
934.125	.016	2/0				VERTICAL ADJUSTMENT		1991	00000025	

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>		<u>Year</u>	<u>Reference</u>	
933.226	.016	2				VERTICAL CONTROL SURVEY		1972	Q460964	
933.226	.016	2				VERTICAL CONTROL SURVEY		1972	L22167-A	
933.226	.016	2				VERTICAL CONTROL SURVEY		1971	L22167-A	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>		<u>Year</u>	<u>Reference</u>	
934.119	.197		847.164	.131	1996	HORIZONTAL ADJUSTMENT		1999	17648	

Geoid Separations(ft): GEOID18 = -87.483 12B = -87.474 09 = -87.369 03 = -87.303

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>		<u>Year</u>	<u>Reference</u>	
46 46 33.93374	96 32 48.56354	538405.532	153326.387	.066	2	ADJUSTMENT		1999	17648	
46 46 33.93372	96 32 48.56355	538405.531	153326.385	.066	2	ADJUSTMENT		1998	17655	

<u>NAD83(1986)</u>		<u>Geodetic Position</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>		<u>Year</u>	<u>Reference</u>	
46 46 33.93301	96 32 48.55447	538406.164	153326.314	.066	2	ADJUSTMENT		1986	17289	

<u>NAD27</u>		<u>Geodetic Position</u>					<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>		<u>Year</u>	<u>Reference</u>
46 46 34.07300	96 32 47.29000			.100	2	CLASSICAL SURVEY		1962	12924



State Plane and UTM Coordinates (Feet)

NAD83(1996)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>			<u>Project Info</u>			
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2049265.746	984094.635	752087.954	17015691.737	.066	2	ADJUSTMENT	1999	17648
2049265.745	984094.634	752087.953	17015691.735	.066	2	ADJUSTMENT	1998	17655

NAD83(1986)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>			<u>Project Info</u>			
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2049266.375	984094.543	752088.582	17015691.635	.066	2	ADJUSTMENT	1986	17289

NAD27

<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1424670.441	656019.020			.100	2	CLASSICAL SURVEY	1962	12924



Mn/DOT Name: SAB RM 1  
County: CLAY, MN (Sheet 1)

NGS Name: SAB RM 1

NGS ACRN: [RP0400](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	13	138 N	47 W	464632.73	963342.44	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1961	2010	NOT FOUND	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	SURVEY DISK	MNDT

**Description:** (1968)                      **Stamping:** SAB NO. 1 1961

4.0 MILES EAST OF SABIN, 1.0 MILE WEST OF THE JUNCTION OF COUNTY ROAD 67 AND INTERSTATE HIGHWAY 94, 33.0 FEET SOUTH OF COUNTY ROAD 67, 74.5 FEET SOUTH OF STATION SAB MNDT.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
930.142	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
929.240	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
929.240	.016	2				VERTICAL CONTROL SURVEY	1972	Q460964
929.240	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A
929.240	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A

**Geoid Separations(ft): GEOID18 = -87.464    12B = -87.454    09 = -87.352    03 = -87.287**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: SAB RM 2  
 County: CLAY, MN (Sheet 1)

NGS Name: SAB RM 2

NGS ACRN: [RP0401](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	12	138 N	47 W	464633.46	963343.48	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1961	2010	GOOD	Horz=? Vert=YES	NO		FLUSH	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

**Description:** (1968)                      **Stamping:** SAB NO 2 1961

4.0 MILES EAST OF SABIN, 1.0 MILE WEST OF THE JUNCTION OF COUNTY ROAD 67 (80TH AVENUE SOUTH) AND INTERSTATE HIGHWAY 94, 41.0 FEET NORTH OF COUNTY ROAD 67, 68.3 FEET WEST OF SAB MNDT.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
931.494	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025	

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
930.595	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD	
930.595	.016	2				VERTICAL CONTROL SURVEY	1972	Q460964	
930.595	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A	
930.595	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A	

**Geoid Separations(ft): GEOID18 = -87.464    12B = -87.454    09 = -87.352    03 = -87.287**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: SABIN

NGS Name: SABIN

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP1065](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/1058  
 USGS Quad: SABIN

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	7	138 N	47 W	464701.09	963922.46		3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	2013	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	TRIANGULATION STATION DISK	NGS

**Description:** (1954)                      **Stamping:** SABIN 1954

0.35 MILE NORTHWEST OF SABIN, 0.3 MILE NORTH-NORTHWEST ALONG HOLLOWAY AVENUE NORTH FROM THE JUNCTION OF HOLLOWAY AVENUE NORTH AND 2ND STREET NORTH IN SABIN, 0.35 MILE NORTHWEST OF MAIN STREET, 70.0 FEET NORTHEAST OF TRUNK HIGHWAY 52, 179.49 FEET NORTHWEST OF A RIGHT-OF-WAY MONUMENT, 36.25 FEET NORTHWEST OF SABIN RM 1, 38.70 FEET SOUTHEAST OF SABIN RM 2, 2.5 MILES SOUTH OF A WITNESS POST.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
918.633	.262		831.855	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648	

  

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
918.601						RECIPROCAL VERTICAL ANGLE	1954	HORZ	

Geoid Separations(ft): GEOID18 = -87.359    12B = -87.355    09 = -87.260    03 = -87.168

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 47 01.08852	96 39 22.45709	510986.942	156043.250	.131	3	ADJUSTMENT	1999	17648
46 47 01.08851	96 39 22.45709	510986.942	156043.249	.131	3	ADJUSTMENT	1998	17655

  

<u>NAD83(1986)</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 47 01.08739	96 39 22.44760	510987.603	156043.135	.131	3	ADJUSTMENT	1986	17289

  

<u>NAD27</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Reference</u>
46 47 01.22000	96 39 21.16900			.100	3	CLASSICAL SURVEY

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>					<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2021946.897	987658.104	724814.471	17019698.126	.131	3	ADJUSTMENT	1999	17648
2021946.897	987658.102	724814.471	17019698.125	.131	3	ADJUSTMENT	1998	17655

  

<u>NAD83(1986)</u>		<u>UTM - Zone 15</u>					<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2021947.554	987657.969	724815.126	17019697.981	.131	3	ADJUSTMENT	1986	17289

  

<u>NAD27</u>					<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Reference</u>
1397351.742	659581.560			.100	3	CLASSICAL SURVEY



Mn/DOT Name: SABIN AZ MK

NGS Name: SABIN AZ MK

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP3980](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	7	138 N	47 W	464651.00	963917.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	1961	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	NGS

**Description:** **Stamping:** SABIN 1954

IN SABIN, 0.1 MILE NORTH-NORTHWEST ALONG HOLLOWAY AVENUE NORTH FROM THE JUNCTION OF HOLLOWAY AVENUE AND 2ND STREET NORTH, 0.2 MILE SOUTHEAST OF STATION SABIN, 47.0 FEET SOUTHWEST OF THE CENTERLINE OF TRUNK HIGHWAY 52, 16.0 FEET WEST OF A GUYED POWER POLE, 1.0 FOOT WEST OF TRUNK HIGHWAY RIGHT-OF-WAY STATION 449, 77.5, 2.0 FEET EAST OF A WITNESS POST.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.352 12B = -87.349 09 = -87.260 03 = -87.165



Mn/DOT Name: SABIN ELEVATOR

NGS Name: SABIN ELEVATOR

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP1067](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/1073  
 USGS Quad: SABIN

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SW	7	138 N	47 W	464634.11	963954.35		4

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1906	1906	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	GRAIN ELEVATOR	NGS

Description: (1906)

Stamping:

0.6 MILE WEST-SOUTHWEST OF SABIN, 0.6 MILE WEST AND SOUTH ALONG 3RD STREET NORTH FROM THE JUNCTION OF 3RD STREET NORTH AND HOLLOWAY AVENUE NORTH IN SABIN, THEN 0.2 MILE WEST ALONG COUNTY ROAD 67 (80TH AVENUE SOUTH).

\* No Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.329 12B = -87.323 09 = -87.241 03 = -87.142

Lat/Lon and County Coordinates (Feet)

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 46 34.11395	96 39 54.35462	508768.230	153309.200	.328	4	ADJUSTMENT	1999	17648
46 46 34.11388	96 39 54.35578	508768.149	153309.192	.328	4	ADJUSTMENT	1998	17655

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 46 34.11270	96 39 54.34388	508768.978	153309.073	.328	4	ADJUSTMENT	1986	17289

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
46 46 34.26000	96 39 53.05000			.100	4	CLASSICAL SURVEY	1928	00155

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
46 46 34.47000	96 39 53.45000				3	CLASSICAL SURVEY		17389-73

State Plane and UTM Coordinates (Feet)

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2019644.893	984994.238	722468.316	17017070.194	.328	4	ADJUSTMENT	1999	17648
2019644.812	984994.233	722468.235	17017070.191	.328	4	ADJUSTMENT	1998	17655

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2019645.637	984994.088	722469.057	17017070.033	.328	4	ADJUSTMENT	1986	17289

<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1395050.879	656919.138			.100	4	CLASSICAL SURVEY	1928	00155



Mn/DOT Name: SABIN RM 1

NGS Name: SABIN RM 1

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP3981](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	7	138 N	47 W	464700.75	963922.29		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	1961	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** (2007)                      **Stamping:** SABIN NO 1 1954

0.35 MILE NORTHWEST OF SABIN, 0.3 MILE NORTH ALONG HOLLOWAY AVENUE NORTH FROM THE JUNCTION OF HOLLOWAY AVENUE NORTH AND 2ND STREET NORTH IN SABIN, SOUTHEAST OF STATION SABIN, 70.0 FEET NORTHEAST OF THE CENTERLINE OF THE HIGHWAY.

\* No Horizontal or Vertical Positions in the Database \*

**Geoid Separations(ft): GEOID18 = -87.359    12B = -87.355    09 = -87.260    03 = -87.168**



Mn/DOT Name: SABIN RM 2

NGS Name: SABIN RM 2

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP3982](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	7	138 N	47 W	464701.45	963922.63		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	1961	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** **Stamping:** SABIN NO 2 1954

0.35 MILE NORTHWEST OF SABIN, 0.3 MILE NORTH ALONG HOLLOWAY AVENUE NORTH FROM THE JUNCTION OF HOLLOWAY AVENUE NORTH AND 2ND STREET NORTH IN SABIN, NORTHWEST OF STATION SABIN, 70.0 FEET NORTHEAST OF THE CENTERLINE OF THE HIGHWAY.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.359 12B = -87.355 09 = -87.260 03 = -87.168



Mn/DOT Name: SHARP

NGS Name: SHARP

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ2033](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	11	139 N	47 W	465236.54	963405.65	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 69 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: SHARP 2014

IN GLYNDON, 0.6 MILE EAST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 19 AND COUNTY ROAD 117 IN GLYNDON, AT TRUNK HIGHWAY 10 MILEPOINT 9.80, 69.6 FEET SOUTH OF EASTBOUND TRUNK HIGHWAY 10, 32.3 FEET WEST OF 110TH STREET SOUTH, 21.0 FEET NORTH-NORTHEAST OF A RIGHT-OF-WAY POST, 1.5 FEET NORTH OF A WITNESS POST.

Station Pair: BROWN - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
921.015	.016	2/1				2024	00000941-3	VERTICAL ADJUSTMENT				
921.015	.016	2/1				2023	VMOFA	VERTICAL CONTROL SURVEY				
921.015	.016	2/1				2019	00000941	VERTICAL ADJUSTMENT				

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
921.015			833.732	.023	2011	2024	GPS3719	HORIZONTAL ADJUSTMENT				
921.015	.131		833.853	.066	1996	2024	HMOFA1	GPS - STATIC				
921.015			833.732	.023	2011	2024	HMOFA1	GPS - STATIC				
921.025	.262		833.506	.197	2011	2022	RTRN2022	GPS - RTRN				
921.156	.262		833.630	.197	2011	2014	RTRN2014	GPS - RTRN				

Geoid Separations(ft): GEOID18 = -87.520 12B = -87.526 09 = -87.378 03 = -87.336

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u> <u>Reference</u>
46 52 36.54350	96 34 05.64543	532978.612	190054.913	.010		ADJUSTMENT	2024   GPS3719
46 52 36.54350	96 34 05.64543	532978.612	190054.913	.010	C	GPS - STATIC	2024   HMOFA1
46 52 36.54430	96 34 05.64462	532978.668	190054.994	.131	3	GPS - RTRN	2022   RTRN2022
46 52 36.54328	96 34 05.64557	532978.603	190054.891	.131	3	GPS - RTRN	2014   RTRN2014

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u> <u>Reference</u>
46 52 36.54327	96 34 05.64590	532978.580	190054.890	.033	C	GPS - STATIC	2024   HMOFA1

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u> <u>Determination Method</u> <u>Year</u> <u>Reference</u>
2044978.262	1020970.257	748395.473	17052652.053	.010		ADJUSTMENT	2024   GPS3719
2044978.262	1020970.257	748395.473	17052652.053	.010	C	GPS - STATIC	2024   HMOFA1
2044978.320	1020970.336	748395.532	17052652.132	.131	3	GPS - RTRN	2022   RTRN2022
2044978.251	1020970.235	748395.462	17052652.031	.131	3	GPS - RTRN	2014   RTRN2014

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u> <u>Reference</u>
2044978.228	1020970.234	748395.439	17052652.031	.033	C	GPS - STATIC	2024   HMOFA1



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SHARP-DQ2033-3S-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SHARP-DQ2033-3S-05JUL2022.jpg</a>	S	Jul 5, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SHARP-DQ2033-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SHARP-DQ2033-2-05JUL2022.jpg</a>		Jul 5, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SHARP-DQ2033-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SHARP-DQ2033-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: SHEPHERD

NGS Name: SHEPHERD

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM7604](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	27	139 N	48 W	464959.01	964401.80	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2009	2022	NOT FOUND	Horz=NO Vert=NO	YES		FLUSH	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 20 FT)	METAL ROD	MN4880

**Description:** (2009)                      **Stamping:** SHEPHERD 2009

IN MOORHEAD, 1.0 MILE SOUTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND INTERSTATE HIGHWAY 94 IN MOORHEAD, THEN 1.65 MILES EAST ON 40TH AVENUE SOUTH, ON 40TH AVENUE SOUTH, 45.6 FEET NORTH OF A NORWAY PINE, 19.8 FEET EAST OF A STOP SIGN, 33.3 FEET SOUTH OF 40TH AVENUE SOUTH.

**Station Notes**

590.0 FEET EAST OF 28TH STREET ON THE SOUTH SIDE OF 40TH AVENUE BETWEEN A BIKE PATH AND A STREET. EAST OF A CHURCH ENTRANCE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
912.429	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
912.679	.016	2/1					VERTICAL ADJUSTMENT	2011	00000699	
912.662	.016	2/1					VERTICAL CONTROL SURVEY	2010	VCOMS	

Geoid Separations(ft): GEOID18 = -87.182 12B = -87.208 09 = -87.090 03 = -86.972

\* No Horizontal Positions in the Database \*

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<b>Location:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SHEPHERD-DM7604-3SW-12NOV2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SHEPHERD-DM7604-3SW-12NOV2009.jpg</a>	SW	Nov 12, 200
<b>Monument:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SHEPHERD-DM7604-2-12NOV2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SHEPHERD-DM7604-2-12NOV2009.jpg</a>		Nov 12, 200
<b>Disk:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SHEPHERD-DM7604-1-12NOV2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SHEPHERD-DM7604-1-12NOV2009.jpg</a>		Nov 12, 200

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: SKINNER MNDT

NGS Name: SKINNER

County: CLAY, MN (Sheet 1)

NGS ACRN: [DF7619](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	35	139 N	47 W	464832.32	963519.36	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1993	2023	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 35 FT)	SURVEY DISK	MNDT

**Description:** (2008)                      **Stamping:** SKINNER 1993

4.25 MILES SOUTH OF GLYNDON, 3.5 MILES WEST AND NORTHWEST ALONG COUNTY ROAD 10 FROM THE JUNCTION OF COUNTY ROAD 10 AND INTERSTATE HIGHWAY 94 WEST OF DOWNER, THEN 3.75 MILES NORTH ON COUNTY ROAD 17, AT THE JUNCTION OF INTERSTATE HIGHWAY 94 AND COUNTY ROAD 17, AT INTERSTATE HIGHWAY 94 MILEPOINT 10.15, 20.5 FEET EAST OF COUNTY ROAD 17, 22.5 FEET NORTH OF NORTHEAST CORNER OF COUNTY ROAD 17 BRIDGE NUMBER 14802 OVER INTERSTATE HIGHWAY 94, 3.5 FEET EAST OF A GUARDRAIL, 3.0 FEET EAST OF A WITNESS POST.

**Station Notes**

THIS MARK WAS OBSERVED IN GPS PROJECT HMOFA2 IN 2023. THE ORTHOMETRIC HEIGHT VALUE FROM THIS HORIZONTAL ADJUSTMENT WAS 9.7CM (0.32FT) LOWER THAN THE PUBLISHED LEVELED HEIGHT FROM VERTICAL PROJECT 00000941.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
944.280	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
944.453	.016	2/1					VERTICAL ADJUSTMENT	2011	00000685	
944.453	.016	2/1					VERTICAL CONTROL SURVEY	2008	VCL94	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
944.001				856.704	.018	2011	HORIZONTAL ADJUSTMENT	2025	GPS3805	
943.925	.131			856.744	.066	1996	GPS - STATIC	2025	HTH94A	
944.001				856.704	.018	2011	GPS - STATIC	2025	HTH94A	
943.961				856.704	.020	2011	HORIZONTAL ADJUSTMENT	2024	GPS3715	
943.961				856.704	.020	2011	GPS - STATIC	2024	HMOFA2	
943.971	.131			856.809	.066	1996	GPS - STATIC	2024	HMOFA2	
944.453				856.836	.027	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084	
944.453	.131			856.964	.066	1996	GPS - STATIC	2015	HCLAY	
944.453				856.836	.027	2011	GPS - STATIC	2015	HCLAY	
				857.357	.022	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
				857.521	.021	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300	
944.880	.131			857.567	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1905	
944.880	.131			857.567	.066	1996	GPS - STATIC	2003	HMOOR	

Geoid Separations(ft): GEOID18 = -87.510    12B = -87.516    09 = -87.388    03 = -87.319

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 48 32.32489	96 35 19.36121	527892.242	165303.607	.013		ADJUSTMENT	2025	GPS3805
46 48 32.32489	96 35 19.36121	527892.242	165303.607	.013	C	GPS - STATIC	2025	HTH94A
46 48 32.32489	96 35 19.36121	527892.242	165303.607	.013		ADJUSTMENT	2024	GPS3715
46 48 32.32489	96 35 19.36121	527892.242	165303.607	.013	C	GPS - STATIC	2024	HMOFA2
46 48 32.32430	96 35 19.36194	527892.191	165303.547	.013		ADJUSTMENT	2015	GPS3084
46 48 32.32448	96 35 19.36150	527892.222	165303.566	.013	C	GPS - STATIC	2015	HCLAY
46 48 32.32430	96 35 19.36194	527892.191	165303.547	.016		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 48 32.32426	96 35 19.36290	527892.124	165303.543	.016		ADJUSTMENT	2007	GPS2300

**NAD83(1996)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 48 32.32473	96 35 19.36080	527892.270	165303.591	.033	C	GPS - STATIC	2025	HTH94A
46 48 32.32472	96 35 19.36201	527892.186	165303.590	.033	C	GPS - STATIC	2024	HMOFA2
46 48 32.32371	96 35 19.36268	527892.140	165303.488	.033	C	GPS - STATIC	2015	HCLAY
46 48 32.32371	96 35 19.36268	527892.140	165303.488	.033	C	ADJUSTMENT	2003	GPS1905
46 48 32.32371	96 35 19.36268	527892.139	165303.488	.033	C	GPS - STATIC	2003	HMOOR

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2039129.006	996390.265	742145.583	17028156.425	.013		ADJUSTMENT	2025	GPS3805
2039129.006	996390.265	742145.583	17028156.425	.013	C	GPS - STATIC	2025	HTH94A
2039129.006	996390.265	742145.583	17028156.425	.013		ADJUSTMENT	2024	GPS3715
2039129.006	996390.265	742145.583	17028156.425	.013	C	GPS - STATIC	2024	HMOFA2
2039128.953	996390.207	742145.529	17028156.368	.013		ADJUSTMENT	2015	GPS3084
2039128.984	996390.224	742145.561	17028156.384	.013	C	GPS - STATIC	2015	HCLAY
2039128.953	996390.207	742145.529	17028156.368	.016		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2039128.886	996390.205	742145.462	17028156.367	.016		ADJUSTMENT	2007	GPS2300

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2039129.034	996390.248	742145.611	17028156.407	.033	C	GPS - STATIC	2025	HTH94A
2039128.950	996390.250	742145.526	17028156.410	.033	C	GPS - STATIC	2024	HMOFA2
2039128.900	996390.149	742145.475	17028156.310	.033	C	GPS - STATIC	2015	HCLAY
2039128.900	996390.149	742145.475	17028156.310	.033	C	ADJUSTMENT	2003	GPS1905
2039128.900	996390.149	742145.475	17028156.310	.033	C	GPS - STATIC	2003	HMOOR

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SKINNER-DF7619-3E-14AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SKINNER-DF7619-3E-14AUG2013.jpg</a>	E	Aug 14, 2013
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SKINNER-DF7619-2-14AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SKINNER-DF7619-2-14AUG2013.jpg</a>		Aug 14, 2013
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SKINNER-DF7619-1-09APR2008.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SKINNER-DF7619-1-09APR2008.jpg</a>		Apr 9, 2008

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: SKREE

NGS Name: SKREE

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP7372](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096143/  
 USGS Quad: DOWNER

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	1	138 N	46 W	464722.20	962515.16		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2013	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 12 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

**Description:** (2013)                      **Stamping:** SKREE 2013

4.0 MILES NORTHWEST OF DOWNER, 2.6 MILES NORTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 10 IN DOWNER TO TRUNK HIGHWAY 9 MILEPOINT 157.75, THEN 4.0 MILES EAST ON 70TH AVENUE SOUTH, 41.7 FEET NORTH OF 70TH AVENUE SOUTH, 53.0 FEET WEST OF 180TH STREET SOUTH, 13.0 FEET EAST OF A FIELD ENTRANCE, 3.0 FEET WEST OF A WITNESS POST.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Orthometric Height				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference			
1069.539			982.049	.011	2011	HORIZONTAL ADJUSTMENT	2024	GPS3762			
1069.519	.131		982.199	.066	1996	GPS - STATIC	2024	HTH32			
1069.539			982.049	.011	2011	GPS - STATIC	2024	HTH32			
1069.598	.262		981.986	.197	2011	GPS - RTRN	2023	RTRN2023			
1069.673			982.049	.022	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084			
1069.630	.131		982.190	.066	1996	GPS - STATIC	2015	HCLAY			
1069.673			982.049	.022	2011	GPS - STATIC	2015	HCLAY			
1069.683	.262		982.075	.197	2011	GPS - RTRN	2013	RTRN2013			

Geoid Separations(ft): GEOID18 = -87.615    12B = -87.608    09 = -87.493    03 = -87.415

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 47 22.20274	96 25 15.15595	569947.707	158303.536	.007		ADJUSTMENT	2024	GPS3762
46 47 22.20274	96 25 15.15595	569947.707	158303.536	.007	C	GPS - STATIC	2024	HTH32
46 47 22.20252	96 25 15.15525	569947.756	158303.514	.131	3	GPS - RTRN	2023	RTRN2023
46 47 22.20274	96 25 15.15595	569947.707	158303.536	.016		ADJUSTMENT	2015	GPS3084
46 47 22.20274	96 25 15.15595	569947.707	158303.536	.016	C	GPS - STATIC	2015	HCLAY
46 47 22.20261	96 25 15.15686	569947.644	158303.523	.131	3	GPS - RTRN	2013	RTRN2013

NAD83(1996)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 47 22.20253	96 25 15.15578	569947.719	158303.515	.033	C	GPS - STATIC	2024	HTH32
46 47 22.20230	96 25 15.15674	569947.652	158303.491	.033	C	GPS - STATIC	2015	HCLAY

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		MN State Plane - Central Zone				UTM - Zone 15				Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference			
2080943.797	988092.853	783842.792	17019180.147	.007		ADJUSTMENT	2024	GPS3762			
2080943.797	988092.853	783842.792	17019180.147	.007	C	GPS - STATIC	2024	HTH32			
2080943.845	988092.830	783842.839	17019180.123	.131	3	GPS - RTRN	2023	RTRN2023			
2080943.797	988092.853	783842.792	17019180.147	.016		ADJUSTMENT	2015	GPS3084			
2080943.797	988092.853	783842.792	17019180.147	.016	C	GPS - STATIC	2015	HCLAY			
2080943.733	988092.842	783842.728	17019180.137	.131	3	GPS - RTRN	2013	RTRN2013			

NAD83(1996)		MN State Plane - Central Zone				UTM - Zone 15				Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference			
2080943.808	988092.832	783842.802	17019180.126	.033	C	GPS - STATIC	2024	HTH32			
2080943.741	988092.810	783842.734	17019180.105	.033	C	GPS - STATIC	2015	HCLAY			



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SKREE-DP7372-3N-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SKREE-DP7372-3N-18OCT2023.jpg</a>	N	Oct 18, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SKREE-DP7372-2-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SKREE-DP7372-2-18OCT2023.jpg</a>		Oct 18, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SKREE-DP7372-1-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SKREE-DP7372-1-18OCT2023.jpg</a>		Oct 18, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: SOMMERS  
 County: CLAY, MN (Sheet 1)

NGS Name: SOMMERS

NGS ACRN: [DQ2038](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	8	139 N	47 W	465234.84	963811.04	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 59 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDD

Description: (2014)                      Stamping: SOMMERS 2014

2.7 MILES EAST OF DILWORTH, 0.6 MILE EAST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND TRUNK HIGHWAY 336 (THE JUNCTION IS 2.0 MILES EAST OF DILWORTH), AT TRUNK HIGHWAY 10 MILEPOINT 6.6, 86.6 FEET SOUTH OF EASTBOUND TRUNK HIGHWAY 10, 46.5 FEET WEST OF DRIVEWAY NUMBER 158 EXTENDED, 2.6 FEET EAST OF A RIGHT-OF-WAY POST, 2.6 FEET EAST OF A WITNESS POST.

Station Pair:    MATZ - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
918.597	.016	2/1				2024	00000941-3	VERTICAL ADJUSTMENT				
918.597	.016	2/1				2023	VMOFA	VERTICAL CONTROL SURVEY				
918.597	.016	2/1				2019	00000941	VERTICAL ADJUSTMENT				

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
918.597			831.560	.019	2011	2024	GPS3715	HORIZONTAL ADJUSTMENT				
918.597			831.560	.019	2011	2024	HMOFA2	GPS - STATIC				
918.597	.131		831.665	.066	1996	2024	HMOFA2	GPS - STATIC				
918.778	.262		831.485	.197	2011	2022	RTRN2022	GPS - RTRN				
918.768	.262		831.468	.197	2011	2014	RTRN2014	GPS - RTRN				

Geoid Separations(ft): GEOID18 = -87.290    12B = -87.300    09 = -87.145    03 = -87.106

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u> <u>Reference</u>
46 52 34.83999	96 38 11.04000	515929.877	189861.103	.013		ADJUSTMENT	2024    GPS3715
46 52 34.83999	96 38 11.04000	515929.877	189861.103	.013	C	GPS - STATIC	2024    HMOFA2
46 52 34.83997	96 38 11.03958	515929.906	189861.101	.131	3	GPS - RTRN	2022    RTRN2022
46 52 34.84048	96 38 11.03979	515929.892	189861.153	.131	3	GPS - RTRN	2014    RTRN2014

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u> <u>Reference</u>
46 52 34.83982	96 38 11.04080	515929.822	189861.086	.033	C	GPS - STATIC	2024    HMOFA2

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u> <u>Reference</u>
2027933.044	1021303.977	731348.377	17053262.512	.013		ADJUSTMENT	2024    GPS3715
2027933.044	1021303.977	731348.377	17053262.512	.013	C	GPS - STATIC	2024    HMOFA2
2027933.073	1021303.974	731348.406	17053262.508	.131	3	GPS - RTRN	2022    RTRN2022
2027933.060	1021304.027	731348.394	17053262.561	.131	3	GPS - RTRN	2014    RTRN2014

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u> <u>Reference</u>
2027932.988	1021303.962	731348.321	17053262.497	.033	C	GPS - STATIC	2024    HMOFA2



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SOMMERS-DQ2038-3S-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SOMMERS-DQ2038-3S-05JUL2022.jpg</a>	S	Jul 5, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SOMMERS-DQ2038-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SOMMERS-DQ2038-2-05JUL2022.jpg</a>		Jul 5, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SOMMERS-DQ2038-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SOMMERS-DQ2038-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: SOUTHFIELD LIFT

NGS Name: SOUTHFIELD LIFT

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM7593](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	28	139 N	48 W	464949.80	964517.97	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2009	2023	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
CONCRETE FOUNDATION	SURVEY DISK	MNDT

**Description:** (2009)                      **Stamping:** SOUTHFIELD LIFT 2009

IN MOORHEAD, 1.0 MILE SOUTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND INTERSTATE HIGHWAY 94 (JUNCTION IS 2.0 MILES SOUTH OF MOORHEAD), THEN 0.5 MILE EAST ON 40TH AVENUE, THEN 0.2 MILE SOUTH ON 14TH STREET, THEN 0.12 MILE EAST ON A PAVED WALKING PATH TO A LIFT STATION, 39.7 FEET EAST OF AN ELECTRIC PEDESTAL, 26.9 FEET NORTHWEST OF AN ANTENNA POLE, 1.7 FEET SOUTH OF A RAILING.

**Station Notes**

THE MARK IS A DISK SET FLUSH NEAR THE NORTHWEST CORNER OF A LIFT STATION.

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88			Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
910.425	.016	2/1				VERTICAL ADJUSTMENT	2024	0000941-3
910.425	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA
910.405	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941
910.651	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699
910.645	.016	2/1				VERTICAL CONTROL SURVEY	2010	VCOMS

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
910.425			823.558	.021	2011	HORIZONTAL ADJUSTMENT	2024	GPS3715
910.425			823.558	.021	2011	GPS - STATIC	2024	HMOFA2
910.425	.131		823.666	.066	1996	GPS - STATIC	2024	HMOFA2
910.608	.262		823.466	.197	2011	GPS - RTRN	2022	RTRN2022

Geoid Separations(ft): GEOID18 = -87.142    12B = -87.172    09 = -87.057    03 = -86.929

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 49 49.79788	96 45 17.96659	486257.028	173137.954	.013		ADJUSTMENT	2024	GPS3715
46 49 49.79788	96 45 17.96659	486257.028	173137.954	.013	C	GPS - STATIC	2024	HMOFA2
46 49 49.79712	96 45 17.96601	486257.069	173137.877	.131	3	GPS - RTRN	2022	RTRN2022

NAD83(1996)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 49 49.79772	96 45 17.96740	486256.972	173137.938	.033	C	GPS - STATIC	2024	HMOFA2

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1997759.661	1005507.855	700904.215	17037948.289	.013		ADJUSTMENT	2024	GPS3715
1997759.661	1005507.855	700904.215	17037948.289	.013	C	GPS - STATIC	2024	HMOFA2
1997759.699	1005507.777	700904.251	17037948.210	.131	3	GPS - RTRN	2022	RTRN2022

NAD83(1996)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1997759.605	1005507.841	700904.158	17037948.276	.033	C	GPS - STATIC	2024	HMOFA2



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SOUTHFIELD_LIFT-DM7593-3E-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SOUTHFIELD_LIFT-DM7593-3E-15JUN2022.jpg</a>	E	Jun 15, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SOUTHFIELD_LIFT-DM7593-2-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SOUTHFIELD_LIFT-DM7593-2-15JUN2022.jpg</a>		Jun 15, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SOUTHFIELD_LIFT-DM7593-1-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SOUTHFIELD_LIFT-DM7593-1-15JUN2022.jpg</a>		Jun 15, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: SPRING

NGS Name: SPRING

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP7373](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SW	31	141 N	46 W	465838.24	963310.47		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2013	2013	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 89 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

**Description:** (2013)                      **Stamping:** SPRING 2013

7.5 MILES NORTH OF GLYNDON, 6.7 MILES NORTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND TRUNK HIGHWAY 10 (THE JUNCTION IS 3.5 MILES EAST OF GLYNDON), TO TRUNK HIGHWAY 9 MILEPOST 170.7, THEN 2.4 MILES WEST ON COUNTY ROAD 26, 41.2 FEET NORTH OF COUNTY ROAD 26, 16.0 FEET WEST OF A FIELD ENTRANCE, 3.0 FEET SOUTHEAST OF A WITNESS POST.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>				<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>			
915.864			828.712	.022	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084			
915.822	.131		828.850	.066	1996	GPS - STATIC	2015	HCLAY			
915.864			828.712	.022	2011	GPS - STATIC	2015	HCLAY			
915.809	.262		828.679	.197	2011	GPS - RTRN	2013	RTRN2013			

**Geoid Separations(ft):** GEOID18 = -87.113    12B = -87.129    09 = -86.968    03 = -86.942

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>				<u>Clay County</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
46 58 38.24308	96 33 10.47338	536742.985	226708.397	.013		ADJUSTMENT	2015	GPS3084		
46 58 38.24308	96 33 10.47338	536742.985	226708.397	.013	C	GPS - STATIC	2015	HCLAY		
46 58 38.24395	96 33 10.47421	536742.927	226708.486	.131	3	GPS - RTRN	2013	RTRN2013		

<u>NAD83(1996)</u>		<u>Geodetic Position</u>				<u>Clay County</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
46 58 38.24262	96 33 10.47421	536742.928	226708.351	.033	C	GPS - STATIC	2015	HCLAY		

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
2049874.720	1057487.102	753887.567	17089103.731	.013		ADJUSTMENT	2015	GPS3084		
2049874.720	1057487.102	753887.567	17089103.731	.013	C	GPS - STATIC	2015	HCLAY		
2049874.665	1057487.192	753887.514	17089103.821	.131	3	GPS - RTRN	2013	RTRN2013		

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
2049874.661	1057487.057	753887.507	17089103.687	.033	C	GPS - STATIC	2015	HCLAY		

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SPRING-DP7373-3W-21AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SPRING-DP7373-3W-21AUG2013.jpg</a>	W	Aug 21, 2013
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SPRING-DP7373-2-21AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SPRING-DP7373-2-21AUG2013.jpg</a>		Aug 21, 2013
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SPRING-DP7373-1-21AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SPRING-DP7373-1-21AUG2013.jpg</a>		Aug 21, 2013

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: STA 1

NGS Name: STA 1

County: CLAY, MN (Sheet 1)

NGS ACRN: [SL1480](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096232/  
 USGS Quad: ULEN

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SE	24	141 N	45 W	470035.01	961948.50		3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1963	1963	GOOD	Horz=? Vert=?	YES			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	UNMONUMENTED	USGS

**Description:**

**Stamping:**

3.67 MILES NORTHWEST OF HITTERDAL, 2.93 MILES WEST ON COUNTY ROAD 26 (FRONT STREET) TO THE JUNCTION OF COUNTY ROAD 33, THEN 2.0 MILES NORTH ON COUNTY ROAD 33 (230TH STREET NORTH), THEN 0.16 MILE WEST ON 110TH AVENUE NORTH.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1192.255	.262		1104.955	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -87.762 12B = -87.752 09 = -87.647 03 = -87.615

**Lat/Lon and County Coordinates (Feet)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 00 35.01214	96 19 48.50246	592300.231	238722.747	.131	3	ADJUSTMENT	1999	17648
47 00 35.01201	96 19 48.50132	592300.310	238722.734	.131	3	ADJUSTMENT	1998	17655

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 00 35.01199	96 19 48.49663	592300.635	238722.734	.131	3	ADJUSTMENT	1986	17289

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
47 00 35.15050	96 19 47.24986			.100	3	CLASSICAL SURVEY	1980	16196

**State Plane and UTM Coordinates (Feet)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2105773.854	1067774.818	809972.212	17098484.315	.131	3	ADJUSTMENT	1999	17648
2105773.933	1067774.803	809972.290	17098484.299	.131	3	ADJUSTMENT	1998	17655

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2105774.258	1067774.793	809972.615	17098484.283	.131	3	ADJUSTMENT	1986	17289

<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1481178.339	739698.992			.100	3	CLASSICAL SURVEY	1980	16196



Mn/DOT Name: STA 2

NGS Name: STA 2

County: CLAY, MN (Sheet 1)

NGS ACRN: [SL1479](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096232/  
 USGS Quad: ULEN

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	29	141 N	44 W	470013.86	961705.99		3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1963	2014	GOOD	Horz=NO Vert=NO	YES			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	UNMONUMENTED	USGS

**Description:**

**Stamping:**

2.06 MILES NORTH-NORTHWEST OF HITTERDAL, 0.76 MILE NORTH ON TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND COUNTY ROAD 26 IN HITTERDAL, THEN 1.93 MILES WEST AND NORTH ON A LOCAL ROAD.

**Station Notes**

THE SURVEY MARK IS ON RAILROAD PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1218.830	.262		1131.454	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -87.818 12B = -87.825 09 = -87.707 03 = -87.661

**Lat/Lon and County Coordinates (Feet)**

**NAD83(1996)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 00 13.85617	96 17 05.98937	603574.317	236635.667	.131	3	ADJUSTMENT	1999	17648
47 00 13.85605	96 17 05.98798	603574.413	236635.656	.131	3	ADJUSTMENT	1998	17655

**NAD83(1986)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 00 13.85606	96 17 05.98363	603574.715	236635.658	.131	3	ADJUSTMENT	1986	17289

**NAD27**

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
47 00 13.99494	96 17 04.73855			.100	3	CLASSICAL SURVEY	1980	16196

**State Plane and UTM Coordinates (Feet)**

**NAD83(1996)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2116977.131	1065339.598	821138.701	17095866.156	.131	3	ADJUSTMENT	1999	17648
2116977.227	1065339.584	821138.797	17095866.139	.131	3	ADJUSTMENT	1998	17655

**NAD83(1986)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2116977.529	1065339.577	821139.098	17095866.128	.131	3	ADJUSTMENT	1986	17289

**NAD27**

<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1492381.843	737263.866			.100	3	CLASSICAL SURVEY	1980	16196



Mn/DOT Name: STA 220+60

NGS Name: STA 220+60

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096141/  
 USGS Quad: HAWLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	20	140 N	44 W	465606.80	961534.80		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1949	2014	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

Description: (1949)                      Stamping:

2.9 MILES SOUTH OF HITTERDAL, 2.9 MILES SOUTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND COUNTY ROAD 26 IN HITTERDAL, 51.0 FEET SOUTH AND 73.0 FEET WEST OF THE CROSSROADS.

Station Notes

SAME AS 1403 AA

**Leveling-Derived Orthometric Heights (Feet)**

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1231.562	.033	3				VERTICAL CONTROL SURVEY	1965	USGS-VERT	
1231.461	.033	3				VERTICAL CONTROL SURVEY	1953	CS1403	

Geoid Separations(ft): GEOID18 = -87.933    12B = -87.916    09 = -87.812    03 = -87.749

\* No Horizontal Positions in the Database \*



Mn/DOT Name: STA 326+68

NGS Name: STA 326+68

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096142/  
 USGS Quad: HAWLEY SE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	9	138 N	44 W	464726.00	961536.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1952	2014	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

Description: (1952)

Stamping:

6.8 MILES SOUTH-SOUTHEAST OF HAWLEY, 6.0 MILES SOUTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND TRUNK HIGHWAY 32 (THE JUNCTION IS 3.0 MILES EAST OF HAWLEY), 72.0 FEET EAST OF TRUNK HIGHWAY 32, AT TRUNK HIGHWAY 32 STATION 326+68.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1312.829	.033	3				VERTICAL CONTROL SURVEY	1952	CS1402	

Geoid Separations(ft): GEOID18 = -87.464 12B = -87.441 09 = -87.333 03 = -87.290

\* No Horizontal Positions in the Database \*



Mn/DOT Name: STA 367+30

NGS Name: STA 367+30

County: CLAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096141/  
 USGS Quad: HAWLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	5	140 N	44 W	465832.00	961533.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1949	2014	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MNDT

Description: (1953)                      Stamping:

AT THE SOUTH EDGE OF HITTERDAL, 0.1 MILE SOUTH ALONG 260TH STREET NORTH FROM THE JUNCTION OF 260TH STREET NORTH AND FRONT STREET IN HITTERDAL, 51.0 FEET WEST OF TRUNK HIGHWAY 32, AT TRUNK HIGHWAY 32 STATION 367+30.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1251.608	.033	3				VERTICAL CONTROL SURVEY	1953	CS1403	

Geoid Separations(ft): GEOID18 = -87.900    12B = -87.903    09 = -87.785    03 = -87.720

\* No Horizontal Positions in the Database \*



Mn/DOT Name: STA 6

NGS Name: STA 6

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0913](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096124/  
 USGS Quad: ROLLAG

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	11	137 N	44 W	464145.18	961202.69		3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1963	1963	GOOD	Horz=? Vert=?	YES			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	UNMONUMENTED	USGS

**Description:**

**Stamping:**

10.73 MILES EAST-NORTHEAST OF BARNESVILLE, 8.74 MILES EAST ON TRUNK HIGHWAY 34 FROM THE JUNCTION OF TRUNK HIGHWAY 34 AND TRUNK HIGHWAY 9 IN BARNESVILLE, THEN 1.0 MILE NORTH ON TRUNK HIGHWAY 32, THEN 1.0 MILE EAST ON A LOCAL ROAD, THEN 1.32 MILES NORTH ON COUNTY ROAD 125 (280TH STREET SOUTH), THEN 0.73 MILE EAST ON 135TH AVENUE SOUTH.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>						<u>Project Info</u>	
<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Year</u>	<u>Reference</u>
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		
1513.120	.262		1426.231	.197	1996	1999	17648

Geoid Separations(ft): GEOID18 = -87.205 12B = -87.168 09 = -87.077 03 = -87.014

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>
46 41 45.17871	96 12 02.69067	625310.375	124431.130	.131	3	1999	17648
46 41 45.17791	96 12 02.69040	625310.394	124431.049	.131	3	1998	17655

  

<u>NAD83(1986)</u>		<u>Clay County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>
46 41 45.17760	96 12 02.68350	625310.875	124431.021	.131	3	1986	17289

  

<u>NAD27</u>						<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>
46 41 45.32591	96 12 01.46347			.100	3	1980	16196

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>
		837568.702	16982729.200	.131	3	1999	17648
		837568.718	16982729.118	.131	3	1998	17655

  

<u>NAD83(1986)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>
		837569.198	16982729.067	.131	3	1986	17289

  

<u>NAD27</u>						<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>
				.100	3	1980	16196



Mn/DOT Name: STA FOUR  
County: CLAY, MN (Sheet 1)

NGS Name: STA FOUR

NGS ACRN: [RP0933](#) [Get Map](#)  
NGS Quad / Sta Num : 46096134/  
USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	33	138 N	46 W	464303.10	962849.88		3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1961	1961	GOOD	Horz=? Vert=?	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	UNMONUMENTED	USGS

**Description:**

**Stamping:**

5.4 MILES NORTH-NORTHWEST OF BARNESVILLE, 0.5 MILE NORTH ALONG FRONT STREET SOUTH FROM THE JUNCTION OF FRONT STREET SOUTH AND 2ND AVENUE SOUTHEAST IN BARNESVILLE, THEN 4.6 MILES NORTH-NORTHWEST ALONG TRUNK HIGHWAY 9 NORTH, THEN 1.1 MILES WEST ALONG COUNTY ROAD 126 (120TH AVENUE SOUTH).

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>		<u>Year</u>	<u>Reference</u>	
938.318	.262		851.580	.197	1996	HORIZONTAL ADJUSTMENT		1999	17648	

Geoid Separations(ft): GEOID18 = -87.185 12B = -87.175 09 = -87.067 03 = -87.021

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
46 43 03.09694	96 28 49.88014	555078.742	132004.875	.131	3	ADJUSTMENT	1999	17648	
46 43 03.09700	96 28 49.88017	555078.740	132004.881	.131	3	ADJUSTMENT	1998	17655	

<u>NAD83(1986)</u>		<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
46 43 03.09588	96 28 49.87159	555079.338	132004.769	.131	3	ADJUSTMENT	1986	17289	

<u>NAD27</u>		<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>								<u>Year</u>	<u>Reference</u>
46 43 03.23525	96 28 48.62349					.100	3	CLASSICAL SURVEY	1980	16196

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2065269.608	962269.587	767746.528	16993599.813	.131	3	ADJUSTMENT	1999	17648
2065269.607	962269.593	767746.526	16993599.819	.131	3	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2065270.201	962269.462	767747.119	16993599.679	.131	3	ADJUSTMENT	1986	17289

<u>NAD27</u>		<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>								<u>Year</u>	<u>Reference</u>
1440673.722	634194.063					.100	3	CLASSICAL SURVEY	1980	16196



Mn/DOT Name: STA THREE

NGS Name: STA THREE

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP1074](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096421/  
 USGS Quad: BAKER

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SW	21	138 N	46 W	464449.15	963015.93		3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1961	1961	GOOD	Horz=? Vert=?	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	UNMONUMENTED	USGS

**Description:**

**Stamping:**

3.2 MILES NORTHEAST OF BAKER, 0.2 MILE NORTH ALONG 123RD AVENUE SOUTH/MAIN AVENUE FROM THE JUNCTION OF 123RD AVENUE SOUTH/MAIN AVENUE AND 118TH STREET SOUTH IN BAKER, THEN 2.1 MILES NORTH ALONG 120TH STREET SOUTH, THEN 1.0 MILE WEST ALONG COUNTY ROAD 64 (100TH AVENUE SOUTH), THEN 0.6 MILE NORTH ALONG 130TH STREET SOUTH, THEN 1.0 MILE EAST ALONG 90TH AVENUE SOUTH, THEN 0.5 MILE SOUTH ALONG 140TH STREET SOUTH.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
931.757	.262		844.870	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -87.382 12B = -87.349 09 = -87.247 03 = -87.218

**Lat/Lon and County Coordinates (Feet)**

**NAD83(1996)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 44 49.14730	96 30 15.92552	549056.338	142733.507	.131	3	ADJUSTMENT	1999	17648
46 44 49.14754	96 30 15.92569	549056.326	142733.531	.131	3	ADJUSTMENT	1998	17655

**NAD83(1986)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 44 49.14646	96 30 15.91690	549056.938	142733.423	.131	3	ADJUSTMENT	1986	17289

**NAD27**

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
46 44 49.28562	96 30 14.66587			.100	3	CLASSICAL SURVEY	1980	16196

**State Plane and UTM Coordinates (Feet)**

**NAD83(1996)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2059582.666	973178.326	762233.016	17004604.508	.131	3	ADJUSTMENT	1999	17648
2059582.655	973178.351	762233.005	17004604.533	.131	3	ADJUSTMENT	1998	17655

**NAD83(1986)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2059583.264	973178.224	762233.612	17004604.396	.131	3	ADJUSTMENT	1986	17289

**NAD27**

<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1434986.759	645102.728			.100	3	CLASSICAL SURVEY	1980	16196



Mn/DOT Name: STA TWO  
 County: CLAY, MN (Sheet 1)

NGS Name: STA TWO

NGS ACRN: [RP0934](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	4	137 N	46 W	464302.99	962850.08		3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1961	1961	GOOD	Horz=? Vert=?	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	UNMONUMENTED	USGS

**Description:** 5.3 MILES NORTH-NORTHWEST OF BARNESVILLE, 0.5 MILE NORTH ALONG FRONT STREET SOUTH FROM THE JUNCTION OF FRONT STREET SOUTH AND 2ND AVENUE SOUTHEAST IN BARNESVILLE, THEN 4.6 MILES NORTH-NORTHWEST ALONG TRUNK HIGHWAY 9 NORTH, THEN 1.1 MILES WEST ALONG COUNTY ROAD 126 (120TH AVENUE SOUTH).  
**Stamping:**

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
941.599	.262		854.864	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -87.185 12B = -87.175 09 = -87.067 03 = -87.021

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 43 02.98916	96 28 50.08147	555064.744	131993.916	.131	3	ADJUSTMENT	1999	17648
46 43 02.98922	96 28 50.08150	555064.742	131993.922	.131	3	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 43 02.98808	96 28 50.07292	555065.340	131993.809	.131	3	ADJUSTMENT	1986	17289

<u>NAD27</u>						<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 43 03.12743	96 28 48.82480			.100	3	CLASSICAL SURVEY	1980	16196

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>

<u>NAD83(1986)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>

<u>NAD27</u>						<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>



Mn/DOT Name: STAKKE MNDT

NGS Name: STAKKE

County: CLAY, MN (Sheet 1)

NGS ACRN: [AB9915](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096113/  
 USGS Quad: LAKE PARK SW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	24	139 N	44 W	465009.05	961110.83	2	B

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1994	2022	GOOD	Horz=YES Vert=YES	YES		RECESSED 4 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STEEL ROD (IN SLEEVE) (DEPTH 20 FT)	METAL ROD	MNDT

**Description:** (2008)                      **Stamping:** STAKKE 1994

7.0 MILES SOUTHEAST OF HAWLEY, 3.75 MILES EAST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND TRUNK HIGHWAY 10, (THE JUNCTION IS 3.0 MILES EAST OF HAWLEY) TO TRUNK HIGHWAY 10 MILEPOINT 28.2, THEN 2.9 MILES SOUTH ON COUNTY ROAD 118 (287TH STREET SOUTHEAST), 25.0 FEET EAST OF COUNTY ROAD 118, 15.5 FEET NORTH OF FIELD ENTRANCE NUMBER 3670, 1.0 FOOT NORTH OF A WITNESS POST.

**Station Notes**

STAMPING ON THE ACCESS COVER. THE FIELD CREW REPLACED THE MARK WITH 1401 AR 1 FOR THE HCBN OBSERVATIONS WHEN THEY COULD NOT FIND STAKKE MNDT. THE MARK WAS LATER FOUND BUT NOT USED IN THE HCBN OBSERVATION. THIS IS STILL A HARN STATION.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order/(Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1432.041	.016	2/1				VERTICAL ADJUSTMENT	2024	00000941-3	
1432.038	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA	
1432.143	.016	2/1				VERTICAL ADJUSTMENT	2006	00000425-10	
1432.143	.016	2/1				VERTICAL CONTROL SURVEY	2005	VSTAK	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order/(Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1432.143			1344.646	.009	2011	HORIZONTAL ADJUSTMENT	2019	GPS3292	
1432.143	.131		1344.787	.066	1996	GPS - STATIC	2019	HBCKR	
1432.143			1344.646	.009	2011	GPS - STATIC	2019	HBCKR	
1432.143			1344.646	.009	2011	HORIZONTAL ADJUSTMENT	2018	GPS3119	
1432.143	.131		1344.787	.066	1996	GPS - STATIC	2017	HMNCORS07	
1432.143			1344.646	.009	2011	GPS - STATIC	2017	HMNPH	
1432.028	.262		1344.518	.197	2011	GPS - RTRN	2015	RTRN2015	
1432.143			1344.646	.008	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084	
1432.143	.131		1344.787	.066	1996	GPS - STATIC	2015	HCLAY	
1432.143			1344.646	.009	2011	HORIZONTAL ADJUSTMENT	2015	GPS3080	
1432.143			1344.643	.008	2011	GPS - STATIC	2015	HCLAY	
1432.143	.131		1344.787	.066	1996	GPS - STATIC	2015	HWILK	
1432.143			1344.643	.009	2011	GPS - STATIC	2015	HWILK	
1432.143			1344.646	.008	2011	HORIZONTAL ADJUSTMENT	2014	GPS2750	
1432.143			1344.640	.008	2011	GPS - STATIC	2014	HBARN	
			1344.646	.008	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
1432.149	.131		1344.748	.066	2007	GPS - STATIC	2010	HBARN	
1432.143	.131		1344.787	.066	1996	GPS - STATIC	2010	HBARN	
			1344.748	.009	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300	
1432.117	.098		1344.787	.049	1996	GPS - STATIC	2005	GPS2036	
1432.149	.131		1344.787	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1887	
1432.149	.131		1344.787	.066	1996	GPS - STATIC	2003	HDET2	
1432.084	.098		1344.787	.049	1996	GPS - STATIC	1997	GPS805-B	
1432.084	.131		1344.787	.066	1996	GPS - STATIC	1997	GPS805-C	

Geoid Separations(ft): GEOID18 = -87.533    12B = -87.510    09 = -87.405    03 = -87.355



Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Clay County		Acc	Order	Determination Method	Project Info	
Latitude	Longitude	X	Y				Year	Reference
46 50 09.05297	96 11 10.83002	628592.051	175504.358	.007		ADJUSTMENT	2019	GPS3292
46 50 09.05297	96 11 10.83002	628592.051	175504.358	.007	C	GPS - STATIC	2019	HBCKR
46 50 09.05297	96 11 10.83002	628592.051	175504.358	.007		ADJUSTMENT	2018	GPS3119
46 50 09.05297	96 11 10.83002	628592.051	175504.358	.007	C	GPS - STATIC	2017	HMNPH
46 50 09.05335	96 11 10.83042	628592.023	175504.397	.131	3	GPS - RTRN	2015	RTRN2015
46 50 09.05297	96 11 10.83002	628592.051	175504.358	.007		ADJUSTMENT	2015	GPS3084
46 50 09.05297	96 11 10.83002	628592.051	175504.358	.007		ADJUSTMENT	2015	GPS3080
46 50 09.05295	96 11 10.83003	628592.051	175504.356	.007	C	GPS - STATIC	2015	HCLAY
46 50 09.05298	96 11 10.82999	628592.053	175504.360	.007	C	GPS - STATIC	2015	HWILK
46 50 09.05297	96 11 10.83002	628592.051	175504.358	.007		ADJUSTMENT	2014	GPS2750
46 50 09.05300	96 11 10.83002	628592.051	175504.362	.007	C	GPS - STATIC	2014	HBARN
46 50 09.05297	96 11 10.83002	628592.051	175504.358	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Clay County		Acc	Order	Determination Method	Project Info	
Latitude	Longitude	X	Y				Year	Reference
46 50 09.05286	96 11 10.83085	628591.993	175504.347	.033	C	GPS - STATIC	2010	HBARN
46 50 09.05286	96 11 10.83085	628591.993	175504.347	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Clay County		Acc	Order	Determination Method	Project Info	
Latitude	Longitude	X	Y				Year	Reference
46 50 09.05234	96 11 10.83050	628592.018	175504.294	.033	C	GPS - STATIC	2019	HBCKR
46 50 09.05234	96 11 10.83050	628592.018	175504.294	.033	C	GPS - STATIC	2017	HMNCORS07
46 50 09.05234	96 11 10.83050	628592.018	175504.294	.033	C	GPS - STATIC	2015	HCLAY
46 50 09.05234	96 11 10.83050	628592.018	175504.294	.033	C	GPS - STATIC	2015	HWILK
46 50 09.05234	96 11 10.83050	628592.018	175504.294	.033	C	GPS - STATIC	2010	HBARN
46 50 09.05234	96 11 10.83050	628592.018	175504.294	.016	B	GPS - STATIC	2005	GPS2036
46 50 09.05234	96 11 10.83050	628592.018	175504.294	.033	C	ADJUSTMENT	2003	GPS1887
46 50 09.05234	96 11 10.83050	628592.018	175504.294	.033	C	GPS - STATIC	2003	HDET2
46 50 09.05234	96 11 10.83050	628592.018	175504.294	.016	B	GPS - STATIC	1997	GPS805-B
46 50 09.05234	96 11 10.83050	628592.018	175504.294	.033	C	GPS - STATIC	1997	GPS805-C

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15						Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
2140086.761	1003467.823	843251.310	17033605.047	.007		ADJUSTMENT	2019	GPS3292	
2140086.761	1003467.823	843251.310	17033605.047	.007	C	GPS - STATIC	2019	HBCKR	
2140086.761	1003467.823	843251.310	17033605.047	.007		ADJUSTMENT	2018	GPS3119	
2140086.761	1003467.823	843251.310	17033605.047	.007	C	GPS - STATIC	2017	HMNPH	
2140086.734	1003467.862	843251.283	17033605.086	.131	3	GPS - RTRN	2015	RTRN2015	
2140086.761	1003467.823	843251.310	17033605.047	.007		ADJUSTMENT	2015	GPS3084	
2140086.761	1003467.823	843251.310	17033605.047	.007		ADJUSTMENT	2015	GPS3080	
2140086.760	1003467.821	843251.309	17033605.045	.007	C	GPS - STATIC	2015	HCLAY	
2140086.763	1003467.824	843251.312	17033605.048	.007	C	GPS - STATIC	2015	HWILK	
2140086.761	1003467.823	843251.310	17033605.047	.007		ADJUSTMENT	2014	GPS2750	
2140086.761	1003467.826	843251.310	17033605.050	.007	C	GPS - STATIC	2014	HBARN	
2140086.761	1003467.823	843251.310	17033605.047	.007		ADJUSTMENT	2012	GPS2800	

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15						Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
2140086.703	1003467.813	843251.251	17033605.038	.033	C	GPS - STATIC	2010	HBARN	
2140086.703	1003467.813	843251.251	17033605.038	.007		ADJUSTMENT	2007	GPS2300	

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15						Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
2140086.726	1003467.760	843251.273	17033604.984	.033	C	GPS - STATIC	2019	HBCKR	
2140086.726	1003467.760	843251.273	17033604.984	.033	C	GPS - STATIC	2017	HMNCORS07	
2140086.726	1003467.760	843251.273	17033604.984	.033	C	GPS - STATIC	2015	HCLAY	
2140086.726	1003467.760	843251.273	17033604.984	.033	C	GPS - STATIC	2015	HWILK	
2140086.726	1003467.760	843251.273	17033604.984	.033	C	GPS - STATIC	2010	HBARN	
2140086.726	1003467.760	843251.273	17033604.984	.016	B	GPS - STATIC	2005	GPS2036	
2140086.726	1003467.760	843251.273	17033604.984	.033	C	ADJUSTMENT	2003	GPS1887	
2140086.726	1003467.760	843251.273	17033604.984	.033	C	GPS - STATIC	2003	HDET2	
2140086.726	1003467.760	843251.273	17033604.984	.016	B	GPS - STATIC	1997	GPS805-B	
2140086.726	1003467.760	843251.273	17033604.984	.033	C	GPS - STATIC	1997	GPS805-C	

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/STAKKE-AB9915-3E-30JUN2010.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/STAKKE-AB9915-3E-30JUN2010.jpg</a>	E	Jun 30, 2010
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/STAKKE-AB9915-2-30JUN2010.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/STAKKE-AB9915-2-30JUN2010.jpg</a>		Jun 30, 2010
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/STAKKE-AB9915-1-30JUN2010.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/STAKKE-AB9915-1-30JUN2010.jpg</a>		Jun 30, 2010

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: STAR

NGS Name: STAR

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM1838](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096431/  
 USGS Quad: HICKSON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	5	137 N	48 W	464300.32	964530.44	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2009	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 30 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2009)                      Stamping: STAR 2009

4.0 MILES NORTH OF COMSTOCK, 4.0 MILES NORTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND COUNTY ROAD 2 (THE JUNCTION IS 0.5 MILE WEST OF COMSTOCK), AT TRUNK HIGHWAY 75 MILEPOINT 239.20, 113.0 FEET WEST OF TRUNK HIGHWAY 75, 29.6 FEET SOUTH OF 120TH AVENUE SOUTH, 14.0 FEET EAST OF A POWER POLE WITH A GUY WIRE, 2.4 FEET SOUTH OF A WITNESS POST.

Station Pair: LITE - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
914.299	.016	2/1				VERTICAL ADJUSTMENT		2019	00000941
914.529	.016	2/1				VERTICAL ADJUSTMENT		2011	00000699
914.536	.016	2/1				VERTICAL CONTROL SURVEY		2010	VCOMS

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>
914.299			827.580	.022	2011	HORIZONTAL ADJUSTMENT		2025	GPS3838
914.299			827.580	.022	2011	GPS - STATIC		2024	HENLOE
914.299			827.600	.010	2011	HORIZONTAL ADJUSTMENT		2024	GPS3715
914.299			827.600	.010	2011	GPS - STATIC		2024	HMOFA2
914.299	.131		827.662	.066	1996	GPS - STATIC		2024	HMOFA2
914.454	.262		827.531	.197	2011	GPS - RTRN		2022	RTRN2022
914.529			827.600	.009	2011	HORIZONTAL ADJUSTMENT		2015	GPS3084
914.529	.131		827.662	.066	1996	GPS - STATIC		2015	HCLAY
914.529			827.607	.009	2011	GPS - STATIC		2015	HCLAY
			827.600	.009	2011	HORIZONTAL ADJUSTMENT		2012	GPS2800
914.532	.131		827.587	.066	2007	HORIZONTAL ADJUSTMENT		2011	GPS2690
914.532	.131		827.662	.066	1996	GPS - STATIC		2010	HCOMS
914.532	.131		827.587	.066	2007	GPS - STATIC		2010	HCOMS

Geoid Separations(ft): GEOID18 = -86.922    12B = -86.916    09 = -86.867    03 = -86.771

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 43 00.32400	96 45 30.44467	485358.522	131652.617	.016		ADJUSTMENT	2025	GPS3838
46 43 00.32400	96 45 30.44467	485358.522	131652.617	.016	C	GPS - STATIC	2024	HENLOE
46 43 00.32438	96 45 30.44397	485358.571	131652.656	.007		ADJUSTMENT	2024	GPS3715
46 43 00.32438	96 45 30.44397	485358.571	131652.656	.007	C	GPS - STATIC	2024	HMOFA2
46 43 00.32311	96 45 30.44372	485358.589	131652.527	.131	3	GPS - RTRN	2022	RTRN2022
46 43 00.32438	96 45 30.44397	485358.571	131652.656	.007		ADJUSTMENT	2015	GPS3084
46 43 00.32438	96 45 30.44403	485358.567	131652.656	.007	C	GPS - STATIC	2015	HCLAY
46 43 00.32438	96 45 30.44397	485358.571	131652.656	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 43 00.32469	96 45 30.44502	485358.498	131652.687	.033	C	ADJUSTMENT	2011	GPS2690
46 43 00.32469	96 45 30.44502	485358.498	131652.687	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 43 00.32373	96 45 30.44558	485358.459	131652.590	.066		NCAT	2024	HENLOE
46 43 00.32428	96 45 30.44489	485358.507	131652.645	.033	C	GPS - STATIC	2024	HMOFA2
46 43 00.32428	96 45 30.44489	485358.507	131652.645	.033	C	GPS - STATIC	2015	HCLAY
46 43 00.32428	96 45 30.44489	485358.507	131652.645	.033	C	GPS - STATIC	2010	HCOMS

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1995578.966	964074.039	698052.402	16996527.814	.016		ADJUSTMENT	2025	GPS3838
1995578.966	964074.039	698052.402	16996527.814	.016	C	GPS - STATIC	2024	HENLOE
1995579.016	964074.075	698052.453	16996527.850	.007		ADJUSTMENT	2024	GPS3715
1995579.016	964074.075	698052.453	16996527.850	.007	C	GPS - STATIC	2024	HMOFA2
1995579.029	964073.946	698052.464	16996527.721	.131	3	GPS - RTRN	2022	RTRN2022
1995579.016	964074.075	698052.453	16996527.850	.007		ADJUSTMENT	2015	GPS3084
1995579.012	964074.075	698052.448	16996527.851	.007	C	GPS - STATIC	2015	HCLAY
1995579.016	964074.075	698052.453	16996527.850	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1995578.944	964074.109	698052.381	16996527.885	.033	C	ADJUSTMENT	2011	GPS2690
1995578.944	964074.109	698052.381	16996527.885	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1995578.902	964074.013	698052.337	16996527.790	.066		NCAT	2024	HENLOE
1995578.951	964074.067	698052.388	16996527.843	.033	C	GPS - STATIC	2024	HMOFA2
1995578.951	964074.067	698052.388	16996527.843	.033	C	GPS - STATIC	2015	HCLAY
1995578.951	964074.067	698052.388	16996527.843	.033	C	GPS - STATIC	2010	HCOMS

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/STAR-DM1838-3S-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/STAR-DM1838-3S-15JUN2022.jpg</a>	S	Jun 15, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/STAR-DM1838-2-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/STAR-DM1838-2-15JUN2022.jpg</a>		Jun 15, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/STAR-DM1838-1-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/STAR-DM1838-1-15JUN2022.jpg</a>		Jun 15, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: STATION 3

NGS Name: STATION 3

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0897](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096114/  
 USGS Quad: DALE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	36	141 N	44 W	465930.63	961228.56		3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1963	1963	GOOD	Horz=? Vert=?	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	UNMONUMENTED	USGS

**Description:**

**Stamping:**

2.6 MILES NORTHEAST OF HITTERDAL, 0.5 MILE EAST OF FRONT STREET FROM THE JUNCTION OF FRONT STREET AND 260TH STREET NORTH IN HITTERDAL, THEN 1.6 MILES EAST ALONG 90TH AVENUE NORTH, 1.0 MILE NORTH ALONG 280TH STREET NORTH, THEN 0.3 MILE EAST ALONG 100TH AVENUE NORTH.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1199.473	.262		1111.940	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -87.972 12B = -87.956 09 = -87.857 03 = -87.789

**Lat/Lon and County Coordinates (Feet)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 59 30.63469	96 12 28.55937	622830.796	232367.838	.131	3	ADJUSTMENT	1999	17648
46 59 30.63455	96 12 28.55692	622830.966	232367.825	.131	3	ADJUSTMENT	1998	17655

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 59 30.63458	96 12 28.55327	622831.220	232367.830	.131	3	ADJUSTMENT	1986	17289

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
46 59 30.77523	96 12 27.31634			.100	3	CLASSICAL SURVEY	1980	16196

**State Plane and UTM Coordinates (Feet)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2136090.744	1060477.398	840177.616	17090692.104	.131	3	ADJUSTMENT	1999	17648
2136090.913	1060477.380	840177.786	17090692.083	.131	3	ADJUSTMENT	1998	17655

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2136091.166	1060477.376	840178.038	17090692.075	.131	3	ADJUSTMENT	1986	17289

<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1511495.521	732401.945			.100	3	CLASSICAL SURVEY	1980	16196



Mn/DOT Name: STO 2

NGS Name: STO 2

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0093](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/1034  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	18	137 N	45 W	464108.32	962510.69		3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1970	2010	NOT FOUND	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	BENCH MARK DISK	MNDT

**Description:** (1970) **Stamping:** STO 2 1970

2.25 MILES NORTH OF BARNESVILLE, 0.5 MILE NORTH ALONG FRONT STREET SOUTH FROM THE JUNCTION OF FRONT STREET SOUTH AND 2ND AVENUE SOUTHEAST IN BARNESVILLE, 1.8 MILES NORTH ALONG TRUNK HIGHWAY 9 NORTH, 2.15 MILES NORTH OF A CATHOLIC CHURCH, 155.0 FEET EAST OF TRUNK HIGHWAY 9, 118.5 FEET SOUTH-SOUTHWEST OF THE NORTHWEST CORNER OF A GARAGE, 62.0 FEET WEST-SOUTHWEST OF THE SOUTHWEST CORNER OF A HOUSE, 117.88 FEET EAST OF STO MNDT RM 2, 141.40 FEET SOUTHEAST OF STO 2 RM 3.

**Station Notes**

THE SURVEY MARK IS ON PRIVATE PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE. THE OWNER DOESN'T WANT THE MARK DUG UP (2014).

**Leveling-Derived Orthometric Heights (Feet)**

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1013.144	.016	2				VERTICAL CONTROL SURVEY	1972	Q460961	
1013.154	.033	3/0				UNKNOWN/APPROXIMATE	1970	RSTPRE87	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1014.007	.262		927.347	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648	

Geoid Separations(ft): GEOID18 = -87.077 12B = -87.083 09 = -86.972 03 = -86.909

**Lat/Lon and County Coordinates (Feet)**

**NAD83(1996)**

<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
46 41 08.31674	96 25 10.69121	570393.382	120424.540	.131	3	ADJUSTMENT	1999	17648
46 41 08.31658	96 25 10.69088	570393.405	120424.524	.131	3	ADJUSTMENT	1998	17655

**NAD83(1986)**

<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
46 41 08.31532	96 25 10.68299	570393.955	120424.399	.131	3	ADJUSTMENT	1986	17289

**NAD27**

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
46 41 08.45258	96 25 09.44725			.100	3	CLASSICAL SURVEY	1986	10744

**State Plane and UTM Coordinates (Feet)**

**NAD83(1996)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
2080216.935	950222.153	782505.865	16981307.411	.131	3	ADJUSTMENT	1999	17648
2080216.957	950222.137	782505.887	16981307.394	.131	3	ADJUSTMENT	1998	17655

**NAD83(1986)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
2080217.504	950221.994	782506.432	16981307.242	.131	3	ADJUSTMENT	1986	17289

**NAD27**

<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
							<u>Year</u>	<u>Reference</u>
1455620.668	622146.511			.100	3	CLASSICAL SURVEY	1986	10744



Mn/DOT Name: STO 2 RM 3

NGS Name: STO 2 RM 3

County: CLAY, MN (Sheet 1)

NGS ACRN: [CQ5562](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	18	137 N	45 W	464109.03	962512.44		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1970	2010	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	REFERENCE MARK DISK	MNDT

**Description:**

**Stamping:**

2.25 MILES NORTH OF BARNESVILLE, 0.5 MILE NORTH ALONG COUNTY ROAD 34/COUNTY ROAD 55 FROM THE JUNCTION OF COUNTY ROAD 34/COUNTY ROAD 55 AND INTERSTATE HIGHWAY 94 IN BARNESVILLE.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.077 12B = -87.083 09 = -86.972 03 = -86.909



Mn/DOT Name: STO MNDT

NGS Name: STO

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0092](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/1034  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	18	137 N	45 W	464108.30	962511.17	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1961	2023	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	TRAVERSE STATION DISK	MNDT

**Description:** (2010)                      **Stamping:** STO U.S.C.G.S. 1961

2.25 MILES NORTH OF BARNESVILLE, 0.5 MILE NORTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND INTERSTATE HIGHWAY 94 (THE JUNCTION IS 1.3 MILES NORTH OF BARNESVILLE), AT TRUNK HIGHWAY 9 MILEPOINT 149.35, 122.0 FEET EAST OF TRUNK HIGHWAY 9, 126.0 FEET SOUTH OF A DRIVEWAY TO FIRE NUMBER 14168, 11.0 FEET EAST OF A DRIVEWAY TO FIRE NUMBER 14170.

**Station Notes**

IN 1970 STATION STO 2 WAS SET AS THE OWNER PLANNED TO BUILD A SERVICE ROAD-STATION STO MNDT WAS LEFT IN PLACE AS IT WAS NOT TO BE COVERED TOO DEEPLY.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1015.313	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
1015.457	.016	2/0					VERTICAL ADJUSTMENT	1991	00000025	

  

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1014.588	.016	2/0					UNKNOWN/APPROXIMATE	1992	UNCHECKD	
1014.588	.016	2					VERTICAL CONTROL SURVEY	1972	Q460961	
1014.588	.016	2					VERTICAL CONTROL SURVEY	1972	L22167-A	
1014.588	.016	2					VERTICAL CONTROL SURVEY	1971	L22167-A	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1015.313				928.374	.009	2011	HORIZONTAL ADJUSTMENT	2025	GPS3805	
1015.313	.131			928.505	.066	1996	GPS - STATIC	2025	HTH94A	
1015.313				928.374	.009	2011	GPS - STATIC	2025	HTH94A	
1015.313				928.374	.009	2011	HORIZONTAL ADJUSTMENT	2024	GPS3762	
1015.313	.131			928.505	.066	1996	GPS - STATIC	2024	HTH32	
1015.313				928.374	.009	2011	GPS - STATIC	2024	HTH32	
1015.477	.262			928.400	.197	2011	GPS - RTRN	2023	RTRN2023	
1015.526	.262			928.446	.197	2011	GPS - RTRN	2022	RTRN2022	
1015.457				928.374	.016	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084	
1015.484	.131			928.505	.066	1996	GPS - STATIC	2015	HCLAY	
1015.457				928.391	.016	2011	GPS - STATIC	2015	HCLAY	
1015.457				928.374	.021	2011	HORIZONTAL ADJUSTMENT	2014	GPS2750	
1015.457				928.374	.021	2011	GPS - STATIC	2014	HBARN	
1015.529	.262			928.450	.197	2011	GPS - RTRN	2014	RTRN2014	
1015.451	.131			928.446	.066	2007	GPS - STATIC	2010	HBARN	
1015.457	.131			928.505	.066	1996	GPS - STATIC	2010	HBARN	
				928.594	.066	1996	GPS - STATIC	2001	DIST 4	
1015.451	.197			928.797	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648	

Geoid Separations(ft): GEOID18 = -87.080    12B = -87.083    09 = -86.972    03 = -86.909



Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Clay County		Acc	Order	Determination Method	Project Info	
Latitude	Longitude	X	Y				Year	Reference
46 41 08.29881	96 25 11.17391	570359.734	120422.604	.007		ADJUSTMENT	2025	GPS3805
46 41 08.29881	96 25 11.17391	570359.734	120422.604	.007	C	GPS - STATIC	2025	HTH94A
46 41 08.29881	96 25 11.17391	570359.734	120422.604	.007		ADJUSTMENT	2024	GPS3762
46 41 08.29881	96 25 11.17391	570359.734	120422.604	.007	C	GPS - STATIC	2024	HTH32
46 41 08.29819	96 25 11.17351	570359.762	120422.541	.131	3	GPS - RTRN	2023	RTRN2023
46 41 08.29879	96 25 11.17436	570359.702	120422.602	.131	3	GPS - RTRN	2022	RTRN2022
46 41 08.29881	96 25 11.17391	570359.734	120422.604	.010		ADJUSTMENT	2015	GPS3084
46 41 08.29876	96 25 11.17397	570359.729	120422.599	.010	C	GPS - STATIC	2015	HCLAY
46 41 08.29881	96 25 11.17391	570359.734	120422.604	.013		ADJUSTMENT	2014	GPS2750
46 41 08.29881	96 25 11.17391	570359.734	120422.604	.013	C	GPS - STATIC	2014	HBARN
46 41 08.29927	96 25 11.17343	570359.767	120422.651	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(2007)

Geodetic Position		Clay County		Acc	Order	Determination Method	Project Info	
Latitude	Longitude	X	Y				Year	Reference
46 41 08.29897	96 25 11.17495	570359.661	120422.620	.033	C	GPS - STATIC	2010	HBARN

NAD83(1996)

Geodetic Position		Clay County		Acc	Order	Determination Method	Project Info	
Latitude	Longitude	X	Y				Year	Reference
46 41 08.29857	96 25 11.17468	570359.680	120422.579	.033	C	GPS - STATIC	2025	HTH94A
46 41 08.29857	96 25 11.17468	570359.680	120422.579	.033	C	GPS - STATIC	2024	HTH32
46 41 08.29857	96 25 11.17468	570359.680	120422.579	.033	C	GPS - STATIC	2015	HCLAY
46 41 08.29857	96 25 11.17468	570359.680	120422.579	.033	C	GPS - STATIC	2010	HBARN
46 41 08.29851	96 25 11.17458	570359.687	120422.573	.033	C	GPS - STATIC	2001	DIST 4
46 41 08.30328	96 25 11.16741	570360.185	120423.058	.066	2	ADJUSTMENT	1999	17648
46 41 08.30313	96 25 11.16708	570360.208	120423.043	.066	2	ADJUSTMENT	1998	17655

NAD83(1986)

Geodetic Position		Clay County		Acc	Order	Determination Method	Project Info	
Latitude	Longitude	X	Y				Year	Reference
46 41 08.30187	96 25 11.15919	570360.759	120422.918	.066	2	ADJUSTMENT	1986	17289

NAD27

Geodetic Position		X	Y	Acc	Order	Determination Method	Project Info	
Latitude	Longitude						Year	Reference
46 41 08.43910	96 25 09.92330			.100	2	CLASSICAL SURVEY	1962	12924

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2080183.246	950221.260	782472.150	16981307.058	.007		ADJUSTMENT	2025	GPS3805
2080183.246	950221.260	782472.150	16981307.058	.007	C	GPS - STATIC	2025	HTH94A
2080183.246	950221.260	782472.150	16981307.058	.007		ADJUSTMENT	2024	GPS3762
2080183.246	950221.260	782472.150	16981307.058	.007	C	GPS - STATIC	2024	HTH32
2080183.273	950221.196	782472.175	16981306.994	.131	3	GPS - RTRN	2023	RTRN2023
2080183.215	950221.258	782472.118	16981307.057	.131	3	GPS - RTRN	2022	RTRN2022
2080183.246	950221.260	782472.150	16981307.058	.010		ADJUSTMENT	2015	GPS3084
2080183.242	950221.254	782472.145	16981307.053	.010	C	GPS - STATIC	2015	HCLAY
2080183.246	950221.260	782472.150	16981307.058	.013		ADJUSTMENT	2014	GPS2750
2080183.246	950221.260	782472.150	16981307.058	.013	C	GPS - STATIC	2014	HBARN
2080183.281	950221.305	782472.185	16981307.103	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2080183.175	950221.278	782472.078	16981307.077	.033	C	GPS - STATIC	2010	HBARN

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2080183.192	950221.237	782472.095	16981307.036	.033	C	GPS - STATIC	2025	HTH94A
2080183.192	950221.237	782472.095	16981307.036	.033	C	GPS - STATIC	2024	HTH32
2080183.192	950221.237	782472.095	16981307.036	.033	C	GPS - STATIC	2015	HCLAY
2080183.192	950221.237	782472.095	16981307.036	.033	C	GPS - STATIC	2010	HBARN
2080183.199	950221.230	782472.102	16981307.029	.033	C	GPS - STATIC	2001	DIST 4
2080183.712	950221.700	782472.622	16981307.491	.066	2	ADJUSTMENT	1999	17648
2080183.735	950221.684	782472.645	16981307.475	.066	2	ADJUSTMENT	1998	17655

**NAD83(1986)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2080184.281	950221.541	782473.189	16981307.323	.066	2	ADJUSTMENT	1986	17289

**NAD27**

MN State Plane - Central Zone						Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1455587.455	622146.055			.100	2	CLASSICAL SURVEY	1962	12924

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/STO-RP0092-3E-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/STO-RP0092-3E-18OCT2023.jpg</a>	E	Oct 18, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/STO-RP0092-2-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/STO-RP0092-2-18OCT2023.jpg</a>		Oct 18, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/STO-RP0092-1-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/STO-RP0092-1-18OCT2023.jpg</a>		Oct 18, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: STO MNDT RM 1

NGS Name: STO RM 1

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0094](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	18	137 N	45 W	464108.97	962511.21	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1961	2010	NOT FOUND	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	SURVEY DISK	MNDT

**Description:** (1961)                      **Stamping:** STO NO. 1 1961

2.0 MILES NORTH OF BARNESVILLE, 0.4 MILE NORTH OF THE JUNCTION OF TRUNK HIGHWAY 9 AND INTERSTATE HIGHWAY 94 (THE JUNCTION IS 1.3 MILES NORTH OF BARNESVILLE), 122.0 FEET EAST OF TRUNK HIGHWAY 9, 200.0 FEET SOUTH OF AN EAST-WEST TREE LINE, 68.0 FEET NORTH OF STATION STO MNDT.

**Station Notes**

THE SURVEY MARK IS ON PRIVATE PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1015.251	.016	2/0					VERTICAL ADJUSTMENT	1991	00000025	
<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1014.381	.016	2/0					UNKNOWN/APPROXIMATE	1992	UNCHECKD	
1014.381	.016	2					VERTICAL CONTROL SURVEY	1972	Q460961	
1014.381	.016	2					VERTICAL CONTROL SURVEY	1972	L22167-A	
1014.381	.016	2					VERTICAL CONTROL SURVEY	1971	L22167-A	

Geoid Separations(ft): GEOID18 = -87.080 12B = -87.083 09 = -86.972 03 = -86.913

\* No Horizontal Positions in the Database \*



Mn/DOT Name: STO MNDT RM 2

NGS Name: STO RM 2

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0095](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	18	137 N	45 W	464108.34	962512.38	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1961	2010	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	SURVEY DISK	MNDT

**Description:** (1961)                      **Stamping:** STO NO. 2 1961

2.0 MILES NORTH OF BARNESVILLE, 0.4 MILE NORTH OF THE JUNCTION OF TRUNK HIGHWAY 9 AND INTERSTATE HIGHWAY 94 (THE JUNCTION IS 1.3 MILES NORTH OF BARNESVILLE), AT A TRUNK HIGHWAY 9 DITCH BOTTOM, 37.0 FEET EAST OF TRUNK HIGHWAY 9, 275.0 FEET SOUTH OF AN EAST-WEST TREE LINE, 84.0 FEET WEST OF STATION STO MNDT.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1010.900	.016	2/0					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1010.031	.016	2					VERTICAL CONTROL SURVEY	1972	Q460961	
1010.031	.016	2					VERTICAL CONTROL SURVEY	1972	L22167-A	
1010.031	.016	2					VERTICAL CONTROL SURVEY	1971	L22167-A	

**Geoid Separations(ft): GEOID18 = -87.080    12B = -87.086    09 = -86.972    03 = -86.913**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: STOCK

NGS Name: STOCK

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP7374](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096424/  
 USGS Quad: COMSTOCK

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	36	138 N	48 W	464303.84	964030.44		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2013	2013	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 19 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2013)                      Stamping: STOCK 2013

4.5 MILES SOUTH OF SABIN, 4.1 MILES SOUTH ALONG COUNTY ROAD 11 FROM THE JUNCTION OF COUNTY ROAD 11 AND COUNTY ROAD 52 IN SABIN, THEN 1.0 MILE WEST ON 120TH AVENUE SOUTH, 36.5 FEET NORTH OF 120TH AVENUE SOUTH, 16.7 FEET EAST OF A FIELD ENTRANCE, 3.0 FEET WEST OF A WITNESS POST.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>				<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>			
918.942			831.921	.025	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084			
918.958	.131		832.055	.066	1996	GPS - STATIC	2015	HCLAY			
918.942			831.921	.025	2011	GPS - STATIC	2015	HCLAY			
918.876	.262		831.872	.197	2011	GPS - RTRN	2013	RTRN2013			

Geoid Separations(ft): GEOID18 = -87.024    12B = -87.004    09 = -86.958    03 = -86.873

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>				<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
46 43 03.84158	96 40 30.43747	506263.414	132004.539	.016		ADJUSTMENT	2015	GPS3084		
46 43 03.84158	96 40 30.43747	506263.414	132004.539	.016	C	GPS - STATIC	2015	HCLAY		
46 43 03.84094	96 40 30.43733	506263.423	132004.474	.131	3	GPS - RTRN	2013	RTRN2013		

<u>NAD83(1996)</u>		<u>Geodetic Position</u>				<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
46 43 03.84119	96 40 30.43827	506263.358	132004.499	.033	C	GPS - STATIC	2015	HCLAY		

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>				<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
2016482.627	963779.313	718962.135	16995895.950	.016		ADJUSTMENT	2015	GPS3084		
2016482.627	963779.313	718962.135	16995895.950	.016	C	GPS - STATIC	2015	HCLAY		
2016482.635	963779.248	718962.142	16995895.885	.131	3	GPS - RTRN	2013	RTRN2013		

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>				<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
2016482.570	963779.275	718962.078	16995895.913	.033	C	GPS - STATIC	2015	HCLAY		

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/STOCK-DP7374-3N-10SEP2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/STOCK-DP7374-3N-10SEP2013.jpg</a>	N	Sep 10, 2013
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/STOCK-DP7374-2-10SEP2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/STOCK-DP7374-2-10SEP2013.jpg</a>		Sep 10, 2013
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/STOCK-DP7374-1-10SEP2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/STOCK-DP7374-1-10SEP2013.jpg</a>		Sep 10, 2013

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: STONEY  
County: CLAY, MN (Sheet 1)

NGS Name: STONEY

NGS ACRN: [DM1839](#) [Get Map](#)  
NGS Quad / Sta Num : 46096442/  
USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	8	138 N	48 W	464629.73	964605.36	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2009	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 50 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2009)                      Stamping: STONEY 2009

4.95 MILES SOUTH OF MOORHEAD, 4.95 MILES SOUTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND INTERSTATE HIGHWAY 94 IN MOORHEAD, AT TRUNK HIGHWAY 75 MILEPOINT 243.35, 66.6 FEET WEST OF TRUNK HIGHWAY 75, 103.0 FEET NORTH OF 80TH AVENUE SOUTH (OLD COUNTY ROAD 67), 12.5 FEET SOUTH OF A FIELD ENTRANCE, 9.2 FEET EAST OF A RIGHT-OF-WAY POST, 7.4 FEET SOUTHEAST OF A CABLE BOX, 1.4 FEET EAST OF A WITNESS POST.

Station Pair: CREEK - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
909.798	.016	2/1				2024	00000941-3	VERTICAL ADJUSTMENT		2024	00000941-3	
909.798	.016	2/1				2023	VMOFA	VERTICAL CONTROL SURVEY		2023	VMOFA	
909.798	.016	2/1				2019	00000941	VERTICAL ADJUSTMENT		2019	00000941	
910.044	.016	2/1				2011	00000699	VERTICAL ADJUSTMENT		2011	00000699	
910.038	.016	2/1				2010	VCOMS	VERTICAL CONTROL SURVEY		2010	VCOMS	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			<u>Year</u>	<u>Reference</u>	
909.798			822.863	.009	2011	2024	GPS3715	HORIZONTAL ADJUSTMENT		2024	GPS3715	
909.798			822.863	.009	2011	2024	HMOFA2	GPS - STATIC		2024	HMOFA2	
909.798	.131		822.948	.066	1996	2024	HMOFA2	GPS - STATIC		2024	HMOFA2	
910.031	.262		822.863	.197	2011	2022	RTRN2022	GPS - RTRN		2022	RTRN2022	
			822.863	.007	2011	2012	GPS2800	HORIZONTAL ADJUSTMENT		2012	GPS2800	
910.038	.131		822.863	.066	2007	2011	GPS2690	HORIZONTAL ADJUSTMENT		2011	GPS2690	
910.038	.131		822.948	.066	1996	2010	HCOMS	GPS - STATIC		2010	HCOMS	
910.038	.131		822.863	.066	2007	2010	HCOMS	GPS - STATIC		2010	HCOMS	

Geoid Separations(ft): GEOID18 = -87.172    12B = -87.165    09 = -87.100    03 = -86.985

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>	
46 46 29.72547	96 46 05.35858	482944.043	152870.040	.007		ADJUSTMENT		2024	GPS3715	
46 46 29.72547	96 46 05.35858	482944.043	152870.040	.007	C	GPS - STATIC		2024	HMOFA2	
46 46 29.72501	96 46 05.35861	482944.041	152869.993	.131	3	GPS - RTRN		2022	RTRN2022	
46 46 29.72547	96 46 05.35858	482944.043	152870.040	.007		ADJUSTMENT		2012	GPS2800	

  

<u>NAD83(2007)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>	
46 46 29.72593	96 46 05.35990	482943.951	152870.087	.033	C	ADJUSTMENT		2011	GPS2690	
46 46 29.72593	96 46 05.35990	482943.951	152870.087	.033	C	GPS - STATIC		2010	HCOMS	

  

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>	
46 46 29.72551	96 46 05.35979	482943.959	152870.044	.033	C	GPS - STATIC		2024	HMOFA2	
46 46 29.72551	96 46 05.35979	482943.959	152870.044	.033	C	GPS - STATIC		2010	HCOMS	



**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1993821.900	985353.894	696638.032	17017847.486	.007		ADJUSTMENT	2024	GPS3715
1993821.900	985353.894	696638.032	17017847.486	.007	C	GPS - STATIC	2024	HMOFA2
1993821.897	985353.847	696638.027	17017847.439	.131	3	GPS - RTRN	2022	RTRN2022
1993821.900	985353.894	696638.032	17017847.486	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1993821.810	985353.943	696637.942	17017847.536	.033	C	ADJUSTMENT	2011	GPS2690
1993821.810	985353.943	696637.942	17017847.536	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1993821.816	985353.901	696637.948	17017847.493	.033	C	GPS - STATIC	2024	HMOFA2
1993821.816	985353.901	696637.948	17017847.493	.033	C	GPS - STATIC	2010	HCOMS

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/STONEY-DM1839-3W-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/STONEY-DM1839-3W-15JUN2022.jpg</a>	W	Jun 15, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/STONEY-DM1839-2-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/STONEY-DM1839-2-15JUN2022.jpg</a>		Jun 15, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/STONEY-DM1839-1-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/STONEY-DM1839-1-15JUN2022.jpg</a>		Jun 15, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: STONY RESET

NGS Name: STONY RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP4937](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096131/  
 USGS Quad: BIG SLOUGH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	2	137 N	45 W	464303.08	962024.12		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2010	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 11 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2013)                      Stamping: STONY 1999 2010

5.5 MILES NORTHEAST OF BARNESVILLE, 3.05 MILES EAST ALONG TRUNK HIGHWAY 34 FROM THE JUNCTION OF TRUNK HIGHWAY 34 AND INTERSTATE HIGHWAY 94 (THE JUNCTION IS 1.0 MILE EAST OF BARNESVILLE), TO HIGHWAY 34 MILEPOINT 4.25, THEN 4.35 MILES NORTH AND EAST ALONG COUNTY ROAD 3, THEN 0.9 MILE WEST ALONG COUNTY ROAD 126/120TH AVENUE SOUTHEAST, 34.9 FEET SOUTH OF 120TH AVENUE SOUTHEAST, 12.3 FEET NORTHWEST OF A POWER POLE, 35.0 FEET NORTHWEST OF A FIELD ENTRANCE, 1.0 FOOT NORTH OF A WITNESS POST.

**Station Notes**

THE ORIGINAL MARK WAS SET BY DISTRICT 4 SURVEYS.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>
1129.361			1042.232	.011	2011	HORIZONTAL ADJUSTMENT		2024	GPS3762
1129.361	.131		1042.373	.066	1996	GPS - STATIC		2024	HTH32
1129.361			1042.232	.011	2011	GPS - STATIC		2024	HTH32
1129.440	.262		1042.209	.197	2011	GPS - RTRN		2023	RTRN2023
1129.529	.262		1042.298	.197	2011	GPS - OPUS		2020	GPSBM
1129.506	.262		1042.275	.197	2011	GPS - OPUS		2020	GPSBM
1129.460			1042.232	.020	2011	HORIZONTAL ADJUSTMENT		2014	GPS2750
1129.460			1042.232	.020	2011	GPS - STATIC		2014	HBARN
1129.460	.131		1042.321	.066	2007	GPS - STATIC		2010	HBARN
1129.453	.131		1042.373	.066	1996	GPS - STATIC		2010	HBARN

Geoid Separations(ft): GEOID18 = -87.231 12B = -87.221 09 = -87.103 03 = -87.050

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>
46 43 03.07647	96 20 24.11958	590320.466	132132.531	.007		ADJUSTMENT		2024	GPS3762
46 43 03.07647	96 20 24.11958	590320.466	132132.531	.007	C	GPS - STATIC		2024	HTH32
46 43 03.07650	96 20 24.11930	590320.485	132132.535	.131	3	GPS - RTRN		2023	RTRN2023
46 43 03.07636	96 20 24.11999	590320.437	132132.520	.131	3	GPS - OPUS		2020	GPSBM
46 43 03.07646	96 20 24.11970	590320.457	132132.530	.131	3	GPS - OPUS		2020	GPSBM
46 43 03.07647	96 20 24.11958	590320.466	132132.531	.013		ADJUSTMENT		2014	GPS2750
46 43 03.07647	96 20 24.11958	590320.466	132132.531	.013	C	GPS - STATIC		2014	HBARN

**NAD83(2007)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>
46 43 03.07657	96 20 24.12054	590320.399	132132.541	.033	C	GPS - STATIC		2010	HBARN

**NAD83(1996)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>
46 43 03.07617	96 20 24.12027	590320.418	132132.501	.033	C	GPS - STATIC		2024	HTH32
46 43 03.07617	96 20 24.12027	590320.418	132132.501	.033	C	GPS - STATIC		2010	HBARN

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2100494.624	961306.526	802968.783	16992069.744	.007		ADJUSTMENT	2024	GPS3762
2100494.624	961306.526	802968.783	16992069.744	.007	C	GPS - STATIC	2024	HTH32
2100494.643	961306.528	802968.803	16992069.747	.131	3	GPS - RTRN	2023	RTRN2023
2100494.595	961306.515	802968.755	16992069.735	.131	3	GPS - OPUS	2020	GPSBM
2100494.616	961306.525	802968.775	16992069.744	.131	3	GPS - OPUS	2020	GPSBM
2100494.624	961306.526	802968.783	16992069.744	.013		ADJUSTMENT	2014	GPS2750
2100494.624	961306.526	802968.783	16992069.744	.013	C	GPS - STATIC	2014	HBARN

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2100494.557	961306.538	802968.717	16992069.757	.033	C	GPS - STATIC	2010	HBARN

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2100494.575	961306.497	802968.734	16992069.716	.033	C	GPS - STATIC	2024	HTH32
2100494.575	961306.497	802968.734	16992069.716	.033	C	GPS - STATIC	2010	HBARN

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/STONY_RESET-DP4937-3S-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/STONY_RESET-DP4937-3S-18OCT2023.jpg</a>	S	Oct 18, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/STONY_RESET-DP4937-2-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/STONY_RESET-DP4937-2-18OCT2023.jpg</a>		Oct 18, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/STONY_RESET-DP4937-1-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/STONY_RESET-DP4937-1-18OCT2023.jpg</a>		Oct 18, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: SUBE MNDT

NGS Name: SUBE

County: CLAY, MN (Sheet 1)

NGS ACRN: [DF7620](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	20	139 N	47 W	465000.13	963905.43	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1993	2009	DESTROYED	Horz=NO Vert=NO	NO		RECESSED 2 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 30 FT)	SURVEY DISK	MNDT

**Description:** (1993)                      **Stamping:** SUBE 1993

5.5 MILES EAST-SOUTHEAST OF MOORHEAD, 0.9 MILE SOUTH ALONG COUNTY ROAD 11 FROM THE JUNCTION OF COUNTY ROAD 11 AND INTERSTATE HIGHWAY 94, AT THE JUNCTION OF COUNTY ROAD 11 AND COUNTY ROAD 76, 130.0 FEET EAST OF COUNTY ROAD 11, 18.0 FEET WEST OF AN ENTRANCE, 17.0 FEET NORTH OF COUNTY ROAD 76, 37.0 FEET SOUTH-SOUTHEAST OF A POWER POLE, 7.4 FEET SOUTH OF A WITNESS POST.

**Station Notes**

FOUND THE CAP LOOSE, SEE RESET.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order</u>	<u>(/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	
921.146	.016		2/1				2011	00000685					
921.179	.016		2/1				2002	VMORE					

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order</u>	<u>(/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	
				833.824	.019	2011			2012	GPS2800			
				834.001	.019	2007			2007	GPS2300			
921.192	.131			834.057	.066	1996			2003	GPS1905			
921.192	.131			834.057	.066	1996			2003	HMOOR			

Geoid Separations(ft): GEOID18 = -87.355    12B = -87.378    09 = -87.231    03 = -87.155

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Geodetic Position</u>				<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>
46 50 00.12640	96 39 05.42506	512161.102	174183.330	.013				ADJUSTMENT		2012	GPS2800				

  

<u>NAD83(2007)</u>				<u>Geodetic Position</u>				<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>
46 50 00.12641	96 39 05.42606	512161.033	174183.331	.013				ADJUSTMENT		2007	GPS2300				

  

<u>NAD83(1996)</u>				<u>Geodetic Position</u>				<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>
46 50 00.12587	96 39 05.42588	512161.045	174183.276	.033	C			ADJUSTMENT		2003	GPS1905				
46 50 00.12587	96 39 05.42588	512161.045	174183.276	.033	C			GPS - STATIC		2003	HMOOR				



State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2023681.452	1005751.570	726842.645	17037771.993	.013		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2023681.382	1005751.572	726842.576	17037771.997	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2023681.393	1005751.518	726842.586	17037771.942	.033	C	ADJUSTMENT	2003	GPS1905
2023681.393	1005751.517	726842.586	17037771.942	.033	C	GPS - STATIC	2003	HMOOR



Mn/DOT Name: SUBE MNDT RESET

NGS Name: SUBE RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM1840](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	20	139 N	47 W	465000.13	963905.43	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2009	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 7 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 30 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: SUBE 1993 2009

5.5 MILES EAST-SOUTHEAST OF MOORHEAD, 0.9 MILE SOUTH ALONG COUNTY ROAD 11 FROM THE JUNCTION OF COUNTY ROAD 11, TRUNK HIGHWAY 336, AND INTERSTATE HIGHWAY 94 (THE JUNCTION IS 5.0 MILES EAST OF MOORHEAD), AT THE JUNCTION OF COUNTY ROAD 11 AND COUNTY ROAD 76 (40TH AVENUE SOUTH), 130.0 FEET EAST OF COUNTY ROAD 11, 18.0 FEET WEST OF AN ENTRANCE, 17.0 FEET NORTH OF 40TH AVENUE SOUTH, 3.5 FEET SOUTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
920.802	.016	2/1				VERTICAL ADJUSTMENT	2024	00000941-3		
920.802	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA		
920.772	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941		
921.061	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699		
921.041	.016	2/1				VERTICAL CONTROL SURVEY	2010	VCOMS		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
920.802			833.706	.010	2011	HORIZONTAL ADJUSTMENT	2024	GPS3715		
920.802			833.706	.010	2011	GPS - STATIC	2024	HMOFA2		
920.802	.131		833.758	.066	1996	GPS - STATIC	2024	HMOFA2		
921.192	.262		833.837	.197	2011	GPS - RTRN	2022	RTRN2022		
921.055	.262		833.676	.197	2011	GPS - RTRN	2015	RTRN2015		
921.061			833.706	.009	2011	HORIZONTAL ADJUSTMENT	2014	GPS2750		
921.061			833.706	.009	2011	GPS - STATIC	2014	HBARN		
			833.706	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800		
921.028	.131		833.768	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2690		
921.028	.131		833.768	.066	2007	GPS - STATIC	2010	HBARN		
921.041	.131		833.758	.066	1996	GPS - STATIC	2010	HBARN		
921.028	.131		833.758	.066	1996	GPS - STATIC	2010	HCOMS		
921.028	.131		833.768	.066	2007	GPS - STATIC	2010	HCOMS		

Geoid Separations(ft): GEOID18 = -87.355    12B = -87.378    09 = -87.231    03 = -87.155

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 50 00.12696	96 39 05.42480	512161.120	174183.387	.007		ADJUSTMENT	2024	GPS3715
46 50 00.12696	96 39 05.42480	512161.120	174183.387	.007	C	GPS - STATIC	2024	HMOFA2
46 50 00.12785	96 39 05.42567	512161.060	174183.477	.131	3	GPS - RTRN	2022	RTRN2022
46 50 00.12745	96 39 05.42456	512161.137	174183.436	.131	3	GPS - RTRN	2015	RTRN2015
46 50 00.12696	96 39 05.42480	512161.120	174183.387	.007		ADJUSTMENT	2014	GPS2750
46 50 00.12699	96 39 05.42482	512161.119	174183.390	.007	C	GPS - STATIC	2014	HBARN
46 50 00.12696	96 39 05.42480	512161.120	174183.387	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 50 00.12717	96 39 05.42598	512161.038	174183.408	.033	C	ADJUSTMENT	2011	GPS2690
46 50 00.12717	96 39 05.42598	512161.038	174183.408	.033	C	GPS - STATIC	2010	HBARN
46 50 00.12717	96 39 05.42598	512161.038	174183.408	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 50 00.12671	96 39 05.42577	512161.053	174183.362	.033	C	GPS - STATIC	2024	HMOFA2
46 50 00.12671	96 39 05.42577	512161.053	174183.362	.033	C	GPS - STATIC	2010	HBARN
46 50 00.12671	96 39 05.42577	512161.053	174183.362	.033	C	GPS - STATIC	2010	HCOMS

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2023681.471	1005751.626	726842.666	17037772.049	.007		ADJUSTMENT	2024	GPS3715
2023681.471	1005751.626	726842.666	17037772.049	.007	C	GPS - STATIC	2024	HMOFA2
2023681.414	1005751.717	726842.610	17037772.142	.131	3	GPS - RTRN	2022	RTRN2022
2023681.490	1005751.675	726842.685	17037772.098	.131	3	GPS - RTRN	2015	RTRN2015
2023681.471	1005751.626	726842.666	17037772.049	.007		ADJUSTMENT	2014	GPS2750
2023681.470	1005751.629	726842.665	17037772.052	.007	C	GPS - STATIC	2014	HBARN
2023681.471	1005751.626	726842.666	17037772.049	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2023681.390	1005751.650	726842.585	17037772.074	.033	C	ADJUSTMENT	2011	GPS2690
2023681.390	1005751.650	726842.585	17037772.074	.033	C	GPS - STATIC	2010	HBARN
2023681.390	1005751.650	726842.585	17037772.074	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2023681.403	1005751.602	726842.598	17037772.027	.033	C	GPS - STATIC	2024	HMOFA2
2023681.403	1005751.602	726842.598	17037772.027	.033	C	GPS - STATIC	2010	HBARN
2023681.403	1005751.602	726842.598	17037772.027	.033	C	GPS - STATIC	2010	HCOMS

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SUBE_RESET-DM1840-3N-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SUBE_RESET-DM1840-3N-05JUL2022.jpg</a>	N	Jul 5, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SUBE_RESET-DM1840-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SUBE_RESET-DM1840-2-05JUL2022.jpg</a>		Jul 5, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SUBE_RESET-DM1840-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/SUBE_RESET-DM1840-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: T 314

NGS Name: T 314

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0325](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	10	139 N	48 W	465227.00	964335.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1938	2008	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE FOUNDATION	BENCH MARK DISK	NGS

**Description:** (1994)                      **Stamping:** T 314 1938

1.1 MILES WEST-SOUTHWEST OF DILWORTH, 1.2 MILES WEST ALONG CENTER AVENUE EAST FROM THE JUNCTION OF CENTER AVENUE EAST AND 2ND STREET SOUTHEAST IN DILWORTH, THEN 0.2 MILE SOUTH ALONG 34TH STREET SOUTH, 1.5 MILES WEST OF THE DILWORTH RAILROAD STATION, 0.3 MILE EAST OF RAILROAD MILEPOST 5, 450.0 FEET SOUTH OF TRUNK HIGHWAY 10, 37.1 FEET WEST OF A ROAD CROSSING, 10.0 FEET NORTH OF THE NORTH RAIL OF A RAILROAD, 10.0 FEET EAST OF A SIGNAL TOWER, IN THE CONCRETE BASE OF A BATTERY BOX.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
909.312	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
908.364	.016	2					VERTICAL CONTROL SURVEY	1972	Q460964	
908.364	.016	2					VERTICAL CONTROL SURVEY	1972	L22167-A	
908.364	.016	2					VERTICAL CONTROL SURVEY	1971	L22167-A	
908.555	.007	1					VERTICAL CONTROL SURVEY	1940	Q460964	
908.555	.007	1					VERTICAL CONTROL SURVEY	1938	L39 MINN	

**Geoid Separations(ft): GEOID18 = -87.070    12B = -87.060    09 = -86.936    03 = -86.883**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: T 315

NGS Name: T 315

County: CLAY, MN (Sheet 1)

NGS ACRN: [SL0170](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/  
 USGS Quad: FELTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	16	142 N	46 W	470629.00	963025.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1938	2014	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	BENCH MARK DISK	NGS

**Description:** (1982)                      **Stamping:** T 315 1938

2.0 MILES NORTH OF FELTON, IN THE TOP OF A 30.0 INCH DIAMETER CONCRETE CULVERT, 0.2 MILE NORTH ALONG ATLANTIC AVENUE FROM THE JUNCTION OF ATLANTIC AVENUE AND 4TH STREET IN FELTON, THEN 0.3 MILE EAST ALONG 160TH AVENUE NORTH/7TH STREET, THEN 2.0 MILES NORTH ALONG TRUNK HIGHWAY 9 NORTH (140TH STREET NORTH), THEN 0.3 MILE WEST ALONG 180TH AVENUE NORTH, 2.2 MILES NORTH ALONG A RAILROAD FROM THE RAILROAD STATION AT FELTON, 0.1 MILE NORTH OF RAILROAD MILEPOST 35, 26.0 FEET NORTH OF A SECTION LINE ROAD, 10.0 FEET EAST OF THE EAST RAIL OF A RAILROAD.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
911.160	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
909.919	.007	1					VERTICAL CONTROL SURVEY	1941	Q470963	
909.919	.007	1					VERTICAL CONTROL SURVEY	1938	L45 MINN	

**Geoid Separations(ft): GEOID18 = -87.116    12B = -87.126    09 = -87.008    03 = -86.985**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: T 376

NGS Name: T 376

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0718](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	7	139 N	47 W	465234.32	963909.89	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1982	2014	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	MARKER IS STEEL ROD

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	METAL ROD	NGS

**Description:** (1982)                      **Stamping:** T 376 1982

3.5 MILES WEST OF GLYNDON, 3.6 MILES WEST ON TRUNK HIGHWAY 10 FROM THE POST OFFICE IN GLYNDON, AT THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 11, 88.5 FEET WEST OF COUNTY ROAD 11, 107.5 FEET SOUTH OF TRUNK HIGHWAY 10, 4.0 FEET SOUTH OF A POWER POLE, 5.0 FEET SOUTHWEST OF AN UNDERGROUND CABLE POST, 1.0 FOOT NORTH OF A WITNESS POST.

**Station Notes**

NEW RAMP IN THE AREA (10-01-2009)

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>							<u>Project Info</u>	
<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			
918.807	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941
918.978	.016	2/1				VERTICAL ADJUSTMENT	2011	00000685
918.978	.007	1/2				VERTICAL ADJUSTMENT	2004	00000425-2
918.978	.016	2/1				VERTICAL CONTROL SURVEY	2002	VMOORE
918.978	.016	2/1				VERTICAL CONTROL SURVEY	2002	VMOOR
918.978	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>							<u>Project Info</u>	
<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			
			832.003	.066	1996	GPS - STATIC	2001	DIST 4

Geoid Separations(ft): GEOID18 = -87.244    12B = -87.247    09 = -87.096    03 = -87.057

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(1996)</u>							<u>Project Info</u>	
<u>Geodetic Position</u>		<u>Clay County</u>			<u>Determination Method</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			
46 52 34.32050	96 39 09.89310	511841.033	189805.582	.033	C	GPS - STATIC	2001	DIST 4

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(1996)</u>							<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			
2023844.761	1021374.962	727259.408	17053399.893	.033	C	GPS - STATIC	2001	DIST 4



Mn/DOT Name: T 4

NGS Name: T 4

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0018](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	9	138 N	46 W	464633.00	963003.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1905	2014	DESTROYED	Horz=NO Vert=NO	NO		PROJECTS 6 IN.	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
PIPE (CAPPED) DRIVEN IN GROUND (<10 FT)	PIPE CAP	NGS

**Description:** (1968)                      **Stamping:** 953.384 FT

1.5 MILES NORTH OF DOWNER, 0.2 MILE WEST ALONG 90TH AVENUE SOUTH FROM THE JUNCTION OF 90TH AVENUE SOUTH AND 148TH STREET SOUTH IN DOWNER, THEN 1.7 MILES NORTH-NORTHWEST ALONG TRUNK HIGHWAY 9 NORTH, THEN 105.0 FEET WEST ALONG 80TH AVENUE SOUTH, 338.25 FEET NORTH OF RAILROAD MILEPOST 10, 30.0 FEET WEST OF A ROAD, 68.0 FEET EAST OF A TRACK, AT THE WEST EDGE OF A ROAD DITCH, AT THE NORTHEAST CORNER OF A GRAVEL ROAD CROSSING, IN A CORNER OF A PASTURE FENCE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
954.404	.007	1					VERTICAL CONTROL SURVEY	1993	POSTED	

  

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
953.384	.007	1					VERTICAL CONTROL SURVEY	1929	Q460961	
953.384	.007	1					VERTICAL CONTROL SURVEY	1905	L36 MINN	

  

<u>GA1912</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
953.896	.007	1					VERTICAL ADJUSTMENT	1914	GA1912	

Geoid Separations(ft): GEOID18 = -87.529    12B = -87.523    09 = -87.411    03 = -87.346

\* No Horizontal Positions in the Database \*



Mn/DOT Name: T 49

NGS Name: T 49

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0302](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	11	139 N	47 W	465224.00	963455.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1934	2015	DESTROYED	Horz=NO Vert=NO	NO		PROJECTS 1 IN.	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	BENCH MARK DISK	NGS

Description: (1934)                      Stamping: T 49 1934

0.2 MILE SOUTHWEST OF GLYNDON, 374.0 FEET WEST ALONG 4TH STREET SOUTHEAST FROM THE JUNCTION OF 4TH STREET SOUTHEAST AND PARTRIDGE AVENUE SOUTH IN GLYNDON, AT THE JUNCTION OF 4TH STREET SOUTHEAST AND PARKE AVENUE SOUTH, 38.0 FEET EAST OF THE GLYNDON RAILROAD DEPOT, 84.0 FEET SOUTH OF THE SOUTH TRACK, 102.0 FEET EAST OF THE MAIN TRACK.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
923.620	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
922.679	.016	2					VERTICAL CONTROL SURVEY	1972	Q460964	
922.679	.016	2					VERTICAL CONTROL SURVEY	1972	L22167-A	
922.679	.016	2					VERTICAL CONTROL SURVEY	1971	L22167-A	
922.049	.007	1					VERTICAL CONTROL SURVEY	1941	Q460964	
922.049	.007	1					VERTICAL CONTROL SURVEY	1938	L39 MINN	
922.049	.007	1					VERTICAL CONTROL SURVEY	1934	L98 MINN	

Geoid Separations(ft): GEOID18 = -87.487    12B = -87.487    09 = -87.349    03 = -87.303

\* No Horizontal Positions in the Database \*



Mn/DOT Name: T137N R44W SEC 2 SW COR

NGS Name: T137N R44W SEC 2 SW COR

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0910](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096124/1008  
 USGS Quad: ROLLAG

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SW	2	137 N	44 W	464210.55	961257.17		2

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1906	1935	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	SEE DESCRIPTION	NGS

Description: (1935)

Stamping:

2.8 MILES SOUTHEAST OF ROLLAG, 1.7 MILES SOUTH ALONG TRUNK HIGHWAY 32 SOUTH (270TH STREET SOUTH) FROM THE JUNCTION OF TRUNK HIGHWAY 32 SOUTH (270TH STREET SOUTH) AND 103RD AVENUE SOUTH IN ROLLAG, THEN 1.0 MILE EAST ALONG 120TH AVENUE SOUTH, THEN 1.0 MILE SOUTH ALONG 280TH STREET SOUTH.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>		
1515.745	.197		1428.865	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648	

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>		
1515.712						RECIPROCAL VERTICAL ANGLE	1906	HORZ	

Geoid Separations(ft): GEOID18 = -87.195 12B = -87.165 09 = -87.067 03 = -87.014

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
46 42 10.54788	96 12 57.17445	621496.593	126977.657	.066	2	ADJUSTMENT	1999	17648	
46 42 10.54721	96 12 57.17429	621496.604	126977.589	.066	2	ADJUSTMENT	1998	17655	

<u>NAD83(1986)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
46 42 10.54676	96 12 57.16737	621497.087	126977.547	.066	2	ADJUSTMENT	1986	17289	

<u>NAD27</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
46 42 10.70000	96 12 55.94000			.100	2	CLASSICAL SURVEY	1928	00155	

<u>USSD</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
46 42 10.90000	96 12 56.32000				3	CLASSICAL SURVEY		17389-73	

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u> <u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
2131492.649	955189.588	833877.801	16985452.915	.066	2	ADJUSTMENT	1999	17648	
2131492.659	955189.520	833877.809	16985452.846	.066	2	ADJUSTMENT	1998	17655	

<u>NAD83(1986)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u> <u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
2131493.140	955189.463	833878.289	16985452.781	.066	2	ADJUSTMENT	1986	17289	

<u>NAD27</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u> <u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
1506897.269	627115.766			.100	2	CLASSICAL SURVEY	1928	00155	



Mn/DOT Name: T139N R46W SEC 23 S 1/4 CORNER

NGS Name: T139N R46W SEC 23 S 1/4 CORNER

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0944](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096143/1007  
 USGS Quad: DOWNER

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	26	139 N	46 W	464958.77	962708.40		2

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1906	1935	NOT FOUND	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	SEE DESCRIPTION	NGS

Description: (1935)

Stamping:

6.5 MILES SOUTHEAST OF GLYNDON, 3.0 MILES SOUTHWEST OF MUSKODA, 2.0 MILES SOUTH ALONG 190TH STREET SOUTH, THEN 2.1 MILES WEST ALONG COUNTY ROAD 12 (40TH AVENUE SOUTH).

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1066.271	.197		979.047	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1066.304						RECIPROCAL VERTICAL ANGLE	1906	HORZ

Geoid Separations(ft): GEOID18 = -87.736 12B = -87.743 09 = -87.615 03 = -87.536

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 49 58.76982	96 27 08.39847	562017.401	174139.867	.066	2	ADJUSTMENT	1999	17648
46 49 58.76982	96 27 08.39848	562017.400	174139.867	.066	2	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 49 58.76918	96 27 08.38979	562018.004	174139.804	.066	2	ADJUSTMENT	1986	17289

<u>NAD27</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
46 49 58.91000	96 27 07.14000			.100	2	CLASSICAL SURVEY	1928	00155

<u>USSD</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
46 49 59.12000	96 27 07.52000				3	CLASSICAL SURVEY		17389-73

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2073508.182	1004165.563	776664.197	17035378.744	.066	2	ADJUSTMENT	1999	17648
2073508.181	1004165.563	776664.196	17035378.744	.066	2	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2073508.783	1004165.481	776664.797	17035378.653	.066	2	ADJUSTMENT	1986	17289

<u>NAD27</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>						<u>Year</u>	<u>Reference</u>
1448912.448	676090.065			.100	2	CLASSICAL SURVEY	1928	00155



Mn/DOT Name: T141N R47W SEC 10 SE COR

NGS Name: T141N R47W SEC 10 SE COR

County: CLAY, MN (Sheet 1)

NGS ACRN: [SL1520](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/1018  
 USGS Quad: FELTON

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	15	141 N	47 W	470206.51	963621.49		2

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1906	1935	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
SEE DESCRIPTIVE TEXT	SEE DESCRIPTION	NGS

**Description:** (1935)

**Stamping:**

5.6 MILES SOUTHWEST OF FELTON, 0.2 MILE NORTH ALONG ATLANTIC AVENUE FROM THE JUNCTION OF ATLANTIC AVENUE AND 4TH STREET IN FELTON, THEN 4.7 MILES WEST ALONG 160TH AVENUE NORTH/7TH STREET, THEN 3.0 MILES SOUTH ALONG 90TH STREET NORTH.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
905.510	.197		819.208	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648

NGVD29			Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
905.510						RECIPROCAL VERTICAL ANGLE	1906	HORZ

Geoid Separations(ft): GEOID18 = -86.844 12B = -86.847 09 = -86.712 03 = -86.689

**Lat/Lon and County Coordinates (Feet)**

NAD83(1996)		Clay County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
47 02 06.50963	96 36 21.49086	523471.440	247789.465	.066	2	ADJUSTMENT	1999	17648
47 02 06.50963	96 36 21.49086	523471.440	247789.465	.066	2	ADJUSTMENT	1998	17655

NAD83(1986)		Clay County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
47 02 06.50835	96 36 21.48226	523472.036	247789.336	.066	2	ADJUSTMENT	1986	17289

NAD27							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
47 02 06.64000	96 36 20.21000			.100	2	CLASSICAL SURVEY	1928	00155

USSD							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
47 02 06.86000	96 36 20.60000				3	CLASSICAL SURVEY		17389-73

**State Plane and UTM Coordinates (Feet)**

NAD83(1996)		MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2037262.573	1078967.561	741621.108	17110798.311	741621.108	17110798.311	.066	2	ADJUSTMENT	1999	17648
2037262.573	1078967.561	741621.108	17110798.311	741621.108	17110798.311	.066	2	ADJUSTMENT	1998	17655

NAD83(1986)		MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2037263.165	1078967.413	741621.698	17110798.154	741621.698	17110798.154	.066	2	ADJUSTMENT	1986	17289

NAD27		MN State Plane - Central Zone					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1412666.868	750890.586			.100	2	CLASSICAL SURVEY	1928	00155



Mn/DOT Name: TAN

NGS Name: TAN

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP7375](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096131/  
 USGS Quad: BIG SLOUGH

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	6	137 N	44 W	464303.65	961724.79		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2013	2013	GOOD	Horz=YES Vert=YES	YES		RECESSED 1 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 30 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2013) **Stamping:** TAN 2013

11.0 MILES SOUTH OF HAWLEY, 11.0 MILES SOUTH ALONG COUNTY ROAD 31 (230TH STREET SOUTH) FROM THE JUNCTION OF COUNTY ROAD 31 AND TRUNK HIGHWAY 10 IN HAWLEY, THEN 1.5 MILES EAST ON COUNTY ROAD 126 (120TH AVENUE SOUTH), 67.4 FEET SOUTH OF COUNTY ROAD 126, 43.2 FEET WEST OF AN ENTRANCE TO THE STATE WILDLIFE MANAGEMENT AREA PARKING LOT, 1.5 FEET SOUTH OF A WITNESS POST.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1195.834			1108.594	.023	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084
1195.805	.131		1108.735	.066	1996	GPS - STATIC	2015	HCLAY
1195.834			1108.594	.023	2011	GPS - STATIC	2015	HCLAY
1195.828	.262		1108.613	.197	2011	GPS - RTRN	2013	RTRN2013

Geoid Separations(ft): GEOID18 = -87.228 12B = -87.214 09 = -87.093 03 = -87.041

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 43 03.65247	96 17 24.79164	602815.840	132251.994	.016		ADJUSTMENT	2015	GPS3084
46 43 03.65247	96 17 24.79164	602815.840	132251.994	.016	C	GPS - STATIC	2015	HCLAY
46 43 03.65243	96 17 24.79127	602815.866	132251.990	.131	3	GPS - RTRN	2013	RTRN2013

NAD83(1996)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 43 03.65204	96 17 24.79241	602815.786	132251.950	.033	C	GPS - STATIC	2015	HCLAY

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone		X	Y	Acc	Order	Determination Method	Year	Reference
2112986.312	961039.124	815460.115	16991601.435	.016		ADJUSTMENT	2015	GPS3084
2112986.312	961039.124	815460.115	16991601.435	.016	C	GPS - STATIC	2015	HCLAY
2112986.338	961039.119	815460.140	16991601.430	.131	3	GPS - RTRN	2013	RTRN2013

NAD83(1996)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone		X	Y	Acc	Order	Determination Method	Year	Reference
2112986.257	961039.082	815460.059	16991601.394	.033	C	GPS - STATIC	2015	HCLAY

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TAN-DP7375-3S-11SEP2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TAN-DP7375-3S-11SEP2013.jpg</a>	S	Sep 11, 2013
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TAN-DP7375-2-11SEP2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TAN-DP7375-2-11SEP2013.jpg</a>		Sep 11, 2013
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TAN-DP7375-1-11SEP2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TAN-DP7375-1-11SEP2013.jpg</a>		Sep 11, 2013

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: TANSEM  
 County: CLAY, MN (Sheet 1)

NGS Name: TANSEM

NGS ACRN: [CU8101](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096124/  
 USGS Quad: ROLLAG

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	10	137 N	44 W	464202.00	961300.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1906	1935	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
PIPE (TILE OR CLAY) FILLED WITH CONCRETE	NAIL	NGS

Description: Stamping: TANSEM 1906

2.9 MILES SOUTH-SOUTHEAST OF ROLLAG, 1.7 MILES SOUTH ALONG TRUNK HIGHWAY 32 SOUTH (270TH STREET SOUTH) FROM THE JUNCTION OF TRUNK HIGHWAY 32 SOUTH (270TH STREET SOUTH) AND 103RD AVENUE SOUTH IN ROLLAG, THEN 1.0 MILE EAST ALONG 120TH AVENUE SOUTH, THEN 1.2 MILES SOUTH ALONG 280TH STREET SOUTH.

\* No Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.195 12B = -87.162 09 = -87.070 03 = -87.018

Lat/Lon and County Coordinates (Feet)

<u>NAD27</u>		<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>								<u>Year</u>	<u>Reference</u>
46 42 02.50200	96 12 59.94300					.100	3	CLASSICAL SURVEY	1945	USGS-HORZ

State Plane and UTM Coordinates (Feet)

<u>NAD27</u>		<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>								<u>Year</u>	<u>Reference</u>
1506597.749	626292.463					.100	3	CLASSICAL SURVEY	1945	USGS-HORZ





Mn/DOT Name: TANSEM AZ MK RESET

NGS Name: TANSEM AZ MK RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP4974](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096124/  
 USGS Quad: ROLLAG

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	10	137 N	44 W	464144.43	961236.28		3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	2014	GOOD	Horz=YES Vert=YES	YES		PROJECTS 12 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	NGS

**Description:** (2014)                      **Stamping:** TANSEM 1906 1935 RESET 1964

9.2 MILES EAST-NORTHEAST OF BURNSVILLE, 8.75 MILES EAST ALONG TRUNK HIGHWAY 34 FROM THE JUNCTION OF TRUNK HIGHWAY 34 AND TRUNK HIGHWAY 9 IN BURNSVILLE, THEN 3.0 MILES NORTH ALONG TRUNK HIGHWAY 32, TO TRUNK HIGHWAY 32 MILEPOST 3.0, THEN 1.0 MILE EAST ON 130TH AVENUE SOUTH, THEN 0.5 MILE SOUTH ON 280TH STREET SOUTH, THEN 0.3 MILE EAST ON 315TH AVENUE SOUTH, 14.0 FEET SOUTH OF 135TH AVENUE SOUTH, 1.8 FEET WEST OF A WITNESS POST.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>						<u>Project Info</u>	
<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Year</u>	<u>Reference</u>
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		
1479.085	.262		1391.920	.197	2011	2014	RTRN2014

Geoid Separations(ft): GEOID18 = -87.201    12B = -87.165    09 = -87.073    03 = -87.021

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>							<u>Project Info</u>		
<u>Geodetic Position</u>			<u>Clay County</u>			<u>Year</u>	<u>Reference</u>		
<u>Latitude</u>	<u>Longitude</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>		
46 41 44.43098	96 12 36.28433		622969.086	124340.664	.131	3	GPS - RTRN	2014	RTRN2014

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>		
2132882.616	952508.586	835225.104	16982748.873	2014	RTRN2014

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<b>Location:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TANSEM_AZ_MK_RESET-CP4974-3S-13MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TANSEM_AZ_MK_RESET-CP4974-3S-13MAY2014.jpg</a>	S	May 13, 2014
<b>Monument:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TANSEM_AZ_MK_RESET-CP4974-2-13MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TANSEM_AZ_MK_RESET-CP4974-2-13MAY2014.jpg</a>		May 13, 2014
<b>Disk:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TANSEM_AZ_MK_RESET-CP4974-1-13MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TANSEM_AZ_MK_RESET-CP4974-1-13MAY2014.jpg</a>		May 13, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: TANSEM RESET

NGS Name: TANSEM RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0911](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096124/1008  
 USGS Quad: ROLLAG

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	10	137 N	44 W	464202.35	961301.17		1

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1935	2014	GOOD	Horz=NO Vert=YES	YES		FLUSH	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	NGS

Description: (2014) Stamping: TANSEM 1906 1935

9.2 MILES EAST-NORTHEAST OF BARNESVILLE, 8.75 MILES EAST ALONG TRUNK HIGHWAY 34 FROM THE JUNCTION OF TRUNK HIGHWAYS 34 AND 9 IN BARNESVILLE, THEN 3.0 MILES NORTH ALONG TRUNK HIGHWAY 32, TO TRUNK HIGHWAY 34 MILEPOST 3.0, THEN 1.0 MILE EAST ON 130TH AVENUE SOUTH, THEN 0.15 MILE SOUTH ON 280TH STREET SOUTH, AT MICROWAVE TOWER ADDRESS NUMBER 13147, 110.92 FEET NORTHWEST OF TANSEM RM 4, 100.5 FEET SOUTHWEST OF TANSEM RM 3, 72.79 FEET NORTHEAST OF TANSEM RM 2, 65.0 FEET SOUTHWEST OF THE SOUTHEAST CORNER OF A BUILDING, 13.0 FEET SOUTHEAST OF THE SOUTHEAST LEG OF A TOWER, 7.0 FEET SOUTHEAST OF A FENCE.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1535.200	.262		1448.038	.197	2011	GPS - RTRN	2014	RTRN2014
1541.335	.131		1454.452	.066	1996	HORIZONTAL ADJUSTMENT	1999	17648

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1539.990						RECIPROCAL VERTICAL ANGLE	1964	HORZ

Geoid Separations(ft): GEOID18 = -87.195 12B = -87.162 09 = -87.070 03 = -87.018

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

<u>Geodetic Position</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 42 02.33637	96 13 01.21150	621220.317	126143.990	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(1996)**

<u>Geodetic Position</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 42 02.35458	96 13 01.17231	621223.038	126145.851	.033	1	ADJUSTMENT	1999	17648
46 42 02.35390	96 13 01.17216	621223.049	126145.782	.033	1	ADJUSTMENT	1998	17655

**NAD83(1986)**

<u>Geodetic Position</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 42 02.35350	96 13 01.16522	621223.532	126145.745	.033	1	ADJUSTMENT	1986	17289

**NAD27**

<u>Geodetic Position</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 42 02.50181	96 12 59.94331			.100	1	CLASSICAL SURVEY	1964	13522

**USSD**

<u>Geodetic Position</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 42 02.70400	96 13 00.31700				3	CLASSICAL SURVEY		17389-73

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2131190.728	954364.974	833562.558	16984632.923	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2131193.504	954366.750	833565.364	16984634.656	.033	1	ADJUSTMENT	1999	17648
2131193.513	954366.681	833565.371	16984634.586	.033	1	ADJUSTMENT	1998	17655

**NAD83(1986)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2131193.996	954366.628	833565.853	16984634.526	.033	1	ADJUSTMENT	1986	17289

**NAD27**

MN State Plane - Central Zone		<u>X</u>	<u>Y</u>	Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1506597.727	626292.444			.100	1	CLASSICAL SURVEY	1964	13522

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TANSEM_RESET-RP0911-3N-13MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TANSEM_RESET-RP0911-3N-13MAY2014.jpg</a>	N	May 13, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TANSEM_RESET-RP0911-2-13MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TANSEM_RESET-RP0911-2-13MAY2014.jpg</a>		May 13, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TANSEM_RESET-RP0911-1-13MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TANSEM_RESET-RP0911-1-13MAY2014.jpg</a>		May 13, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



**Mn/DOT Name:** TANSEM RM

**NGS Name:** TANSEM RM

**County:** CLAY, MN (Sheet 1)

**NGS ACRN:** [CP4976](#) [Get Map](#)  
**NGS Quad / Sta Num :** 46096124/  
**USGS Quad:** ROLLAG

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	10	137 N	44 W	464202.17	961257.50		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1906	1935	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:**

**Stamping:**

2.0 MILES NORTH-NORTHEAST OF TANSEM, 1.0 MILE EAST ALONG 147TH AVENUE SOUTH FROM THE JUNCTION OF 147TH AVENUE SOUTH AND TRUNK HIGHWAY 32 (270TH STREET SOUTH) IN TANSEM, THEN 1.6 MILES NORTH ALONG 280TH STREET SOUTH.

*\* No Horizontal or Vertical Positions in the Database \**

**Geoid Separations(ft):** GEOID18 = -87.195   12B = -87.162   09 = -87.070   03 = -87.018



Mn/DOT Name: TANSEM RM 2

NGS Name: TANSEM RM 2

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP4977](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096124/  
 USGS Quad: ROLLAG

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	10	137 N	44 W	464201.76	961301.75		3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1935	2014	GOOD	Horz=YES Vert=YES	YES		FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ROCK (0 TO 1 METERS)	REFERENCE MARK DISK	NGS

**Description:** **Stamping:** TANSEM NO 2 1935

9.2 MILES NORTH OF BURNSVILLE, 8.75 MILES EAST ALONG TRUNK HIGHWAY 34 FROM THE JUNCTION OF TRUNK HIGHWAY 34 AND TRUNK HIGHWAY 9 IN BURNSVILLE, THEN 3.0 MILES NORTH ON TRUNK HIGHWAY 32 TO TRUNK HIGHWAY 32 MILEPOST 3.0, THEN 1.0 MILE EAST ON 130TH AVENUE SOUTH, THEN 0.15 MILE SOUTH ON 280TH STREET SOUTH AT MICROWAVE TOWER NUMBER 13147, 72.8 FEET SOUTHWEST OF STATION TANSEM RESET, 135.0 FEET SOUTHWEST OF THE SOUTHEAST CORNER OF THE CONCRETE BLOCK BUILDING, 88.0 FEET SOUTHEAST OF THE SOUTHWEST CORNER OF THE HURRICANE FENCE.

**Station Notes**

ROCK PROJECTING 12.0 INCHES ABOVE THE GROUND

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>
1534.928	.262		1447.766	.197	2011	2014	RTRN2014

Geoid Separations(ft): GEOID18 = -87.195 12B = -87.162 09 = -87.070 03 = -87.018

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>
46 42 01.75799	96 13 01.75253	621182.966	126085.160	.131	3	2014	RTRN2014

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Year</u>	<u>Reference</u>
2131151.578	954307.336	833522.471	16984575.899	2014	RTRN2014

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TANSEM_RM_2-CP4977-3N-13MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TANSEM_RM_2-CP4977-3N-13MAY2014.jpg</a>	N	May 13, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TANSEM_RM_2-CP4977-2-13MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TANSEM_RM_2-CP4977-2-13MAY2014.jpg</a>		May 13, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TANSEM_RM_2-CP4977-1-13MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TANSEM_RM_2-CP4977-1-13MAY2014.jpg</a>		May 13, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: TANSEM RM 3

NGS Name: TANSEM RM 3

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP4978](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096124/  
 USGS Quad: ROLLAG

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	10	137 N	44 W	464202.83	961302.46		3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1935	2014	GOOD	Horz=NO Vert=YES	YES		FLUSH	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** **Stamping:** TANSEM 1935 NO 3

9.2 MILES NORTHEAST OF BURNSVILLE, 8.75 MILES EAST ALONG TRUNK HIGHWAY 34 FROM THE JUNCTION OF TRUNK HIGHWAY 34 AND TRUNK HIGHWAY 9 IN BURNSVILLE, THEN 3.0 MILES NORTH ALONG TRUNK HIGHWAY 32 TO TRUNK HIGHWAY 32 MILEPOST 3.0, THEN 1.0 MILE EAST ON 130TH AVENUE SOUTH, THEN 0.15 MILE SOUTH ON 280TH STREET SOUTH, AT MICROWAVE TOWER NUMBER 13147, 100.5 FEET NORTHWEST OF STATION TANSEM RESET, 35.0 FEET NORTHWEST OF THE SOUTHWEST CORNER OF THE HURRICANE FENCE, 1.5 FEET SOUTH OF A METAL WITNESS POST.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>						<u>Project Info</u>	
<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Year</u>	<u>Reference</u>
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		
1532.517	.262		1445.351	.197	2011	2014	RTRN2014
						<u>Determination Method</u>	
						GPS - RTRN	

Geoid Separations(ft): GEOID18 = -87.195 12B = -87.162 09 = -87.070 03 = -87.018

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>			<u>Project Info</u>			
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 42 02.83352	96 13 02.45972			621133.005	126193.824	.131	3	GPS - RTRN	2014	RTRN2014

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>			
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2131105.011	954417.482			833477.660	16984686.822	.131	3	GPS - RTRN	2014	RTRN2014

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<b>Location:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TANSEM_RM_3-CP4978-3E-13MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TANSEM_RM_3-CP4978-3E-13MAY2014.jpg</a>	E	May 13, 2014
<b>Monument:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TANSEM_RM_3-CP4978-2-13MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TANSEM_RM_3-CP4978-2-13MAY2014.jpg</a>		May 13, 2014
<b>Disk:</b>	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TANSEM_RM_3-CP4978-1-13MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TANSEM_RM_3-CP4978-1-13MAY2014.jpg</a>		May 13, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: TANSEM RM 4

NGS Name: TANSEM RM 4

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0909](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096124/1008  
 USGS Quad: ROLLAG

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	10	137 N	44 W	464201.53	961300.12		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	2014	GOOD	Horz=NO Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** (2014)                      **Stamping:** TANSEM 1906 1935 NO 4

9.2 MILES EAST-NORTHEAST OF BARNESVILLE, 8.75 MILES EAST ALONG TRUNK HIGHWAY 34 FROM THE JUNCTION OF TRUNK HIGHWAY 34 AND TRUNK HIGHWAY 9 IN BURNSVILLE, THEN 3.0 MILES NORTH ALONG TRUNK HIGHWAY 32 TO TRUNK HIGHWAY 32 MILEPOST 3.0, THEN 1.0 MILE EAST ON 130TH AVENUE SOUTH, THEN 0.15 MILE SOUTH ON 280TH STREET SOUTH, AT A MICROWAVE TOWER NUMBER 13147, 124.0 FEET SOUTHEAST OF THE SOUTHEAST LEG OF A TOWER, 119.0 FEET SOUTH OF THE SOUTHEAST CORNER OF A BUILDING, 110.92 FEET SOUTHEAST OF STATION TANSEM RESET, 4.2 FEET WEST OF A WITNESS POST.

**Station Notes**

THE MARK IS IN THE TREES BETWEEN 2 MICROWAVE TOWERS.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>		
1536.493	.262		1449.328	.197	2011	GPS - RTRN	2014	RTRN2014	
			1449.587	.066	1996	GPS - STATIC	2001	DIST 4	
1535.430	.197		1448.547	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648	

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>		
1535.397						RECIPROCAL VERTICAL ANGLE	1964	HORZ	

Geoid Separations(ft): GEOID18 = -87.195    12B = -87.162    09 = -87.070    03 = -87.018

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	
46 42 01.53254	96 13 00.11928	621296.947	126063.018	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(1996)**

<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	
46 42 01.53203	96 13 00.11955	621296.930	126062.966	.033	C	GPS - STATIC	2001	DIST 4
46 42 01.53264	96 13 00.12095	621296.831	126063.027	.066	2	ADJUSTMENT	1999	17648
46 42 01.53197	96 13 00.12079	621296.843	126062.959	.066	2	ADJUSTMENT	1998	17655

**NAD83(1986)**

<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	
46 42 01.53168	96 13 00.11400	621297.316	126062.933	.066	2	ADJUSTMENT	1986	17289

**NAD27**

<u>Geodetic Position</u>		<u>Determination Method</u>			<u>Project Info</u>			
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	
46 42 01.67988	96 12 58.89197			.100	2	CLASSICAL SURVEY	1964	13522

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2131264.805	954281.678	833635.318	16984548.415	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2131264.785	954281.627	833635.297	16984548.364	.033	C	GPS - STATIC	2001	DIST 4
2131264.689	954281.691	833635.202	16984548.430	.066	2	ADJUSTMENT	1999	17648
2131264.699	954281.623	833635.211	16984548.362	.066	2	ADJUSTMENT	1998	17655

**NAD83(1986)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
2131265.171	954281.582	833635.682	16984548.313	.066	2	ADJUSTMENT	1986	17289

**NAD27**

MN State Plane - Central Zone		<u>X</u>	<u>Y</u>	Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>						<u>Year</u>	<u>Reference</u>
1506668.913	626207.387			.100	2	CLASSICAL SURVEY	1964	13522

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TANSEM_RM_4-RP0909-3E-13MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TANSEM_RM_4-RP0909-3E-13MAY2014.jpg</a>	E	May 13, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TANSEM_RM_4-RP0909-2-13MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TANSEM_RM_4-RP0909-2-13MAY2014.jpg</a>		May 13, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TANSEM_RM_4-RP0909-1-13MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TANSEM_RM_4-RP0909-1-13MAY2014.jpg</a>		May 13, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: TANSEM TV STA WDAY RELAY TOWER

NGS Name: TANSEM TV STA WDAY RELAY TOWER

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0907](#) [Get Map](#)  
NGS Quad / Sta Num : 46096124/1051  
USGS Quad: ROLLAG

		<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	16	137 N 44 W	464105.44 961419.89		4

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	2022	NOT FOUND	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	RADIO/TV TOWER	NGS

Description: (1964)

Stamping:

4.0 MILES SOUTH OF ROLLAG, 0.7 MILE NORTH-NORTHWEST OF TANSEM, 0.7 MILE NORTH ALONG TRUNK HIGHWAY 32 NORTH (270TH STREET SOUTH) FROM THE JUNCTION OF TRUNK HIGHWAY 32 NORTH (270TH STREET SOUTH) AND 147TH AVENUE SOUTH IN TANSEM, 0.5 MILE NORTH OF TANSEM, ON THE WEST SIDE OF TRUNK HIGHWAY 32.

\* No Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.211 12B = -87.168 09 = -87.083 03 = -87.034

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 41 05.44367	96 14 19.88539	615770.328	120347.099	.328	4	ADJUSTMENT	1999	17648
46 41 05.44295	96 14 19.88528	615770.336	120347.026	.328	4	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 41 05.44266	96 14 19.87842	615770.814	120346.999	.328	4	ADJUSTMENT	1986	17289

<u>NAD27</u>						<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 41 05.59106	96 14 18.65272			.100	4	CLASSICAL SURVEY	1964	13522

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2125564.537	948740.285	827844.521	16979096.971	.328	4	ADJUSTMENT	1999	17648
2125564.542	948740.211	827844.526	16979096.897	.328	4	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2125565.020	948740.170	827845.002	16979096.848	.328	4	ADJUSTMENT	1986	17289

<u>NAD27</u>						<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1500968.877	620665.996			.100	4	CLASSICAL SURVEY	1964	13522



Mn/DOT Name: TBM 1 L8252

NGS Name: TBM 1

County: CLAY, MN (Sheet 1)

NGS ACRN: [BA5275](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	10	139 N	48 W	465227.00	964407.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1938	1938	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

**Description:** (2010)

**Stamping:**

1.7 MILES EAST OF MOORHEAD, 456.0 FEET NORTH ALONG 8TH STREET FROM THE JUNCTION OF 8TH STREET AND MAIN AVENUE, THEN 1.5 MILES EAST ON TRUNK HIGHWAY 10, THEN 285.0 FEET SOUTH ON 28TH STREET NORTH.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.044 12B = -87.037 09 = -86.913 03 = -86.857



Mn/DOT Name: TBM 1 VSYRE

NGS Name: TBM 1

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP2111](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096223/  
 USGS Quad: TILDE LAKE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	27	142 N	44 W	470442.00	961430.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
	2022	NOT FOUND	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
OBJECT DRIVEN INTO THE GROUND	METAL ROD	MNDT

**Description:** 0.8 MILE EAST OF ULEN, 0.8 MILE EAST ALONG 160TH AVENUE NORTH FROM THE JUNCTION OF 160TH AVENUE NORTH AND 1ST STREET NORTHWEST IN ULEN.  
**Stamping:**

**Station Notes**  
 TEMPORARY BENCHMARK. 18.0 INCH LONG BY 3/4 INCH DIAMETER IRON PIN.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1156.645	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941	
1156.769	.016	2/1				VERTICAL CONTROL SURVEY	2004	VSYRE	

Geoid Separations(ft): GEOID18 = -87.605 12B = -87.608 09 = -87.490 03 = -87.474

\* No Horizontal Positions in the Database \*



Mn/DOT Name: TBM 10 L3620

NGS Name: TBM 10

County: CLAY, MN (Sheet 1)

NGS ACRN: [BI5418](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096141/  
 USGS Quad: HAWLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	33	140 N	44 W	465414.00	961528.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1934	1934	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

3.2 MILES NORTHEAST OF HAWLEY, 0.6 MILE WEST OF THE MANITOBA JUNCTION, 1.2 MILES WEST ALONG 28TH AVENUE  
 NORTH FROM THE JUNCTION OF 28TH AVENUE NORTH AND 270TH STREET NORTH

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.894 12B = -87.877 09 = -87.772 03 = -87.710



Mn/DOT Name: TBM 10 L8252

NGS Name: TBM 10

County: CLAY, MN (Sheet 1)

NGS ACRN: [BA5284](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	12	140 N	47 W	465726.00	963310.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1938	1938	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

0.9 MILE SOUTH OF AVERILL, 0.4 MILE SOUTH ALONG COUNTY HIGHWAY 19 FROM THE JUNCTION OF COUNTY HIGHWAY 19 AND COUNTY ROAD 93.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.228 12B = -87.224 09 = -87.086 03 = -87.067



Mn/DOT Name: TBM 11 L8252

NGS Name: TBM 11

County: CLAY, MN (Sheet 1)

NGS ACRN: [BA5285](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	31	141 N	46 W	465853.00	963236.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1938	1938	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

0.8 MILE NORTH OF AVERILL, 0.3 MILE NORTH ALONG COUNTY HIGHWAY 19 FROM THE JUNCTION OF COUNTY HIGHWAY 19 AND COUNTY HIGHWAY 26.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.126 12B = -87.145 09 = -86.988 03 = -86.955



Mn/DOT Name: TBM 12 L8252

NGS Name: TBM 12

County: CLAY, MN (Sheet 1)

NGS ACRN: [BA5286](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/  
 USGS Quad: FELTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	20	141 N	46 W	470051.00	963149.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1938	1938	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

**Description:** (2010)

**Stamping:**

3.1 MILES NORTH OF AVERILL, 1.1 MILES EAST ALONG COUNTY HIGHWAY 26 FROM THE JUNCTION OF COUNTY HIGHWAY 26 AND COUNTY ROAD 93, THEN 2.6 MILES NORTH ON 101ST STREET NORTH/130TH STREET NORTH.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.060 12B = -87.073 09 = -86.932 03 = -86.909



Mn/DOT Name: TBM 13 L8252

NGS Name: TBM 13

County: CLAY, MN (Sheet 1)

NGS ACRN: [BA5287](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/  
 USGS Quad: FELTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	20	141 N	46 W	470112.00	963140.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1938	1938	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

4.2 MILES NORTH OF AVERILL, 2.1 MILES EAST ALONG 90TH AVENUE NORTH FROM THE JUNCTION OF 90TH AVENUE NORTH AND 120TH STREET NORTH, THEN 3.0 MILES NORTH ON TRUNK HIGHWAY 9, THEN 1.3 MILES WEST ON 120TH AVENUE NORTH.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.060 12B = -87.070 09 = -86.929 03 = -86.913



Mn/DOT Name: TBM 14 L8252

NGS Name: TBM 14

County: CLAY, MN (Sheet 1)

NGS ACRN: [BA5288](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/  
 USGS Quad: FELTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	20	141 N	46 W	470114.00	963140.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1938	1938	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

4.2 MILES NORTH OF AVERILL, 3.0 MILES NORTH ALONG COUNTY HIGHWAY 19 FROM THE JUNCTION OF COUNTY HIGHWAY 19 AND COUNTY HIGHWAY 26, THEN 0.7 MILE EAST ON 120TH AVENUE NORTH.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.057 12B = -87.070 09 = -86.929 03 = -86.909



Mn/DOT Name: TBM 15 L8252

NGS Name: TBM 15

County: CLAY, MN (Sheet 1)

NGS ACRN: [BA5289](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/  
 USGS Quad: FELTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	28	142 N	46 W	470443.00	963025.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1938	1938	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

0.2 MILE NORTH OF FELTON, 0.2 MILE NORTH ALONG ATLANTIC AVENUE FROM THE JUNCTION OF ATLANTIC AVENUE AND 4TH STREET, THEN 89.0 FEET WEST ON 7TH STREET.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.073 12B = -87.090 09 = -86.958 03 = -86.942



Mn/DOT Name: TBM 16 L8252

NGS Name: TBM 16

County: CLAY, MN (Sheet 1)

NGS ACRN: [BA5290](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/  
 USGS Quad: FELTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	28	142 N	46 W	470448.00	963024.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1938	1938	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

0.2 MILE NORTHWEST OF FELTON, 0.2 MILE NORTH ALONG ATLANTIC AVENUE FROM THE JUNCTION OF ATLANTIC AVENUE AND 4TH STREET.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.073 12B = -87.090 09 = -86.958 03 = -86.942



Mn/DOT Name: TBM 17 L8252

NGS Name: TBM 17

County: CLAY, MN (Sheet 1)

NGS ACRN: [BA5291](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/  
 USGS Quad: FELTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	28	142 N	46 W	470531.00	963025.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1938	1938	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

2.5 MILES NORTH OF FELTON, 0.3 MILE EAST ALONG 7TH STREET FROM THE JUNCTION OF 7TH STREET AND ATLANTIC AVENUE, THEN 1.0 MILE NORTH ON TRUNK HIGHWAY 9.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.083 12B = -87.100 09 = -86.972 03 = -86.952



Mn/DOT Name: TBM 18 L8252

NGS Name: TBM 18

County: CLAY, MN (Sheet 1)

NGS ACRN: [BA5292](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/  
 USGS Quad: FELTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	21	142 N	46 W	470625.00	963026.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1938	1938	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

2.0 MILES NORTH OF FELTON, 0.3 MILE EAST ALONG 7TH STREET FROM THE JUNCTION OF 7TH STREET AND ATLANTIC AVENUE, THEN 2.0 MILES NORTH ON TRUNK HIGHWAY 9, THEN 0.3 MILE WEST ON 180TH AVENUE NORTH.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.113 12B = -87.126 09 = -87.004 03 = -86.981



Mn/DOT Name: TBM 19 L8252

NGS Name: TBM 19

County: CLAY, MN (Sheet 1)

NGS ACRN: [BA5293](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/  
 USGS Quad: FELTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	21	142 N	46 W	470628.00	963026.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1938	1938	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

2.0 MILES NORTH OF FELTON, 0.3 MILE EAST ALONG 7TH STREET FROM THE JUNCTION OF 7TH STREET AND ATLANTIC AVENUE, THEN 2.0 MILES NORTH ON 140TH STREET NORTH, THEN 0.3 MILE WEST ON 180TH AVENUE NORTH.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.113 12B = -87.126 09 = -87.004 03 = -86.985



Mn/DOT Name: TBM 2 L8252

NGS Name: TBM 2

County: CLAY, MN (Sheet 1)

NGS ACRN: [BA5276](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	11	139 N	48 W	465226.00	964225.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1938	1938	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

0.3 MILE SOUTHWEST OF DILWORTH, 0.2 MILE SOUTH ALONG 1ST AVENUE SOUTHEAST FROM THE JUNCTION OF 1ST AVENUE SOUTHEAST AND 2ND AVENUE SOUTHEAST, THEN 0.3 MILE WEST ON 2ND AVENUE SOUTHWEST

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.119 12B = -87.113 09 = -86.981 03 = -86.932



Mn/DOT Name: TBM 2 VSYRE

NGS Name: TBM 2

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP2112](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096223/  
 USGS Quad: TILDE LAKE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	26	142 N	44 W	470442.00	961306.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
	2004	GOOD	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
OBJECT DRIVEN INTO THE GROUND	METAL ROD	MNDT

**Description:** **Stamping:**  
 1.5 MILES EAST OF ULEN, 1.9 MILES EAST ALONG 160TH AVENUE NORTH FROM THE JUNCTION OF 160TH AVENUE NORTH AND 1ST STREET NORTHWEST IN ULEN.

**Station Notes**  
 TEMPORARY BENCHMARK. 18.0 INCH LONG BY 3/4 INCH DIAMETER IRON PIN.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1167.760	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941	
1167.885	.016	2/1				VERTICAL CONTROL SURVEY	2004	VSYRE	

Geoid Separations(ft): GEOID18 = -87.651 12B = -87.657 09 = -87.542 03 = -87.510

\* No Horizontal Positions in the Database \*



Mn/DOT Name: TBM 20 L8252

NGS Name: TBM 20

County: CLAY, MN (Sheet 1)

NGS ACRN: [BA5294](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/  
 USGS Quad: FELTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	16	142 N	46 W	470701.00	963028.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1938	1938	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

2.7 MILES NORTH OF FELTON, 1.1 MILES EAST ALONG 130TH STREET NORTH FROM THE JUNCTION OF 10TH STREET AND 7TH STREET, THEN 2.7 MILES NORTH ON TRUNK HIGHWAY 9.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.139 12B = -87.145 09 = -87.034 03 = -87.008



Mn/DOT Name: TBM 21 L8252

NGS Name: TBM 21

County: CLAY, MN (Sheet 1)

NGS ACRN: [BA5295](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/  
 USGS Quad: FELTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	9	142 N	46 W	470721.00	963030.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1938	1938	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

3.2 MILES NORTH OF FELTON, 1.0 MILE EAST ALONG 7TH STREET FROM THE JUNCTION OF 7TH STREET AND 130TH STREET NORTH, THEN 3.0 MILES NORTH ON TRUNK HIGHWAY 9, THEN 112.0 FEET ON 190TH AVENUE NORTH.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.152 12B = -87.159 09 = -87.050 03 = -87.024



Mn/DOT Name: TBM 22 L8252

NGS Name: TBM 22

County: CLAY, MN (Sheet 1)

NGS ACRN: [BA5296](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/  
 USGS Quad: FELTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	9	142 N	46 W	470722.00	963030.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1938	1938	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

3.1 MILES NORTH OF FELTON, 1.0 MILE EAST ALONG 7TH STREET FROM THE JUNCTION OF 7TH STREET AND 130TH STREET NORTH, 3.0 MILES NORTH ON TRUNK HIGHWAY 9, THEN 0.4 MILE WEST ON 190TH AVENUE NORTH.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.155 12B = -87.159 09 = -87.050 03 = -87.027



Mn/DOT Name: TBM 23 L8252

NGS Name: TBM 23

County: CLAY, MN (Sheet 1)

NGS ACRN: [BA5297](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096321/  
 USGS Quad: BORUP

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	9	142 N	46 W	470802.00	963026.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1938	1938	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

**Description:** (2010)

**Stamping:**

3.8 MILES NORTH OF FELTON, 1.0 MILE EAST ALONG 7TH STREET FROM THE JUNCTION OF 7TH STREET AND 130TH STREET NORTH, THEN 4.0 MILES NORTH ON TRUNK HIGHWAY 9, THEN 0.3 MILE WEST ON 200TH AVENUE NORTH.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.188 12B = -87.191 09 = -87.093 03 = -87.063



Mn/DOT Name: TBM 230 L333

NGS Name: TBM 230

County: CLAY, MN (Sheet 1)

NGS ACRN: [BT6590](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	9	139 N	48 W	465228.00	964520.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1931	1931	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

0.7 MILE NORTHWEST OF MOORHEAD, 463.0 FEET NORTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND TRUNK HIGHWAY 10, THEN 0.5 MILE EAST ON TRUNK HIGHWAY 10.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -86.981 12B = -86.975 09 = -86.857 03 = -86.798



Mn/DOT Name: TBM 231 L333

NGS Name: TBM 231

County: CLAY, MN (Sheet 1)

NGS ACRN: [BT6591](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	9	139 N	48 W	465227.00	964422.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1931	1931	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

**Description:** (2010)

**Stamping:**

1.5 MILE NORTHEAST OF MOORHEAD, 463.0 FEET NORTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND TRUNK HIGHWAY 10, THEN 1.4 MILES EAST ON TRUNK HIGHWAY 10.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.034 12B = -87.024 09 = -86.899 03 = -86.847



Mn/DOT Name: TBM 232 L333

NGS Name: TBM 232

County: CLAY, MN (Sheet 1)

NGS ACRN: [BT6592](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	10	139 N	48 W	465227.00	964326.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1931	1931	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

**Description:** (2010)

**Stamping:**

1.0 MILE WEST OF DILWORTH, 1.2 MILES WEST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION WITH 2ND STREET  
 NORTHEAST, THEN 0.2 MILE SOUTH ON 34TH STREET NORTH.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.073 12B = -87.067 09 = -86.939 03 = -86.886



Mn/DOT Name: TBM 233 L333

NGS Name: TBM 233

County: CLAY, MN (Sheet 1)

NGS ACRN: [BT6593](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	11	139 N	48 W	465226.00	964229.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1931	1931	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

0.5 MILE SOUTHWEST OF DILWORTH, 0.1 MILE WEST ALONG 1ST AVENUE STREET FROM THE JUNCTION OF 1ST AVENUE STREET AND COUNTY HIGHWAY 45, THEN 0.2 MILE WEST ON 2ND AVENUE SOUTHWEST.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.116 12B = -87.109 09 = -86.981 03 = -86.929



Mn/DOT Name: TBM 234 L333

NGS Name: TBM 234

County: CLAY, MN (Sheet 1)

NGS ACRN: [BT6594](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	12	139 N	48 W	465226.00	964044.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1931	1931	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

**Description:** (2010)

**Stamping:**

1.2 MILE EAST OF DILWORTH, 285.0 FEET NORTH ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND 1ST AVENUE STREET, THEN 0.9 MILE EAST ON TRUNK HIGHWAY 10.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.188 12B = -87.185 09 = -87.047 03 = -86.998



Mn/DOT Name: TBM 235 L333

NGS Name: TBM 235

County: CLAY, MN (Sheet 1)

NGS ACRN: [BT6595](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	7	139 N	47 W	465226.00	963927.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1931	1931	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

2.1 MILES EAST OF DILWORTH, 0.5 MILE EAST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND 4TH STREET AVENUE SOUTHEAST, THEN 1.4 MILES EAST ON TRUNK HIGHWAY 10, THEN 0.5 MILE SOUTHEAST ON 70TH STREET SOUTH.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.241 12B = -87.244 09 = -87.096 03 = -87.054



Mn/DOT Name: TBM 236 L333

NGS Name: TBM 236

County: CLAY, MN (Sheet 1)

NGS ACRN: [BT6596](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	8	139 N	47 W	465226.00	963829.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1931	1931	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

2.9 MILES EAST OF DILWORTH, 2.5 MILES EAST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND 7TH STREET NORTHEAST.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.283 12B = -87.293 09 = -87.139 03 = -87.100



Mn/DOT Name: TBM 237 L333

NGS Name: TBM 237

County: CLAY, MN (Sheet 1)

NGS ACRN: [BT6597](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	9	139 N	47 W	465228.00	963647.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1931	1931	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

**Description:** (2010)

**Stamping:**

1.6 MILES WEST OF GLYNDON, 1.4 MILES WEST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND PARKE AVENUE SOUTH, THEN 0.2 MILE SOUTH ON COUNTY ROAD 68 (90TH STREET SOUTH).

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.375 12B = -87.382 09 = -87.231 03 = -87.191



Mn/DOT Name: TBM 238 L333

NGS Name: TBM 238

County: CLAY, MN (Sheet 1)

NGS ACRN: [BT6598](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	10	139 N	47 W	465229.00	963554.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1931	1931	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

1.1 MILES WEST OF GLYNDON, 0.9 MILE WEST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND PARKE AVENUE SOUTH.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.424 12B = -87.428 09 = -87.283 03 = -87.244



Mn/DOT Name: TBM 239 L333

NGS Name: TBM 239

County: CLAY, MN (Sheet 1)

NGS ACRN: [BT6599](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	11	139 N	47 W	465231.00	963503.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1931	1931	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

**Description:** (2010)

**Stamping:**

0.4 MILE WEST OF GLYNDON, 0.1 MILE NORTH ALONG PARKE AVENUE SOUTH FROM THE JUNCTION OF PARKE AVENUE SOUTH AND 4TH STREET SOUTHEAST, THEN 0.2 MILE WEST ON 2ND STREET SOUTHWEST, 108.0 FEET SOUTHWEST, THEN 157.0 FEET EAST.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.474 12B = -87.477 09 = -87.333 03 = -87.290



Mn/DOT Name: TBM 240 L333

NGS Name: TBM 240

County: CLAY, MN (Sheet 1)

NGS ACRN: [BT6600](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	2	139 N	47 W	465328.00	963441.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1931	1931	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

1.2 MILE NORTH OF GLYNDON, 0.2 MILE NORTH ALONG COUNTY ROAD FROM THE JUNCTION OF COUNTY ROAD AND 2ND STREET SOUTHWEST, THEN 0.5 MILE NORTH ON COUNTY ROAD 19.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.437 12B = -87.447 09 = -87.290 03 = -87.257



Mn/DOT Name: TBM 241 L333

NGS Name: TBM 241

County: CLAY, MN (Sheet 1)

NGS ACRN: [BT6601](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	35	140 N	47 W	465404.00	963427.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1931	1931	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

1.8 MILES NORTH OF GLYNDON, 1.8 MILES NORTH ALONG COUNTY HIGHWAY 19 FROM THE JUNCTION OF COUNTY HIGHWAY 19 AND TRUNK HIGHWAY 10.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.411 12B = -87.421 09 = -87.264 03 = -87.234



Mn/DOT Name: TBM 242 L333

NGS Name: TBM 242

County: CLAY, MN (Sheet 1)

NGS ACRN: [BT6602](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	26	140 N	47 W	465451.00	963410.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1931	1931	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

3.0 MILES NORTH OF GLYNDON, 2.7 MILES NORTH ALONG COUNTY ROAD 19 FROM THE JUNCTION OF COUNTY ROAD 19 AND TRUNK HIGHWAY 10.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.382 12B = -87.385 09 = -87.228 03 = -87.205



Mn/DOT Name: TBM 243 L333

NGS Name: TBM 243

County: CLAY, MN (Sheet 1)

NGS ACRN: [BT6603](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	24	140 N	47 W	465514.00	963401.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1931	1931	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

3.3 MILES NORTH-NORTHEAST OF GLYNDON, 3.1 MILES NORTH ALONG COUNTY HIGHWAY 19 FROM THE JUNCTION OF COUNTY HIGHWAY 19 AND TRUNK HIGHWAY 10.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.365 12B = -87.362 09 = -87.214 03 = -87.191



Mn/DOT Name: TBM 244 L333

NGS Name: TBM 244

County: CLAY, MN (Sheet 1)

NGS ACRN: [BT6604](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	24	140 N	47 W	465555.00	963346.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1931	1931	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

4.7 MILES NORTH OF GLYNDON, 4.4 MILES NORTH ALONG COUNTY HIGHWAY 19 FROM THE JUNCTION OF COUNTY HIGHWAY 19 AND TRUNK HIGHWAY 10, THEN 0.3 MILE EAST ON COUNTY ROAD 91.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.333 12B = -87.319 09 = -87.185 03 = -87.168



Mn/DOT Name: TBM 245 L333

NGS Name: TBM 245

County: CLAY, MN (Sheet 1)

NGS ACRN: [BT6605](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	11	139 N	47 W	465146.00	963458.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1931	1931	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

1.1 MILES SOUTH OF GLYNDON, 1.1 MILES SOUTH ALONG PARK AVENUE SOUTH FROM THE JUNCTION OF PARK AVENUE AND TRUNK HIGHWAY 10, THEN 0.1 MILE WEST ON COUNTY ROAD 72.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.510 12B = -87.510 09 = -87.375 03 = -87.323



Mn/DOT Name: TBM 3 L8252

NGS Name: TBM 3

County: CLAY, MN (Sheet 1)

NGS ACRN: [BA5277](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	12	139 N	48 W	465227.00	964030.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1938	1938	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

**Description:**

**Stamping:**

6.0 MILES WEST OF GLYNDON, 3.3 MILES WEST ALONG PARKE AVENUE SOUTH FROM THE JUNCTION OF PARKE AVENUE SOUTH AND TRUNK HIGHWAY 10, THEN 0.5 MILE SOUTH ONTO TRUNK HIGHWAY 336, THEN 0.1 MILE WEST ON COUNTY ROAD 72, THEN 0.4 MILE NORTH ON 60TH STREET SOUTH.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.195 12B = -87.195 09 = -87.054 03 = -87.008



Mn/DOT Name: TBM 4 L8252

NGS Name: TBM 4

County: CLAY, MN (Sheet 1)

NGS ACRN: [BA5278](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	9	139 N	47 W	465226.00	963651.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1938	1938	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

**Description:** (2010)

**Stamping:**

1.6 MILES WEST OF GLYNDON, 1.4 MILES WEST ALONG PARKE AVENUE SOUTH FROM THE JUNCTION OF PARKE AVENUE SOUTH AND TRUNK HIGHWAY 10, THEN 0.2 MILE NORTH ON 90TH STREET SOUTH.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.372 12B = -87.378 09 = -87.228 03 = -87.188



Mn/DOT Name: TBM 43 59228

NGS Name: TBM 43

County: CLAY, MN (Sheet 1)

NGS ACRN: [BZ3170](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	31	137 N	45 W	463751.00	962441.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1905	1905	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

1.8 MILES SOUTH OF BARNESVILLE, 1.6 MILES SOUTH ALONG FRONT STREET SOUTH FROM THE JUNCTION OF FRONT STREET SOUTH AND MAIN AVENUE WEST, THEN 92.0 FEET EAST ON 180TH AVENUE SOUTH.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.139 12B = -87.126 09 = -87.041 03 = -86.991



Mn/DOT Name: TBM 44 59228

NGS Name: TBM 44

County: CLAY, MN (Sheet 1)

NGS ACRN: [BZ3171](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	24	137 N	46 W	464004.00	962540.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1905	1905	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

1.2 MILES NORTH OF BARNESVILLE, 0.6 MILE NORTH ALONG FRONT STREET NORTH FROM THE JUNCTION OF FRONT AVENUE AND MAIN AVENUE EAST, 0.2 MILE NORTHWEST ON COUNTY ROAD 52, THEN 0.3 MILE NORTH ON 175TH STREET SOUTH.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.054 12B = -87.047 09 = -86.952 03 = -86.899



Mn/DOT Name: TBM 44 A 59228

NGS Name: TBM 44 A

County: CLAY, MN (Sheet 1)

NGS ACRN: [BZ3172](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	23	137 N	46 W	464027.00	962654.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1905	1905	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

2.7 MILES NORTHWEST OF BARNESVILLE, 2.3 MILES NORTHWEST ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND MAIN AVENUE EAST, 1.7 MILES NORTHWEST ON COUNTY ROAD 52, THEN 489.0 FEET EAST ON COUNTY ROAD 55.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.031 12B = -87.027 09 = -86.932 03 = -86.876



Mn/DOT Name: TBM 44 B 59228

NGS Name: TBM 44 B

County: CLAY, MN (Sheet 1)

NGS ACRN: [BZ3173](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	15	137 N	46 W	464051.00	962812.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1905	1905	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

**Description:** (2010)

**Stamping:**

2.9 MILES NORTHWEST OF BARNESVILLE, 0.1 MILE NORTHWEST TRUNK ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY HIGHWAY 2, THEN 2.7 MILES WEST ON TRUNK HIGHWAY 52 SOUTH.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.011 12B = -87.011 09 = -86.913 03 = -86.854



Mn/DOT Name: TBM 44 C 59228

NGS Name: TBM 44 C

County: CLAY, MN (Sheet 1)

NGS ACRN: [BZ3174](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	16	137 N	46 W	464114.00	962927.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1905	1905	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

**Description:** (2010)

**Stamping:**

3.9 MILES NORTHWEST OF BARNESVILLE, 0.1 MILE NORTHWEST ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 2, THEN 3.8 MILES NORTHWEST ON TRUNK HIGHWAY 52 SOUTH.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -86.998 12B = -87.008 09 = -86.906 03 = -86.840



Mn/DOT Name: TBM 45 59228

NGS Name: TBM 45

County: CLAY, MN (Sheet 1)

NGS ACRN: [BZ3175](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	11	137 N	46 W	464132.00	962633.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1905	1905	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

3.1 MILES NORTH OF BARNESVILLE, 2.0 MILES NORTH ALONG TRUNK HIGHWAY 9 FROM THE TRUNK HIGHWAY 9 AND COUNTY ROAD 2, THEN 0.4 MILE WEST 140TH AVENUE SOUTH, THEN 0.4 MILE NORTH ON 170TH STREET SOUTH.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.077 12B = -87.083 09 = -86.968 03 = -86.909



Mn/DOT Name: TBM 46 59228

NGS Name: TBM 46

County: CLAY, MN (Sheet 1)

NGS ACRN: [BZ3176](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	2	137 N	46 W	464217.00	962705.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1905	1905	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

3.9 MILES NORTHWEST OF BARNESVILLE, 3.4 MILES NORTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 2, THEN 0.4 MILE WEST ON COUNTY ROAD 71.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.126 12B = -87.129 09 = -87.014 03 = -86.958



Mn/DOT Name: TBM 47 59228

NGS Name: TBM 47

County: CLAY, MN (Sheet 1)

NGS ACRN: [BZ3177](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	2	137 N	46 W	464252.00	962729.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1905	1905	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

4.7 MILES NORTHWEST OF BARNESVILLE, 4.5 MILES NORTHERLY ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND TRUNK HIGHWAY 34.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.178 12B = -87.175 09 = -87.070 03 = -87.014



Mn/DOT Name: TBM 48 59228

NGS Name: TBM 48

County: CLAY, MN (Sheet 1)

NGS ACRN: [BZ3178](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	34	138 N	46 W	464334.00	962758.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1905	1905	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

5.6 MILES NORTHWEST OF BARNESVILLE, 5.4 MILES NORTHERLY ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND TRUNK HIGHWAY 34.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.260 12B = -87.241 09 = -87.142 03 = -87.096



Mn/DOT Name: TBM 49 59228

NGS Name: TBM 49

County: CLAY, MN (Sheet 1)

NGS ACRN: [BZ3179](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	27	138 N	46 W	464420.00	962830.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1905	1905	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

**Description:** (2010)

**Stamping:**

1.2 MILES SOUTHEAST OF DOWNER, 1.1 MILES SOUTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY HIGHWAY 10.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.349 12B = -87.319 09 = -87.221 03 = -87.185



Mn/DOT Name: TBM 5 L8252

NGS Name: TBM 5

County: CLAY, MN (Sheet 1)

NGS ACRN: [BA5279](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	11	139 N	47 W	465232.00	963451.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1938	1938	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

0.2 MILE WEST OF GLYNDON, 131.0 FEET WEST ALONG 2ND STREET SOUTHEAST FROM THE JUNCTION OF 2ND STREET SOUTHEAST AND PARKE AVENUE SOUTH.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.483 12B = -87.487 09 = -87.342 03 = -87.303



Mn/DOT Name: TBM 50 59228

NGS Name: TBM 50

County: CLAY, MN (Sheet 1)

NGS ACRN: [BZ3180](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096143/  
 USGS Quad: DOWNER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	16	138 N	46 W	464554.00	962936.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1905	1905	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

**Description:** (2010)

**Stamping:**

1.0 MILE NORTH OF DOWNER, 0.9 MILE NORTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY HIGHWAY 10.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.490 12B = -87.470 09 = -87.365 03 = -87.316



Mn/DOT Name: TBM 51 59228

NGS Name: TBM 51

County: CLAY, MN (Sheet 1)

NGS ACRN: [BZ3181](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	8	138 N	46 W	464711.00	963041.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1905	1905	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

2.5 MILES NORTH OF DOWNER, 2.7 MILES NORTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY HIGHWAY 10, THEN 0.3 MILE WEST ON COUNTY ROAD 71.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.559 12B = -87.562 09 = -87.441 03 = -87.369



Mn/DOT Name: TBM 52 1 L22167-3

NGS Name: TBM 52 1

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0015](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	30	137 N	45 W	463841.00	962503.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1968	2022	NOT FOUND	Horz=NO Vert=NO	NO		PROJECTS 12 IN.	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE FOOTING - SMALL	SEE DESCRIPTION	MNDT

Description: (1968)

Stamping:

IN BARNESVILLE, NEAR THE SOUTH EDGE OF TOWN, 0.5 MILE SOUTH ALONG FRONT STREET SOUTH FROM THE JUNCTION OF FRONT STREET SOUTH AND 2ND AVENUE SOUTHEAST IN BARNESVILLE, THEN 285.0 FEET EAST ALONG 9TH AVENUE SOUTHEAST, IN THE NORTHWEST QUADRANT OF A TEE-INTERSECTION, 27.0 FEET NORTH AND 27.0 FEET WEST OF A TEE-ROAD, 175.0 FEET EAST OF TRUNK HIGHWAY 52, 8.0 FEET EAST OF A CLUMP OF BOX ELDERS, A CHISELED X IN THE TOP OF THE SOUTH BOLT OF A FIRE HYDRANT.

Station Notes

THIS MARK MAY ALSO BE TBM 52 1 (AN8297).

Leveling-Derived Orthometric Heights (Feet)

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1035.228	.007	1/1				UNKNOWN/APPROXIMATE	1992	UNCHECKD	

Geoid Separations(ft): GEOID18 = -87.090 12B = -87.080 09 = -86.985 03 = -86.939

\* No Horizontal Positions in the Database \*



Mn/DOT Name: TBM 52 59228

NGS Name: TBM 52

County: CLAY, MN (Sheet 1)

NGS ACRN: [BZ3182](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	5	138 N	46 W	464757.00	963124.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1905	1905	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

3.6 MILES NORTH OF DOWNER, 2.7 MILES NORTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY HIGHWAY 10, THEN 1.0 MILE WEST ON COUNTY ROAD 71, THEN 0.6 MILE NORTH ON 130TH STREET SOUTH.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.585 12B = -87.598 09 = -87.467 03 = -87.388



Mn/DOT Name: TBM 53 59228

NGS Name: TBM 53

County: CLAY, MN (Sheet 1)

NGS ACRN: [BZ3183](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	31	139 N	46 W	464845.00	963211.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1905	1905	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

**Description:** (2010)

**Stamping:**

4.8 MILES SOUTHEAST OF GLYNDON, 4.0 MILES SOUTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND TRUNK HIGHWAY 10, THEN 1.7 MILES WEST ON COUNTY ROAD 12 (50TH AVENUE SOUTH), THEN 0.5 MILE SOUTHEAST.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.602 12B = -87.615 09 = -87.480 03 = -87.401



Mn/DOT Name: TBM 54 59228

NGS Name: TBM 54

County: CLAY, MN (Sheet 1)

NGS ACRN: [BZ3184](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	24	139 N	47 W	465018.00	963337.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1905	1905	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

2.7 MILES SOUTHEAST OF GLYNDON, 1.0 MILE SOUTH ALONG PARKE AVENUE SOUTH FROM THE JUNCTION OF PARKE AVENUE SOUTH AND TRUNK HIGHWAY 10, THEN 0.6 MILE EAST ON COUNTY ROAD 72, THEN 1.7 MILES SOUTH ON 110TH STREET SOUTH.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.592 12B = -87.595 09 = -87.464 03 = -87.395



Mn/DOT Name: TBM 55 59228

NGS Name: TBM 55

County: CLAY, MN (Sheet 1)

NGS ACRN: [BZ3185](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	14	139 N	47 W	465107.00	963422.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1905	1905	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

**Description:** (2010)

**Stamping:**

1.6 MILES SOUTH OF GLYNDON, 1.0 MILE SOUTH ALONG PARKE AVENUE SOUTH FROM THE JUNCTION OF PARKE AVENUE SOUTH AND TRUNK HIGHWAY 10, THEN 0.6 MILE EAST ON COUNTY ROAD 72, THEN 0.7 MILE SOUTH ON 110TH STREET SOUTH.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.556 12B = -87.556 09 = -87.424 03 = -87.365



Mn/DOT Name: TBM 56 59228

NGS Name: TBM 56

County: CLAY, MN (Sheet 1)

NGS ACRN: [BZ3186](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	2	139 N	47 W	465321.00	963455.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1905	1905	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

1.1 MILES NORTH OF GLYNDON, 0.7 MILE NORTH ALONG COUNTY ROAD 19 FROM THE JUNCTION OF COUNTY ROAD 19 AND TRUNK HIGHWAY 10.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.431 12B = -87.437 09 = -87.283 03 = -87.250



Mn/DOT Name: TBM 57 59228

NGS Name: TBM 57

County: CLAY, MN (Sheet 1)

NGS ACRN: [BZ3187](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	35	140 N	47 W	465408.00	963435.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1905	1905	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

1.9 MILES NORTH OF GLYNDON, 1.6 MILES NORTH ALONG COUNTY ROAD 19 FROM THE JUNCTION OF COUNTY ROAD 19 AND TRUNK HIGHWAY 10.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.398 12B = -87.408 09 = -87.247 03 = -87.221



Mn/DOT Name: TBM 58 59228

NGS Name: TBM 58

County: CLAY, MN (Sheet 1)

NGS ACRN: [BZ3188](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	26	140 N	47 W	465500.00	963412.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1905	1905	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

2.9 MILES NORTH OF GLYNDON, 2.6 MILES NORTH ALONG COUNTY ROAD 19 FROM THE JUNCTION OF COUNTY ROAD 19 AND TRUNK HIGHWAY 10.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.369 12B = -87.369 09 = -87.214 03 = -87.191



Mn/DOT Name: TBM 59 59228

NGS Name: TBM 59

County: CLAY, MN (Sheet 1)

NGS ACRN: [BZ3189](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	24	140 N	47 W	465546.00	963352.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1905	1905	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

3.0 MILES SOUTH OF AVERILL, 1.0 MILE WEST ALONG COUNTY ROAD 93 FROM THE JUNCTION OF COUNTY ROAD 93 AND 120TH STREET NORTH, THEN 2.4 MILES SOUTH ON CLAY COUNTY ROAD 93.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.336 12B = -87.326 09 = -87.188 03 = -87.172



Mn/DOT Name: TBM 6 L8252

NGS Name: TBM 6

County: CLAY, MN (Sheet 1)

NGS ACRN: [BA5280](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	2	139 N	47 W	465259.00	963448.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1938	1938	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

0.7 MILE NORTH OF GLYNDON, 0.4 MILE NORTH ALONG COUNTY ROAD 19 FROM THE JUNCTION OF COUNTY ROAD 19 AND TRUNK HIGHWAY 10.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.460 12B = -87.467 09 = -87.316 03 = -87.280



Mn/DOT Name: TBM 60 59228

NGS Name: TBM 60

County: CLAY, MN (Sheet 1)

NGS ACRN: [BZ3190](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	12	140 N	47 W	465717.00	963314.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1905	1905	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

1.2 MILES SOUTHWEST OF AVERILL, 0.6 MILE SOUTH ALONG 120 STREET NORTH FROM THE JUNCTION OF 120TH STREET NORTH AND 80TH AVENUE NORTH.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.237 12B = -87.234 09 = -87.096 03 = -87.080



Mn/DOT Name: TBM 61 59228

NGS Name: TBM 61

County: CLAY, MN (Sheet 1)

NGS ACRN: [BZ3191](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	31	141 N	46 W	465857.00	963234.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1905	1905	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

0.8 MILE NORTH OF AVERILL, 0.4 MILE NORTH ALONG COUNTY HIGHWAY 19 FROM THE JUNCTION OF COUNTY HIGHWAY 19 AND 90TH AVENUE NORTH.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.123 12B = -87.142 09 = -86.985 03 = -86.952



Mn/DOT Name: TBM 62 59228

NGS Name: TBM 62

County: CLAY, MN (Sheet 1)

NGS ACRN: [BZ3192](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	29	141 N	46 W	465948.00	963213.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1905	1905	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

1.8 MILES NORTH OF AVERILL, 1.4 MILES NORTH ALONG COUNTY HIGHWAY 19 FROM THE JUNCTION OF COUNTY HIGHWAY 19 AND COUNTY HIGHWAY 26.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.086 12B = -87.106 09 = -86.952 03 = -86.919



Mn/DOT Name: TBM 63 59228

NGS Name: TBM 63

County: CLAY, MN (Sheet 1)

NGS ACRN: [BZ3193](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/  
 USGS Quad: FELTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	20	141 N	46 W	470045.00	963150.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1905	1905	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

**Description:** (2010)

**Stamping:**

3.0 MILES NORTHEAST OF AVERILL, 1.1 MILES EAST ALONG COUNTY HIGHWAY 26 FROM THE JUNCTION OF COUNTY HIGHWAY 26 AND COUNTY HIGHWAY 19, THEN 2.4 MILES NORTH ON 130TH STREET NORTH.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.063 12B = -87.077 09 = -86.936 03 = -86.909



Mn/DOT Name: TBM 64 59228

NGS Name: TBM 64

County: CLAY, MN (Sheet 1)

NGS ACRN: [BZ3194](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/  
 USGS Quad: FELTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	17	141 N	46 W	470146.00	963125.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1905	1905	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

**Description:** (2010)

**Stamping:**

3.5 MILES SOUTHWEST OF FELTON, 3.1 MILES SOUTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND 160TH AVENUE NORTH, THEN 1.2 MILES WEST ON 130TH AVENUE NORTH.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.060 12B = -87.067 09 = -86.932 03 = -86.916



Mn/DOT Name: TBM 65 59228

NGS Name: TBM 65

County: CLAY, MN (Sheet 1)

NGS ACRN: [BZ3195](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/  
 USGS Quad: FELTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	4	141 N	46 W	470259.00	963059.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1905	1905	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

2.1 MILES SOUTHWEST OF FELTON, 2.0 MILES SOUTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND 160TH AVENUE NORTH, THEN 0.8 MILE WEST ON COUNTY ROAD 108.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.057 12B = -87.063 09 = -86.939 03 = -86.922



Mn/DOT Name: TBM 66 59228

NGS Name: TBM 66

County: CLAY, MN (Sheet 1)

NGS ACRN: [BZ3196](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/  
 USGS Quad: FELTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	33	142 N	46 W	470354.00	963041.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1905	1905	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

1.1 MILES SOUTHEAST OF FELTON, 0.9 MILE SOUTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY HIGHWAY 34.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.060 12B = -87.073 09 = -86.949 03 = -86.929



Mn/DOT Name: TBM 67 59228

NGS Name: TBM 67

County: CLAY, MN (Sheet 1)

NGS ACRN: [BZ3197](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/  
 USGS Quad: FELTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	21	142 N	46 W	470539.00	963026.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1905	1905	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

1.1 MILES NORTH OF FELTON, 1.1 MILES NORTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND 160TH AVENUE NORTH.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.086 12B = -87.103 09 = -86.975 03 = -86.955



Mn/DOT Name: TBM 68 59228

NGS Name: TBM 68

County: CLAY, MN (Sheet 1)

NGS ACRN: [BZ3198](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/  
 USGS Quad: FELTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	16	142 N	46 W	470631.00	963026.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1905	1905	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

2.1 MILES NORTH OF FELTON, 2.0 MILES NORTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND 160TH AVENUE NORTH, THEN 0.3 MILE WEST ON 180TH AVENUE NORTH.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.116 12B = -87.129 09 = -87.008 03 = -86.985



Mn/DOT Name: TBM 68 L22167-3

NGS Name: TBM 68

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0412](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
				<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	15	139 N	47 W	465132.00	963634.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1968	1968	GOOD	Horz=NO Vert=NO	NO		PROJECTS 6 IN.	MARK IS STEEL PIPE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	SEE DESCRIPTION	MNDT

**Description:** (1968)

**Stamping:**

1.0 MILE SOUTHWEST OF GLYNDON, 0.7 MILE SOUTH ALONG PARKE AVENUE SOUTH FROM THE JUNCTION OF PARKE AVENUE SOUTH AND 4TH STREET SOUTHEAST IN GLYNDON, THEN 0.4 MILE WEST ALONG COUNTY ROAD 72 (12TH STREET SOUTHEAST), THEN 1.0 MILE WEST ALONG 117 COUNTY ROAD, THEN 0.3 MILE SOUTH ALONG COUNTY ROAD 68 (90TH STREET SOUTH), 43.0 FEET EAST OF COUNTY ROAD 68, 0.2 MILE SOUTH OF COUNTY ROAD 17, 2.0 FEET NORTH OF A POWER POLE, TOP OF A STEEL FENCE POST, 1.0 FOOT SOUTH OF A STEEL WITNESS POST.

**Station Notes**

THE MARK MAY ALSO BE TBM 68 (AN8299).

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.431 12B = -87.437 09 = -87.293 03 = -87.241



Mn/DOT Name: TBM 69 59228

NGS Name: TBM 69

County: CLAY, MN (Sheet 1)

NGS ACRN: [BZ3199](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/  
 USGS Quad: FELTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	9	142 N	46 W	470722.00	963025.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1905	1905	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

3.0 MILES NORTH OF FELTON, 3.0 MILES NORTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND 160TH AVENUE NORTH, THEN 0.3 MILE WEST ON COUNTY ROAD 104.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.155 12B = -87.162 09 = -87.054 03 = -87.027



Mn/DOT Name: TBM 7 L8252

NGS Name: TBM 7

County: CLAY, MN (Sheet 1)

NGS ACRN: [BA5281](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	26	140 N	47 W	465425.00	963428.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1938	1938	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

2.2 MILES NORTH OF GLYNDON, 2.0 MILES NORTH ALONG COUNTY HIGHWAY 19 FROM THE JUNCTION OF COUNTY HIGHWAY 19 AND TRUNK HIGHWAY 10.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.388 12B = -87.398 09 = -87.237 03 = -87.211



Mn/DOT Name: TBM 8 L8252

NGS Name: TBM 8

County: CLAY, MN (Sheet 1)

NGS ACRN: [BA5282](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	26	140 N	47 W	465506.00	963410.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1938	1938	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

3.0 MILES NORTH OF GLYNDON, 2.8 MILES NORTH ALONG COUNTY ROAD 19 FROM THE JUNCTION OF COUNTY ROAD 19 AND TRUNK HIGHWAY 10.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.365 12B = -87.365 09 = -87.211 03 = -87.188



Mn/DOT Name: TBM 9 L8252

NGS Name: TBM 9

County: CLAY, MN (Sheet 1)

NGS ACRN: [BA5283](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	24	140 N	47 W	465543.00	963352.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1938	1938	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	NGS

Description: (2010)

Stamping:

3.0 MILES SOUTHWEST OF AVERILL, 1.0 MILE SOUTH ALONG 120TH STREET NORTH FROM THE JUNCTION OF 120TH STREET NORTH AND COUNTY ROAD 93, THEN 1.0 MILE WEST ON 70TH AVENUE NORTH, THEN 1.4 MILES SOUTH ON COUNTY ROAD 93.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.339 12B = -87.333 09 = -87.191 03 = -87.175



Mn/DOT Name: TBM A L22167-16

NGS Name: TBM A

County: CLAY, MN (Sheet 1)

NGS ACRN: [AN5589](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	35	139 N	47 W	464823.00	963519.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1969	1969	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	MNDT

Description: (2010)

Stamping:

4.8 MILES SOUTH OF GLYNDON, 4.9 MILES SOUTH ALONG 100TH STREET SOUTH FROM THE JUNCTION OF 100TH STREET SOUTH AND TRUNK HIGHWAY 10.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.503 12B = -87.510 09 = -87.385 03 = -87.316



Mn/DOT Name: TBM A L22167-3

NGS Name: TBM A

County: CLAY, MN (Sheet 1)

NGS ACRN: [AN8298](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	34	139 N	47 W	464825.00	963522.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1968	1968	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	MNDT

Description: (2010)

Stamping:

4.8 MILES SOUTH OF GLYNDON, 4.8 MILES SOUTH ALONG COUNTY HIGHWAY 17 FROM THE JUNCTION OF COUNTY HIGHWAY 17 AND TRUNK HIGHWAY 10.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.503 12B = -87.510 09 = -87.385 03 = -87.316



Mn/DOT Name: TESSA LIFT

NGS Name: TESSA LIFT

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM7592](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	29	139 N	48 W	464924.19	964641.88	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2009	2023	GOOD	Horz=YES Vert=YES	YES		FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE/BITUMINOUS SLAB	BENCH MARK DISK	MN4880

Description: (2009) Stamping: 909.70

IN MOORHEAD, 2.0 MILES SOUTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND INTERSTATE HIGHWAY 94 IN MOORHEAD, THEN 0.5 MILE WEST ON 50TH AVENUE SOUTHWEST, THEN 0.35 MILE NORTH ON RIVER HAVEN ROAD, 43.2 FEET WEST-NORTHWEST OF A POWER POLE, 38.9 FEET EAST OF RIVER HAVEN ROAD, 13.3 FEET SOUTHWEST OF AN ELECTRIC PEDESTAL.

**Station Notes**

THE STATION IS A 2.0 INCH DIAMETER CITY OF MOORHEAD BENCHMARK DISK IN A DRILL HOLE IN A CONCRETE PAD FOR A LIFT STATION.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
909.312	.016	2/1				2024	0000941-3	VERTICAL ADJUSTMENT				
909.312	.016	2/1				2023	VMOFA	VERTICAL CONTROL SURVEY				
909.349	.016	2/1				2019	00000941	VERTICAL ADJUSTMENT				
909.598	.016	2/1				2011	00000699	VERTICAL ADJUSTMENT				
909.601	.016	2/1				2010	VCOMS	VERTICAL CONTROL SURVEY				

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
909.312			822.459	.021	2011	2024	GPS3715	HORIZONTAL ADJUSTMENT				
909.312			822.459	.021	2011	2024	HMOFA2	GPS - STATIC				
909.312	.131		822.564	.066	1996	2024	HMOFA2	GPS - STATIC				
909.470	.262		822.364	.197	2011	2022	RTRN2022	GPS - RTRN				

Geoid Separations(ft): GEOID18 = -87.103 12B = -87.116 09 = -87.004 03 = -86.890

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>	
46 49 24.18817	96 46 41.87965	480419.538	170548.225	.013		ADJUSTMENT		2024	GPS3715	
46 49 24.18817	96 46 41.87965	480419.538	170548.225	.013	C	GPS - STATIC		2024	HMOFA2	
46 49 24.18818	96 46 41.88157	480419.405	170548.226	.131	3	GPS - RTRN		2022	RTRN2022	

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>	
46 49 24.18800	96 46 41.88045	480419.482	170548.207	.033	C	GPS - STATIC		2024	HMOFA2	

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>	
1991845.399	1003100.072	694947.816	17035635.129	.013		ADJUSTMENT		2024	GPS3715	
1991845.399	1003100.072	694947.816	17035635.129	.013	C	GPS - STATIC		2024	HMOFA2	
1991845.266	1003100.077	694947.682	17035635.136	.131	3	GPS - RTRN		2022	RTRN2022	

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Determination Method</u>			<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>	
1991845.343	1003100.057	694947.759	17035635.114	.033	C	GPS - STATIC		2024	HMOFA2	



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TESSA_LIFT-DM7592-3E-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TESSA_LIFT-DM7592-3E-15JUN2022.jpg</a>	E	Jun 15, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TESSA_LIFT-DM7592-2-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TESSA_LIFT-DM7592-2-15JUN2022.jpg</a>		Jun 15, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TESSA_LIFT-DM7592-1-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TESSA_LIFT-DM7592-1-15JUN2022.jpg</a>		Jun 15, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: THOMAS  
County: CLAY, MN (Sheet 1)

NGS Name: THOMAS

NGS ACRN: [DR9636](#) [Get Map](#)  
NGS Quad / Sta Num : 46096414/  
USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	33	140 N	48 W	465417.10	964445.00	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2022	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 74 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2022)                      Stamping: THOMAS 2022

2.0 MILES NORTH OF DILWORTH, 2.0 MILES NORTH ALONG TRUNK HIGHWAY 75 FROM THE EAST JUNCTION OF TRUNK HIGHWAY 75 AND TRUNK HIGHWAY 10 IN DILWORTH, AT TRUNK HIGHWAY 75 MILEPOINT 253.45, 101.8 FEET EAST OF TRUNK HIGHWAY 75, 118.6 FEET SOUTH OF COUNTY ROAD 18 (28TH AVENUE NORTH), 38.6 FEET SOUTH OF A WITNESS POST.

Station Pair:    LEVEE MNDT RESET - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order</u>	<u>(/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>			
901.173	.016	2/1					VERTICAL ADJUSTMENT		2024	00000941-3			
901.176	.016	2/1					VERTICAL CONTROL SURVEY		2023	VMOFA			

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order</u>	<u>(/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>			
901.176				814.588	.023	2011	HORIZONTAL ADJUSTMENT		2024	GPS3674			
901.176				814.588	.023	2011	GPS - STATIC		2023	HMOFA3			
901.176	.131			814.683	.066	1996	GPS - STATIC		2023	HMOFA3			
901.337	.262			814.510	.197	2011	GPS - RTRN		2022	RTRN2022			

Geoid Separations(ft): GEOID18 = -86.824    03 = -86.657

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Geodetic Position</u>			<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>				
46 54 17.09947	96 44 44.99534	488565.498	200218.666	.010		ADJUSTMENT		2024	GPS3674				
46 54 17.09947	96 44 44.99534	488565.498	200218.666	.010	C	GPS - STATIC		2023	HMOFA3				
46 54 17.10006	96 44 44.99572	488565.471	200218.727	.131	3	GPS - RTRN		2022	RTRN2022				

<u>NAD83(1996)</u>				<u>Geodetic Position</u>			<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>				
46 54 17.09933	96 44 44.99613	488565.443	200218.652	.033	C	GPS - STATIC		2023	HMOFA3				

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>MN State Plane - Central Zone</u>			<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>				
2000904.163	1032502.071	704488.747	17064905.121	.010		ADJUSTMENT		2024	GPS3674				
2000904.163	1032502.071	704488.747	17064905.121	.010	C	GPS - STATIC		2023	HMOFA3				
2000904.139	1032502.132	704488.724	17064905.182	.131	3	GPS - RTRN		2022	RTRN2022				

<u>NAD83(1996)</u>				<u>MN State Plane - Central Zone</u>			<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			<u>Year</u>	<u>Reference</u>				
2000904.108	1032502.059	704488.692	17064905.109	.033	C	GPS - STATIC		2023	HMOFA3				



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/THOMAS-DR9636-3E-26JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/THOMAS-DR9636-3E-26JUL2022.jpg</a>	E	Jul 26, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/THOMAS-DR9636-2-26JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/THOMAS-DR9636-2-26JUL2022.jpg</a>		Jul 26, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/THOMAS-DR9636-1-26JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/THOMAS-DR9636-1-26JUL2022.jpg</a>		Jul 26, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: TRUNK HWY RT WAY STA 442 29.9

NGS Name: HIGHWAY STA 442+29.9 ROW

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP1062](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/1058  
 USGS Quad: SABIN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	7	138 N	47 W	464659.43	963921.54		2

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	1954	GOOD	Horz=? Vert=YES	NO		PROJECTS 36 IN.	SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
PIPE (<10 FT)	PIPE CAP	NGS

**Description:** (1954) **Stamping:** CL 80- STA 442+29.9-SP 64- 24 SEC

0.35 MILE NORTHWEST OF SABIN, 0.3 MILE NORTHWEST ALONG HOLLOWAY AVENUE NORTH FROM THE JUNCTION OF HOLLOWAY AVENUE NORTH AND 2ND STREET NORTH IN SABIN, 0.35 MILE NORTHWEST OF THE MAIN STREET, 80.0 FEET NORTHEAST OF TRUNK HIGHWAY 52, 2.0 FEET SOUTH OF A RIGHT-OF-WAY POST, 179.49 FEET SOUTHEAST OF STATION SABIN.

**Leveling-Derived Orthometric Heights (Feet)**

NGVD29			Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
907.249	.033	3				VERTICAL CONTROL SURVEY	1958	USGS-VERT

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
918.633	.197		831.855	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648

NGVD29			Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
918.601						RECIPROCAL VERTICAL ANGLE	1954	HORZ

Geoid Separations(ft): GEOID18 = -87.355 12B = -87.352 09 = -87.260 03 = -87.168

**Lat/Lon and County Coordinates (Feet)**

NAD83(1996)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 46 59.43334	96 39 21.53733	511051.047	155875.590	.066	2	ADJUSTMENT	1999	17648
46 46 59.43333	96 39 21.53733	511051.047	155875.589	.066	2	ADJUSTMENT	1998	17655

NAD83(1986)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 46 59.43222	96 39 21.52784	511051.708	155875.477	.066	2	ADJUSTMENT	1986	17289

NAD27						Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 46 59.56500	96 39 20.24900			.100	2	CLASSICAL SURVEY	1956	11230

**State Plane and UTM Coordinates (Feet)**

NAD83(1996)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone		X	Y	Acc	Order	Determination Method	Year	Reference
X	Y							
2022005.780	987488.557	724870.642	17019527.547	.066	2	ADJUSTMENT	1999	17648
2022005.780	987488.556	724870.642	17019527.546	.066	2	ADJUSTMENT	1998	17655

NAD83(1986)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone		X	Y	Acc	Order	Determination Method	Year	Reference
X	Y							
2022006.436	987488.424	724871.297	17019527.403	.066	2	ADJUSTMENT	1986	17289

NAD27						Project Info		
MN State Plane - Central Zone		X	Y	Acc	Order	Determination Method	Year	Reference
X	Y							
1397410.645	659412.032			.100	2	CLASSICAL SURVEY	1956	11230



Mn/DOT Name: TT 100 JA  
 County: CLAY, MN (Sheet 1)

NGS Name: TT 100 JA

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096431/  
 USGS Quad: HICKSON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	29	138 N	48 W	464442.00	964526.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1958	2022	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

**Description:** (1958)                      **Stamping:** TT 100 JA 1958 912

6.0 MILES NORTH AND 0.5 MILE WEST OF COMSTOCK, 0.5 MILE NORTH ALONG 18TH STREET SOUTH FROM THE JUNCTION OF 18TH STREET SOUTH AND 110TH AVENUE SOUTH IN RUSTAD, THEN 0.4 MILE EAST ALONG 105TH AVENUE SOUTH, THEN 0.5 MILE NORTH ALONG 14TH STREET SOUTH, 324.0 FEET SOUTH AND 36.0 FEET WEST OF A CROSSROADS, 2.0 FEET NORTHEAST OF A POWER POLE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
911.993	.033	3				1964	USGS-VERT	VERTICAL CONTROL SURVEY				

Geoid Separations(ft): GEOID18 = -87.086    12B = -87.073    09 = -87.018    03 = -86.909

\* No Horizontal Positions in the Database \*



Mn/DOT Name: TT 101 JA  
 County: CLAY, MN (Sheet 1)

NGS Name: TT 101 JA

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	5	138 N	48 W	464746.95	964525.40		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1958	2009	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	BENCH MARK DISK	USGS

Description: (1958)                      Stamping: TT 101 JA 1958 911

2.7 MILES SOUTH OF MOORHEAD, 3.5 MILES SOUTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND INTERSTATE HIGHWAY 94 IN MOORHEAD, THEN 0.5 MILE EAST ON 64TH AVENUE, 12.0 FEET NORTH OF 64TH AVENUE, 92.0 FEET WEST OF 14TH STREET, 3.0 FEET EAST-SOUTHEAST OF A TELEPHONE POLE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
910.605	.033	3				VERTICAL CONTROL SURVEY	1964	USGS-VERT	

**Geoid Separations(ft): GEOID18 = -87.198    12B = -87.211    09 = -87.113    03 = -86.998**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: TT 102 JA  
 County: CLAY, MN (Sheet 1)

NGS Name: TT 102 JA

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	20	139 N	48 W	465001.00	964526.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1958	2022	DESTROYED	Horz=NO Vert=NO	YES			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

**Description:** (1958)                      **Stamping:** TT 102 JA 907 1958

12.0 MILES NORTH AND 0.5 MILE WEST OF COMSTOCK, 2.8 MILES SOUTH ALONG 8TH STREET SOUTH FROM THE JUNCTION OF 8TH STREET SOUTH AND MAIN AVENUE IN MOORHEAD, THEN 0.5 MILE EAST ALONG 40TH AVENUE SOUTH, THEN 190.0 FEET NORTH ALONG 14TH STREET SOUTH, 127.0 FEET NORTH AND 38.0 FEET WEST OF THE CROSSROADS, 2.0 FEET WEST-NORTHWEST OF A POWER POLE.

**Station Notes**  
 THE SURVEY MARK IS UNDER A SIDEWALK.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
906.491	.033	3					VERTICAL CONTROL SURVEY	1964	USGS-VERT	

**Geoid Separations(ft):** GEOID18 = -87.129    12B = -87.149    09 = -87.031    03 = -86.919

\* No Horizontal Positions in the Database \*



Mn/DOT Name: TT 103 JA  
 County: CLAY, MN (Sheet 1)

NGS Name: TT 103 JA

NGS ACRN: [DF8012](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	33	140 N	48 W	465418.00	964446.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1958	2002	DESTROYED	Horz=NO Vert=NO	NO			STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	USGS

**Description:** (2002)                      **Stamping:** TT 103 JA 1958

2.0 MILES NORTH OF MOORHEAD, 2.0 MILES NORTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND TRUNK HIGHWAY 10 IN MOORHEAD, AT TRUNK HIGHWAY 75 MILEPOINT 253.45, 85.0 FEET WEST OF TRUNK HIGHWAY 75, 83.0 FEET SOUTH OF COUNTY ROAD 18, 49.4 FEET SOUTHWEST OF A LIGHT POLE, 37.5 FEET EAST OF A BRIDGE RAILING, 3.0 FEET NORTH OF A POWER POLE, 21.6 FEET SOUTH-SOUTHWEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>		
901.291	.016	2/1							2004	00000425-2	VERTICAL ADJUSTMENT	
901.311	.016	2/1							2002	VMOOR	VERTICAL CONTROL SURVEY	

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>		
900.841	.033	3							1964	USGS-VERT	VERTICAL CONTROL SURVEY	

Geoid Separations(ft): GEOID18 = -86.821 12B = -86.817 09 = -86.680 03 = -86.653

\* No Horizontal Positions in the Database \*



Mn/DOT Name: TT 104 JA  
 County: CLAY, MN (Sheet 1)

NGS Name: TT 104 JA

NGS ACRN: [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	16	140 N	48 W	465651.00	964444.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1958	2002	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	USGS

**Description:** (1958)                      **Stamping:** TT 104 JA 1958 895

5.9 MILES NORTH OF MOORHEAD, 1.1 MILES EAST ALONG CENTER AVENUE FROM THE JUNCTION OF CENTER AVENUE AND 8TH STREET SOUTH IN MOORHEAD, THEN 5.0 MILES NORTH ALONG TRUNK HIGHWAY 75 NORTH, 5.0 MILES NORTH AND 0.75 MILE EAST OF THE MOORHEAD WATER TANK, 430.0 FEET SOUTH AND 74.0 FEET EAST OF THE CROSSROADS, 4.0 FEET NORTH-NORTHWEST OF A FENCE CORNER,

**Leveling-Derived Orthometric Heights (Feet)**

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
894.919	.033	3					VERTICAL CONTROL SURVEY	1964	USGS-VERT	

**Geoid Separations(ft):** GEOID18 = -86.555    12B = -86.575    09 = -86.407    03 = -86.391

\* No Horizontal Positions in the Database \*



Mn/DOT Name: TT 105 JA  
County: CLAY, MN (Sheet 1)

NGS Name: TT 105 JA

NGS ACRN: [DF8767](#) [Get Map](#)  
NGS Quad / Sta Num : 46096441/  
USGS Quad: FARGO NORTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>	<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
NW	34	141 N	48 W	465927.93	964511.59	2	C	1958	2012	DESTROYED	Horz=NO Vert=NO	NO		RECESSED 4 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	BENCH MARK DISK	USGS

**Description:** (2002)                      **Stamping:** TT 105 JA 1958 890

0.30 MILE NORTH OF KRAGNES, 0.2 MILE NORTH ALONG TRUNK HIGHWAY 75 NORTH FROM THE JUNCTION OF TRUNK HIGHWAY 75 NORTH AND 21ST STREET NORTH IN KRAGNES, 8.0 MILES NORTH AND 0.25 MILE EAST OF THE MOORHEAD WATER TANK, 150.0 FEET SOUTH-SOUTHEAST AND 86.0 FEET EAST-NORTHEAST OF A ROAD AT A RAILROAD CROSSING, 113.0 FEET SOUTHEAST OF TRUNK HIGHWAY 75, AT TRUNK HIGHWAY 75 MILEPOINT 259.45, 83.0 FEET EAST-NORTHEAST OF THE EAST RAIL OF THE TRACKS, 129.0 FEET SOUTH OF 100TH AVENUE NORTH, 0.9 FOOT NORTH OF A WITNESS POST.

**Station Notes**

THE DISK WAS TURNED IN TO THE OFFICE.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
890.533	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941
890.812	.016	2/1				VERTICAL ADJUSTMENT	2004	00000425-2
890.848	.016	2/1				VERTICAL CONTROL SURVEY	2002	V1407

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
889.746	.033	3				VERTICAL CONTROL SURVEY	1965	USGS-VERT

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
			804.680	.066	1996	GPS - STATIC	2001	DIST 4

Geoid Separations(ft): GEOID18 = -86.417    12B = -86.427    09 = -86.279    03 = -86.266

**Lat/Lon and County Coordinates (Feet)**

**NAD83(1996)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 59 27.93010	96 45 11.59602	486739.742	231712.689	.033	C	GPS - STATIC	2001	DIST 4

**State Plane and UTM Coordinates (Feet)**

**NAD83(1996)**

<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2000053.169	1064035.405	704151.460	17096467.733	.033	C	GPS - STATIC	2001	DIST 4



Mn/DOT Name: TT 99 JA  
County: CLAY, MN (Sheet 1)

NGS Name: TT 99 JA

NGS ACRN: [AH9833](#) [Get Map](#)  
NGS Quad / Sta Num : 46096431/  
USGS Quad: HICKSON

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	28	137 N	48 W	463930.94	964528.86	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1958	2023	POOR	Horz=NO Vert=NO	YES		RECESSED 2 IN.	STEEL ROD IMBED IN MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE POST (PREFABRICATED)	BENCH MARK DISK	USGS

**Description:** (1995)                      **Stamping:** TT 99 JA 1958 921

0.5 MILE WEST OF COMSTOCK, AT THE JUNCTION OF TRUNK HIGHWAY 75 AND COUNTY ROAD 2 (THE JUNCTION IS 0.50 MILE WEST OF COMSTOCK), AT TRUNK HIGHWAY 75 MILEPOINT 235.20, 71.8 FEET EAST OF TRUNK HIGHWAY 75, 68.0 FEET NORTH OF A FIELD ENTRANCE, 2.7 FEET SOUTHEAST OF A POWER POLE, 41.0 FEET NORTH OF A TELEPHONE CABLE SIGN POST, 2.0 FEET NORTH OF A WITNESS POST.

**Station Notes**

DISK AND CONCRETE BROKE. USE WITH CAUTION.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
921.537	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941
921.747	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699
921.760	.016	2/1				VERTICAL CONTROL SURVEY	2010	VCOMS
921.701	.016	2/1				VERTICAL ADJUSTMENT	1999	00000320
921.714	.016	2/1				VERTICAL CONTROL SURVEY	1996	VKENT

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
920.612	.016	2/1				VERTICAL CONTROL SURVEY	1995	VKENT
920.602	.033	3				VERTICAL CONTROL SURVEY	1964	USGS-VERT

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
921.635	.262		834.956	.197	2011	GPS - RTRN	2023	RTRN2023
			835.097	.010	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
921.816	.131		835.123	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2690
921.816	.131		835.192	.066	1996	GPS - STATIC	2010	HCOMS
921.816	.131		835.123	.066	2007	GPS - STATIC	2010	HCOMS
921.645	.262		835.080	.197	1996	GPS - RTRN	2009	RTRN2009

Geoid Separations(ft): GEOID18 = -86.680 12B = -86.683 09 = -86.637 03 = -86.568

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 39 30.94283	96 45 28.86249	485453.142	110439.342	.131	3	GPS - RTRN	2023	RTRN2023
46 39 30.94276	96 45 28.86163	485453.202	110439.335	.010		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 39 30.94278	96 45 28.86226	485453.158	110439.338	.033	C	ADJUSTMENT	2011	GPS2690
46 39 30.94278	96 45 28.86226	485453.158	110439.338	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 39 30.94233	96 45 28.86208	485453.170	110439.292	.033	C	GPS - STATIC	2010	HCOMS
46 39 30.94382	96 45 28.86312	485453.098	110439.443	.131	3	GPS - RTRN	2009	RTRN2009



**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1995017.615	942870.200	697149.311	16975321.466	.131	3	GPS - RTRN	2023	RTRN2023
1995017.675	942870.191	697149.371	16975321.456	.010		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1995017.631	942870.195	697149.327	16975321.461	.033	C	ADJUSTMENT	2011	GPS2690
1995017.631	942870.195	697149.327	16975321.461	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1995017.643	942870.149	697149.337	16975321.414	.033	C	GPS - STATIC	2010	HCOMS
1995017.575	942870.302	697149.272	16975321.569	.131	3	GPS - RTRN	2009	RTRN2009

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TT_99_JA-AH9833-3E-11OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TT_99_JA-AH9833-3E-11OCT2023.jpg</a>	E	Oct 11, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TT_99_JA-AH9833-2-11OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TT_99_JA-AH9833-2-11OCT2023.jpg</a>		Oct 11, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TT_99_JA-AH9833-1-11OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TT_99_JA-AH9833-1-11OCT2023.jpg</a>		Oct 11, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: TYLER

NGS Name: TYLER

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ2027](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096144/  
 USGS Quad: HAWLEY NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	2	139 N	46 W	465234.76	962631.24	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 59 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: TYLER 2014

5.65 MILES WEST OF HAWLEY, 5.65 MILES WEST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 31 IN HAWLEY, AT TRUNK HIGHWAY 10 MILEPOINT 15.80, 59.5 FEET NORTH OF WESTBOUND TRUNK HIGHWAY 10, 59.9 FEET WEST OF COUNTY ROAD 86 (170TH STREET NORTH), 23.0 FEET SOUTH OF A GRAVEL FRONTAGE ROAD, 8.4 FEET SOUTHWEST OF A RIGHT-OF-WAY POST, 1.5 FEET SOUTH OF A WITNESS POST.

Station Pair: IRIS - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1028.722	.016	2/1					VERTICAL ADJUSTMENT	2024	00000941-3	
1028.722	.016	2/1					VERTICAL CONTROL SURVEY	2023	VMOFA	
1028.722	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1028.722				941.137	.025	2011	HORIZONTAL ADJUSTMENT	2024	GPS3719	
1028.722	.131			941.271	.066	1996	GPS - STATIC	2024	HMOFA1	
1028.722				941.137	.025	2011	GPS - STATIC	2024	HMOFA1	
1028.882	.262			941.091	.197	2011	GPS - RTRN	2022	RTRN2022	
1028.833	.262			941.041	.197	2011	GPS - RTRN	2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.792    12B = -87.792    09 = -87.661    03 = -87.615

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>			<u>Project Info</u>			
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 52 34.75967	96 26 31.23981			564549.189	189952.554	.013		ADJUSTMENT	2024	GPS3719
46 52 34.75967	96 26 31.23981			564549.189	189952.554	.013	C	GPS - STATIC	2024	HMOFA1
46 52 34.75905	96 26 31.23939			564549.218	189952.491	.131	3	GPS - RTRN	2022	RTRN2022
46 52 34.75992	96 26 31.23917			564549.233	189952.579	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>				<u>Clay County</u>			<u>Project Info</u>			
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
46 52 34.75934	96 26 31.24034			564549.152	189952.520	.033	C	GPS - STATIC	2024	HMOFA1

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>			
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2076527.978	1019890.937			779939.642	17051060.807	.013		ADJUSTMENT	2024	GPS3719
2076527.978	1019890.937			779939.642	17051060.807	.013	C	GPS - STATIC	2024	HMOFA1
2076528.005	1019890.873			779939.669	17051060.743	.131	3	GPS - RTRN	2022	RTRN2022
2076528.023	1019890.961			779939.688	17051060.830	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>			
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2076527.940	1019890.904			779939.604	17051060.775	.033	C	GPS - STATIC	2024	HMOFA1



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TYLER-DQ2027-3N-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TYLER-DQ2027-3N-05JUL2022.jpg</a>	N	Jul 5, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TYLER-DQ2027-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TYLER-DQ2027-2-05JUL2022.jpg</a>		Jul 5, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TYLER-DQ2027-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/TYLER-DQ2027-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: U 314

NGS Name: U 314

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0328](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	12	139 N	48 W	465227.00	964052.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1938	2001	DESTROYED	Horz=NO Vert=NO	YES			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE FOOTING - SMALL	BENCH MARK DISK	NGS

Description: (1994)                      Stamping: U 314 1938

1.1 MILES EAST-SOUTHEAST OF DILWORTH, 0.7 MILE EAST ALONG CENTER AVENUE EAST FROM THE JUNCTION OF CENTER AVENUE EAST AND 4TH STREET SOUTHEAST IN DILWORTH, 0.6 MILE EAST OF THE DILWORTH RAILROAD STATION, 0.5 MILE WEST OF A RAILROAD MILEPOST 2, 300.0 FEET EAST OF A SWITCHMAN'S HOUSE, 6.0 FEET NORTH OF THE NORTH RAIL OF A RAILROAD, IN THE SOUTH FACE OF A SIGNAL TOWER.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
914.526	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
913.633	.016	2					VERTICAL CONTROL SURVEY	1972	Q460964	
913.633	.016	2					VERTICAL CONTROL SURVEY	1972	L22167-A	
913.633	.016	2					VERTICAL CONTROL SURVEY	1971	L22167-A	
913.459	.007	1					VERTICAL CONTROL SURVEY	1940	Q460964	
913.459	.007	1					VERTICAL CONTROL SURVEY	1938	L39 MINN	

Geoid Separations(ft): GEOID18 = -87.182    12B = -87.178    09 = -87.041    03 = -86.991

\* No Horizontal Positions in the Database \*



Mn/DOT Name: U 314 A

NGS Name: U 314 A

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0327](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	12	139 N	48 W	465227.00	964052.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1969	1969	GOOD	Horz=NO Vert=NO	NO		PROJECTS 16 IN.	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE FOOTING - SMALL	CHISELED SQUARE	MNDT

Description: (1969)

Stamping:

0.6 MILE EAST OF DILWORTH, 0.7 MILE EAST ALONG CENTER AVENUE EAST FROM THE JUNCTION OF CENTER AVENUE EAST AND 4TH STREET SOUTHEAST IN DILWORTH, 1.7 MILES WEST OF COUNTY ROAD 11, 25.0 FEET EAST OF THE ABANDONED SIGNAL BASE CONTAINING USC AND GS DISK U-314, 6.0 FEET NORTH OF A RAILROAD RAIL, 8.0 FEET SOUTH OF A RAILROAD RAIL, 400.0 FEET SOUTHEAST OF A BLACKTOP PLANT.

Station Notes

THE SURVEY MARK IS ON RAILROAD PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
915.792	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
914.900	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD

Geoid Separations(ft): GEOID18 = -87.182 12B = -87.178 09 = -87.041 03 = -86.991

\* No Horizontal Positions in the Database \*



Mn/DOT Name: U 315

NGS Name: U 315

County: CLAY, MN (Sheet 1)

NGS ACRN: [SL0171](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/  
 USGS Quad: FELTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	9	142 N	46 W	470722.00	963029.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1938	2014	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	BENCH MARK DISK	NGS

**Description:** (1982)                      **Stamping:** U 315 1938

3.1 MILES NORTH-NORTHWEST OF FELTON, 0.2 MILE NORTH ALONG ATLANTIC AVENUE FROM THE JUNCTION OF ATLANTIC AVENUE AND 4TH STREET IN FELTON, THEN 0.3 MILE EAST ALONG 160TH AVENUE NORTH/ 7TH STREET, THEN 3.0 MILES NORTH ALONG TRUNK HIGHWAY 9 NORTH/ 140TH STREET NORTH, THEN 0.3 MILE WEST ALONG COUNTY ROAD 104/190TH AVENUE, 3.2 MILES NORTH ALONG THE RAILROAD TRACKS FROM A RAILROAD STATION AT FELTON, 33.0 FEET NORTH OF RAILROAD MILEPOST 36, 28.0 FEET NORTH OF A SECTION LINE ROAD, 10.0 FEET EAST OF THE EAST RAIL OF THE RAILROAD TRACKS.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
909.080	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

  

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
907.849	.033	3					VERTICAL CONTROL SURVEY	1964	USGS-VERT	
907.849	.007	1					VERTICAL CONTROL SURVEY	1941	Q470963	
907.849	.007	1					VERTICAL CONTROL SURVEY	1938	L45 MINN	

Geoid Separations(ft): GEOID18 = -87.155    12B = -87.159    09 = -87.050    03 = -87.027

\* No Horizontal Positions in the Database \*



Mn/DOT Name: U 4

NGS Name: U 4

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0758](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	30	139 N	46 W	464925.00	963249.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1905	2008	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
PIPE (CAPPED) DRIVEN IN GROUND (<10 FT)	PIPE CAP	NGS

Description: (1994)

Stamping:

1.0 MILE NORTH OF CRAWFORD, 4.2 MILES SOUTH-SOUTHEAST OF GLYNDON, 0.3 MILE NORTH ALONG PARKE AVENUE SOUTH FROM THE JUNCTION OF PARKE AVENUE SOUTH AND 4TH STREET SOUTHEAST IN GLYNDON, THEN 3.5 MILES EAST ALONG TRUNK HIGHWAY 10 (STATE STREET NORTHEAST), THEN 4.0 MILES SOUTH ALONG TRUNK HIGHWAY 9 SOUTH (140TH STREET SOUTH), THEN 1.8 MILES WEST ALONG COUNTY ROAD 12 (50TH AVENUE SOUTH), 264.0 FEET SOUTH OF RAILROAD MILEPOST 15, AT THE NORTHWEST CORNER OF A ROAD CROSSING, 7.0 FEET SOUTH OF A POLE, IN LINE WITH THE POLES.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
930.582	.007	1				VERTICAL CONTROL SURVEY	1993	POSTED

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
929.486	.007	1				VERTICAL CONTROL SURVEY	1905	L36 MINN

**GA1912**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
930.005	.007	1				VERTICAL ADJUSTMENT	1914	GA1912

Geoid Separations(ft): GEOID18 = -87.605 12B = -87.618 09 = -87.483 03 = -87.408

\* No Horizontal Positions in the Database \*



Mn/DOT Name: ULEN

NGS Name: ULEN

County: CLAY, MN (Sheet 1)

NGS ACRN: [SL1478](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096232/1032  
 USGS Quad: ULEN

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	34	142 N	44 W	470434.88	961530.59		3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	2014	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	TRIANGULATION STATION DISK	NGS

**Description:** (1964) **Stamping:** ULEN 1964

IN ULEN, 0.2 MILE SOUTH ALONG 1ST STREET EAST FROM THE JUNCTION OF 1ST STREET EAST AND 160TH AVENUE NORTH IN ULEN, ON TOP THE OF A COOP ELEVATOR, ON THE EAST SIDE OF TRUNK HIGHWAY 32, 9.0 FEET SOUTHWEST OF THE NORTHEAST EDGE OF A ROOF.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
1151.572	.262		1064.411	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648		

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
1151.605						RECIPROCAL VERTICAL ANGLE	1964	HORZ		

Geoid Separations(ft): GEOID18 = -87.592 12B = -87.592 09 = -87.477 03 = -87.467

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 04 34.88327	96 15 30.58771	610037.565	263119.035	.131	3	ADJUSTMENT	1999	17648
47 04 34.88448	96 15 30.58517	610037.740	263119.158	.131	3	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 04 34.88375	96 15 30.58215	610037.950	263119.085	.131	3	ADJUSTMENT	1986	17289

<u>NAD27</u>		<u>Geodetic Position</u>		<u>Project Info</u>				
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 04 35.02420	96 15 29.36314			.100	3	CLASSICAL SURVEY	1964	13522

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2124257.573	1091608.357	828848.737	17122022.321	.131	3	ADJUSTMENT	1999	17648
2124257.752	1091608.476	828848.918	17122022.436	.131	3	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2124257.959	1091608.396	828849.124	17122022.354	.131	3	ADJUSTMENT	1986	17289

<u>NAD27</u>		<u>MN State Plane - Central Zone</u>		<u>Project Info</u>				
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1499660.556	763532.811			.100	3	CLASSICAL SURVEY	1964	13522



Mn/DOT Name: ULEN AZ MK

NGS Name: ULEN AZ MK

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP5052](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096232/  
 USGS Quad: ULEN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	34	142 N	44 W	470434.91	961509.80	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	2022	GOOD	Horz=NO Vert=YES	YES		FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	NGS

**Description:** (2014)                      **Stamping:** ULEN 1964

IN ULEN, 0.25 MILE EAST ALONG COUNTY ROAD 34 FROM THE JUNCTION OF COUNTY ROAD 34 AND TRUNK HIGHWAY 32 IN ULEN, THEN 0.2 MILE SOUTH ALONG 4TH STREET EAST, THEN 0.05 MILE EAST ON COTTAGE AVENUE EAST, 61.0 FEET NORTHEAST OF THE NORTHEAST CORNER OF A GARAGE, 32.0 FEET NORTH OF A POWER POLE, 9.0 FEET NORTH OF COTTAGE AVENUE EAST EXTENDED, 7.0 FEET WEST OF A CULTIVATED FIELD.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1153.236	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>				<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1153.357	.262			1065.759	.197	2011	GPS - RTRN	2022	RTRN2022
1153.511	.262			1065.913	.197	2011	GPS - RTRN	2014	RTRN2014

Geoid Separations(ft): GEOID18 = -87.598    12B = -87.598    09 = -87.483    03 = -87.470

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>Clay County</u>				<u>Project Info</u>		
<u>Geodetic Position</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>									
47 04 34.90572	96 15 09.80313			611476.204	263129.480	.131	3	GPS - RTRN	2022	RTRN2022
47 04 34.90513	96 15 09.80423			611476.128	263129.420	.131	3	GPS - RTRN	2014	RTRN2014

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>				<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>									
2125695.768	1091574.207			830286.679	17121964.704	.131	3	GPS - RTRN	2022	RTRN2022
2125695.690	1091574.150			830286.601	17121964.647	.131	3	GPS - RTRN	2014	RTRN2014

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ULEN_AZ_MK-CP5052-3E-21MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ULEN_AZ_MK-CP5052-3E-21MAY2014.jpg</a>	E	May 21, 2014
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ULEN_AZ_MK-CP5052-2-21MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ULEN_AZ_MK-CP5052-2-21MAY2014.jpg</a>		May 21, 2014
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ULEN_AZ_MK-CP5052-1-21MAY2014.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ULEN_AZ_MK-CP5052-1-21MAY2014.jpg</a>		May 21, 2014

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: ULEN MUNICIPAL TANK

NGS Name: ULEN MUNICIPAL TANK

County: CLAY, MN (Sheet 1)

NGS ACRN: [SL1476](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096232/1033  
 USGS Quad: ULEN

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	33	142 N	44 W	470442.14	961537.17		4

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	1964	GOOD	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	ELEVATED TANK	NGS

Description: (1964)

Stamping:

IN ULEN, 387.0 FEET WEST ALONG 160TH AVENUE NORTH FROM THE JUNCTION OF 160TH AVENUE NORTH AND 1ST STREET NORTHWEST IN ULEN, THEN 151.0 FEET SOUTH ALONG 2ND STREET NORTHWEST, 0.5 BLOCK SOUTH OF TRUNK HIGHWAY 34, 1.0 BLOCK WEST OF TRUNK HIGHWAY 32.

\* No Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.582 12B = -87.582 09 = -87.467 03 = -87.457

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 04 42.14138	96 15 37.16984	609577.836	263851.864	.328	4	ADJUSTMENT	1999	17648
47 04 42.14248	96 15 37.16733	609578.009	263851.977	.328	4	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 04 42.14171	96 15 37.16416	609578.229	263851.900	.328	4	ADJUSTMENT	1986	17289

<u>NAD27</u>						<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 04 42.28213	96 15 35.94516			.100	4	CLASSICAL SURVEY	1964	13522

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2123820.803	1092355.045	828424.054	17122776.293	.328	4	ADJUSTMENT	1999	17648
2123820.979	1092355.152	828424.233	17122776.398	.328	4	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2123821.197	1092355.069	828424.449	17122776.310	.328	4	ADJUSTMENT	1986	17289

<u>NAD27</u>						<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1499223.775	764279.476			.100	4	CLASSICAL SURVEY	1964	13522



Mn/DOT Name: ULEN RM 1

NGS Name: ULEN RM 1

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP5053](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096232/  
 USGS Quad: ULEN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	34	142 N	44 W	470434.00	961530.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	2014	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	REFERENCE MARK DISK	NGS

**Description:** **Stamping:**  
 IN ULEN, 236.0 FEET EAST ALONG 160TH AVENUE NORTH FROM THE JUNCTION OF 160TH AVENUE NORTH AND 1ST STREET NORTHWEST IN ULEN, THEN 0.2 MILE SOUTH ALONG 1ST STREET EAST.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.592    12B = -87.595    09 = -87.477    03 = -87.467



Mn/DOT Name: ULEN RM 2

NGS Name: ULEN RM 2

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP5054](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096232/  
 USGS Quad: ULEN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	34	142 N	44 W	470434.00	961530.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	2014	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	REFERENCE MARK DISK	NGS

**Description:**

**Stamping:**

IN ULEN, 236.0 FEET EAST ALONG 160TH AVENUE NORTH FROM THE JUNCTION OF 160TH AVENUE NORTH AND 1ST STREET NORTHWEST IN ULEN, THEN 0.2 MILE SOUTH ALONG 1ST STREET EAST.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.592 12B = -87.595 09 = -87.477 03 = -87.467



Mn/DOT Name: ULEN RM 3

NGS Name: ULEN RM 3

County: CLAY, MN (Sheet 1)

NGS ACRN: [SL1477](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096232/1032  
 USGS Quad: ULEN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	34	142 N	44 W	470434.78	961530.47	2	2

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	2004	GOOD	Horz=NO Vert=NO	YES		PROJECTS 3 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	NGS

**Description:** (2004)                      **Stamping:** ULEN NO 3 1964

IN ULEN, 0.15 MILE SOUTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND COUNTY ROAD 34 IN ULEN, THEN 250.0 FEET EAST OPPOSITE COTTAGE AVENUE WEST, THEN 200.0 FEET SOUTH TO THE MARK, AT TRUNK HIGHWAY 32 MILEPOINT 29.30, ON THE NORTHEAST SIDE OF A COOP ELEVATOR, ON THE EAST SIDE OF TRUNK HIGHWAY 32, 56.0 FEET WEST OF THE EAST RAIL OF THE MAIN NORTH-SOUTH RAILROAD TRACK, 2.8 FEET NORTH OF THE CORNER OF AN ELEVATOR, 93.93 FEET WEST OF ULEN RM 1, 107.33 FEET NORTH OF ULEN RM 2, 0.7 FOOT EAST OF A WITNESS POST.

**Station Notes**

THE SURVEY MARK IS ON RAILROAD PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1155.418	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941	
1155.539	.016	2/1				VERTICAL CONTROL SURVEY	2004	VSYRE	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1151.572	.197		1064.411	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648	

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1151.605						RECIPROCAL VERTICAL ANGLE	1964	HORZ	

Geoid Separations(ft): GEOID18 = -87.592    12B = -87.592    09 = -87.477    03 = -87.467

**Lat/Lon and County Coordinates (Feet)**

**NAD83(1996)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
47 04 34.78106	96 15 30.47356	610045.525	263108.723	.066	2	ADJUSTMENT	1999	17648	
47 04 34.78228	96 15 30.47102	610045.700	263108.848	.066	2	ADJUSTMENT	1998	17655	

**NAD83(1986)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
47 04 34.78154	96 15 30.46800	610045.909	263108.774	.066	2	ADJUSTMENT	1986	17289	

**NAD27**

<u>Geodetic Position</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 04 34.92199	96 15 29.24900			.100	2	CLASSICAL SURVEY	1964	13522



State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15			Project Info			
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2124265.209	1091597.805	828856.203	17122011.642	.066	2	ADJUSTMENT	1999	17648
2124265.388	1091597.924	828856.383	17122011.758	.066	2	ADJUSTMENT	1998	17655

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15			Project Info			
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2124265.595	1091597.844	828856.589	17122011.675	.066	2	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone		UTM - Zone 15			Project Info			
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1499668.191	763522.258			.100	2	CLASSICAL SURVEY	1964	13522

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ULEN_RM_3-SL1477-3W-30JUN2004.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ULEN_RM_3-SL1477-3W-30JUN2004.jpg</a>	W	Jun 30, 2004
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ULEN_RM_3-SL1477-2-30JUN2004.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ULEN_RM_3-SL1477-2-30JUN2004.jpg</a>		Jun 30, 2004
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ULEN_RM_3-SL1477-1-30JUN2004.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ULEN_RM_3-SL1477-1-30JUN2004.jpg</a>		Jun 30, 2004

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: V 314

NGS Name: V 314

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0742](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	7	139 N	47 W	465226.00	963938.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1938	2001	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE/BITUMINOUS SLAB	SEE DESCRIPTION	NGS

Description: (1968)                      Stamping: V 314 1938

2.1 MILES EAST OF DILWORTH, 1.4 MILES EAST ALONG TRUNK HIGHWAY 10 EAST (CENTER AVENUE EAST) FROM THE JUNCTION OF TRUNK HIGHWAY 10 EAST (CENTER AVENUE EAST) AND 4TH STREET SOUTHEAST IN DILWORTH, THEN 0.5 MILE EAST-SOUTHEAST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
919.942	.007	1					VERTICAL CONTROL SURVEY	1993	POSTED	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
918.843	.007	1					VERTICAL CONTROL SURVEY	1938	L39 MINN	

Geoid Separations(ft): GEOID18 = -87.237    12B = -87.241    09 = -87.093    03 = -87.050

\* No Horizontal Positions in the Database \*



Mn/DOT Name: V 315

NGS Name: V 315

County: CLAY, MN (Sheet 1)

NGS ACRN: [SL0173](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096321/  
 USGS Quad: BORUP

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	4	142 N	46 W	470857.00	963026.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1938	1982	NOT FOUND	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	BENCH MARK DISK	NGS

Description: (1938)                      Stamping: V 315 1938

2.1 MILES SOUTH OF BORUP, 0.2 MILE EAST ALONG COUNTY ROAD 39 (MAIN AVENUE) FROM THE JUNCTION OF COUNTY ROAD 39 (MAIN AVENUE) AND 1ST STREET, THEN 2.0 MILES SOUTH ALONG TRUNK HIGHWAY 9 SOUTH, THEN 0.3 MILE WEST ALONG COUNTY ROAD 102.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
908.788	.007	1					VERTICAL CONTROL SURVEY	1993	POSTED	

  

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
907.593	.007	1/2					UNKNOWN/APPROXIMATE	1992	UNCHECKD	
907.593	.007	1					VERTICAL CONTROL SURVEY	1941	Q470963	
907.593	.007	1					VERTICAL CONTROL SURVEY	1938	L45 MINN	

Geoid Separations(ft): GEOID18 = -87.234 12B = -87.241 09 = -87.139 03 = -87.109

\* No Horizontal Positions in the Database \*





Mn/DOT Name: VIDING

NGS Name: VIDING

County: CLAY, MN (Sheet 1)

NGS ACRN: [SL1522](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096323/1022  
 USGS Quad: FELTON SW

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NW	31	142 N	47 W	470439.63	964110.30		3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	1963	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	NGS

**Description:** (1954)                      **Stamping:** VIDING 1954

5.0 MILES EAST OF GEORGETOWN, 5.1 MILES EAST ALONG COUNTY HIGHWAY 34 (160TH AVENUE NORTHWEST) FROM THE JUNCTION OF COUNTY HIGHWAY 34 (160TH AVENUE NORTHWEST) AND COUNTY ROAD 100 (BRIDGE STREET) IN GEORGETOWN, IN A BARNYARD, 33.5 FEET EAST OF A FARM ROAD, 18.5 FEET SOUTH OF THE SOUTHWEST CORNER OF A SHED, 62.62 FEET NORTH OF VIDING RM 1, 111.90 FEET EAST-SOUTHEAST OF VIDING RM 2, 3.0 FEET SOUTHWEST OF A WITNESS POST.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
889.106	.262		803.010	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648		

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
889.106						RECIPROCAL VERTICAL ANGLE	1954	HORZ		

Geoid Separations(ft): GEOID18 = -86.634    12B = -86.650    09 = -86.516    03 = -86.483

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 04 39.62929	96 41 10.29550	503462.990	263289.821	.131	3	ADJUSTMENT	1999	17648
47 04 39.62931	96 41 10.29550	503462.990	263289.823	.131	3	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 04 39.62961	96 41 10.29002	503463.369	263289.854	.131	3	ADJUSTMENT	1986	17289

<u>NAD27</u>		<u>Geodetic Position</u>		<u>Project Info</u>				
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
47 04 39.76500	96 41 09.02900			.100	3	CLASSICAL SURVEY	1956	11230

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2017744.074	1095078.760	722358.390	17127235.570	.131	3	ADJUSTMENT	1999	17648
2017744.074	1095078.762	722358.390	17127235.572	.131	3	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2017744.454	1095078.781	722358.771	17127235.585	.131	3	ADJUSTMENT	1986	17289

<u>NAD27</u>		<u>MN State Plane - Central Zone</u>		<u>Project Info</u>				
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1393146.715	767002.226			.100	3	CLASSICAL SURVEY	1956	11230



Mn/DOT Name: VIDING AZ MK

NGS Name: VIDING AZ MK

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP5072](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096323/  
 USGS Quad: FELTON SW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	31	142 N	47 W	470443.00	964051.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	1963	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	NGS

**Description:** (2007)                      **Stamping:** VIDING 1954

5.3 MILES EAST OF GEORGETOWN, 5.3 MILES EAST ALONG COUNTY HIGHWAY 34 (160TH AVENUE NORTHWEST) FROM THE JUNCTION OF COUNTY HIGHWAY 34 (160TH AVENUE NORTHWEST) AND COUNTY ROAD 100 (BRIDGE STREET) IN GEORGETOWN.

\* No Horizontal or Vertical Positions in the Database \*

**Geoid Separations(ft): GEOID18 = -86.650    12B = -86.666    09 = -86.535    03 = -86.502**



Mn/DOT Name: VIDING RM 1

NGS Name: VIDING RM 1

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP5073](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096323/  
 USGS Quad: FELTON SW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	31	142 N	47 W	470439.02	964110.43		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	1963	NOT FOUND	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** **Stamping:** VIDING 1954

5.1 MILES EAST OF GEORGETOWN, 5.1 MILES EAST ALONG COUNTY HIGHWAY 34 (160TH AVENUE NORTHWEST) FROM THE JUNCTION OF COUNTY HIGHWAY 34 (160TH AVENUE NORTHWEST) AND COUNTY ROAD 100 (BRIDGE STREET) IN GEORGETOWN.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -86.634 12B = -86.650 09 = -86.516 03 = -86.486



Mn/DOT Name: VIDING RM 2

NGS Name: VIDING RM 2

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP5074](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096323/  
 USGS Quad: FELTON SW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	31	142 N	47 W	470440.07	964111.91		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	1963	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** **Stamping:** VIDING NO 2 1954

5.1 MILES EAST OF GEORGETOWN, 5.1 MILES EAST ALONG COUNTY HIGHWAY 34 (160TH AVENUE NORTHWEST) FROM THE JUNCTION OF COUNTY HIGHWAY 34 (160TH AVENUE NORTHWEST) AND COUNTY ROAD 100 (BRIDGE STREET) IN GEORGETOWN, NORTHWEST OF AND APPROXIMATELY LEVEL WITH STATION VIDING, IS 57.5 FEET NORTHEAST OF THE NORTHEAST CORNER OF A SHED.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -86.634 12B = -86.650 09 = -86.516 03 = -86.486



Mn/DOT Name: VILLE

NGS Name: VILLE

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP7376](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	32	137 N	45 W	463751.14	962415.77		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2013	2023	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 15 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2013)                      Stamping: VILLE 2013

1.0 MILE SOUTHEAST OF BARNESVILLE, 0.35 MILE SOUTH ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 2 AND TRUNK HIGHWAY 34 IN BARNESVILLE, TO TRUNK HIGHWAY 9 MILEPOST 147.1, THEN 1.65 MILES SOUTHEAST ON COUNTY ROAD 52 (FRONT STREET THRU TOWN) THEN 0.35 MILE EAST ON 100TH STREET, 37.7 FEET NORTH OF 100TH STREET, 10.9 FEET WEST OF A FIELD ENTRANCE, 1.5 FEET EAST OF A WITNESS POST.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			
1031.789			944.667	.021	2011	HORIZONTAL ADJUSTMENT			2024	GPS3671			
1031.684	.131		944.762	.066	1996	GPS - STATIC			2023	HTH9			
1031.789			944.667	.021	2011	GPS - STATIC			2023	HTH9			
1031.720	.262		944.565	.197	2011	GPS - RTRN			2023	RTRN2023			
1031.694	.262		944.542	.197	2011	GPS - RTRN			2022	RTRN2022			
1031.786			944.621	.025	2011	HORIZONTAL ADJUSTMENT			2015	GPS3084			
1031.799	.131		944.762	.066	1996	GPS - STATIC			2015	HCLAY			
1031.786			944.621	.025	2011	GPS - STATIC			2015	HCLAY			
1031.770	.262		944.631	.197	2011	GPS - RTRN			2013	RTRN2013			

Geoid Separations(ft): GEOID18 = -87.155    12B = -87.139    09 = -87.054    03 = -87.008

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>					
46 37 51.14195	96 24 15.76501	574297.888	100462.145	.013		2024	GPS3671					
46 37 51.14195	96 24 15.76501	574297.888	100462.145	.013	C	2023	HTH9					
46 37 51.14187	96 24 15.76501	574297.888	100462.137	.131	3	2023	RTRN2023					
46 37 51.14205	96 24 15.76497	574297.891	100462.155	.131	3	2022	RTRN2022					
46 37 51.14250	96 24 15.76383	574297.970	100462.201	.016		2015	GPS3084					
46 37 51.14250	96 24 15.76383	574297.970	100462.201	.016	C	2015	HCLAY					
46 37 51.14207	96 24 15.76329	574298.008	100462.157	.131	3	2013	RTRN2013					

<u>NAD83(1996)</u>		<u>Geodetic Position</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>					
46 37 51.14208	96 24 15.76460	574297.917	100462.158	.033	C	2023	HTH9					
46 37 51.14208	96 24 15.76460	574297.917	100462.158	.033	C	2015	HCLAY					

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2083501.421	930150.761	785469.526	16961175.872	.013		ADJUSTMENT	2024	GPS3671
2083501.421	930150.761	785469.526	16961175.872	.013	C	GPS - STATIC	2023	HTH9
2083501.421	930150.753	785469.526	16961175.864	.131	3	GPS - RTRN	2023	RTRN2023
2083501.424	930150.771	785469.529	16961175.882	.131	3	GPS - RTRN	2022	RTRN2022
2083501.505	930150.815	785469.611	16961175.924	.016		ADJUSTMENT	2015	GPS3084
2083501.505	930150.815	785469.611	16961175.924	.016	C	GPS - STATIC	2015	HCLAY
2083501.541	930150.770	785469.647	16961175.878	.131	3	GPS - RTRN	2013	RTRN2013

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2083501.450	930150.774	785469.555	16961175.884	.033	C	GPS - STATIC	2023	HTH9
2083501.450	930150.774	785469.555	16961175.884	.033	C	GPS - STATIC	2015	HCLAY

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/VILLE-DP7376-3N-26JUL2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/VILLE-DP7376-3N-26JUL2023.jpg</a>	N	Jul 26, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/VILLE-DP7376-2-26JUL2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/VILLE-DP7376-2-26JUL2023.jpg</a>		Jul 26, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/VILLE-DP7376-1-26JUL2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/VILLE-DP7376-1-26JUL2023.jpg</a>		Jul 26, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: W 314

NGS Name: W 314

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0333](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096413/  
 USGS Quad: SABIN

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	8	139 N	47 W	465226.00	963855.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1938	2008	DESTROYED	Horz=NO Vert=NO	YES			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE FOUNDATION	BENCH MARK DISK	NGS

**Description:** (1994)                      **Stamping:** W 314 1938

2.6 MILES EAST-SOUTHEAST OF DILWORTH, 1.9 MILES EAST ALONG TRUNK HIGHWAY 10 (CENTER AVENUE EAST) FROM THE JUNCTION OF TRUNK HIGHWAY 10 (CENTER AVENUE EAST) AND 4TH STREET SOUTHEAST IN DILWORTH, THEN 0.8 MILE SOUTH ALONG TRUNK HIGHWAY 336 SOUTH (70TH STREET SOUTH), THEN 0.4 MILE NORTH ALONG TRUNK HIGHWAY 336 NORTH, 2.1 MILES EAST OF THE DILWORTH RAILROAD STATION, 78.4 FEET WEST OF A SIDING SWITCH, 80.0 FEET EAST OF A RAILROAD MILEPOST, 45.0 FEET NORTH OF AN OLD HOUSE FOUNDATION, 7.0 FEET SOUTH OF THE SOUTH RAIL OF THE MAIN TRACK, IN THE NORTH SIDE OF A SWITCH BOX BASE.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
923.135	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
922.226	.016	2				VERTICAL CONTROL SURVEY	1972	Q460964
922.226	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A
922.226	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A
922.016	.033	3				VERTICAL CONTROL SURVEY	1964	USGS-VERT
922.016	.007	1				VERTICAL CONTROL SURVEY	1940	Q460964
922.016	.007	1				VERTICAL CONTROL SURVEY	1938	L39 MINN

**Geoid Separations(ft):** GEOID18 = -87.264    12B = -87.270    09 = -87.119    03 = -87.077

\* No Horizontal Positions in the Database \*



Mn/DOT Name: W 4

NGS Name: W 4

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0341](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	11	139 N	47 W	465226.00	963519.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1905	1931	GOOD	Horz=NO Vert=NO	NO	249	FLUSH	MARKER IS STEEL ROD

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STRUCTURE (MASSIVE)	BOLT	NGS

Description: (1931)

Stamping:

0.25 MILE WEST FROM GLYNDON, 0.3 MILE NORTH ALONG PARKE AVENUE SOUTH FROM THE JUNCTION OF PARKE AVENUE SOUTH AND 4TH STREET SOUTHEAST IN GLYNDON, THEN 0.4 MILE WEST ALONG STATE STREET NORTHEAST, THEN 0.2 MILE SOUTH ALONG 100TH STREET SOUTH, 0.25 MILE WEST OF GLYNDON, THE NORTHWEST ABUTMENT OF NORTHERN PACIFIC RAILROAD. BRIDGE NUMBER 249, 0.2 MILE WEST OF MILEPOST 249, IN THE CENTER OF THE BEVELED CONCRETE SURFACE.

Station Notes

THE SURVEY MARK IS ON RAILROAD PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
923.345	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
922.219	.007	1/2				UNKNOWN/APPROXIMATE	1992	UNCHECKD

GA1912

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
922.994	.007	1				VERTICAL ADJUSTMENT	1914	GA1912

Geoid Separations(ft): GEOID18 = -87.460 12B = -87.464 09 = -87.323 03 = -87.280

\* No Horizontal Positions in the Database \*



Mn/DOT Name: W 4 RESET

NGS Name: W 4 RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0342](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	11	139 N	47 W	465226.00	963519.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1931	2001	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STRUCTURE (MASSIVE)	BOLT	NGS

Description: (1968)

Stamping:

0.25 MILE WEST OF GLYNDON, AT A NORTHERN PACIFIC RAILWAY BRIDGE NUMBER 249 AND IN THE BEVELED TOP OF THE NORTHWEST ABUTMENT, 0.3 MILE NORTH ALONG PARKE AVENUE SOUTH FROM THE JUNCTION OF PARKE AVENUE SOUTH AND 4TH STREET SOUTHEAST IN GLYNDON, THEN 0.4 MILE WEST ALONG STATE STREET NORTHEAST, THEN 0.2 MILE SOUTH ALONG 100TH STREET SOUTH, 0.2 MILE WEST OF MILEPOST 249, A COPPER BOLT, FLANKED BY THE LETTERS US.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
923.322	.007	1/2				1991	00000025					

<u>NGVD29</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
922.193	.007	1				1940	Q460964					
922.193	.007	1				1938	L39 MINN					
922.219	.007	1				1935	CUTLER-VERT					
922.219	.007	1				1931	L39 MINN					

Geoid Separations(ft): GEOID18 = -87.460 12B = -87.464 09 = -87.323 03 = -87.280

\* No Horizontal Positions in the Database \*



Mn/DOT Name: WASTE MNDT

NGS Name: WASTE

County: CLAY, MN (Sheet 1)

NGS ACRN: [DF7628](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	28	140 N	48 W	465418.79	964448.40	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1993	2002	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE)	SURVEY DISK	MNDT

**Description:** (2002)                      **Stamping:** WASTE 1993

2.0 MILES NORTH OF MOORHEAD, 2.0 MILES NORTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND TRUNK HIGHWAY 10 IN MOORHEAD, AT TRUNK HIGHWAY 75 MILEPOINT 253.45, 47.6 FEET NORTH OF COUNTY ROAD 18, 142.2 FEET WEST OF TRUNK HIGHWAY 75, 14.6 FEET WEST OF THE WEST RAIL OF THE RAILROAD TRACKS, 17.8 FEET NORTH-NORTHEAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
902.636	.016	2/1				VERTICAL ADJUSTMENT	2004	0000425-2	
902.652	.016	2/1				VERTICAL CONTROL SURVEY	2002	VMOOR	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
			815.789	.011	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
			815.960	.016	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300	
902.656	.131		816.022	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1905	
902.656	.131		816.022	.066	1996	GPS - STATIC	2003	HMOOR	

Geoid Separations(ft): GEOID18 = -86.817 12B = -86.814 09 = -86.676 03 = -86.650

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 54 18.79337	96 44 48.40493	488328.841	200390.428	.010		ADJUSTMENT	2012	GPS2800	

  

<u>NAD83(2007)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 54 18.79325	96 44 48.40560	488328.794	200390.416	.013		ADJUSTMENT	2007	GPS2300	

  

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 54 18.79266	96 44 48.40543	488328.806	200390.356	.033	C	ADJUSTMENT	2003	GPS1905	
46 54 18.79266	96 44 48.40543	488328.806	200390.356	.033	C	GPS - STATIC	2003	HMOOR	

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>X</u>	<u>Y</u>								
2000672.947	1032681.055	704260.329	17065087.956	.010		ADJUSTMENT	2012	GPS2800	

  

<u>NAD83(2007)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>X</u>	<u>Y</u>								
2000672.901	1032681.045	704260.281	17065087.946	.013		ADJUSTMENT	2007	GPS2300	

  

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>X</u>	<u>Y</u>								
2000672.910	1032680.985	704260.291	17065087.886	.033	C	ADJUSTMENT	2003	GPS1905	
2000672.910	1032680.985	704260.291	17065087.886	.033	C	GPS - STATIC	2003	HMOOR	



Mn/DOT Name: WASTE MNDT RESET

NGS Name: WASTE RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [DF8761](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	28	140 N	48 W	465418.79	964448.40	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2002	2012	DESTROYED	Horz=NO Vert=NO	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	SURVEY DISK	MNDT

**Description:** (2009)                      **Stamping:** WASTE 1993 RESET 2002

2.0 MILES NORTH OF MOORHEAD, 2.0 MILES NORTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND TRUNK HIGHWAY 10 IN MOORHEAD, AT TRUNK HIGHWAY 75 MILEPOINT 253.45, 47.6 FEET NORTH OF COUNTY ROAD 18, 142.2 FEET WEST OF TRUNK HIGHWAY 75, 14.6 FEET WEST OF THE WEST RAIL OF THE RAILROAD TRACKS, 1.1 FEET NORTH OF A WITNESS POST.

**Station Notes**

THE DISK WAS TURNED IN TO THE OFFICE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
902.321	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941		
902.629	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699		
902.629	.016	2/1				VERTICAL CONTROL SURVEY	2010	VCOMS		
902.629	.016	2/1				VERTICAL ADJUSTMENT	2004	00000425-2		
902.646	.016	2/1				VERTICAL CONTROL SURVEY	2002	V1407		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
			815.782	.008	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800		
902.623	.131		815.799	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2690		
902.623	.131		815.901	.066	1996	GPS - STATIC	2010	HCOMS		
902.623	.131		815.799	.066	2007	GPS - STATIC	2010	HCOMS		
902.492	.262		815.842	.197	1996	GPS - RTRN	2009	RTRN2009		

Geoid Separations(ft): GEOID18 = -86.817    12B = -86.814    09 = -86.676    03 = -86.650

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
46 54 18.79335	96 44 48.40432	488328.883	200390.426	.007		ADJUSTMENT	2012	GPS2800		

  

<u>NAD83(2007)</u>		<u>Geodetic Position</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
46 54 18.79352	96 44 48.40530	488328.815	200390.443	.033	C	ADJUSTMENT	2011	GPS2690		
46 54 18.79352	96 44 48.40530	488328.815	200390.443	.033	C	GPS - STATIC	2010	HCOMS		

  

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
46 54 18.79311	96 44 48.40537	488328.810	200390.402	.033	C	GPS - STATIC	2010	HCOMS		
46 54 18.79340	96 44 48.40461	488328.863	200390.431	.131	3	GPS - RTRN	2009	RTRN2009		



**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2000672.989	1032681.052	704260.371	17065087.952	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2000672.922	1032681.071	704260.304	17065087.972	.033	C	ADJUSTMENT	2011	GPS2690
2000672.922	1032681.071	704260.304	17065087.972	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2000672.916	1032681.030	704260.297	17065087.931	.033	C	GPS - STATIC	2010	HCOMS
2000672.969	1032681.058	704260.351	17065087.958	.131	3	GPS - RTRN	2009	RTRN2009

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WASTE_RESET-DF8761-3W-12OCT2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WASTE_RESET-DF8761-3W-12OCT2009.jpg</a>	W	Oct 12, 2009
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WASTE_RESET-DF8761-2-12OCT2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WASTE_RESET-DF8761-2-12OCT2009.jpg</a>		Oct 12, 2009
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WASTE_RESET-DF8761-1-12OCT2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WASTE_RESET-DF8761-1-12OCT2009.jpg</a>		Oct 12, 2009

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: WASTE RESET 2

NGS Name: WASTE RESET 2

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP2171](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	28	140 N	48 W	465418.79	964448.41	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2012	2013	GOOD	Horz=NO Vert=NO	YES		RECESSED 6 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 30 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

**Description:** (2012)                      **Stamping:** WASTE 2002 2012

2.0 MILES NORTH OF MOORHEAD, 2.0 MILES NORTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND TRUNK HIGHWAY 10 IN MOORHEAD, AT TRUNK HIGHWAY 75 MILEPOINT 253.45, 142.2 FEET WEST OF TRUNK HIGHWAY 75, 47.6 FEET NORTH OF COUNTY ROAD 18, 14.6 FEET WEST OF THE WEST RAIL OF THE RAILROAD TRACKS, 1.1 FEET NORTH OF A WITNESS POST.

**Station Notes**

THE SURVEY MARK IS ON RAILROAD PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>							<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
			<u>Height</u>	<u>Acc</u>	<u>Adj</u>			
902.108	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>							<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
			<u>Height</u>	<u>Acc</u>	<u>Adj</u>			
902.236	.262		815.559	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -86.817    12B = -86.814    09 = -86.676    03 = -86.650

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2007)</u>							<u>Project Info</u>	
<u>Geodetic Position</u>		<u>Clay County</u>			<u>Determination Method</u>		<u>Year</u>	<u>Reference</u>
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>			
46 54 18.79376	96 44 48.40599	488328.767	200390.468	.131	3	GPS - RTRN	2012	RTRN2012

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2007)</u>				<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>MN State Plane - Central Zone</u>				<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>					
2000672.875	1032681.097	704260.257	17065087.999	.131	3	GPS - RTRN	2012	RTRN2012

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WASTE_RESET_2-DP2171-3W-23AUG2012.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WASTE_RESET_2-DP2171-3W-23AUG2012.jpg</a>	W	Aug 23, 2012
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WASTE_RESET_2-DP2171-2-23AUG2012.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WASTE_RESET_2-DP2171-2-23AUG2012.jpg</a>		Aug 23, 2012
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WASTE_RESET_2-DP2171-1-23AUG2012.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WASTE_RESET_2-DP2171-1-23AUG2012.jpg</a>		Aug 23, 2012

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: WATTS

NGS Name: WATTS

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0331](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/1059  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	6	139 N	47 W	465235.54	963909.44	2	2

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	1964	DESTROYED	Horz=NO Vert=NO	NO			NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE FOOTING - SMALL	SURVEY DISK	NGS

Description: (1964)

Stamping: WATTS 1964

2.4 MILES EAST OF DILWORTH, 2.1 MILES EAST ALONG TRUNK HIGHWAY 10 EAST (CENTER AVENUE EAST) FROM THE JUNCTION OF TRUNK HIGHWAY 10 EAST (CENTER AVENUE EAST) AND 4TH STREET SOUTHEAST IN DILWORTH.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
920.523	.016	2/0					VERTICAL ADJUSTMENT	1991	00000025	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
920.536	.197			833.853	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
918.601							RECIPROCAL VERTICAL ANGLE	1954	HORZ	

Geoid Separations(ft): GEOID18 = -87.241 12B = -87.247 09 = -87.096 03 = -87.057

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 52 35.54368	96 39 09.43570	511872.736	189929.531	.066	2	ADJUSTMENT	1999	17648	
46 52 35.54370	96 39 09.43568	511872.738	189929.533	.066	2	ADJUSTMENT	1998	17655	

<u>NAD83(1986)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 52 35.54286	96 39 09.42664	511873.366	189929.448	.066	2	ADJUSTMENT	1986	17289	

<u>NAD27</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 52 35.67900	96 39 08.14900			.100	2	CLASSICAL SURVEY	1962	12924	

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
2023880.281	1021497.860	727296.939	17053522.271	.066	2	ADJUSTMENT	1999	17648	
2023880.282	1021497.862	727296.941	17053522.273	.066	2	ADJUSTMENT	1998	17655	

<u>NAD83(1986)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
2023880.908	1021497.758	727297.564	17053522.159	.066	2	ADJUSTMENT	1986	17289	

<u>NAD27</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
1399284.911	693421.566			.100	2	CLASSICAL SURVEY	1962	12924	



Mn/DOT Name: WATTS 2

NGS Name: WATTS 2

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0721](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/1059  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	6	139 N	47 W	465236.87	963909.36	1	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	2002	DESTROYED	Horz=NO Vert=NO	YES		FLUSH	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	NGS

Description: (1994)                      Stamping: WATTS 2 1964

2.5 MILES EAST OF DILWORTH, 2.9 MILES EAST ALONG TRUNK HIGHWAY 10 EAST (CENTER AVENUE EAST) FROM THE JUNCTION OF TRUNK HIGHWAY 10 EAST (CENTER AVENUE EAST) AND 4TH STREET SOUTHEAST IN DILWORTH, THEN 0.8 MILE WEST ALONG TRUNK HIGHWAY 10 WEST, 2.4 MILES EAST ON TRUNK HIGHWAY 10 FROM POST OFFICE, AT THE NORTHWEST QUADRANT OF THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 11, 69.0 FEET NORTH OF WESTBOUND TRUNK HIGHWAY 10, AT TRUNK HIGHWAY 10 MILEPOINT 5.8, 54.0 FEET WEST OF COUNTY ROAD 11, 1.0 FOOT WEST OF A TELEPHONE GROUND PIPE, 4.0 FEET NORTHWEST OF A POWER POLE, 90.32 FEET EAST OF WATTS 2 RM 3, 171.21 FEET EAST OF WATTS 2 RM 4, 1.0 FOOT EAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
920.385	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

  

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
919.614	.016	2					VERTICAL CONTROL SURVEY	1972	Q460964	
919.614	.016	2					VERTICAL CONTROL SURVEY	1972	L22167-A	
919.614	.016	2					VERTICAL CONTROL SURVEY	1971	L22167-A	
919.417	.033	3					VERTICAL CONTROL SURVEY	1964	USGS-VERT	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
				833.112	.016	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
				833.289	.018	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300	
920.372	.131			833.345	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1905	
920.372	.131			833.345	.066	1996	GPS - STATIC	2003	HMOOR	
920.372	.262			833.716	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648	

Geoid Separations(ft): GEOID18 = -87.241    12B = -87.244    09 = -87.093    03 = -87.054



**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County					Project Info	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 52 36.87329	96 39 09.36483	511877.579	190064.246	.013		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

Geodetic Position		Clay County					Project Info	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 52 36.87328	96 39 09.36581	511877.511	190064.245	.013		ADJUSTMENT	2007	GPS2300

**NAD83(1996)**

Geodetic Position		Clay County					Project Info	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 52 36.87273	96 39 09.36564	511877.523	190064.189	.033	C	ADJUSTMENT	2003	GPS1905
46 52 36.87273	96 39 09.36564	511877.523	190064.190	.033	C	GPS - STATIC	2003	HMOOR
46 52 36.87200	96 39 09.36209	511877.769	190064.116	.131	3	ADJUSTMENT	1999	17648
46 52 36.87202	96 39 09.36208	511877.770	190064.118	.131	3	ADJUSTMENT	1998	17655

**NAD83(1986)**

Geodetic Position		Clay County					Project Info	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 52 36.87117	96 39 09.35304	511878.398	190064.032	.131	3	ADJUSTMENT	1986	17289

**NAD27**

Geodetic Position							Project Info	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 52 37.00732	96 39 08.07548			.100	3	CLASSICAL SURVEY	1986	10744

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2023889.288	1021632.350	727308.133	17053656.676	.013		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2023889.219	1021632.352	727308.065	17053656.678	.013		ADJUSTMENT	2007	GPS2300

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2023889.229	1021632.296	727308.074	17053656.622	.033	C	ADJUSTMENT	2003	GPS1905
2023889.229	1021632.296	727308.074	17053656.622	.033	C	GPS - STATIC	2003	HMOOR
2023889.474	1021632.214	727308.317	17053656.537	.131	3	ADJUSTMENT	1999	17648
2023889.475	1021632.216	727308.318	17053656.539	.131	3	ADJUSTMENT	1998	17655

**NAD83(1986)**

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2023890.100	1021632.111	727308.942	17053656.423	.131	3	ADJUSTMENT	1986	17289

**NAD27**

MN State Plane - Central Zone							Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1399294.097	693555.920			.100	3	CLASSICAL SURVEY	1986	10744



Mn/DOT Name: WATTS 2 AZ MK

NGS Name: WATTS 2 AZ MK

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0722](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	7	139 N	47 W	465232.36	963941.23	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	2023	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	NGS

**Description:** (1994) **Stamping:** WATTS 2 1964

2.0 MILES EAST OF DILWORTH, 1.35 MILES EAST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND 4TH STREET SOUTHEAST IN DILWORTH, THEN 0.35 MILE SOUTH AND EAST ON 1ST AVENUE SOUTH, 130.2 FEET NORTH OF 1ST AVENUE SOUTH, 36.0 FEET WEST OF 66TH STREET SOUTH, 1.5 FEET NORTH OF A POWER POLE, 1.3 FEET SOUTH OF A WITNESS POST.

**Station Notes**

IN 1991 A BUILDING WAS FOUND TO BE BLOCKING THE SIGHT TO STATION WATTS 2.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
913.364	.016	2/1				VERTICAL ADJUSTMENT	2024	00000941-3
913.361	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA
913.397	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941
913.489	.016	2/1				VERTICAL ADJUSTMENT	2004	00000425-2
913.489	.016	2/1				VERTICAL CONTROL SURVEY	2002	VMOOR
913.400	.007	1				VERTICAL ADJUSTMENT	1991	00000025

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
912.531	.016	2				VERTICAL CONTROL SURVEY	1972	Q460964
912.531	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A
912.531	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
913.361			826.432	.023	2011	HORIZONTAL ADJUSTMENT	2024	GPS3674
913.361			826.432	.023	2011	GPS - STATIC	2023	HMOFA3
913.361	.131		826.530	.066	1996	GPS - STATIC	2023	HMOFA3
913.574	.262		826.350	.197	2011	GPS - RTRN	2022	RTRN2022
913.587	.262		826.363	.197	2011	GPS - RTRN	2014	RTRN2014

Geoid Separations(ft): GEOID18 = -87.224 12B = -87.224 09 = -87.077 03 = -87.037

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 52 32.36427	96 39 41.23055	509663.925	189606.193	.010		ADJUSTMENT	2024	GPS3674
46 52 32.36427	96 39 41.23055	509663.925	189606.193	.010	C	GPS - STATIC	2023	HMOFA3
46 52 32.36394	96 39 41.23002	509663.961	189606.160	.131	3	GPS - RTRN	2022	RTRN2022
46 52 32.36431	96 39 41.22962	509663.989	189606.198	.131	3	GPS - RTRN	2014	RTRN2014

**NAD83(1996)**

<u>Geodetic Position</u>		<u>Clay County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 52 32.36415	96 39 41.23137	509663.867	189606.181	.033	C	GPS - STATIC	2023	HMOFA3



State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2021662.699	1021243.021	725074.209	17053303.318	.010		ADJUSTMENT	2024	GPS3674
2021662.699	1021243.021	725074.209	17053303.318	.010	C	GPS - STATIC	2023	HMOFA3
2021662.735	1021242.987	725074.244	17053303.282	.131	3	GPS - RTRN	2022	RTRN2022
2021662.764	1021243.023	725074.274	17053303.319	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2021662.642	1021243.011	725074.151	17053303.308	.033	C	GPS - STATIC	2023	HMOFA3

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WATTS_2_AZ_MK-RP0722-3W-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WATTS_2_AZ_MK-RP0722-3W-14JUN2022.jpg</a>	W	Jun 14, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WATTS_2_AZ_MK-RP0722-2-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WATTS_2_AZ_MK-RP0722-2-14JUN2022.jpg</a>		Jun 14, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WATTS_2_AZ_MK-RP0722-1-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WATTS_2_AZ_MK-RP0722-1-14JUN2022.jpg</a>		Jun 14, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: WATTS 2 RM 3

NGS Name: WATTS 2 RM 3

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0720](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	6	139 N	47 W	465236.85	963910.67	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	2005	DESTROYED	Horz=NO Vert=NO	NO		PROJECTS 3 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description: (1994)                      Stamping: WATTS 2 NO 3 1964

2.25 MILES EAST OF DILWORTH, AT THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 11 IN GLYNDON TOWNSHIP, AT TRUNK HIGHWAY 10 MILEPOINT 5.8, 66.8 FEET NORTH OF WESTBOUND TRUNK HIGHWAY 10, 80.0 FEET WEST OF A POLE, 10.6 FEET SOUTHEAST OF A RIGHT-OF-WAY POST, 6.8 FEET SOUTH-SOUTHWEST OF A HYDRANT, 90.32 FEET WEST OF STATION WATTS 2, 5.5 FEET SOUTH-SOUTHEAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
919.664	.016	2/1				VERTICAL ADJUSTMENT	2004	00000425-2
919.664	.016	2/1				VERTICAL CONTROL SURVEY	2002	VMOOR
919.673	.007	1				VERTICAL ADJUSTMENT	1991	00000025

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
918.797	.016	2				VERTICAL CONTROL SURVEY	1972	Q460964
918.797	.016	2				VERTICAL CONTROL SURVEY	1972	L22167-A
918.797	.016	2				VERTICAL CONTROL SURVEY	1971	L22167-A
918.591	.033	3				VERTICAL CONTROL SURVEY	1964	USGS-VERT

Geoid Separations(ft): GEOID18 = -87.237    12B = -87.244    09 = -87.093    03 = -87.054

\* No Horizontal Positions in the Database \*



Mn/DOT Name: WATTS 2 RM 4

NGS Name: WATTS 2 RM 4

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0719](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	6	139 N	47 W	465236.00	963914.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	2005	DESTROYED	Horz=NO Vert=NO	NO		PROJECTS 3 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description: (1994)                      Stamping: WATTS 2 NO 4 1964

2.25 MILES EAST OF DILWORTH, AT THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 11 IN GLYNDON TOWNSHIP, AT TRUNK HIGHWAY 10 MILEPOINT 5.8, 65.2 FEET NORTH OF WESTBOUND TRUNK HIGHWAY 10, 4.6 FEET EAST OF A POLE, 84.4 FEET WEST-SOUTHWEST OF A HYDRANT, 171.21 FEET WEST OF STATION WATTS 2, 79.9 FEET WEST-SOUTHWEST OF A WITNESS POST, 2.0 FEET EAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
919.995	.007	1/2				VERTICAL ADJUSTMENT	2004	0000425-2
919.995	.016	2/1				VERTICAL CONTROL SURVEY	2002	VMOOR
919.995	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
918.906	.033	3				VERTICAL CONTROL SURVEY	1964	USGS-VERT

Geoid Separations(ft): GEOID18 = -87.237 12B = -87.244 09 = -87.090 03 = -87.054

\* No Horizontal Positions in the Database \*



Mn/DOT Name: WATTS AZ MK

NGS Name: WATTS AZ MK

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP5111](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	6	139 N	47 W	465235.00	963939.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	1964	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	NGS

**Description:** **Stamping:** WATTS 1954

2.0 MILES EAST OF DILWORTH, 1.7 MILES EAST ALONG TRUNK HIGHWAY 10 EAST (CENTER AVENUE EAST) FROM THE JUNCTION OF TRUNK HIGHWAY 10 EAST (CENTER AVENUE EAST) AND 4TH STREET SOUTHEAST IN DILWORTH.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.221 12B = -87.224 09 = -87.077 03 = -87.034



Mn/DOT Name: WATTS AZIMUTH

NGS Name: WATTS AZIMUTH

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0330](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	7	139 N	48 W	465234.00	963946.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	2001	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE FOOTING - SMALL	SURVEY DISK	MNDT

**Description:** (2001)                      **Stamping:** WATTS AZIMUTH 1964

1.9 MILES EAST FROM DILWORTH, 1.6 MILES EAST ALONG TRUNK HIGHWAY 10 EAST (CENTER AVENUE EAST) FROM THE JUNCTION OF TRUNK HIGHWAY 10 EAST (CENTER AVENUE EAST) AND 4TH STREET SOUTHEAST IN DILWORTH, 0.5 MILE WEST OF WATTS SIDING, 0.5 MILE WEST OF COUNTY ROAD 11, 250.0 FEET NORTH OF A RAILROAD MAINTENANCE SHACK, 1.0 FOOT NORTH OF A POWER POLE, 1.0 FOOT SOUTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>		
913.433	.016	2/0							VERTICAL ADJUSTMENT	1991	00000025	

**Geoid Separations(ft):** GEOID18 = -87.218    12B = -87.221    09 = -87.073    03 = -87.031

\* No Horizontal Positions in the Database \*



Mn/DOT Name: WATTS RM 1

NGS Name: WATTS RM 1

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP5112](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	6	139 N	47 W	465235.00	963909.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	2001	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** **Stamping:** WATTS NO 1 1954

2.4 MILES EAST OF DILWORTH, 2.1 MILES EAST ALONG TRUNK HIGHWAY 10 EAST (CENTER AVENUE EAST) FROM THE JUNCTION OF TRUNK HIGHWAY 10 EAST (CENTER AVENUE EAST) AND 4TH STREET SOUTHEAST IN DILWORTH.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.244 12B = -87.247 09 = -87.096 03 = -87.057



Mn/DOT Name: WATTS RM 2

NGS Name: WATTS RM 2

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP5113](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	6	139 N	47 W	465235.00	963909.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1954	2001	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** **Stamping:** WATTS NO 2 1954

2.4 MILES EAST OF DILWORTH, 2.1 MILES EAST ALONG TRUNK HIGHWAY 10 EAST (CENTER AVENUE EAST) FROM THE JUNCTION OF TRUNK HIGHWAY 10 EAST (CENTER AVENUE EAST) AND 4TH STREET SOUTHEAST IN DILWORTH.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.244 12B = -87.247 09 = -87.096 03 = -87.057



Mn/DOT Name: WATTS RM 3

NGS Name: WATTS RM 3

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0332](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	7	139 N	47 W	465237.00	963908.00	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	2001	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE FOOTING - SMALL	SURVEY DISK	MNDT

**Description:** (2001)                      **Stamping:** WATTS RM NO. 3 1964

3.5 MILES WEST FROM GLYNDON, IN THE NORTHWEST QUADRANT OF THE JUNCTION OF COUNTY ROAD 11 AND THE TRUNK HIGHWAY 10 INTERSECTION, 137.0 FEET WEST OF THE COUNTY ROAD 11 CENTERLINE 85.0 FEET WEST OF STATION WATTS, 65.0 FEET NORTH OF THE TRUNK HIGHWAY 10 CENTERLINE, 6.0 FEET SOUTHWEST OF A FIRE HYDRANT, 5.0 FEET EAST OF A WATER MAIN VALVE PIPE AND A VALVE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>		
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>			
919.706	.016	2/0							VERTICAL ADJUSTMENT	1991	00000025		

**Geoid Separations(ft):** GEOID18 = -87.241    12B = -87.247    09 = -87.093    03 = -87.057

\* No Horizontal Positions in the Database \*



Mn/DOT Name: WDAY MNDT

NGS Name: WDAY

County: CLAY, MN (Sheet 1)

NGS ACRN: [DF7621](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
NE	31	139 N	48 W	464905.66	964720.18		C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1993	2009	DESTROYED	Horz=NO Vert=NO	NO		RECESSED 2 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 50 FT)	SURVEY DISK	MNDT

Description: (1993) Stamping: WDAY 1993

2.0 MILES SOUTH OF MOORHEAD, 1.95 MILES SOUTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF INTERSTATE HIGHWAY 94 AND TRUNK HIGHWAY 75 IN MOORHEAD, THEN 1.0 MILE WEST ALONG A TOWNSHIP ROAD, 28.5 FEET SOUTH OF A ROAD, 13.0 FEET EAST OF AN ENTRANCE, 132.7 FEET SOUTHWEST OF A POWER POLE, 214.5 FEET EAST-SOUTHEAST OF A POWER POLE, 11.3 FEET WEST OF A WITNESS POST.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
			820.651	.011	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800		
			820.822	.014	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300		
907.741	.131		820.887	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1905		
907.741	.131		820.887	.066	1996	GPS - STATIC	2003	HMOOR		

Geoid Separations(ft): GEOID18 = -87.090 12B = -87.106 09 = -87.001 03 = -86.876

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 49 05.65793	96 47 20.18341	477753.605	168673.648	.010		ADJUSTMENT	2012	GPS2800

  

<u>NAD83(2007)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 49 05.65778	96 47 20.18440	477753.536	168673.632	.010		ADJUSTMENT	2007	GPS2300

  

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 49 05.65722	96 47 20.18425	477753.547	168673.576	.033	C	ADJUSTMENT	2003	GPS1905
46 49 05.65722	96 47 20.18425	477753.547	168673.576	.033	C	GPS - STATIC	2003	HMOOR

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1989123.020	1001308.977	692194.947	17033887.206	.010		ADJUSTMENT	2012	GPS2800

  

<u>NAD83(2007)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1989122.951	1001308.964	692194.878	17033887.194	.010		ADJUSTMENT	2007	GPS2300

  

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1989122.959	1001308.907	692194.886	17033887.137	.033	C	ADJUSTMENT	2003	GPS1905
1989122.959	1001308.907	692194.886	17033887.137	.033	C	GPS - STATIC	2003	HMOOR



Mn/DOT Name: WDAY MNDT RESET

NGS Name: WDAY RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM1841](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

				Reference	Reference	Vert	Horz
1/4	Sec	Twp	Rng	Latitude	Longitude	Order	Order
NE	31	139 N	48 W	464905.66	964720.18	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2009	2022	NOT FOUND	Horz=NO Vert=NO	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 50 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

**Description:** (2009)                      **Stamping:** WDAY 1993 2009

2.0 MILES SOUTH OF MOORHEAD, 1.95 MILES SOUTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF INTERSTATE HIGHWAY 94 AND TRUNK HIGHWAY 75 IN MOORHEAD, TO TRUNK HIGHWAY 75 MILEPOINT 246.40, THEN 1.0 MILE WEST ALONG 50TH AVENUE SOUTH, 28.5 FEET SOUTH OF 50TH AVENUE SOUTH, 13.0 FEET EAST OF A FIELD ENTRANCE, 132.7 FEET SOUTHWEST OF A POWER POLE, 214.5 FEET EAST-SOUTHEAST OF A POWER POLE, 7.0 FEET WEST OF A WITNESS POST.

**Station Notes**

THE ROD IS STILL BENT A LITTLE, BUT STILL IS A GOOD MARK.

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
906.937	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941
907.190	.016	2/1				VERTICAL ADJUSTMENT	2011	00000699
907.193	.016	2/1				VERTICAL CONTROL SURVEY	2010	VCOMS

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
			820.120	.007	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
907.183	.131		820.149	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2690
907.183	.131		820.225	.066	1996	GPS - STATIC	2010	HCOMS
907.183	.131		820.149	.066	2007	GPS - STATIC	2010	HCOMS
906.986	.262		820.110	.197	1996	GPS - RTRN	2009	RTRN2009

Geoid Separations(ft): GEOID18 = -87.090    12B = -87.106    09 = -87.001    03 = -86.876

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 49 05.65671	96 47 20.18219	477753.690	168673.524	.003		ADJUSTMENT	2012	GPS2800

NAD83(2007)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 49 05.65733	96 47 20.18381	477753.577	168673.587	.033	C	ADJUSTMENT	2011	GPS2690
46 49 05.65733	96 47 20.18381	477753.577	168673.587	.033	C	GPS - STATIC	2010	HCOMS

NAD83(1996)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 49 05.65688	96 47 20.18358	477753.593	168673.541	.033	C	GPS - STATIC	2010	HCOMS
46 49 05.65824	96 47 20.18292	477753.639	168673.679	.131	3	GPS - RTRN	2009	RTRN2009



**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
1989123.101	1001308.851	692195.026	17033887.078	.003		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
1989122.990	1001308.917	692194.917	17033887.146	.033	C	ADJUSTMENT	2011	GPS2690
1989122.990	1001308.917	692194.917	17033887.146	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>				<u>Year</u>	<u>Reference</u>
1989123.005	1001308.871	692194.931	17033887.100	.033	C	GPS - STATIC	2010	HCOMS
1989123.055	1001309.007	692194.983	17033887.236	.131	3	GPS - RTRN	2009	RTRN2009

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WDAY_RESET-DM1841-3S-16SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WDAY_RESET-DM1841-3S-16SEP2009.jpg</a>	S	Sep 16, 2009
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WDAY_RESET-DM1841-2-16SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WDAY_RESET-DM1841-2-16SEP2009.jpg</a>		Sep 16, 2009
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WDAY_RESET-DM1841-1-16SEP2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WDAY_RESET-DM1841-1-16SEP2009.jpg</a>		Sep 16, 2009

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: WEBER

NGS Name: WEBER

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ1952](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096134/  
 USGS Quad: BARNESVILLE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	27	138 N	46 W	464423.07	962829.44	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 34 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: WEBER 2014

1.05 MILES SOUTHEAST OF DOWNER, 1.05 MILES SOUTHEAST ALONG TRUNK HIGHWAY 9 FROM THE JUNCTION OF TRUNK HIGHWAY 9 AND COUNTY ROAD 10 IN DOWNER, AT TRUNK HIGHWAY 9 MILEPOINT 153.9, 58.2 FEET NORTHEAST OF TRUNK HIGHWAY 9, 18.7 FEET NORTHWEST OF A FIELD ENTRANCE, 1.5 FEET SOUTHWEST OF A WITNESS POST.

Station Pair: 1409 FF - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>
968.725	.016	2/1							VERTICAL ADJUSTMENT		2019	00000941

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>
968.725			881.547	.014	2011	HORIZONTAL ADJUSTMENT			2024	GPS3762		
968.725	.131		881.671	.066	1996	GPS - STATIC			2024	HTH32		
968.725			881.547	.014	2011	GPS - STATIC			2024	HTH32		
968.830	.262		881.475	.197	2011	GPS - RTRN			2023	RTRN2023		
968.817	.262		881.491	.197	2011	GPS - RTRN			2014	RTRN2014		

Geoid Separations(ft): GEOID18 = -87.355 12B = -87.326 09 = -87.228 03 = -87.191

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>			<u>Geodetic Position</u>			<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>Order (/Class)</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>
46 44 23.06617	96 28 29.44293		556479.638	140110.936	.007		2024	GPS3762				
46 44 23.06617	96 28 29.44293		556479.638	140110.936	.007	C	2024	HTH32				
46 44 23.06595	96 28 29.44383		556479.575	140110.913	.131	3	2023	RTRN2023				
46 44 23.06624	96 28 29.44294		556479.637	140110.943	.131	3	2014	RTRN2014				

<u>NAD83(1996)</u>			<u>Geodetic Position</u>			<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>Order (/Class)</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>
46 44 23.06602	96 28 29.44315		556479.623	140110.921	.033	C	2024	HTH32				

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>			<u>MN State Plane - Central Zone</u>			<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>Order (/Class)</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>
2066920.512	970327.581		769527.832	17001634.389	.007		2024	GPS3762				
2066920.512	970327.581		769527.832	17001634.389	.007	C	2024	HTH32				
2066920.449	970327.560		769527.769	17001634.369	.131	3	2023	RTRN2023				
2066920.512	970327.588		769527.832	17001634.396	.131	3	2014	RTRN2014				

<u>NAD83(1996)</u>			<u>MN State Plane - Central Zone</u>			<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>Order (/Class)</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>
2066920.496	970327.566		769527.816	17001634.374	.033	C	2024	HTH32				



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WEBER-DQ1952-3NE-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WEBER-DQ1952-3NE-18OCT2023.jpg</a>	NE	Oct 18, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WEBER-DQ1952-2-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WEBER-DQ1952-2-18OCT2023.jpg</a>		Oct 18, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WEBER-DQ1952-1-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WEBER-DQ1952-1-18OCT2023.jpg</a>		Oct 18, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: WEIV MNDT

NGS Name: WEIV

County: CLAY, MN (Sheet 1)

NGS ACRN: [DF7622](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	3	139 N	48 W	465301.33	964254.45	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1993	2009	DESTROYED	Horz=NO Vert=NO	NO		RECESSED 2 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE)	SURVEY DISK	MNDT

**Description:** (1993) **Stamping:** WEIV 1993

0.5 MILE WEST-NORTHWEST OF DILWORTH, 0.5 MILE NORTH ALONG COUNTY ROAD 9 FROM THE JUNCTION OF COUNTY ROAD 9 AND TRUNK HIGHWAY 10, 44.7 FEET WEST OF COUNTY ROAD 9, 15.0 FEET SOUTH OF AN ENTRANCE, 11.2 FEET NORTH-NORTHWEST OF THE SOUTH END OF A 24.0 INCH DIAMETER METAL CULVERT, 13.4 FEET NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
906.504	.016	2/1				VERTICAL ADJUSTMENT	2004	0000425-2		
906.517	.016	2/1				VERTICAL CONTROL SURVEY	2002	VMOOR		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
			819.421	.011	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800		
			819.601	.016	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300		
906.527	.131		819.660	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1905		
906.527	.131		819.660	.066	1996	GPS - STATIC	2003	HMOOR		

Geoid Separations(ft): GEOID18 = -87.050 12B = -87.041 09 = -86.906 03 = -86.867

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>			<u>Geodetic Position</u>			<u>Clay County</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
46 53 01.32530	96 42 54.45296		496240.004	192538.440	.010		ADJUSTMENT	2012	GPS2800	

  

<u>NAD83(2007)</u>			<u>Geodetic Position</u>			<u>Clay County</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
46 53 01.32526	96 42 54.45388		496239.940	192538.436	.013		ADJUSTMENT	2007	GPS2300	

  

<u>NAD83(1996)</u>			<u>Geodetic Position</u>			<u>Clay County</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
46 53 01.32468	96 42 54.45371		496239.952	192538.378	.033	C	ADJUSTMENT	2003	GPS1905	
46 53 01.32468	96 42 54.45371		496239.951	192538.378	.033	C	GPS - STATIC	2003	HMOOR	

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>				
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2008336.932	1024588.791	711796.498	17056867.104	711796.498	17056867.104	.010		ADJUSTMENT	2012	GPS2800

  

<u>NAD83(2007)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>				
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2008336.868	1024588.789	711796.434	17056867.103	711796.434	17056867.103	.013		ADJUSTMENT	2007	GPS2300

  

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>				
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2008336.879	1024588.730	711796.443	17056867.043	711796.443	17056867.043	.033	C	ADJUSTMENT	2003	GPS1905
2008336.878	1024588.730	711796.443	17056867.043	711796.443	17056867.043	.033	C	GPS - STATIC	2003	HMOOR



Mn/DOT Name: WEIV MNDT RESET

NGS Name: WEIV RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM1842](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096414/  
 USGS Quad: DILWORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	3	139 N	48 W	465301.33	964254.46	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2009	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 4 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 50 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2009)                      Stamping: WEIV 1993 2009

0.5 MILE WEST-NORTHWEST OF DILWORTH, 0.5 MILE NORTH ALONG COUNTY ROAD 9 FROM THE JUNCTION OF COUNTY ROAD 9 AND TRUNK HIGHWAY 10 IN DILWORTH, AT TRUNK HIGHWAY 10 MILEPOINT 2.90, 44.7 FEET WEST OF COUNTY ROAD 9, 15.0 FEET SOUTH OF A FIELD ENTRANCE, 11.2 FEET NORTH-NORTHWEST OF THE SOUTH END OF A 24.0 INCH DIAMETER METAL CULVERT, 11.1 FEET NORTH OF A WITNESS POST.

Station Pair:    CORY MNDT RESET - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
905.966	.016	2/1				2024	00000941-3	VERTICAL ADJUSTMENT				
905.966	.016	2/1				2023	VMOFA	VERTICAL CONTROL SURVEY				
905.966	.016	2/1				2019	00000941	VERTICAL ADJUSTMENT				
906.258	.016	2/1				2011	00000699	VERTICAL ADJUSTMENT				
906.251	.016	2/1				2010	VCOMS	VERTICAL CONTROL SURVEY				

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
905.966			819.188	.010	2011	2024	GPS3674	HORIZONTAL ADJUSTMENT				
905.966			819.188	.010	2011	2023	HMOFA3	GPS - STATIC				
905.966	.131		819.290	.066	1996	2023	HMOFA3	GPS - STATIC				
906.061	.262		819.011	.197	2011	2022	RTRN2022	GPS - RTRN				
906.176	.262		819.126	.197	2011	2021	GPSBM	GPS - OPUS				
905.927	.262		818.880	.197	2011	2021	RTRN2021	GPS - RTRN				
906.104	.262		819.063	.197	2011	2015	RTRN2015	GPS - RTRN				
			819.188	.009	2011	2012	GPS2800	HORIZONTAL ADJUSTMENT				
906.265	.131		819.188	.066	2007	2011	GPS2690	HORIZONTAL ADJUSTMENT				
906.265	.131		819.290	.066	1996	2010	HCOMS	GPS - STATIC				
906.265	.131		819.188	.066	2007	2010	HCOMS	GPS - STATIC				
906.127	.262		819.263	.197	1996	2009	RTRN2009	GPS - RTRN				

Geoid Separations(ft): GEOID18 = -87.050    12B = -87.041    09 = -86.906    03 = -86.867

**Lat/Lon and County Coordinates (Feet)**

**NAD83(2011)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 53 01.32489	96 42 54.45527	496239.843	192538.399	.007		ADJUSTMENT	2024	GPS3674
46 53 01.32489	96 42 54.45527	496239.843	192538.399	.007	C	GPS - STATIC	2023	HMOFA3
46 53 01.32536	96 42 54.45552	496239.826	192538.447	.131	3	GPS - RTRN	2022	RTRN2022
46 53 01.32457	96 42 54.45583	496239.804	192538.367	.131	3	GPS - OPUS	2021	GPSBM
46 53 01.32474	96 42 54.45659	496239.752	192538.384	.131	3	GPS - RTRN	2021	RTRN2021
46 53 01.32508	96 42 54.45529	496239.842	192538.418	.131	3	GPS - RTRN	2015	RTRN2015
46 53 01.32489	96 42 54.45527	496239.843	192538.399	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 53 01.32508	96 42 54.45625	496239.775	192538.418	.033	C	ADJUSTMENT	2011	GPS2690
46 53 01.32508	96 42 54.45625	496239.775	192538.418	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 53 01.32473	96 42 54.45634	496239.769	192538.383	.033	C	GPS - STATIC	2023	HMOFA3
46 53 01.32473	96 42 54.45634	496239.769	192538.383	.033	C	GPS - STATIC	2010	HCOMS
46 53 01.32463	96 42 54.45602	496239.791	192538.373	.131	3	GPS - RTRN	2009	RTRN2009

**State Plane and UTM Coordinates (Feet)**

**NAD83(2011)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2008336.771	1024588.755	711796.336	17056867.070	.007		ADJUSTMENT	2024	GPS3674
2008336.771	1024588.755	711796.336	17056867.070	.007	C	GPS - STATIC	2023	HMOFA3
2008336.755	1024588.803	711796.321	17056867.118	.131	3	GPS - RTRN	2022	RTRN2022
2008336.731	1024588.723	711796.296	17056867.039	.131	3	GPS - OPUS	2021	GPSBM
2008336.679	1024588.742	711796.243	17056867.059	.131	3	GPS - RTRN	2021	RTRN2021
2008336.770	1024588.774	711796.335	17056867.089	.131	3	GPS - RTRN	2015	RTRN2015
2008336.771	1024588.755	711796.336	17056867.070	.007		ADJUSTMENT	2012	GPS2800

**NAD83(2007)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2008336.703	1024588.776	711796.269	17056867.092	.033	C	ADJUSTMENT	2011	GPS2690
2008336.703	1024588.776	711796.269	17056867.092	.033	C	GPS - STATIC	2010	HCOMS

**NAD83(1996)**

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2008336.696	1024588.741	711796.261	17056867.057	.033	C	GPS - STATIC	2023	HMOFA3
2008336.696	1024588.741	711796.261	17056867.057	.033	C	GPS - STATIC	2010	HCOMS
2008336.718	1024588.730	711796.282	17056867.046	.131	3	GPS - RTRN	2009	RTRN2009

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WEIV_RESET-DM1842-3W-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WEIV_RESET-DM1842-3W-14JUN2022.jpg</a>	W	Jun 14, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WEIV_RESET-DM1842-2-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WEIV_RESET-DM1842-2-14JUN2022.jpg</a>		Jun 14, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WEIV_RESET-DM1842-1-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WEIV_RESET-DM1842-1-14JUN2022.jpg</a>		Jun 14, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: WELL

NGS Name: WELL

County: CLAY, MN (Sheet 1)

NGS ACRN: [DP7377](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096144/  
 USGS Quad: HAWLEY NW

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	6	139 N	45 W	465326.05	962425.73	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2013	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 50 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2017) Stamping: WELL 2013

4.0 MILES WEST OF HAWLEY, 3.9 MILES WEST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 31 AND COUNTY ROAD 33 IN HAWLEY, TO TRUNK HIGHWAY 10 MILEPOST 17.45, THEN 1.0 MILE NORTH ON COUNTY ROAD 113, 56.7 FEET WEST OF COUNTY ROAD 113, 11.3 FEET SOUTH OF A FIELD ENTRANCE, 1.5 FEET EAST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1102.061	.016	2/1				VERTICAL ADJUSTMENT	2024	0000941-3		
1102.061	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA		
1102.061	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1102.061			1014.444	.018	2011	HORIZONTAL ADJUSTMENT	2024	GPS3719		
1102.061	.131		1014.585	.066	1996	GPS - STATIC	2024	HMOFA1		
1102.061			1014.444	.018	2011	GPS - STATIC	2024	HMOFA1		
1102.203	.262		1014.381	.197	2011	GPS - RTRN	2022	RTRN2022		
1102.281			1014.444	.024	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084		
1102.268	.131		1014.585	.066	1996	GPS - STATIC	2015	HCLAY		
1102.281			1014.444	.024	2011	GPS - STATIC	2015	HCLAY		
1102.084	.262		1014.276	.197	2011	GPS - RTRN	2015	RTRN2015		
1102.160	.262		1014.352	.197	2011	GPS - RTRN	2013	RTRN2013		

Geoid Separations(ft): GEOID18 = -87.825 12B = -87.808 09 = -87.693 03 = -87.664

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 53 26.05282	96 24 25.72833	573249.828	195180.025	.010		ADJUSTMENT	2024	GPS3719	
46 53 26.05282	96 24 25.72833	573249.828	195180.025	.010	C	GPS - STATIC	2024	HMOFA1	
46 53 26.05307	96 24 25.72781	573249.864	195180.050	.131	3	GPS - RTRN	2022	RTRN2022	
46 53 26.05282	96 24 25.72833	573249.828	195180.025	.016		ADJUSTMENT	2015	GPS3084	
46 53 26.05282	96 24 25.72833	573249.828	195180.025	.016	C	GPS - STATIC	2015	HCLAY	
46 53 26.05285	96 24 25.72851	573249.815	195180.028	.131	3	GPS - RTRN	2015	RTRN2015	
46 53 26.05423	96 24 25.72852	573249.814	195180.168	.131	3	GPS - RTRN	2013	RTRN2013	

<u>NAD83(1996)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 53 26.05234	96 24 25.72912	573249.773	195179.976	.033	C	GPS - STATIC	2024	HMOFA1	
46 53 26.05234	96 24 25.72912	573249.773	195179.976	.033	C	GPS - STATIC	2015	HCLAY	



State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2085385.550	1024846.126	788880.511	17055874.121	.010		ADJUSTMENT	2024	GPS3719
2085385.550	1024846.126	788880.511	17055874.121	.010	C	GPS - STATIC	2024	HMOFA1
2085385.587	1024846.151	788880.549	17055874.145	.131	3	GPS - RTRN	2022	RTRN2022
2085385.550	1024846.126	788880.511	17055874.121	.016		ADJUSTMENT	2015	GPS3084
2085385.550	1024846.126	788880.511	17055874.121	.016	C	GPS - STATIC	2015	HCLAY
2085385.538	1024846.130	788880.499	17055874.125	.131	3	GPS - RTRN	2015	RTRN2015
2085385.541	1024846.270	788880.505	17055874.264	.131	3	GPS - RTRN	2013	RTRN2013

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2085385.494	1024846.079	788880.454	17055874.075	.033	C	GPS - STATIC	2024	HMOFA1
2085385.494	1024846.079	788880.454	17055874.075	.033	C	GPS - STATIC	2015	HCLAY

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WELL-DP7377-3W-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WELL-DP7377-3W-05JUL2022.jpg</a>	W	Jul 5, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WELL-DP7377-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WELL-DP7377-2-05JUL2022.jpg</a>		Jul 5, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WELL-DP7377-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WELL-DP7377-1-05JUL2022.jpg</a>		Jul 5, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: WHIPPLE  
County: CLAY, MN (Sheet 1)

NGS Name: WHIPPLE

NGS ACRN: [DQ1990](#) [Get Map](#)  
NGS Quad / Sta Num : 46096124/  
USGS Quad: ROLLAG

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	27	138 N	44 W	464409.55	961416.03	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 1 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 25 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: WHIPPLE 2014

10.5 MILES NORTHEAST OF BARNESVILLE, 8.75 MILES EAST ALONG TRUNK HIGHWAY 34 FROM THE JUNCTION OF TRUNK HIGHWAY 34 AND TRUNK HIGHWAY 9 IN BARNESVILLE, THEN 5.3 MILES NORTH ON TRUNK HIGHWAY 32, AT TRUNK HIGHWAY 32 MILEPOINT 5.3, 59.4 FEET EAST OF TRUNK HIGHWAY 32, 138.0 FEET SOUTH OF A FIELD ENTRANCE, 14.8 FEET WEST OF A RIGHT-OF-WAY POST, 1.5 FEET WEST OF A WITNESS POST.

Station Pair: 1402 E 1 - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1348.157	.016	2/1							VERTICAL ADJUSTMENT	2019	00000941	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1348.157			1261.018	.012	2011	HORIZONTAL ADJUSTMENT				2024	GPS3762	
1348.157	.131		1261.139	.066	1996	GPS - STATIC				2024	HTH32	
1348.157			1261.018	.012	2011	GPS - STATIC				2024	HTH32	
1348.222	.262		1260.962	.197	2011	GPS - RTRN				2023	RTRN2023	
1348.163	.262		1260.926	.197	2011	GPS - RTRN				2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.260 12B = -87.234 09 = -87.129 03 = -87.073

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 44 09.55479	96 14 16.02695	615929.814	139001.705	.007		ADJUSTMENT	2024	GPS3762
46 44 09.55479	96 14 16.02695	615929.814	139001.705	.007	C	GPS - STATIC	2024	HTH32
46 44 09.55472	96 14 16.02750	615929.776	139001.698	.131	3	GPS - RTRN	2023	RTRN2023
46 44 09.55447	96 14 16.02762	615929.767	139001.672	.131	3	GPS - RTRN	2014	RTRN2014

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Clay County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
46 44 09.55463	96 14 16.02717	615929.799	139001.689	.033	C	GPS - STATIC	2024	HTH32

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>				
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2126301.480	967378.825	828881.070	16997728.903	.007		ADJUSTMENT			2024	GPS3762
2126301.480	967378.825	828881.070	16997728.903	.007	C	GPS - STATIC			2024	HTH32
2126301.442	967378.819	828881.031	16997728.898	.131	3	GPS - RTRN			2023	RTRN2023
2126301.433	967378.794	828881.022	16997728.873	.131	3	GPS - RTRN			2014	RTRN2014

<u>NAD83(1996)</u>		<u>MN State Plane - Central Zone</u>		<u>UTM - Zone 15</u>		<u>Project Info</u>		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2126301.464	967378.809	828881.054	16997728.887	.033	C	GPS - STATIC	2024	HTH32



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WHIPPLE-DQ1990-3E-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WHIPPLE-DQ1990-3E-18OCT2023.jpg</a>	E	Oct 18, 2023
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WHIPPLE-DQ1990-2-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WHIPPLE-DQ1990-2-18OCT2023.jpg</a>		Oct 18, 2023
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WHIPPLE-DQ1990-1-18OCT2023.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WHIPPLE-DQ1990-1-18OCT2023.jpg</a>		Oct 18, 2023

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: WILKEN  
 County: CLAY, MN (Sheet 1)

NGS Name: WILKEN

NGS ACRN: [DQ2000](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096142/  
 USGS Quad: HAWLEY SE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	8	139 N	44 W	465224.16	961534.54	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 53 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      **Stamping:** WILKEN 2014

2.6 MILES EAST OF HAWLEY, 0.3 MILE SOUTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND TRUNK HIGHWAY 10 (THE JUNCTION IS 3.0 MILES EAST OF HAWLEY), AT TRUNK HIGHWAY 32 MILEPOINT 15.2, 58.1 FEET WEST OF TRUNK HIGHWAY 32, 38.4 FEET NORTH OF A FIELD ENTRANCE, 18.4 FEET EAST OF A POWER POLE, 1.5 EAST OF A WITNESS POST.

Station Pair: 1403 B RESET - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88			Orthometric Height			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj				Year	Reference		
1257.622	.016	2/1				VERTICAL ADJUSTMENT			2024	00000941-3		
1257.622	.016	2/1				VERTICAL CONTROL SURVEY			2023	VMOFA		
1257.622	.016	2/1				VERTICAL ADJUSTMENT			2019	00000941		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Orthometric Height			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj				Year	Reference		
1257.622			1169.991	.023	2011	HORIZONTAL ADJUSTMENT			2024	GPS3719		
1257.622	.131		1170.122	.066	1996	GPS - STATIC			2024	HMOFA1		
1257.622			1169.991	.023	2011	GPS - STATIC			2024	HMOFA1		
1257.747	.262		1169.968	.197	2011	GPS - RTRN			2022	RTRN2022		
1257.609	.262		1169.847	.197	2011	GPS - RTRN			2014	RTRN2014		

Geoid Separations(ft): GEOID18 = -87.782 12B = -87.766 09 = -87.657 03 = -87.598

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Geodetic Position		Clay County		Determination Method			Project Info	
Latitude	Longitude	X	Y	Acc	Order			Year	Reference	
46 52 24.15708	96 15 34.53809	610180.169	189081.291	.013		ADJUSTMENT		2024	GPS3719	
46 52 24.15708	96 15 34.53809	610180.169	189081.291	.013	C	GPS - STATIC		2024	HMOFA1	
46 52 24.15648	96 15 34.53818	610180.163	189081.230	.131	3	GPS - RTRN		2022	RTRN2022	
46 52 24.15735	96 15 34.53767	610180.198	189081.319	.131	3	GPS - RTRN		2014	RTRN2014	

NAD83(1996)		Geodetic Position		Clay County		Determination Method			Project Info	
Latitude	Longitude	X	Y	Acc	Order			Year	Reference	
46 52 24.15675	96 15 34.53861	610180.133	189081.258	.033	C	GPS - STATIC		2024	HMOFA1	

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		MN State Plane - Central Zone		UTM - Zone 15		Determination Method			Project Info	
X	Y	X	Y	X	Y	Acc	Order		Year	Reference
2122106.092	1017607.237	825494.646	17048038.510	.013		ADJUSTMENT			2024	GPS3719
2122106.092	1017607.237	825494.646	17048038.510	.013	C	GPS - STATIC			2024	HMOFA1
2122106.084	1017607.177	825494.637	17048038.450	.131	3	GPS - RTRN			2022	RTRN2022
2122106.122	1017607.264	825494.676	17048038.536	.131	3	GPS - RTRN			2014	RTRN2014

NAD83(1996)		MN State Plane - Central Zone		UTM - Zone 15		Determination Method			Project Info	
X	Y	X	Y	Acc	Order			Year	Reference	
2122106.055	1017607.205	825494.608	17048038.478	.033	C	GPS - STATIC		2024	HMOFA1	



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WILKEN-DQ2000-3W-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WILKEN-DQ2000-3W-14JUN2022.jpg</a>	W	Jun 14, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WILKEN-DQ2000-2-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WILKEN-DQ2000-2-14JUN2022.jpg</a>		Jun 14, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WILKEN-DQ2000-1-14JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WILKEN-DQ2000-1-14JUN2022.jpg</a>		Jun 14, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: WILLIS

NGS Name: WILLIS

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ1963](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096131/  
 USGS Quad: BIG SLOUGH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	22	137 N	45 W	463935.84	962118.35	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 44 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      Stamping: WILLIS 2014

3.1 MILES EAST OF BARNESVILLE, 3.1 MILES EAST ALONG TRUNK HIGHWAY 34 FROM THE JUNCTION OF TRUNK HIGHWAYS 34 AND 9 IN BARNESVILLE, AT TRUNK HIGHWAY 34 MILEPOINT 3.10, 65.1 FEET NORTH OF TRUNK HIGHWAY 34, 9.4 FEET SOUTH OF A FENCE, 9.0 FEET SOUTH OF A WITNESS POST.

Station Pair: 1404 E - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1093.525	.016	2/1							VERTICAL ADJUSTMENT	2019	00000941	

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>			<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1093.525			1006.491	.024	2011	HORIZONTAL ADJUSTMENT				2024	GPS3671	
1093.525	.131		1006.602	.066	1996	GPS - STATIC				2023	HTH9	
1093.525			1006.491	.024	2011	GPS - STATIC				2023	HTH9	
1093.685	.262		1006.540	.197	2011	GPS - RTRN				2022	RTRN2022	
1093.541	.262		1006.412	.197	2011	GPS - RTRN				2014	RTRN2014	

Geoid Separations(ft): GEOID18 = -87.145 12B = -87.132 09 = -87.027 03 = -86.978

**Lat/Lon and County Coordinates (Feet)**

<u>NAD83(2011)</u>			<u>Geodetic Position</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
	<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>				<u>Year</u>	<u>Reference</u>		
	46 39 35.83577	96 21 18.35329	586633.396	111119.293	.013		ADJUSTMENT			2024	GPS3671		
	46 39 35.83577	96 21 18.35329	586633.396	111119.293	.013	C	GPS - STATIC			2023	HTH9		
	46 39 35.83547	96 21 18.35323	586633.400	111119.262	.131	3	GPS - RTRN			2022	RTRN2022		
	46 39 35.83583	96 21 18.35310	586633.409	111119.298	.131	3	GPS - RTRN			2014	RTRN2014		

<u>NAD83(1996)</u>			<u>Geodetic Position</u>				<u>Clay County</u>			<u>Determination Method</u>		<u>Project Info</u>	
	<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>				<u>Year</u>	<u>Reference</u>		
	46 39 35.83554	96 21 18.35374	586633.364	111119.269	.033	C	GPS - STATIC			2023	HTH9		

**State Plane and UTM Coordinates (Feet)**

<u>NAD83(2011)</u>			<u>MN State Plane - Central Zone</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
	<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>				<u>Year</u>	<u>Reference</u>		
	2096159.373	940419.848	798296.640	16971245.684	.013		ADJUSTMENT			2024	GPS3671		
	2096159.373	940419.848	798296.640	16971245.684	.013	C	GPS - STATIC			2023	HTH9		
	2096159.377	940419.817	798296.643	16971245.654	.131	3	GPS - RTRN			2022	RTRN2022		
	2096159.386	940419.853	798296.654	16971245.690	.131	3	GPS - RTRN			2014	RTRN2014		

<u>NAD83(1996)</u>			<u>MN State Plane - Central Zone</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
	<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>				<u>Year</u>	<u>Reference</u>		
	2096159.341	940419.825	798296.608	16971245.662	.033	C	GPS - STATIC			2023	HTH9		



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WILLIS-DQ1963-3N-13SEP2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WILLIS-DQ1963-3N-13SEP2022.jpg</a>	N	Sep 13, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WILLIS-DQ1963-2-13SEP2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WILLIS-DQ1963-2-13SEP2022.jpg</a>		Sep 13, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WILLIS-DQ1963-1-13SEP2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WILLIS-DQ1963-1-13SEP2022.jpg</a>		Sep 13, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: WINNIPEG  
County: CLAY, MN (Sheet 1)

NGS Name: WINNIPEG

NGS ACRN: [RP0892](#) [Get Map](#)  
NGS Quad / Sta Num : 46096114/1048  
USGS Quad: DALE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	9	139 N	44 W	465236.89	961441.65	2	C

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	2023	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	NGS

**Description:** (2000)                      **Stamping:** WINNIPEG 1964

3.5 MILES EAST OF HAWLEY, 3.7 MILES EAST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 31 ON THE WEST SIDE OF HAWLEY, AT TRUNK HIGHWAY 10 MILEPOINT 25.15, NEAR A RADIO MAST, 100.5 FEET SOUTH OF EASTBOUND TRUNK HIGHWAY 10, 72.0 FEET NORTHWEST OF THE NORTHWEST CORNER OF A FENCE, 40.0 FEET SOUTHEAST OF A POWER POLE, 34.0 FEET NORTHEAST OF A POWER POLE, 95.91 FEET WEST-SOUTHWEST OF WINNIPEG RM 1, 97.70 FEET NORTH-NORTHWEST OF WINNIPEG RM 2, 53.17 FEET WEST-SOUTHWEST OF STATION 1401 Q, 1.5 FEET NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1316.178	.016	2/1				VERTICAL ADJUSTMENT	2024	0000941-3		
1316.178	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA		
1316.178	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941		
1316.293	.016	2/1				VERTICAL ADJUSTMENT	2004	00000464		
1316.293	.016	2/1				VERTICAL CONTROL SURVEY	2001	VHAWL		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1316.178			1228.515	.017	2011	HORIZONTAL ADJUSTMENT	2024	GPS3719		
1316.178	.131		1228.662	.066	1996	GPS - STATIC	2024	HMOFA1		
1316.178			1228.515	.017	2011	GPS - STATIC	2024	HMOFA1		
1316.221	.262		1228.436	.197	2011	GPS - RTRN	2022	RTRN2022		
1316.293			1228.515	.023	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084		
1316.293	.131		1228.662	.066	1996	GPS - STATIC	2015	HCLAY		
1316.293			1228.515	.023	2011	GPS - STATIC	2015	HCLAY		
1316.169	.262		1228.400	.197	2011	GPS - RTRN	2014	RTRN2014		
			1228.656	.066	1996	GPS - STATIC	2001	DIST 4		
1315.614	.197		1228.236	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648		

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1315.614						RECIPROCAL VERTICAL ANGLE	1954	HORZ		

Geoid Separations(ft): GEOID18 = -87.785    12B = -87.769    09 = -87.664    03 = -87.602

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 52 36.89318	96 14 41.65473	613847.006	190392.630	.010		ADJUSTMENT	2024	GPS3719
46 52 36.89318	96 14 41.65473	613847.006	190392.630	.010	C	GPS - STATIC	2024	HMOFA1
46 52 36.89338	96 14 41.65551	613846.952	190392.650	.131	3	GPS - RTRN	2022	RTRN2022
46 52 36.89318	96 14 41.65473	613847.006	190392.630	.013		ADJUSTMENT	2015	GPS3084
46 52 36.89318	96 14 41.65473	613847.006	190392.630	.013	C	GPS - STATIC	2015	HCLAY
46 52 36.89379	96 14 41.65494	613846.991	190392.692	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(1996)

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 52 36.89272	96 14 41.65550	613846.953	190392.583	.033	C	GPS - STATIC	2024	HMOFA1
46 52 36.89272	96 14 41.65550	613846.953	190392.583	.033	C	GPS - STATIC	2015	HCLAY
46 52 36.89288	96 14 41.65529	613846.968	190392.598	.033	C	GPS - STATIC	2001	DIST 4
46 52 36.89060	96 14 41.65528	613846.970	190392.369	.066	2	ADJUSTMENT	1999	17648
46 52 36.89006	96 14 41.65517	613846.978	190392.314	.066	2	ADJUSTMENT	1998	17655

NAD83(1986)

Geodetic Position		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 52 36.89086	96 14 41.64922	613847.390	190392.397	.066	2	ADJUSTMENT	1986	17289

NAD27

Geodetic Position						Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 52 37.03677	96 14 40.43033			.100	2	CLASSICAL SURVEY	1964	13522

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2125811.447	1018804.244	829220.319	17049175.886	.010		ADJUSTMENT	2024	GPS3719
2125811.447	1018804.244	829220.319	17049175.886	.010	C	GPS - STATIC	2024	HMOFA1
2125811.393	1018804.265	829220.265	17049175.909	.131	3	GPS - RTRN	2022	RTRN2022
2125811.447	1018804.244	829220.319	17049175.886	.013		ADJUSTMENT	2015	GPS3084
2125811.447	1018804.244	829220.319	17049175.886	.013	C	GPS - STATIC	2015	HCLAY
2125811.434	1018804.306	829220.307	17049175.949	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2125811.392	1018804.198	829220.263	17049175.842	.033	C	GPS - STATIC	2024	HMOFA1
2125811.392	1018804.198	829220.263	17049175.842	.033	C	GPS - STATIC	2015	HCLAY
2125811.407	1018804.214	829220.279	17049175.858	.033	C	GPS - STATIC	2001	DIST 4
2125811.402	1018803.983	829220.270	17049175.627	.066	2	ADJUSTMENT	1999	17648
2125811.408	1018803.928	829220.275	17049175.572	.066	2	ADJUSTMENT	1998	17655

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2125811.824	1018803.999	829220.692	17049175.636	.066	2	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone						Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1501214.847	690729.271			.100	2	CLASSICAL SURVEY	1964	13522

Station Photos

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WINNIPEG-RP0892-3S-13JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WINNIPEG-RP0892-3S-13JUN2022.jpg</a>	S	Jun 13, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WINNIPEG-RP0892-2-13JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WINNIPEG-RP0892-2-13JUN2022.jpg</a>		Jun 13, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WINNIPEG-RP0892-1-13JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WINNIPEG-RP0892-1-13JUN2022.jpg</a>		Jun 13, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: WINNIPEG AZ MK

NGS Name: WINNIPEG AZ MK

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP5187](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096141/  
 USGS Quad: HAWLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	9	139 N	44 W	465238.00	961534.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	2013	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
UNKNOWN	AZIMUTH MARK DISK	NGS

Description: (2014)                      Stamping: WINNIPEG 1964

2.7 MILES EAST OF HAWLEY, 160.0 FEET WEST OF THE JUNCTION OF TRUNK HIGHWAY 10 AND TRUNK HIGHWAY 32, 40.5 FEET NORTH OF EASTBOUND LANE OF TRUNK HIGHWAY 10, AND 35.0 FEET SOUTH OF WESTBOUND LANE OF TRUNK HIGHWAY 10.

\* No Horizontal or Vertical Positions in the Database \*

Geoid Separations(ft): GEOID18 = -87.798    12B = -87.782    09 = -87.674    03 = -87.615



Mn/DOT Name: WINNIPEG RM 1

NGS Name: WINNIPEG RM 1

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP5188](#) [Get Map](#)  
NGS Quad / Sta Num : 46096114/  
USGS Quad: DALE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	9	139 N	44 W	465237.13	961440.32	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1964	2022	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description: (2000)                      **Stamping:** WINNIPEG NO 1 1964

3.5 MILES EAST OF HAWLEY, 3.7 MILES EAST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 31 ON THE WEST SIDE OF HAWLEY, AT TRUNK HIGHWAY 10 MILEPOINT 25.15, 75.4 FEET SOUTH OF EASTBOUND TRUNK HIGHWAY 10, 24.5 FEET WEST OF ENTRANCE NUMBER 26713 TO A MINNESOTA DEPARTMENT OF TRANSPORTATION RADIO TOWER, 145.4 FEET NORTHEAST OF WINNIPEG RM 2, 95.9 FEET EAST-NORTHEAST OF STATION WINNIPEG, 89.0 FEET NORTH OF THE NORTHEAST CORNER OF A FENCE AROUND A TOWER, 43.1 FEET EAST OF STATION 1401 Q, 3.5 FEET WEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1318.318	.016	2/1				VERTICAL ADJUSTMENT	2024	00000941-3
1318.318	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA
1318.318	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941
1318.432	.016	2/1				VERTICAL ADJUSTMENT	2004	00000464
1318.432	.016	2/1				VERTICAL CONTROL SURVEY	2001	VHAWL

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1318.442	.262		1230.657	.197	2011	GPS - RTRN	2022	RTRN2022
1318.321	.262		1230.552	.197	2011	GPS - RTRN	2014	RTRN2014

Geoid Separations(ft): GEOID18 = -87.785    12B = -87.769    09 = -87.664    03 = -87.602

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 52 37.13086	96 14 40.31885	613939.677	190417.250	.131	3	GPS - RTRN	2022	RTRN2022
46 52 37.13058	96 14 40.31815	613939.726	190417.222	.131	3	GPS - RTRN	2014	RTRN2014

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2125904.827	1018825.978	829314.074	17049196.116	.131	3	GPS - RTRN	2022	RTRN2022
2125904.875	1018825.949	829314.122	17049196.086	.131	3	GPS - RTRN	2014	RTRN2014

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WINNIPEG_RM_1-CP5188-3S-13JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WINNIPEG_RM_1-CP5188-3S-13JUN2022.jpg</a>	S	Jun 13, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WINNIPEG_RM_1-CP5188-2-13JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WINNIPEG_RM_1-CP5188-2-13JUN2022.jpg</a>		Jun 13, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WINNIPEG_RM_1-CP5188-1-13JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WINNIPEG_RM_1-CP5188-1-13JUN2022.jpg</a>		Jun 13, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: WINNIPEG RM 2

NGS Name: WINNIPEG RM 2

County: CLAY, MN (Sheet 1)

NGS ACRN: [CP5189](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096114/  
 USGS Quad: DALE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	9	139 N	44 W	465235.94	961441.48	2	3

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1964	2022	GOOD	Horz=YES Vert=YES	YES		RECESSED 6 IN.	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

**Description:** (2000)                      **Stamping:** WINNIPEG NO 2 1964

3.5 MILES EAST OF HAWLEY, 3.7 MILES EAST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 31 ON THE WEST SIDE OF HAWLEY, AT TRUNK HIGHWAY 10 MILEPOINT 25.15, 107.0 FEET WEST OF ENTRANCE NUMBER 26713 TO A MINNESOTA DEPARTMENT OF TRANSPORTATION RADIO TOWER, 196.3 FEET SOUTH OF EASTBOUND TRUNK HIGHWAY 10, 145.4 FEET SOUTHWEST OF WINNIPEG RM 1, 121.7 FEET SOUTH-SOUTHWEST OF STATION 1401 Q, 97.7 FEET SOUTH-SOUTHEAST OF STATION WINNIPEG, 82.0 FEET SOUTH-SOUTHEAST OF A POWER POLE WITH A TRANSFORMER, 39.9 FEET NORTH-NORTHWEST OF THE SOUTHWEST CORNER OF A FENCE AROUND A TOWER, 37.2 FEET SOUTH-SOUTHWEST OF THE NORTHWEST CORNER OF A FENCE AROUND A TOWER, 19.5 FEET WEST OF A CHAIN LINK FENCE, 18.0 FEET WEST OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1313.518	.016	2/1				VERTICAL ADJUSTMENT	2024	0000941-3		
1313.518	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA		
1313.518	.016	2/1				VERTICAL ADJUSTMENT	2019	00000941		
1313.633	.016	2/1				VERTICAL ADJUSTMENT	2004	00000464		
1313.633	.016	2/1				VERTICAL CONTROL SURVEY	2001	VHAWL		

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1313.580	.262		1225.798	.197	2011	GPS - RTRN	2022	RTRN2022		
1313.541	.262		1225.772	.197	2011	GPS - RTRN	2014	RTRN2014		

Geoid Separations(ft): GEOID18 = -87.785 12B = -87.769 09 = -87.661 03 = -87.602

**Lat/Lon and County Coordinates (Feet)**

<u>NAVD83(2011)</u>		<u>Clay County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
46 52 35.93667	96 14 41.47768	613859.869	190295.791	.131	3	GPS - RTRN	2022	RTRN2022	
46 52 35.93693	96 14 41.47744	613859.885	190295.818	.131	3	GPS - RTRN	2014	RTRN2014	

**State Plane and UTM Coordinates (Feet)**

<u>NAVD83(2011)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - Central Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
<u>X</u>	<u>Y</u>								
2125821.302	1018707.061	829228.605	17049078.520	.131	3	GPS - RTRN	2022	RTRN2022	
2125821.320	1018707.087	829228.622	17049078.546	.131	3	GPS - RTRN	2014	RTRN2014	

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WINNIPEG_RM_2-CP5189-3E-13JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WINNIPEG_RM_2-CP5189-3E-13JUN2022.jpg</a>	E	Jun 13, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WINNIPEG_RM_2-CP5189-2-13JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WINNIPEG_RM_2-CP5189-2-13JUN2022.jpg</a>		Jun 13, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WINNIPEG_RM_2-CP5189-1-13JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WINNIPEG_RM_2-CP5189-1-13JUN2022.jpg</a>		Jun 13, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: WOODLAWN

NGS Name: WOODLAWN

County: CLAY, MN (Sheet 1)

NGS ACRN: [DM7597](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	8	139 N	48 W	465206.29	964637.88	2	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
2009	2022	DESTROYED	Horz=NO Vert=NO	YES		FLUSH	BAR MAG IN DRILL HOLE

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 52 FT)	METAL ROD	MN4880

Description: (2009)                      Stamping: WOODLAWN 2009

IN MOORHEAD, 0.21 MILE NORTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND INTERSTATE HIGHWAY 94 IN MOORHEAD, THEN 0.15 MILE WEST ON SOUTH 24TH AVENUE, THEN 1.19 MILES NORTH ON SOUTH 5TH STREET, 1180.0 FEET WEST OF SOUTH 5TH STREET, 55.0 FEET NORTH OF 6TH AVENUE SOUTH, 52.2 FEET SOUTHWEST OF A WATER TOWER, 35.0 FEET NORTHWEST OF A FIRE HYDRANT.

**Station Notes**

180.0 FEET WEST OF THE JUNCTION OF 6TH AVENUE SOUTH AND 2ND STREET SOUTH, JUST BELOW AND SOUTH OF A WATER TOWER.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
903.732	.016	2/1					VERTICAL ADJUSTMENT	2019	00000941	
903.994	.016	2/1					VERTICAL ADJUSTMENT	2011	00000699	
903.994	.016	2/1					VERTICAL CONTROL SURVEY	2010	VCOMS	

Geoid Separations(ft): GEOID18 = -86.939 12B = -86.929 09 = -86.821 03 = -86.752

\* No Horizontal Positions in the Database \*

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WOODLAWN-DM7597-3NE-12NOV2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WOODLAWN-DM7597-3NE-12NOV2009.jpg</a>	NE	Nov 12, 200
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WOODLAWN-DM7597-2-12NOV2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WOODLAWN-DM7597-2-12NOV2009.jpg</a>		Nov 12, 200
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WOODLAWN-DM7597-1-12NOV2009.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WOODLAWN-DM7597-1-12NOV2009.jpg</a>		Nov 12, 200

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: WOODLAWN RESET

NGS Name: WOODLAWN RESET

County: CLAY, MN (Sheet 1)

NGS ACRN: [DR9637](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096442/  
 USGS Quad: FARGO SOUTH

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	8	139 N	48 W	465206.29	964637.88	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2022	2023	GOOD	Horz=YES Vert=YES	NO		RECESSED 8 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 52 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

**Description:** (2022)                      **Stamping:** WOODLAWN 2009 2022

IN MOORHEAD, 0.21 MILE NORTH ALONG TRUNK HIGHWAY 75 FROM THE JUNCTION OF TRUNK HIGHWAY 75 AND INTERSTATE HIGHWAY 94 IN MOORHEAD, THEN 0.15 MILE WEST ON SOUTH 24TH AVENUE, THEN 1.19 MILES NORTH ON SOUTH 5TH STREET, THEN 0.25 MILE WEST ON SOUTH 6TH AVENUE, 55.0 FEET NORTH OF 6TH AVENUE SOUTH, 52.2 FEET SOUTHWEST OF A WATER TOWER, 35.0 FEET NORTHWEST OF A FIRE HYDRANT.

**Station Notes**

NO WITNESS POST, THE SURVEY MARK IS IN A MOWED AREA.

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
903.210	.016	2/1				VERTICAL ADJUSTMENT	2024	00000941-3
903.200	.016	2/1				VERTICAL CONTROL SURVEY	2023	VMOFA

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
903.200			816.537	.027	2011	HORIZONTAL ADJUSTMENT	2024	GPS3674
903.200			816.537	.027	2011	GPS - STATIC	2023	HMOFA3
903.200	.131		816.632	.066	1996	GPS - STATIC	2023	HMOFA3

Geoid Separations(ft): GEOID18 = -86.939 03 = -86.752

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 52 06.29352	96 46 37.88156	480713.724	186971.907	.010		ADJUSTMENT	2024	GPS3674
46 52 06.29352	96 46 37.88156	480713.724	186971.907	.010	C	GPS - STATIC	2023	HMOFA3

NAD83(1996)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 52 06.29339	96 46 37.88236	480713.668	186971.894	.033	C	GPS - STATIC	2023	HMOFA3

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1992647.185	1019505.429	696016.264	17052036.108	.010		ADJUSTMENT	2024	GPS3674
1992647.185	1019505.429	696016.264	17052036.108	.010	C	GPS - STATIC	2023	HMOFA3

NAD83(1996)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1992647.129	1019505.418	696016.207	17052036.098	.033	C	GPS - STATIC	2023	HMOFA3

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WOODLAWN_RESET-DR9637-3N-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WOODLAWN_RESET-DR9637-3N-15JUN2022.jpg</a>	N	Jun 15, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WOODLAWN_RESET-DR9637-2-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WOODLAWN_RESET-DR9637-2-15JUN2022.jpg</a>		Jun 15, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WOODLAWN_RESET-DR9637-1-15JUN2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WOODLAWN_RESET-DR9637-1-15JUN2022.jpg</a>		Jun 15, 2022

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: WORTH  
 County: CLAY, MN (Sheet 1)

NGS Name: WORTH

NGS ACRN: [DP7378](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096224/  
 USGS Quad: FLOM

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	1	142 N	44 W	470903.51	961141.26		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2013	2013	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 20 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2013)                      Stamping: WORTH 2013

5.0 MILES NORTHEAST OF ULEN, 5.0 MILES NORTH ALONG TRUNK HIGHWAY 32 FROM THE JUNCTION OF TRUNK HIGHWAY 32 AND COUNTY ROAD 26 IN ULEN TO TRUNK HIGHWAY 32 MILEPOST 34.5, THEN 3.0 MILES EAST ON 100TH AVENUE, 59.8 FEET SOUTH OF 100TH AVENUE, 26.8 FEET WEST OF 290TH STREET NORTH, 1.5 FEET EAST OF A WITNESS POST.

\* No Leveling-Derived Orthometric Heights in the Database \*

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Orthometric Height				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference			
1173.187			1085.510	.023	2011	HORIZONTAL ADJUSTMENT	2015	GPS3084			
1173.187	.131		1085.651	.066	1996	GPS - STATIC	2015	HCLAY			
1173.187			1085.510	.023	2011	GPS - STATIC	2015	HCLAY			
1173.088	.262		1085.437	.197	2011	GPS - RTRN	2013	RTRN2013			

Geoid Separations(ft): GEOID18 = -87.661 12B = -87.651 09 = -87.552 03 = -87.520

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
47 09 03.50609	96 11 41.26350	625734.908	290432.210	.013		ADJUSTMENT	2015	GPS3084
47 09 03.50609	96 11 41.26350	625734.908	290432.210	.013	C	GPS - STATIC	2015	HCLAY
47 09 03.50625	96 11 41.26180	625735.025	290432.227	.131	3	GPS - RTRN	2013	RTRN2013

NAD83(1996)		Clay County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
47 09 03.50546	96 11 41.26433	625734.851	290432.146	.033	C	GPS - STATIC	2015	HCLAY

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone		X	Y	Acc	Order	Determination Method	Year	Reference
2140793.434	1118420.463	845825.596	17148569.427	.013		ADJUSTMENT	2015	GPS3084
2140793.434	1118420.463	845825.596	17148569.427	.013	C	GPS - STATIC	2015	HCLAY
2140793.552	1118420.476	845825.714	17148569.439	.131	3	GPS - RTRN	2013	RTRN2013

NAD83(1996)		UTM - Zone 15				Project Info		
MN State Plane - Central Zone		X	Y	Acc	Order	Determination Method	Year	Reference
2140793.375	1118420.400	845825.536	17148569.366	.033	C	GPS - STATIC	2015	HCLAY

**Station Photos**

Type	File Name	Dir	Date
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WORTH-DP7378-3W-21AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WORTH-DP7378-3W-21AUG2013.jpg</a>	W	Aug 21, 2013
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WORTH-DP7378-2-21AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WORTH-DP7378-2-21AUG2013.jpg</a>		Aug 21, 2013
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WORTH-DP7378-1-21AUG2013.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/WORTH-DP7378-1-21AUG2013.jpg</a>		Aug 21, 2013

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: X 314

NGS Name: X 314

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0340](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096412/  
 USGS Quad: GLYNDON SOUTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NW	10	139 N	47 W	465226.00	963609.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1938	1982	NOT FOUND	Horz=NO Vert=NO	NO			NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE FOUNDATION	SURVEY DISK	NGS

**Description:** (1968)                      **Stamping:** X 314 1938

1.1 MILES WEST-SOUTHWEST OF GLYNDON, 0.3 MILE NORTH ALONG PARKE AVENUE SOUTH FROM THE JUNCTION OF PARKE AVENUE SOUTH AND 4TH STREET SOUTHEAST IN GLYNDON, THEN 1.4 MILES WEST ALONG TRUNK HIGHWAY 10 WEST (STATE STREET NORTHEAST), THEN 0.4 MILE EAST ALONG TRUNK HIGHWAY 10 EAST, 1.1 MILES EAST OF THE BUFFALO RIVER, 0.9 MILE WEST OF A RAILROAD STATION, 0.1 MILE EAST OF RAILROAD MILEPOST 250, 1200.0 FEET SOUTH OF TRUNK HIGHWAY 10, 35.0 FEET NORTHEAST OF A SIGNAL TOWER, 10.0 FEET NORTH OF A NORTH RAIL, IN A SIGNAL TOWER BASE.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
921.845	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

  

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
920.910	.007	1/2					UNKNOWN/APPROXIMATE	1992	UNCHECKD	
920.910	.016	2					VERTICAL CONTROL SURVEY	1972	Q460964	
920.910	.016	2					VERTICAL CONTROL SURVEY	1972	L22167-A	
920.910	.016	2					VERTICAL CONTROL SURVEY	1971	L22167-A	
920.638	.007	1					VERTICAL CONTROL SURVEY	1940	Q460964	
920.638	.007	1					VERTICAL CONTROL SURVEY	1938	L39 MINN	

**Geoid Separations(ft): GEOID18 = -87.415    12B = -87.418    09 = -87.273    03 = -87.231**

\* No Horizontal Positions in the Database \*



Mn/DOT Name: X 4

NGS Name: X 4

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0379](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	13	140 N	47 W	465627.00	963330.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1905	1938	DESTROYED	Horz=NO Vert=NO	NO		PROJECTS 12 IN.	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
PIPE (CAPPED) DRIVEN IN GROUND (<10 FT)	PIPE CAP	NGS

**Description:** (1905) **Stamping:** EL 915.664 FT

2.0 MILES SOUTH-SOUTHWEST OF AVERILL, 1.4 MILES SOUTH ALONG 120TH STREET NORTH FROM THE JUNCTION OF 120TH STREET NORTH, THEN 0.5 MILE WEST ALONG 70TH AVENUE NORTH, 1.8 MILES SOUTH OF THE AVERILL RAILROAD STATION, 264.0FEET SOUTH OF A RAILROAD MILEPOST 24, 40.5 RAILS SOUTH OF A DIRT ROAD CROSSING, 38.0 FEET WEST OF THE WEST RAIL OF A RAILROAD, 20.0 FEET NORTH OF A POLE, IN LINE WITH A POLE LINE, 33.0 FEET NORTH OF A WITNESS POST.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
917.045	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	
<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
915.884	.007	1					VERTICAL CONTROL SURVEY	1940	Q460964	
915.884	.007	1					VERTICAL CONTROL SURVEY	1938	L45 MINN	
<u>GA1912</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
916.196	.007	1					VERTICAL ADJUSTMENT	1914	GA1912	

Geoid Separations(ft): GEOID18 = -87.277 12B = -87.267 09 = -87.136 03 = -87.119

\* No Horizontal Positions in the Database \*



Mn/DOT Name: Y 314

NGS Name: Y 314

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0376](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SE	35	140 N	47 W	465351.10	963440.10	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1938	2004	GOOD	Horz=NO Vert=NO	YES	RR	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BRIDGE ABUTMENT	BENCH MARK DISK	NGS

**Description:** (1982)                      **Stamping:** Y 314 1938

1.5 MILES NORTH OF GLYNDON, IN THE TOP OF NORTHEAST CORNER OF THE NORTH ABUTMENT OF A RAILROAD BRIDGE OVER THE BUFFALO RIVER, 1.45 MILES NORTH ALONG COUNTY ROAD 19 (110 STREET NORTH) FROM THE JUNCTION OF COUNTY ROAD 19 AND TRUNK HIGHWAY 10 IN GLYNDON, 47.0 FEET SOUTHEAST OF RAILROAD MILEPOST 20, 6.0 FEET EAST OF THE EAST RAIL OF A RAILROAD.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
923.827	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
922.698	.007	1/2					UNKNOWN/APPROXIMATE	1992	UNCHECKD	
922.698	.007	1					VERTICAL CONTROL SURVEY	1940	Q460964	
922.698	.007	1					VERTICAL CONTROL SURVEY	1938	L45 MINN	

**Geoid Separations(ft): GEOID18 = -87.411 12B = -87.424 09 = -87.264 03 = -87.231**

\* No Horizontal Positions in the Database \*

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/Y_314-RP0376-3S-16NOV2004.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/Y_314-RP0376-3S-16NOV2004.jpg</a>	S	Nov 16, 2004
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/Y_314-RP0376-2-16NOV2004.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/Y_314-RP0376-2-16NOV2004.jpg</a>		Nov 16, 2004
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/Y_314-RP0376-1-16NOV2004.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/Y_314-RP0376-1-16NOV2004.jpg</a>		Nov 16, 2004

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: Y 4

NGS Name: Y 4

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0380](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
NE	1	140 N	47 W	465815.00	963251.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1905	2004	NOT FOUND	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	DRILL HOLE	NGS

Description: (1905) Stamping:

IN AVERILL, 6 RAILS NORTH OF THE NORTH RAILROAD SWITCH, 10.0 FEET NORTH OF 1ST POLE NORTH OF A ROAD CROSSING, 40.0 FEET WEST OF A RAILROAD, IN LINE WITH A ROW OF POLES.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
917.216	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025	

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
916.045	.007	1/2				UNKNOWN/APPROXIMATE	1992	UNCHECKD	
916.045	.007	1				VERTICAL CONTROL SURVEY	1940	Q460964	
916.045	.007	1				VERTICAL CONTROL SURVEY	1938	L45 MINN	

**GA1912**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
916.635	.007	1				VERTICAL ADJUSTMENT	1914	GA1912	

Geoid Separations(ft): GEOID18 = -87.168 12B = -87.178 09 = -87.024 03 = -86.998

\* No Horizontal Positions in the Database \*



Mn/DOT Name: Z 314

NGS Name: Z 314

County: CLAY, MN (Sheet 1)

NGS ACRN: [RP0377](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096411/  
 USGS Quad: GLYNDON NORTH

<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Reference</u> <u>Latitude</u>	<u>Reference</u> <u>Longitude</u>	<u>Vert</u> <u>Order</u>	<u>Horz</u> <u>Order</u>
SE	26	140 N	47 W	465439.00	963423.70	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1938	2004	GOOD	Horz=NO Vert=NO	YES		FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE FOUNDATION	BENCH MARK DISK	NGS

**Description:** (1938)                      **Stamping:** Z 314 1938

2.4 MILES NORTH OF GLYNDON, 2.05 MILES NORTH ALONG COUNTY ROAD 19 (110 STREET NORTH) FROM THE JUNCTION OF COUNTY ROAD 19 AND TRUNK HIGHWAY 10 IN GLYNDON, THEN 250.0 FEET WEST ON COUNTY ROAD 18, THEN 0.35 MILE NORTH ON A GRAVEL ROAD TO HOUSE NUMBER 3139, 225.0 FEET WEST OF RAILROAD MILEPOST 21, 240.0 FEET WEST OF THE WEST RAIL OF A RAILROAD, 47.5 FEET NORTHWEST OF A POWER POLE WITH A TRANSFORMER, 41.4 FEET WEST OF THE SOUTHEAST CORNER OF A GARAGE, IN THE TOP OF THE SOUTHEAST SIDE OF A SILO FOUNDATION.

**Station Notes**

THE SILO WAS REMOVED, BUT THE MARK IS STILL IN THE FOUNDATION. THE SURVEY MARK IS ON RAILROAD PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

**Leveling-Derived Orthometric Heights (Feet)**

**NAVD88**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
920.772	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025	

**NGVD29**

<u>Orthometric Height</u>			<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
919.634	.007	1/2				UNKNOWN/APPROXIMATE	1992	UNCHECKD	
919.634	.007	1				VERTICAL CONTROL SURVEY	1940	Q460964	
919.634	.007	1				VERTICAL CONTROL SURVEY	1938	L45 MINN	

**Geoid Separations(ft): GEOID18 = -87.378 12B = -87.385 09 = -87.224 03 = -87.201**

\* No Horizontal Positions in the Database \*

**Station Photos**

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/Z_314-RP0377-3N-16NOV2004.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/Z_314-RP0377-3N-16NOV2004.jpg</a>	N	Nov 16, 2004
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/Z_314-RP0377-2-16NOV2004.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/Z_314-RP0377-2-16NOV2004.jpg</a>		Nov 16, 2004
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/Z_314-RP0377-1-16NOV2004.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/Z_314-RP0377-1-16NOV2004.jpg</a>		Nov 16, 2004

\*\* All station images can be viewed at: <ftp://ftp.olmweb.dot.state.mn.us/geod/StationPhotos> \*\*



Mn/DOT Name: Z 4

NGS Name: Z 4

County: CLAY, MN (Sheet 1)

NGS ACRN: [SL0163](#) [Get Map](#)  
 NGS Quad / Sta Num : 47096322/  
 USGS Quad: FELTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>1/4</u>	<u>Sec</u>	<u>Twp</u>	<u>Rng</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>Order</u>
SW	9	141 N	46 W	470214.00	963114.00	1	

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1905	1965	DESTROYED	Horz=NO Vert=NO	NO			STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	DRILL HOLE	NGS

Description: (1905)                      Stamping:

2.9 MILES SOUTH-SOUTHWEST OF FELTON, 0.3 MILE EAST ALONG 4TH STREET FROM THE JUNCTION OF 4TH STREET AND ATLANTIC AVENUE IN FELTON, THEN 3.0 MILES SOUTH ALONG TRUNK HIGHWAY 10 SOUTH (140TH STREET NORTH), THEN 1.0 MILE WEST ALONG 130TH AVENUE NORTH, 2.7 MILES SOUTH OF THE RAILROAD STATION AT FELTON, 10.0 FEET NORTH OF RAILROAD MILEPOST 30, IN LINE WITH A ROW OF POLES.

**Leveling-Derived Orthometric Heights (Feet)**

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
917.321	.007	1/2					VERTICAL ADJUSTMENT	1991	00000025	

<u>NGVD29</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
916.107	.007	1					VERTICAL CONTROL SURVEY	1941	Q470963	
916.107	.007	1					VERTICAL CONTROL SURVEY	1938	L45 MINN	

<u>GA1912</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
916.389	.007	1					VERTICAL ADJUSTMENT	1914	GA1912	

Geoid Separations(ft): GEOID18 = -87.057    12B = -87.067    09 = -86.936    03 = -86.919

\* No Horizontal Positions in the Database \*



Mn/DOT Name: ZACH

NGS Name: ZACH

County: CLAY, MN (Sheet 1)

NGS ACRN: [DQ2026](#) [Get Map](#)  
 NGS Quad / Sta Num : 46096144/  
 USGS Quad: HAWLEY NW

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	5	139 N	45 W	465235.01	962400.46	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2014	2023	GOOD	Horz=YES Vert=YES	YES		RECESSED 1 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 54 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014)                      **Stamping:** ZACH 2014

3.7 MILES WEST OF HAWLEY, 3.7 MILES WEST ALONG TRUNK HIGHWAY 10 FROM THE JUNCTION OF TRUNK HIGHWAY 10 AND COUNTY ROAD 31 IN HAWLEY, AT TRUNK HIGHWAY 10 MILEPOINT 17.75, 0.1 MILE EAST OF 192ND STREET SOUTH, 68.0 FEET NORTH OF WESTBOUND TRUNK HIGHWAY 10, 3.2 FEET SOUTH OF AN EAST-WEST FENCE LINE, 1.5 FEET SOUTH OF A WITNESS POST.

Station Pair: 1401 AG - CLAY, MN

**Leveling-Derived Orthometric Heights (Feet)**

NAVD88			Orthometric Height			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Year	Reference					
1104.089	.016	2/1				2024	00000941-3	VERTICAL ADJUSTMENT				
1104.089	.016	2/1				2023	VMOFA	VERTICAL CONTROL SURVEY				
1104.089	.016	2/1				2019	00000941	VERTICAL ADJUSTMENT				

**Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)**

NAVD88			Orthometric Height			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Year	Reference					
1104.089			1016.432	.024	2011	2024	GPS3719	HORIZONTAL ADJUSTMENT				
1104.089	.131		1016.566	.066	1996	2024	HMOFA1	GPS - STATIC				
1104.089			1016.432	.024	2011	2024	HMOFA1	GPS - STATIC				
1104.299	.262		1016.471	.197	2011	2022	RTRN2022	GPS - RTRN				
1104.174	.262		1016.360	.197	2011	2014	RTRN2014	GPS - RTRN				

Geoid Separations(ft): GEOID18 = -87.828 12B = -87.815 09 = -87.697 03 = -87.661

**Lat/Lon and County Coordinates (Feet)**

NAD83(2011)		Geodetic Position		Clay County		Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 52 35.00579	96 24 00.46397	575024.388	190014.712	.013		ADJUSTMENT	2024	GPS3719
46 52 35.00579	96 24 00.46397	575024.388	190014.712	.013	C	GPS - STATIC	2024	HMOFA1
46 52 35.00637	96 24 00.46365	575024.410	190014.771	.131	3	GPS - RTRN	2022	RTRN2022
46 52 35.00579	96 24 00.46365	575024.410	190014.712	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(1996)		Geodetic Position		Clay County		Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 52 35.00546	96 24 00.46449	575024.352	190014.678	.033	C	GPS - STATIC	2024	HMOFA1

**State Plane and UTM Coordinates (Feet)**

NAD83(2011)		MN State Plane - Central Zone		UTM - Zone 15		Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2086999.198	1019628.783	790410.149	17050628.923	.013		ADJUSTMENT	2024	GPS3719
2086999.198	1019628.783	790410.149	17050628.923	.013	C	GPS - STATIC	2024	HMOFA1
2086999.222	1019628.841	790410.174	17050628.980	.131	3	GPS - RTRN	2022	RTRN2022
2086999.220	1019628.783	790410.171	17050628.922	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(1996)		MN State Plane - Central Zone		UTM - Zone 15		Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2086999.161	1019628.751	790410.111	17050628.891	.033	C	GPS - STATIC	2024	HMOFA1



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ZACH-DQ2026-3N-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ZACH-DQ2026-3N-05JUL2022.jpg</a>	N	Jul 5, 2022
Monument:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ZACH-DQ2026-2-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ZACH-DQ2026-2-05JUL2022.jpg</a>		Jul 5, 2022
Disk:	<a href="https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ZACH-DQ2026-1-05JUL2022.jpg">https://www.olmweb.dot.state.mn.us/geod/StationPhotos/clay/ZACH-DQ2026-1-05JUL2022.jpg</a>		Jul 5, 2022

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