



Mn/DOT Name: 1 DWB

NGS Name: 1 DWB

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DL5416](#) [Get Map](#)
 NGS Quad / Sta Num : 43095411/
 USGS Quad: LIME CREEK

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	40 W	435518.90	953610.60	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>
1967	2015	DESTROYED	Horz=NO Vert=NO	YES		PROJECTS 5 IN.	MARKER W/BAR MAGNET

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

Description: (2006) **Stamping:** 1 DWB 1967 1519

3.6 MILES NORTH ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 62/COUNTY ROAD 2 IN FULDA, AT TRUNK HIGHWAY 59 MILEPOINT 31.90, 214.0 FEET NORTHEAST OF TRUNK HIGHWAY 59, 206.0 FEET WEST OF A NORTH-SOUTH GRAVEL ROAD, 1.7 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>	
1519.449	.016	2/1				VERTICAL ADJUSTMENT	2010	00000628	
1519.449	.016	2/1				VERTICAL CONTROL SURVEY	2007	VSLAT	

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>	
1518.865	.033	3				VERTICAL CONTROL SURVEY	1968	USGS-VERT	

Geoid Separations(ft): GEOID18 = -87.959 12B = -87.946 09 = -87.828 03 = -87.634

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/1_DWB-DL5416-3N-24OCT2006.jpg	N	Oct 24, 200
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/1_DWB-DL5416-2-24OCT2006.jpg		Oct 24, 200
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/1_DWB-DL5416-1-24OCT2006.jpg		Oct 24, 200

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



Mn/DOT Name: 1 JMK

NGS Name: 1 JMK

County: MURRAY, MN (Sheet 1)

NGS ACRN: [PQ1370](#) [Get Map](#)
 NGS Quad / Sta Num : 44095332/
 USGS Quad: HADLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	107 N	41 W	440356.17	954511.29	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>
1966	2018	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)	SURVEY DISK	USGS

Description: (2007) **Stamping:** 1 JMK 1966 1604

5.5 MILES NORTH OF SLAYTON, 5.15 MILES NORTH ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 30 IN SLAYTON, AT TRUNK HIGHWAY 59 MILEPOINT 46.15, 61.0 FEET EAST OF TRUNK HIGHWAY 59, 17.0 FEET NORTH OF A FIELD ENTRANCE, 10.5 FEET EAST OF A CORNER FENCE POST, 1.6 FEET SOUTH OF A FENCE LINE, 0.8 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>		
1604.784	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903		
1604.784	.016	2/1				VERTICAL CONTROL SURVEY	2015	VGARV		
1604.784	.016	2/2				VERTICAL ADJUSTMENT	2010	00000628		
1604.784	.016	2/2				VERTICAL CONTROL SURVEY	2007	VDOVR		
1604.784	.016	2/1				VERTICAL CONTROL SURVEY	2007	VSLAT		
1604.784	.016	2/1				VERTICAL ADJUSTMENT	1995	00000135		

<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>		
1604.095	.016	2/1				VERTICAL CONTROL SURVEY	1987	VSLAY		
1604.078	.033	3				VERTICAL CONTROL SURVEY	1967	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>		
1604.633	.262		1517.326	.197	2011	GPS - RTRN	2015	RTRN2015		
			1517.464	.012	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800		
1604.757	.262		1517.536	.197	2007	GPS - RTRN	2012	RTRN2012		
			1517.569	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2386-B		
1604.787	.131		1517.723	.066	1996	HORIZONTAL ADJUSTMENT	2007	GPS2386		
1604.787	.131		1517.723	.066	1996	GPS - STATIC	2007	HSLAT		

Geoid Separations(ft): GEOID18 = -87.310 12B = -87.306 09 = -87.221 03 = -87.037

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>									
44 03 56.16777	95 45 11.28605			503557.096	179310.207	.131	3	GPS - RTRN	2015	RTRN2015
44 03 56.16739	95 45 11.28717			503557.014	179310.168	.007		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>				<u>Murray 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>									
44 03 56.16710	95 45 11.28862			503556.908	179310.139	.131	3	GPS - RTRN	2012	RTRN2012
44 03 56.16735	95 45 11.28797			503556.955	179310.164	.033	C	ADJUSTMENT	2011	GPS2386-B

<u>NAD83(1996)</u>				<u>Murray 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>									
44 03 56.16686	95 45 11.28732			503557.003	179310.114	.033	C	ADJUSTMENT	2007	GPS2386
44 03 56.16686	95 45 11.28732			503557.003	179310.114	.033	C	GPS - STATIC	2007	HSLAT



State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2163907.802	721478.227	917026.757	16019800.203	.131	3	GPS - RTRN	2015	RTRN2015
2163907.719	721478.190	917026.674	16019800.167	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2163907.613	721478.163	917026.567	16019800.141	.131	3	GPS - RTRN	2012	RTRN2012
2163907.661	721478.187	917026.615	16019800.165	.033	C	ADJUSTMENT	2011	GPS2386-B

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2163907.707	721478.137	917026.661	16019800.114	.033	C	ADJUSTMENT	2007	GPS2386
2163907.707	721478.137	917026.661	16019800.114	.033	C	GPS - STATIC	2007	HSLAT

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/1_JMK-PQ1370-3NE-16JUN2015.jpg	NE	Jun 16, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/1_JMK-PQ1370-2-16JUN2015.jpg		Jun 16, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/1_JMK-PQ1370-1-16JUN2015.jpg		Jun 16, 2015

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



Mn/DOT Name: 10 JMK

NGS Name: 10 JMK

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 44095233/
 USGS Quad: WESTBROOK

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	39 W	440036.00	952857.00		

<u>Year Set</u>	<u>Last Recovery</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)	SURVEY DISK	USGS

Description: (1966) **Stamping:** 10 JMK 1966 1450

3.08 MILES SOUTHWEST OF WESTBROOK, 1.8 MILES WEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND COUNTY ROAD 7, THEN 0.3 MILE WEST ON COUNTY ROAD 76, THEN 1.8 MILES SOUTH ON 290TH AVENUE, 78.0 FEET NORTH AND 37.0 FEET WEST OF A TEE-ROAD NORTH (290TH AVENUE), AT THE NORTH END OF LAKE LOUISA, 2.0 FEET WEST OF 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>		
1450.191	.033	3							VERTICAL CONTROL SURVEY	1968	USGS-VERT	

Geoid Separations(ft): GEOID18 = -88.130 12B = -88.133 09 = -88.018 03 = -87.894

* No Horizontal Positions in the Database *



Mn/DOT Name: 11 JMK

NGS Name: 11 JMK

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 44095234/
 USGS Quad: WALNUT GROVE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	108 N	39 W	441111.00	952858.00		

<u>Year Set</u>	<u>Last Recovery</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)	SURVEY DISK	USGS

Description: (1966) **Stamping:** 11 JMK 1966 1320

2.6 MILES SOUTH AND 0.4 MILE WEST OF WALNUT GROVE, 1.9 MILES SOUTH ALONG COUNTY ROAD 5 FROM THE JUNCTION OF COUNTY ROAD 5 AND TRUNK HIGHWAY 14, 0.6 MILE WEST ON COUNTY ROAD 45, THEN 0.7 MILE SOUTH ON 290TH AVENUE, NEAR THE SOUTH 1/16 CORNER BETWEEN SECTION 1 AND SECTION 2, 13.0 FEET NORTH AND 61.0 FEET WEST OF COUNTY ROAD 45.0 AT A DRIVE WEST, 3.0 FEET SOUTH OF A YARD 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>		
1319.610	.033	3							VERTICAL CONTROL SURVEY	1967	USGS-VERT	

Geoid Separations(ft): GEOID18 = -88.609 12B = -88.602 09 = -88.497 03 = -88.376

* No Horizontal Positions in the Database *



Mn/DOT Name: 12 JMK

NGS Name: 12 JMK

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DF8566](#) [Get Map](#)
 NGS Quad / Sta Num : 44095234/
 USGS Quad: WALNUT GROVE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	108 N	39 W	440816.12	952857.62		C

<u>Year Set</u>	<u>Last Recovery</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	2021	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 MONUMENT (CAST-IN-PLACE)	SURVEY DISK	USGS

Description: (2004) **Stamping:** 1419 12 JMK 1966

2.0 MILES SOUTH ALONG COUNTY ROAD 5 FROM THE JUNCTION OF COUNTY ROAD 5 AND TRUNK HIGHWAY 14 IN WALNUT GROVE, THEN 4.5 MILES WEST AND SOUTH ON COUNTY ROAD 45, 53.0 FEET SOUTH OF 201ST STREET, 44.0 FEET WEST OF 290TH AVENUE, 0.4 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>	
1419.390	.033	3					VERTICAL CONTROL SURVEY	1967	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>	
1419.722	.262			1331.362	.197	2011	GPS - OPUS	2021	GPSBM	
1419.817	.262			1331.457	.197	2011	GPS - OPUS	2021	GPSBM	
				1331.513	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
				1331.598	.010	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300	
1419.846	.131			1331.746	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1919	
1419.879	.131			1331.799	.066	1996	GPS - STATIC	2003	HMURR	

Geoid Separations(ft): GEOID18 = -88.356 12B = -88.359 09 = -88.248 03 = -88.130

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Murray 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>								
44 08 16.12090	95 28 57.61945	574563.430	205763.981	.131	3	GPS - OPUS	2021	GPSBM	
44 08 16.12039	95 28 57.61855	574563.496	205763.930	.131	3	GPS - OPUS	2021	GPSBM	
44 08 16.12106	95 28 57.61856	574563.495	205763.998	.007		ADJUSTMENT	2012	GPS2800	

<u>NAD83(2007)</u>		<u>Murray 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>								
44 08 16.12109	95 28 57.61947	574563.429	205764.001	.007		ADJUSTMENT	2007	GPS2300	

<u>NAD83(1996)</u>		<u>Murray 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>								
44 08 16.12059	95 28 57.61871	574563.484	205763.950	.033	C	ADJUSTMENT	2003	GPS1919	
44 08 16.12051	95 28 57.61869	574563.486	205763.942	.033	C	GPS - STATIC	2003	HMURR	

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2235459.768	746389.216	988886.849	16043854.276	.131	3	GPS - OPUS	2021	GPSBM
2235459.832	746389.163	988886.913	16043854.222	.131	3	GPS - OPUS	2021	GPSBM
2235459.833	746389.231	988886.914	16043854.290	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2235459.767	746389.235	988886.848	16043854.295	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2235459.821	746389.183	988886.902	16043854.243	.033	C	ADJUSTMENT	2003	GPS1919
2235459.822	746389.175	988886.903	16043854.235	.033	C	GPS - STATIC	2003	HMURR

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/12_JMK-DF8566-3W-28APR2021.jpg	W	Apr 28, 2021
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/12_JMK-DF8566-2-28APR2021.jpg		Apr 28, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/12_JMK-DF8566-1-28APR2021.jpg		Apr 28, 2021

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



Mn/DOT Name: 13 JMK

NGS Name: 13 JMK

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 44095233/
 USGS Quad: WESTBROOK

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	107 N	39 W	440540.00	952856.00		

<u>Year Set</u>	<u>Last Recovery</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)	SURVEY DISK	USGS

Description: (1966) **Stamping:** 13 JMK 1966 1444

3.53 MILES NORTH AND 2.02 MILES WEST OF WESTBROOK, 3.5 MILES NORTH ALONG DAVIS AVENUE FROM THE JUNCTION OF DAVIS AVENUE AND 7TH STREET, THEN 2.0 MILES WEST ON 270TH STREET/171ST STREET, 37.0 FEET SOUTH AND 92.0 FEET WEST OF THE CROSSROADS (THE JUNCTION OF 171ST STREET AND 290TH AVENUE), 3.0 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>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>		
1444.036	.033	3							VERTICAL CONTROL SURVEY	1967	USGS-VERT	

Geoid Separations(ft): GEOID18 = -88.205 12B = -88.208 09 = -88.097 03 = -87.979

* No Horizontal Positions in the Database *



Mn/DOT Name: 14 JMK

NGS Name: 14 JMK

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 44095233/
 USGS Quad: WESTBROOK

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	107 N	39 W	440332.00	952854.00		

<u>Year Set</u>	<u>Last Recovery</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)	SURVEY DISK	USGS

Description: (1966) **Stamping:** 14 JMK 1966 1451

1.06 MILES NORTH AND 2.04 MILES WEST OF WESTBROOK, 2.1 MILES WEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND COUNTY ROAD 7, THEN 1.4 MILES NORTH ON 290TH AVENUE, 67.0 FEET SOUTH AND 67.0 FEET EAST OF A NORTH-SOUTH ROAD AT A DRIVE EAST, 6.0 FEET SOUTH OF THE SOUTH EDGE OF THE BASE OF A CORN CRIB, 2.0 FEET NORTH OF 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>		
1450.926	.033	3							VERTICAL CONTROL SURVEY	1967	USGS-VERT	

Geoid Separations(ft): GEOID18 = -88.146 12B = -88.146 09 = -88.041 03 = -87.923

* No Horizontal Positions in the Database *



Mn/DOT Name: 14 SEM

NGS Name: 14 SEM

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 43096112/
 USGS Quad: KENNETH

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	43 W	435215.00	960131.00		

<u>Year Set</u>	<u>Last Recovery</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)	SEE DESCRIPTION	USGS

Description: (1966) **Stamping:** 14 SEM 1966 1730

5.49 MILES SOUTHEAST OF EDGERTON, 1.0 MILE EAST ALONG TRUNK HIGHWAY 268 FROM THE JUNCTION OF TRUNK HIGHWAY 268 AND 4TH AVENUE WEST, 0.5 MILE SOUTH ON 175TH AVENUE, THEN 4.5 MILES EAST ON COUNTY ROAD 1, NEAR THE JUNCTION OF COUNTY ROAD 1 AND COUNTY ROAD 24, 48.0 FEET SOUTH AND 340.0 FEET WEST OF A TEE-ROAD WEST, 2.5 FEET NORTH OF A FENCE AT A SMALL RIDGE.

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>	
1729.537	.033	3					VERTICAL CONTROL SURVEY	1983	USGS-VERT	

Geoid Separations(ft): GEOID18 = -86.201 12B = -86.181 09 = -86.069 03 = -85.974

* No Horizontal Positions in the Database *



Mn/DOT Name: 15 DWB

NGS Name: 15 DWB

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 44095324/
 USGS Quad: TRACY WEST

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	108 N	41 W	441124.00	954436.00		

<u>Year Set</u>	<u>Last Recovery</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>
CONCRETE POST (PREFABRICATED)	BENCH MARK DISK	USGS

Description: (1987) **Stamping:** 15 DWB 1965 1537

1.77 MILES SOUTH-SOUTHEAST OF GARVIN, 1.9 MILES SOUTH ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND 4TH STREET, 48.0 FEET EAST OF TRUNK HIGHWAY 59, OPPOSITE A FARMHOUSE, 30.0 FEET NORTH OF A FARM DRIVE, 75.0 FEET NORTH OF A POWER POLE, 2.0 FEET WEST OF A FENCE LINE.

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>	
1536.775	.033	3				VERTICAL CONTROL SURVEY	1967	USGS-VERT	

Geoid Separations(ft): GEOID18 = -87.569 12B = -87.582 09 = -87.493 03 = -87.316

* No Horizontal Positions in the Database *



Mn/DOT Name: 15 SEM

NGS Name: 15 SEM

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 43095443/
 USGS Quad: SLAYTON 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	26	105 N	43 W	435148.00	955753.00		

<u>Year Set</u>	<u>Last Recovery</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)	SEE DESCRIPTION	USGS

Description: (1966) **Stamping:** 15 SEM 1966 1693

4.99 MILES SOUTH AND 0.75 MILE WEST OF CHANDLER, 5.0 MILES SOUTH ALONG TRUNK HIGHWAY 91 FROM THE JUNCTION OF TRUNK HIGHWAY 91 AND 61ST STREET, THEN 1.0 MILE WEST ON 11TH STREET, 27.0 FEET NORTH AND 240.0 FEET WEST OF THE CROSSROADS, 2.5 FEET SOUTH OF 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>	
1692.674	.033	3							VERTICAL CONTROL SURVEY	1983	USGS-VERT	

Geoid Separations(ft): GEOID18 = -86.237 12B = -86.220 09 = -86.109 03 = -86.014

* No Horizontal Positions in the Database *



Mn/DOT Name: 16 DWB

NGS Name: 16 DWB

County: MURRAY, MN (Sheet 1)

NGS ACRN: [PQ1363](#) [Get Map](#)
 NGS Quad / Sta Num : 44095324/
 USGS Quad: TRACY WEST

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	108 N	41 W	440909.24	954434.35	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	2015	GOOD	Horz=NO Vert=YES	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: (1987) **Stamping:** 16 DWB 1965 1545

4.31 MILES SOUTH-SOUTHEAST OF GARVIN, 4.75 MILES SOUTH ALONG TRUNK HIGHWAY 59 FROM THE NORTH JUNCTION OF TRUNK HIGHWAY 59 AND COUNTY ROAD 14 IN GARVIN TO TRUNK HIGHWAY 59 MILEPOINT 52.35, THEN 0.05 MILE EAST ON 211TH STREET, 31.0 FEET SOUTH OF 211TH STREET, 10.5 FEET EAST OF A DRIVEWAY EXTENDED, 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>		
1545.630	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903		
1545.630	.016	2/1				VERTICAL CONTROL SURVEY	2015	VGARV		
1545.597	.016	2/1				VERTICAL ADJUSTMENT	1995	00000135		

<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>		
1544.915	.016	2/1				VERTICAL CONTROL SURVEY	1987	VSLAY		
1544.967	.033	3				VERTICAL CONTROL SURVEY	1967	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>		
1545.624	.262		1458.179	.197	2011	GPS - RTRN	2015	RTRN2015		

Geoid Separations(ft): GEOID18 = -87.457 12B = -87.444 09 = -87.369 03 = -87.218

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Murray 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>	
44 09 09.23768	95 44 34.34978	506245.032	211015.631	.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 - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
2167279.799	753114.108	920779.440	16051401.179	.131	3	GPS - RTRN	2015	RTRN2015	

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/16_DWB-PQ1363-3S-15JUN2015.jpg	S	Jun 15, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/16_DWB-PQ1363-2-15JUN2015.jpg		Jun 15, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/16_DWB-PQ1363-1-15JUN2015.jpg		Jun 15, 2015

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



Mn/DOT Name: 16 SEM

NGS Name: 16 SEM

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 43095443/
 USGS Quad: SLAYTON 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	28	105 N	42 W	435148.00	955406.00		

<u>Year Set</u>	<u>Last Recovery</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)	SEE DESCRIPTION	USGS

Description: (1966) **Stamping:** 16 SEM 1966 1759

4.99 MILES SOUTH AND 2.48 MILES EAST OF CHANDLER, 5.0 MILES SOUTH ALONG TRUNK HIGHWAY 91 FROM THE JUNCTION OF TRUNK HIGHWAY 91 AND 61ST STREET, THEN 2.1 MILES EAST ON 11TH STREET, 35.0 FEET NORTH AND 110.0 FEET EAST OF THE CROSSROADS, 3.0 FEET NORTH OF A FENCE ON A SMALL CREST.

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>	
1758.704	.033	3							VERTICAL CONTROL SURVEY	1983	USGS-VERT	

Geoid Separations(ft): GEOID18 = -86.335 12B = -86.306 09 = -86.217 03 = -86.132

* No Horizontal Positions in the Database *



Mn/DOT Name: 17 DWB

NGS Name: 17 DWB

County: MURRAY, MN (Sheet 1)

NGS ACRN: [PQ1366](#) [Get Map](#)
 NGS Quad / Sta Num : 44095323/
 USGS Quad: CURRIE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	108 N	41 W	440709.00	954435.00	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		RECESSED 3 IN.	STEEL ROD IMBED IN MON

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

Description: (1987)

Stamping: 17 DWB 1965 1566

6.58 MILES SOUTH-SOUTHEAST OF GARVIN, 6.8 MILES SOUTH ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND 4TH STREET, 45.0 FEET EAST OF TRUNK HIGHWAY 59, AT TRUNK HIGHWAY 59 MILEPOINT 50.05, 255.0 FEET NORTH OF A FARM ENTRANCE, 4.0 FEET SOUTHWEST OF A POWER POLE, 2.0 FEET WEST 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>
1566.303	.016	2/1				VERTICAL ADJUSTMENT	1995	00000135

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>
1565.617	.016	2/1				VERTICAL CONTROL SURVEY	1987	VSLAY
1565.637	.033	3				VERTICAL CONTROL SURVEY	1967	USGS-VERT

Geoid Separations(ft): GEOID18 = -87.369 12B = -87.365 09 = -87.283 03 = -87.119

* No Horizontal Positions in the Database *



Mn/DOT Name: 17 SEM

NGS Name: 17 SEM

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 43095442/
 USGS Quad: WILMONT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	42 W	435146.00	955148.00		

<u>Year Set</u>	<u>Last Recovery</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	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)	SEE DESCRIPTION	USGS

Description: (1966) **Stamping:** 17 SEM 1966 1730

4.97 MILES SOUTH AND 4.24 MILES EAST OF CHANDLER, 5.0 MILES SOUTH ALONG TRUNK HIGHWAY 91 FROM THE JUNCTION OF TRUNK HIGHWAY 91 AND 61ST STREET, THEN 4.0 MILES EAST ON 11TH STREET, 4.0 MILES EAST OF TRUNK HIGHWAY 91, 72.0 FEET SOUTH OF A TOWNSHIP ROAD, 48.0 FEET EAST OF COUNTY ROAD 29, 27.0 FEET SOUTH OF A FIELD ENTRANCE GATE, 2.0 FEET WEST OF 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>		
1730.170	.033	3							VERTICAL CONTROL SURVEY	1983	USGS-VERT	

Geoid Separations(ft): GEOID18 = -86.463 12B = -86.430 09 = -86.342 03 = -86.247

* No Horizontal Positions in the Database *



Mn/DOT Name: 18 DWB

NGS Name: 18 DWB

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 44095332/
 USGS Quad: HADLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	107 N	41 W	440633.00	954709.00		

<u>Year Set</u>	<u>Last Recovery</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=? Vert=YES	NO			SEE DESCRIPTION

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

Description: (1965) **Stamping:** 18 DWB 1965 1674

7.23 MILES SOUTH AND 1.5 MILES WEST OF GARVIN, 7.5 MILES SOUTH ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND 4TH STREET, THEN 2.1 MILES WEST ON 181ST STREET, 2.0 MILES WEST OF TRUNK HIGHWAY 59, 500.0 FEET WEST OF THE CROSSROADS, 45.0 FEET SOUTH OF COUNTY ROAD 79, 420.0 FEET EAST OF A TEE DRIVE SOUTH, 77.0 FEET EAST OF A POWER POLE, 2.0 FEET NORTH OF A FENCE LINE.

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>		
1674.505	.033	3							VERTICAL CONTROL SURVEY	1967	USGS-VERT	

Geoid Separations(ft): GEOID18 = -87.208 12B = -87.201 09 = -87.123 03 = -86.958

* No Horizontal Positions in the Database *



Mn/DOT Name: 18 SEM

NGS Name: 18 SEM

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 43095442/
 USGS Quad: WILMONT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	41 W	435213.00	954921.00		

<u>Year Set</u>	<u>Last Recovery</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)	SEE DESCRIPTION	USGS

Description: (1966) **Stamping:** 18 SEM 1966 1725

3.62 MILES SOUTHWEST OF IONA, 3.1 MILES SOUTH ALONG PARNELL STREET/140TH AVENUE FROM THE JUNCTION OF PARNELL STREET/140TH AVENUE AND GRACE AVENUE, 1.9 MILES WEST ON 16TH STREET/COUNTY ROAD 1, 34.0 FEET NORTH AND 210.0 FEET EAST OF COUNTY ROAD 87 AT A TEE-ROAD EAST, 2.0 FEET SOUTH 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>	
1724.445	.033	3					VERTICAL CONTROL SURVEY	1983	USGS-VERT	

Geoid Separations(ft): GEOID18 = -86.657 12B = -86.627 09 = -86.532 03 = -86.414

* No Horizontal Positions in the Database *



Mn/DOT Name: 19

NGS Name: 19

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP0602](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	42 W	435536.00	955634.00	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>
1929	1973	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

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

Description: (1973) **Stamping:** 1929 ADJ. NO. 19

0.3 MILE EAST OF CHANDLER, IN THE SOUTHEAST CORNER OF A TRUNK HIGHWAY 91 BRIDGE OVER THE CHICAGO, MILWAUKEE, ST. PAUL AND PACIFIC RAILROAD, 135.0 FEET SOUTH OF THE SOUTH RAIL, 17.5 FEET EAST OF THE CENTERLINE OF THE HIGHWAY.

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>	
1649.242	.007	1/2							VERTICAL ADJUSTMENT	1991	00000025	

Geoid Separations(ft): GEOID18 = -86.089 12B = -86.086 09 = -85.978 03 = -85.869

* No Horizontal Positions in the Database *



Mn/DOT Name: 19 DWB

NGS Name: 19 DWB

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 44095332/
 USGS Quad: HADLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	108 N	42 W	440634.00	955032.00		

<u>Year Set</u>	<u>Last Recovery</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=? 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: (1965) **Stamping:** 19 DWB 1965 1656

7.58 MILES NORTH AND 0.43 MILE EAST OF HADLEY, 1.8 MILES NORTH ALONG MAIN STREET NORTH FROM THE JUNCTION OF MAIN STREET NORTH AND 1ST AVENUE, 6.0 MILES NORTH ON 110TH AVENUE, THEN 341.0 FEET EAST ON 181ST STREET, 45.0 FEET NORTH AND 246.0 FEET EAST OF THE JUNCTION OF COUNTY ROAD 79 AND COUNTY ROAD 29, 525.0 FEET WEST OF A TEE DRIVE TO A FARM, AT THE SOUTH END OF THE TREES, BETWEEN 2 TELEPHONE POLES AT A TEE-FENCE NORTH, 2.0 FEET SOUTH OF A CORNER 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>	
1656.237	.033	3				VERTICAL CONTROL SURVEY	1966	USGS-VERT	

Geoid Separations(ft): GEOID18 = -87.011 12B = -87.014 09 = -86.929 03 = -86.755

* No Horizontal Positions in the Database *



Mn/DOT Name: 19 SEM

NGS Name: 19 SEM

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 43095442/
 USGS Quad: WILMONT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	41 W	435217.00	954702.00		

<u>Year Set</u>	<u>Last Recovery</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)	SEE DESCRIPTION	USGS

Description: (1966) Stamping: 19 SEM 1966 1640

3.2 MILES SOUTH OF IONA, ALONG COUNTY ROAD 31, 440.0 FEET NORTH AND 33.0 FEET EAST OF COUNTY ROAD 31 AT A TEE-ROAD WEST, 2.5 FEET WEST 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>	
1640.433	.033	3				VERTICAL CONTROL SURVEY	1983	USGS-VERT	

Geoid Separations(ft): GEOID18 = -86.876 12B = -86.854 09 = -86.752 03 = -86.611

* No Horizontal Positions in the Database *



Mn/DOT Name: 2 DWB

NGS Name: 2 DWB

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 43095411/
 USGS Quad: LIME CREEK

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	40 W	435748.00	953608.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1967	1967	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

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

Description: (1967) **Stamping:** 2 DWB 1967 1536

6.44 MILES NORTH AND 0.2 MILE WEST OF THE BANK AT FULDA, 3.7 MILES NORTH ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND EAST FRONT STREET/TRUNK HIGHWAY 62, 210.0 FEET EAST ON 51ST STREET, THEN 2.9 MILES NORTH ON 230TH AVENUE, 310.0 FEET SOUTH AND 34.0 FEET WEST OF THE CROSSROADS, 2.0 FEET SOUTH OF A POWER POLE, 1.0 FOOT EAST 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>	
1536.099	.033	3					VERTICAL CONTROL SURVEY	1968	USGS-VERT	

Geoid Separations(ft): GEOID18 = -87.897 12B = -87.890 09 = -87.782 03 = -87.592

* No Horizontal Positions in the Database *



Mn/DOT Name: 2 JMK

NGS Name: 2 JMK

County: MURRAY, MN (Sheet 1)

NGS ACRN: [PQ1374](#) [Get Map](#)
 NGS Quad / Sta Num : 44095332/
 USGS Quad: HADLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	107 N	41 W	440119.70	954514.10	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>
1966	2015	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 MONUMENT (CAST-IN-PLACE)	SURVEY DISK	USGS

Description: (1987) **Stamping:** 2 JMK 1966 1577

2.5 MILES NORTH OF SLAYTON, 2.05 MILES NORTH ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 30, 64.0 FEET WEST OF TRUNK HIGHWAY 59, AT TRUNK HIGHWAY 59 MILEPOINT 43.15, 11.0 FEET NORTH OF A FIELD ROAD, 62.2 FEET NORTHWEST OF A NO PASSING ZONE SIGNPOST 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>		
1577.979	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903		
1577.979	.016	2/1				VERTICAL CONTROL SURVEY	2015	VGARV		
1577.979	.016	2/1				VERTICAL ADJUSTMENT	2010	00000628		
1577.979	.016	2/1				VERTICAL CONTROL SURVEY	2007	VSLAT		
1578.009	.016	2				VERTICAL ADJUSTMENT	1995	00000135		

<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>		
1577.316	.016	2/1				VERTICAL CONTROL SURVEY	1987	VSLAY		
1577.385	.033	3				VERTICAL CONTROL SURVEY	1966	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>		
1577.982	.262		1490.689	.197	2011	GPS - RTRN	2015	RTRN2015		
			1490.679	.010	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800		
1577.914	.262		1490.706	.197	2007	GPS - RTRN	2012	RTRN2012		
			1490.778	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2386-B		
1577.982	.131		1490.929	.066	1996	HORIZONTAL ADJUSTMENT	2007	GPS2386		
1577.982	.131		1490.929	.066	1996	GPS - STATIC	2007	HSLAT		

Geoid Separations(ft): GEOID18 = -87.300 12B = -87.290 09 = -87.211 03 = -87.014

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>		<u>Longitude</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
44 01	19.70088	95 45	14.09894	503354.149	163464.853	.131	3	GPS - RTRN	2015	RTRN2015
44 01	19.70165	95 45	14.09845	503354.185	163464.931	.007		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>				<u>Murray County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>		<u>Longitude</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
44 01	19.70062	95 45	14.09981	503354.086	163464.827	.131	3	GPS - RTRN	2012	RTRN2012
44 01	19.70159	95 45	14.09923	503354.128	163464.925	.033	C	ADJUSTMENT	2011	GPS2386-B

<u>NAD83(1996)</u>				<u>Murray County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Geodetic Position</u>		<u>Longitude</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>
44 01	19.70112	95 45	14.09856	503354.177	163464.877	.033	C	ADJUSTMENT	2007	GPS2386
44 01	19.70112	95 45	14.09856	503354.177	163464.877	.033	C	GPS - STATIC	2007	HSLAT



State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2163362.557	705642.846	916291.794	16003968.609	.131	3	GPS - RTRN	2015	RTRN2015
2163362.595	705642.923	916291.832	16003968.686	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2163362.493	705642.821	916291.730	16003968.585	.131	3	GPS - RTRN	2012	RTRN2012
2163362.538	705642.918	916291.775	16003968.682	.033	C	ADJUSTMENT	2011	GPS2386-B

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2163362.586	705642.870	916291.823	16003968.632	.033	C	ADJUSTMENT	2007	GPS2386
2163362.586	705642.870	916291.823	16003968.632	.033	C	GPS - STATIC	2007	HSLAT

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/2_JMK-PQ1374-3W-16JUN2015.jpg	W	Jun 16, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/2_JMK-PQ1374-2-18OCT2006.jpg		Oct 18, 2006
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/2_JMK-PQ1374-1-16JUN2015.jpg		Jun 16, 2015

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



Mn/DOT Name: 20 DWB

NGS Name: 20 DWB

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 44095333/
 USGS Quad: BALATON 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	4	107 N	42 W	440634.00	955357.00		

<u>Year Set</u>	<u>Last Recovery</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=? 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: (1965) **Stamping:** 20 DWB 1965 1653

7.6 MILES NORTH AND 2.26 MILES WEST OF HADLEY, 0.6 MILE NORTH ALONG MAIN STREET SOUTH FROM THE JUNCTION OF MAIN STREET SOUTH AND 4TH AVENUE, 0.5 MILE NORTHWEST ON 111TH STREET, 7.1 MILES NORTH ON 100TH AVENUE, THEN 1.8 MILES WEST ON 181ST STREET, 2.0 MILES SOUTH OF THE SOUTH SHORE OF LAKE OSCAR, 2.2 MILES EAST OF TRUNK HIGHWAY 91, 30.0 FEET EAST AND 22.0 FEET SOUTH OF A TEE DRIVE NORTH TO A FARM, AT A SLIGHT CREST IN AN EAST-WEST GRAVEL ROAD, 3.0 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>	
1653.274	.033	3				VERTICAL CONTROL SURVEY	1966	USGS-VERT	

Geoid Separations(ft): GEOID18 = -86.788 12B = -86.785 09 = -86.696 03 = -86.529

* No Horizontal Positions in the Database *



Mn/DOT Name: 20 SEM

NGS Name: 20 SEM

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 43095414/
 USGS Quad: AVOCA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	22	105 N	41 W	435239.00	954441.00		

<u>Year Set</u>	<u>Last Recovery</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)	SEE DESCRIPTION	USGS

Description: (1966) Stamping: 20 SEM 1966 1611

2.62 MILES SOUTH AND 1.95 MILES EAST OF IONA, 0.9 MILE SOUTHEAST ALONG 46TH STREET FROM THE JUNCTION OF 46TH STREET AND CASHEL AVENUE, 2.2 MILES SOUTH ON 150TH AVENUE, THEN 1.0 MILE EAST ON 21ST STREET, 39.0 FEET NORTH AND 328.0 FEET WEST OF THE CROSSROADS (COUNTY ROAD 2 AND COUNTY ROAD 88), 3.0 FEET SOUTH AND 1.0 FOOT 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>Year</u>	<u>Reference</u>					
1610.814	.033	3				1968	USGS-VERT	VERTICAL CONTROL SURVEY				

Geoid Separations(ft): GEOID18 = -87.136 12B = -87.109 09 = -87.004 03 = -86.847

* No Horizontal Positions in the Database *



Mn/DOT Name: 21 DWB

NGS Name: 21 DWB

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 44095333/
 USGS Quad: BALATON 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	2	107 N	43 W	440634.00	955753.00		

<u>Year Set</u>	<u>Last Recovery</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	2016	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: (1965) **Stamping:** 21 DWB 1965 1727

8.01 MILES NORTH AND 0.64 MILE WEST OF LAKE WILSON, 7.6 MILES NORTH ALONG TRUNK HIGHWAY 91 FROM THE JUNCTION OF TRUNK HIGHWAY 91 AND MINNESOTA AVENUE, THEN 1.1 MILES WEST ON 181ST STREET, 1.0 MILE WEST OF TRUNK HIGHWAY 91, 390.0 FEET WEST AND 25.0 FEET SOUTH OF THE CROSSROADS, 15.0 FEET WEST AND 0.5 FOOT NORTH OF A TEE FENCE SOUTH, 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>	
1727.428	.033	3					VERTICAL CONTROL SURVEY	1966	USGS-VERT	

Geoid Separations(ft): GEOID18 = -86.440 12B = -86.434 09 = -86.348 03 = -86.201

* No Horizontal Positions in the Database *



Mn/DOT Name: 22 DWB

NGS Name: 22 DWB

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 44096222/
 USGS Quad: WOODSTOCK

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	108 N	43 W	440638.00	960125.00		

<u>Year Set</u>	<u>Last Recovery</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=? Vert=YES	NO			SEE DESCRIPTION

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

Description: (1965) **Stamping:** 22 DWB 1965 1702

4.76 MILES SOUTH AND 4.0 MILES EAST OF RUTHTON, 2.3 MILES SOUTH ALONG TRUNK HIGHWAY 23 FROM THE JUNCTION OF TRUNK HIGHWAY 23 AND GILBERTSON AVENUE, 1.3 MILES SOUTHEAST ON 180TH AVENUE, 4.0 MILES EAST ON 191ST STREET, THEN 0.9 MILE SOUTH ON COUNTY ROAD 25, AT THE CREST OF A HILL OPPOSITE AN OLD GRAVEL PIT, 350.0 FEET NORTH AND 30.0 FEET WEST OF A CROSSROAD.

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>	
1701.854	.033	3					VERTICAL CONTROL SURVEY	1966	USGS-VERT	

Geoid Separations(ft): GEOID18 = -86.125 12B = -86.122 09 = -86.033 03 = -85.905

* No Horizontal Positions in the Database *



Mn/DOT Name: 3 JMK

NGS Name: 3 JMK

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 44095321/
 USGS Quad: TRACY EAST

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	3	108 N	40 W	441135.00	953722.00		

<u>Year Set</u>	<u>Last Recovery</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)	SURVEY DISK	USGS

Description: (1966) **Stamping:** 3 JMK 1966 1452

3.17 MILES SOUTHWEST OF TRACY, 3.1 MILES SOUTHWEST ALONG TRUNK HIGHWAY 14 FROM THE JUNCTION OF TRUNK HIGHWAY 14 AND 4TH STREET, THEN 0.2 MILE SOUTHEAST ON 220TH AVENUE, 80.0 FEET NORTH AND 88.0 FEET WEST OF COUNTY ROAD 38 AT A DRIVE WEST, 2.0 FEET SOUTH 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>	
1452.513	.033	3					VERTICAL CONTROL SURVEY	1967	USGS-VERT	

Geoid Separations(ft): GEOID18 = -88.126 12B = -88.120 09 = -88.028 03 = -87.871

* No Horizontal Positions in the Database *



Mn/DOT Name: 35 DWB

NGS Name: 35 DWB

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 43096111/
 USGS Quad: EDGERTON NE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	43 W	435937.00	960241.00		

<u>Year Set</u>	<u>Last Recovery</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	2012	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	USGS

Description: (1965) **Stamping:** 35 DWB 1965 1843

3.0 MILES EAST AND 1.2 MILES SOUTH OF WOODSTOCK, 1.1 MILES SOUTH ALONG 180TH AVENUE FROM THE JUNCTION OF 180TH AVENUE AND 3RD AVENUE NORTH, THEN 3.0 MILES EAST ON TRUNK HIGHWAY 30, 100.0 FEET NORTH OF TRUNK HIGHWAY 30, 226.0 FEET WEST OF THE CROSSROADS, 30.0 FEET NORTHWEST OF A POWER POLE, AT THE TOP OF A BANK, 2.0 FEET SOUTH OF A FENCE LINE.

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>	
1842.756	.033	3					VERTICAL CONTROL SURVEY	1967	USGS-VERT	

Geoid Separations(ft): GEOID18 = -85.804 12B = -85.787 09 = -85.686 03 = -85.584

* No Horizontal Positions in the Database *



Mn/DOT Name: 36 DWB

NGS Name: 36 DWB

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	43 W	435938.00	955901.00		

<u>Year Set</u>	<u>Last Recovery</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	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	USGS

Description: (1965) Stamping: 36 DWB 1965

0.25 MILE SOUTH AND 1.5 MILES WEST OF LAKE WILSON, 1000.0 FEET NORTH ON COUNTY ROAD 26 FROM THE JUNCTION OF COUNTY ROAD 26 AND TRUNK HIGHWAY 30, 110.0 FEET NORTH AND 45.0 FEET WEST OF THE CROSSROADS, 70.0 FEET NORTH OF A POWER POLE, 2.0 FEET EAST OF A FENCE LINE.

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>	
1708.852	.033	3					VERTICAL CONTROL SURVEY	1983	USGS-VERT	

Geoid Separations(ft): GEOID18 = -85.978 12B = -85.958 09 = -85.853 03 = -85.754

*** No Horizontal Positions in the Database ***



Mn/DOT Name: 37 DWB

NGS Name: 37 DWB

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP1388](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	42 W	435935.23	955545.32	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>
1965	2012	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	BENCH MARK DISK	MNDT

Description: (1987)

Stamping: 37 DWB 1965

1.2 MILES EAST OF LAKE WILSON, AT TRUNK HIGHWAY 30 MILEPOINT 26.8, 0.8 MILE EAST ON TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND TRUNK HIGHWAY 91, 73.5 FEET SOUTH OF TRUNK HIGHWAY 30, 94.3 FEET SOUTHEAST OF A STEEL POST, 51.3 FEET WEST OF A CABLE POST, 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>	
1663.222	.016	2/1					VERTICAL ADJUSTMENT	1995	00000135	

<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>	
1662.552	.016	2/1					VERTICAL CONTROL SURVEY	1987	VSLAY	
1662.680	.033	3					VERTICAL CONTROL SURVEY	1983	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>	
				1576.946	.010	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
				1577.041	.010	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300	
1663.186	.131			1577.113	.066	1996	HORIZONTAL ADJUSTMENT	1999	17648	
1663.218	.131			1577.113	.066	1996	HORIZONTAL ADJUSTMENT	1998	GPS937	
1663.087							GPS - STATIC	1993	HORZ	

Geoid Separations(ft): GEOID18 = -86.243 12B = -86.217 09 = -86.109 03 = -86.020

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>									
43 59 35.23412	95 55 45.32384			457207.517	152927.574	.010		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>				<u>Murray 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>									
43 59 35.23409	95 55 45.32471			457207.453	152927.571	.010		ADJUSTMENT	2007	GPS2300

<u>NAD83(1996)</u>				<u>Murray 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>									
43 59 35.23373	95 55 45.32300			457207.578	152927.534	.033	C	ADJUSTMENT	1999	17648
43 59 35.23373	95 55 45.32300			457207.578	152927.534	.033	C	ADJUSTMENT	1998	GPS937

<u>NAD83(1986)</u>				<u>Murray 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>									
43 59 35.23097	95 55 45.30718			457208.734	152927.252	.066	2	GPS - STATIC	1993	HMARS



State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South 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>
2117004.202	696106.731	869809.877	15994984.263	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South 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>
2117004.138	696106.730	869809.813	15994984.262	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South 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>
2117004.262	696106.690	869809.937	15994984.222	.033	C	ADJUSTMENT	1999	17648
2117004.262	696106.690	869809.937	15994984.222	.033	C	ADJUSTMENT	1998	GPS937

NAD83(1986)

MN State Plane - South 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>
2117005.412	696106.383	869811.083	15994983.901	.066	2	GPS - STATIC	1993	HMARS



Mn/DOT Name: 38 DWB

NGS Name: 38 DWB

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 43095441/
 USGS Quad: SLAYTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	42 W	435935.00	955204.00		

<u>Year Set</u>	<u>Last Recovery</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	2012	DESTROYED	Horz=NO Vert=NO	YES			SEE DESCRIPTION

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

Description: (1987) **Stamping:** 38 DWB 1965

4.5 MILES EAST OF LAKE WILSON, 6.0 MILES WEST ON TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND TRUNK HIGHWAY 59, 66.6 FEET SOUTH OF TRUNK HIGHWAY 30, 0.1 MILE WEST OF A TEE DRIVE SOUTH, 82.0 FEET WEST OF A TELEPHONE POLE, NEAR THE CREST OF A HILL.

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>	
1735.039	.033	3					VERTICAL CONTROL SURVEY	1983	USGS-VERT	

Geoid Separations(ft): GEOID18 = -86.594 12B = -86.565 09 = -86.483 03 = -86.368

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/38_DWB-3E-28JUN2016.jpg	E	Jun 28, 2016
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/38_DWB-2-28JUN2016.jpg		Jun 28, 2016
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/38_DWB-1-28JUN2016.jpg		Jun 28, 2016

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



Mn/DOT Name: 39 DWB

NGS Name: 39 DWB

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 43095441/
 USGS Quad: SLAYTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	41 W	435935.00	954751.01		

<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>
1965	2012	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	SEE DESCRIPTION

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

Description: (1987) **Stamping:** 39 DWB 1965

2.5 MILES WEST OF SLAYTON, 2.5 MILES WEST ON TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND TRUNK HIGHWAY 59, AT THE CREST OF A HIGHWAY CUT, 70.0 FEET NORTH OF TRUNK HIGHWAY 30, 72.0 FEET NORTHWEST OF A POWER POLE, OPPOSITE A TEE FENCE SOUTH, 2.0 FEET SOUTH OF A FENCE LINE.

Station Notes

THE TIES PLACE THE MARK IN A FARM FIELD AND THE REAL TIME REFERENCE NETWORK (RTRN) PLACES IT UNDER TRUNK HIGHWAY 30.

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>	
1627.900	.033	3				VERTICAL CONTROL SURVEY	1983	USGS-VERT	

Geoid Separations(ft): GEOID18 = -87.021 12B = -86.998 09 = -86.922 03 = -86.758

* No Horizontal Positions in the Database *



Mn/DOT Name: 4 JMK

NGS Name: 4 JMK

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 44095321/
 USGS Quad: TRACY EAST

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	108 N	40 W	440909.00	953721.00		

<u>Year Set</u>	<u>Last Recovery</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)	SURVEY DISK	USGS

Description: (1966) **Stamping:** 4 JMK 1966 1494

5.5 MILES SOUTH OF TRACY, 42.0 FEET SOUTH AND 168.0 FEET EAST OF COUNTY ROAD 38 AT A TEE-ROAD EAST, 99.0 FEET EAST OF A BRACE WIRE, 8.0 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>	
1494.249	.033	3				VERTICAL CONTROL SURVEY	1967	USGS-VERT	

Geoid Separations(ft): GEOID18 = -87.920 12B = -87.923 09 = -87.815 03 = -87.657

* No Horizontal Positions in the Database *



Mn/DOT Name: 40 DWB

NGS Name: 40 DWB

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 43095441/
 USGS Quad: SLAYTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	41 W	435906.20	954522.80		

<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>
1965	1982	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STEP	SURVEY DISK	USGS

Description: (1958) Stamping: 40 DWB 1965 1608

IN SLAYTON, AT THE MURRAY COUNTY COURTHOUSE, SOUTH OF BROADWAY AVENUE, AT THE NORTH ENTRANCE TO THE COURTHOUSE, ON THE SOUTHEAST CORNER OF THE ENTRANCE.

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>	
1608.337	.033	3					VERTICAL CONTROL SURVEY	1968	USGS-VERT	

Geoid Separations(ft): GEOID18 = -87.237 12B = -87.221 09 = -87.145 03 = -86.965

* No Horizontal Positions in the Database *



Mn/DOT Name: 40 DWB RESET 1982

NGS Name: 40 DWB RESET 1982

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 43095441/
 USGS Quad: SLAYTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	41 W	435906.20	954522.80		

<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>
1982	2006	DESTROYED	Horz=NO Vert=NO	YES		FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
OBJECT SURROUNDED BY A MASS OF CONCRETE	SURVEY DISK	USGS

Description: (1987) **Stamping:** 40 DWB 1965 RESET 1982

IN SLAYTON, IN THE SIDEWALK ON THE NORTH SIDE OF THE MURRAY COUNTY GOVERNMENT BUILDING, 90.0 FEET SOUTH AND 12.0 FEET EAST OF THE JUNCTION OF BROADWAY AVENUE AND 28TH STREET, 3.0 FEET NORTH OF THE NORTH BUILDING WALL, 47.8 FEET SOUTH-SOUTHWEST OF A FLAGPOLE, 34.0 FEET SOUTH OF A LIGHT POLE, 6.5 FEET SOUTHWEST OF THE SOUTHWEST SIDE OF A CONCRETE BENCH.

Station Notes
 NOT GOOD TO LEVEL TO, IT WILL NOT HOLD AN ELEVATION.

Leveling-Derived Orthometric Heights (Feet)

<u>NGVD29</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>			
1605.220	.033	3				1983	USGS-VERT	

Geoid Separations(ft): GEOID18 = -87.237 12B = -87.221 09 = -87.145 03 = -86.965

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/40_DWB_RESET_1982-3N-01NOV2006.jpg	N	Nov 1, 2006
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/40_DWB_RESET_1982-2-01NOV2006.jpg		Nov 1, 2006
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/40_DWB_RESET_1982-1-01NOV2006.jpg		Nov 1, 2006

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



Mn/DOT Name: 41 DWB

NGS Name: 41 DWB

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 43095414/
 USGS Quad: AVOCA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	26	106 N	41 W	435712.00	954434.00		

<u>Year Set</u>	<u>Last Recovery</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=? Vert=YES	NO			SEE DESCRIPTION

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

Description: (1965) **Stamping:** 41 DWB 1965 1576

2.75 MILES SOUTH AND 0.61 MILE EAST OF SLAYTON, 1.2 MILES SOUTHEAST ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 30, 0.3 MILE WEST ON 91ST STREET, THEN 1.7 MILES SOUTH ON 160TH AVENUE, AT THE NORTHWEST CORNER OF A SHELTERBELT, 48.0 FEET EAST OF COUNTY ROAD 33, 48.0 FEET NORTH OF A TELEPHONE POLE, 3.0 FEET SOUTHWEST OF A FENCE CORNER, AT A FIELD ENTRANCE EAST.

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>	
1576.470	.033	3				VERTICAL CONTROL SURVEY	1968	USGS-VERT	

Geoid Separations(ft): GEOID18 = -87.277 12B = -87.254 09 = -87.172 03 = -86.995

* No Horizontal Positions in the Database *



Mn/DOT Name: 42 DWB

NGS Name: 42 DWB

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 43095414/
 USGS Quad: AVOCA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	41 W	435433.00	954435.00		

<u>Year Set</u>	<u>Last Recovery</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=? Vert=YES	NO			SEE DESCRIPTION

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

Description: (1965) **Stamping:** 42 DWB 1965 1584

5.81 MILES SOUTH AND 0.58 MILE EAST OF SLAYTON, 0.2 MILE EAST ALONG TRUNK HIGHWAY 59/34TH STREET FROM THE JUNCTION OF TRUNK HIGHWAY 59/34TH STREET AND QUEEN AVENUE, THEN 4.8 MILES SOUTH ON 160TH AVENUE, NEAR SOUTH 1/16 CORNER BETWEEN SECTION 10 AND SECTION 11, 48.0 FEET EAST OF COUNTY ROAD 33, 27.0 FEET NORTH OF A FARM DRIVE EAST, 10.0 FEET NORTH OF A TELEPHONE POLE, OPPOSITE A SHELTERBELT 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>	
1584.387	.033	3					VERTICAL CONTROL SURVEY	1968	USGS-VERT	

Geoid Separations(ft): GEOID18 = -87.208 12B = -87.188 09 = -87.083 03 = -86.913

* No Horizontal Positions in the Database *



Mn/DOT Name: 5 JMK

NGS Name: 5 JMK

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 44095322/
 USGS Quad: DOVRAY

<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	107 N	40 W	440630.00	953630.00		

<u>Year Set</u>	<u>Last Recovery</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)	SURVEY DISK	USGS

Description: (1966) Stamping: 5 JMK 1966 1547

2.67 MILES NORTH AND 2.87 MILES EAST OF CURRIE, 3.5 MILES NORTHEAST ALONG COUNTY ROAD 38/200TH AVENUE FROM THE JUNCTION OF COUNTY ROAD 38/200TH AVENUE AND 1ST STREET, THEN 1.7 MILES EAST ON 181ST STREET, 48.0 FEET SOUTH AND 113.0 FEET EAST OF THE CROSSROADS, AT THE JUNCTION OF COUNTY ROAD 14 (EAST-WEST) AND A TOWNSHIP ROAD (NORTH-SOUTH), 2.0 FEET NORTH OF 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>	
1546.710	.033	3							VERTICAL CONTROL SURVEY	1967	USGS-VERT	

Geoid Separations(ft): GEOID18 = -87.818 12B = -87.815 09 = -87.723 03 = -87.565

** No Horizontal Positions in the Database **



Mn/DOT Name: 5101 A

NGS Name: 5101 A

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 43096111/
 USGS Quad: EDGERTON NE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	43 W	435936.00	960348.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1946	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: (1946)

Stamping:

2.38 MILES SOUTHEAST OF WOODSTOCK, 1.1 MILES SOUTH ALONG 180TH AVENUE FROM THE JUNCTION OF 180TH AVENUE AND 3RD AVENUE NORTH, THEN 2.0 MILES EAST ON TRUNK HIGHWAY 30, NEAR THE WEST MURRAY COUNTY LINE, AT TRUNK HIGHWAY 30 STATION 641+19, 73.0 FEET RIGHT OF TRUNK HIGHWAY 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>	
1805.840	.033	3					VERTICAL CONTROL SURVEY	1948	CS5101	

Geoid Separations(ft): GEOID18 = -85.774 12B = -85.761 09 = -85.656 03 = -85.548

* No Horizontal Positions in the Database *



Mn/DOT Name: 5101 B

NGS Name: 5101 B

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DL7790](#) [Get Map](#)
 NGS Quad / Sta Num : 43096111/
 USGS Quad: EDGERTON NE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	43 W	435935.49	960236.72	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>
1946	2015	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: (2006) **Stamping:** 5101 B 1946

4.7 MILES WEST OF LAKE WILSON, 4.9 MILES WEST ALONG TRUNK HIGHWAY 30 FROM THE EAST JUNCTION OF TRUNK HIGHWAY 30 AND TRUNK HIGHWAY 91 IN LAKE WILSON, AT TRUNK HIGHWAY 30 MILEPOINT 21.1, 132.8 FEET EAST OF 10TH AVENUE, 67.8 FEET SOUTH OF TRUNK HIGHWAY 30, 2.5 FEET NORTH OF A FENCE LINE, 3.0 FEET NORTHEAST OF A RIGHT-OF-WAY POST 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>		
1823.231	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903		
1823.231	.016	2/1				VERTICAL CONTROL SURVEY	2015	VWLSN		
1823.231	.016	2/1				VERTICAL ADJUSTMENT	2011	00000425-40		
1823.231	.016	2/1				VERTICAL CONTROL SURVEY	2008	VKLIN		

<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>		
1822.421	.033	3				VERTICAL CONTROL SURVEY	1948	CS5101		

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>		
1823.231			1737.444	.024	2011	HORIZONTAL ADJUSTMENT	2015	GPS3109		
1823.231	.131		1737.651	.066	1996	GPS - STATIC	2015	HWLSN		
1823.231			1737.444	.024	2011	GPS - STATIC	2015	HWLSN		
1823.179	.262		1737.388	.197	2011	GPS - RTRN	2015	RTRN2015		

Geoid Separations(ft): GEOID18 = -85.804 12B = -85.791 09 = -85.689 03 = -85.587

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>									
43 59 35.49400	96 02 36.72258			427130.714	153034.077	.010		ADJUSTMENT	2015	GPS3109
43 59 35.49400	96 02 36.72258			427130.714	153034.077	.010	C	GPS - STATIC	2015	HWLSN
43 59 35.49375	96 02 36.72291			427130.690	153034.052	.131	3	GPS - RTRN	2015	RTRN2015

<u>NAD83(1996)</u>				<u>Murray 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>									
43 59 35.49373	96 02 36.72315			427130.673	153034.050	.033	C	GPS - STATIC	2015	HWLSN

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 - South 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>									
2086940.112	696863.772			839746.600	15996099.972	.010		ADJUSTMENT	2015	GPS3109
2086940.112	696863.772			839746.600	15996099.972	.010	C	GPS - STATIC	2015	HWLSN
2086940.088	696863.747			839746.575	15996099.947	.131	3	GPS - RTRN	2015	RTRN2015

<u>NAD83(1996)</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - South 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>									
2086940.070	696863.745			839746.557	15996099.946	.033	C	GPS - STATIC	2015	HWLSN



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5101_B-DL7790-3S-28APR2015.jpg	S	Apr 28, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5101_B-DL7790-2-28APR2015.jpg		Apr 28, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5101_B-DL7790-1-28APR2015.jpg		Apr 28, 2015

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



Mn/DOT Name: 5101 C

NGS Name: 5101 C

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 43096111/
 USGS Quad: EDGERTON NE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	43 W	435937.00	960046.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1946	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: (1946) Stamping:

3.04 MILES SOUTHWEST OF LAKE WILSON, 3.1 MILES WEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND COLLEGE AVENUE, AT TRUNK HIGHWAY 30 STATION 774+63, 76.0 FEET LEFT OF TRUNK HIGHWAY 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>	
1850.849	.033	3					VERTICAL CONTROL SURVEY	1948	CS5101	

Geoid Separations(ft): GEOID18 = -85.876 12B = -85.856 09 = -85.758 03 = -85.659

* No Horizontal Positions in the Database *



Mn/DOT Name: 5101 D

NGS Name: 5101 D

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 43096111/
 USGS Quad: EDGERTON NE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	43 W	435937.00	960014.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1946	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: (1946) Stamping:

2.59 MILES SOUTHWEST OF LAKE WILSON, 2.6 MILES WEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND COLLEGE AVENUE, THEN 49.0 FEET NORTH ON 30TH AVENUE, AT TRUNK HIGHWAY 30 STATION 798+54, 74.0 FEET LEFT OF TRUNK HIGHWAY 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>	
1736.509	.033	3				VERTICAL CONTROL SURVEY	1948	CS5101	

Geoid Separations(ft): GEOID18 = -85.902 12B = -85.886 09 = -85.784 03 = -85.682

* No Horizontal Positions in the Database *



Mn/DOT Name: 5101 F

NGS Name: 5101 F

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DL7785](#) [Get Map](#)
NGS Quad / Sta Num : 43095444/
USGS Quad: CHANDLER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	43 W	435929.38	955855.29	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>
1946	2015	GOOD	Horz=NO Vert=YES	YES	8172	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	SEE DESCRIPTION	MNDT

Description: (2013)

Stamping:

1.58 MILES WEST OF LAKE WILSON, 1.85 MILES WEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND TRUNK HIGHWAY 91 SOUTH OF LAKE WILSON, AT TRUNK HIGHWAY 30 MILEPOINT 24.15. STATION 5101 F IS BRASS PLUG IN THE SOUTHEAST CORNER OF WEST CULVERT NUMBER 8172.

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>	
1673.123	.016	2/1					VERTICAL ADJUSTMENT	2011	0000425-40	
1673.123	.016	2/1					VERTICAL CONTROL SURVEY	2008	VKLIN	

<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>	
1678.881	.033	3					VERTICAL CONTROL SURVEY	1948	CS5101	

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>	
1673.120	.262			1587.162	.197	2011	GPS - RTRN	2015	RTRN2015	

Geoid Separations(ft): GEOID18 = -85.978 12B = -85.958 09 = -85.853 03 = -85.751

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Murray 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>	
43 59 29.38463	95 58 55.29396	443317.457	152367.051	.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 - South 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>								
2103106.824	695846.807	855905.806	15994890.004	.131	3	GPS - RTRN	2015	RTRN2015	

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5101_F-DL7785-3S-28APR2015.jpg	S	Apr 28, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5101_F-DL7785-2-28APR2015.jpg		Apr 28, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5101_F-DL7785-1-28APR2015.jpg		Apr 28, 2015

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



Mn/DOT Name: 5101 G

NGS Name: 5101 G

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DL7784](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	14	106 N	43 W	435930.20	955855.20	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>
2006	2015	GOOD	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	MNDT

Description: (2006) **Stamping:** 5101 G 2006

1.5 MILES WEST OF LAKE WILSON, IN THE SOUTHEAST CORNER OF A BRIDGE ABUTMENT OF A RAILROAD GRADE TRAIL BRIDGE OVER A DRAINAGE DITCH, 1.85 MILES WEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND TRUNK HIGHWAY 91 SOUTH IN LAKE WILSON, AT TRUNK HIGHWAY 30 MILEPOINT 24.15, 92.4 FEET NORTH OF TRUNK HIGHWAY 30, 9.1 FEET SOUTH OF A WOODEN 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>
1675.118	.016	2/1					VERTICAL ADJUSTMENT	2011	00000425-40
1675.118	.016	2/1					VERTICAL CONTROL SURVEY	2008	VKLN

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>
1675.079	.262			1589.121	.197	2011	GPS - RTRN	2015	RTRN2015

Geoid Separations(ft): GEOID18 = -85.978 12B = -85.961 09 = -85.853 03 = -85.751

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 59 30.72349	95 58 54.94251	443343.506	152502.567	.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 - South 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>							
2103135.795	695981.714	855936.394	15995024.601	.131	3	GPS - RTRN	2015	RTRN2015

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5101_G-DL7784-3N-09NOV2006.jpg	N	Nov 9, 2006
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5101_G-DL7784-2-09NOV2006.jpg		Nov 9, 2006
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5101_G-DL7784-1-09NOV2006.jpg		Nov 9, 2006

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



Mn/DOT Name: 5101 H

NGS Name: 5101 H

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DL7783](#) [Get Map](#)
NGS Quad / Sta Num : 43095444/
USGS Quad: CHANDLER

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	11	106 N	43 W	435937.15	955750.43	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2006	2024	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 25 FT)	SURVEY DISK	MNDT

Description: (2006) Stamping: 5101 H 2006

0.5 MILE WEST OF LAKE WILSON, 0.85 MILE WEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND SOUTH TRUNK HIGHWAY 91 IN LAKE WILSON, AT TRUNK HIGHWAY 30 MILEPOINT 25.1, 113.4 FEET NORTHWEST OF TRUNK HIGHWAY 30, 54.7 FEET WEST OF 50TH AVENUE, 31.5 FEET NORTH OF 101ST STREET, 11.7 FEET EAST OF UNDERGROUND CABLE BOX NUMBER 6J3, 5.3 FEET EAST OF A WOODEN POST, 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	
1656.873	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903	
1656.873	.016	2/1				VERTICAL CONTROL SURVEY	2015	VWLSN	
1656.863	.016	2/1				VERTICAL ADJUSTMENT	2011	00000425-40	
1656.860	.016	2/1				VERTICAL CONTROL SURVEY	2008	VKLIN	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88				Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference	
1656.988	.262		1570.922	.197	2011	GPS - RTRN	2024	RTRN2024	
1656.863			1570.827	.021	2011	HORIZONTAL ADJUSTMENT	2015	GPS3109	
1656.863	.131		1571.030	.066	1996	GPS - STATIC	2015	HWLSN	
1656.863			1570.827	.021	2011	GPS - STATIC	2015	HWLSN	
1656.821	.262		1570.774	.197	2011	GPS - RTRN	2015	RTRN2015	

Geoid Separations(ft): GEOID18 = -86.063 12B = -86.046 09 = -85.935 03 = -85.836

Lat/Lon and County Coordinates (Feet)

NAD83(2011)		Murray County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 59 37.15274	95 57 50.42866	448061.700	153141.841	.131	3	GPS - RTRN	2024	RTRN2024
43 59 37.15257	95 57 50.42802	448061.747	153141.823	.010		ADJUSTMENT	2015	GPS3109
43 59 37.15257	95 57 50.42802	448061.747	153141.823	.010	C	GPS - STATIC	2015	HWLSN
43 59 37.15291	95 57 50.42734	448061.797	153141.857	.131	3	GPS - RTRN	2015	RTRN2015

NAD83(1996)		Murray County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 59 37.15230	95 57 50.42859	448061.706	153141.796	.033	C	GPS - STATIC	2015	HWLSN

State Plane and UTM Coordinates (Feet)

NAD83(2011)		Murray County				Project Info		
MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Year	Reference
X	Y	X	Y					
2107866.184	696518.715	860674.447	15995505.340	.131	3	GPS - RTRN	2024	RTRN2024
2107866.230	696518.697	860674.494	15995505.321	.010		ADJUSTMENT	2015	GPS3109
2107866.230	696518.697	860674.494	15995505.321	.010	C	GPS - STATIC	2015	HWLSN
2107866.281	696518.730	860674.544	15995505.354	.131	3	GPS - RTRN	2015	RTRN2015

NAD83(1996)		Murray County				Project Info		
MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Year	Reference
X	Y	X	Y					
2107866.188	696518.671	860674.451	15995505.296	.033	C	GPS - STATIC	2015	HWLSN



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5101_H-DL7783-3N-14MAY2024.jpg	N	May 14, 2024
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5101_H-DL7783-2-14MAY2024.jpg		May 14, 2024
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5101_H-DL7783-1-14MAY2024.jpg		May 14, 2024

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



Mn/DOT Name: 5101 J

NGS Name: 5101 J

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DL7786](#) [Get Map](#)
 NGS Quad / Sta Num : 43096111/
 USGS Quad: EDGERTON NE

				Reference	Reference	Vert	Horz
1/4	Sec	Twp	Rng	Latitude	Longitude	Order	Order
SE	9	106 N	43 W	435937.15	960015.12	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2006	2015	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

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

Description: (2006) Stamping: 5101 J 2006

2.65 MILES WEST OF LAKE WILSON, 2.95 MILES WEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND SOUTH TRUNK HIGHWAY 91 IN LAKE WILSON, AT TRUNK HIGHWAY 30 MILEPOINT 23.05, 73.1 FEET NORTH OF TRUNK HIGHWAY 30, 47.9 FEET WEST OF 30TH AVENUE, 17.7 FEET WEST OF A GREEN UNDERGROUND POWER BOX, 1.6 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	
1737.250	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903	
1737.250	.016	2/1				VERTICAL CONTROL SURVEY	2015	VWLSN	
1737.250	.016	2/1				VERTICAL ADJUSTMENT	2011	00000425-40	
1737.250	.016	2/1				VERTICAL CONTROL SURVEY	2008	VKLIN	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88				Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference	
1737.250			1651.375	.021	2011	HORIZONTAL ADJUSTMENT	2015	GPS3109	
1737.250	.131		1651.581	.066	1996	GPS - STATIC	2015	HWLSN	
1737.250			1651.375	.021	2011	GPS - STATIC	2015	HWLSN	
1737.205	.262		1651.322	.197	2011	GPS - RTRN	2015	RTRN2015	

Geoid Separations(ft): GEOID18 = -85.902 12B = -85.882 09 = -85.784 03 = -85.682

Lat/Lon and County Coordinates (Feet)

NAD83(2011)		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 59 37.15388	96 00 15.12095	437483.506	153169.864	.007		ADJUSTMENT	2015	GPS3109
43 59 37.15388	96 00 15.12095	437483.506	153169.864	.007	C	GPS - STATIC	2015	HWLSN
43 59 37.15399	96 00 15.12057	437483.534	153169.875	.131	3	GPS - RTRN	2015	RTRN2015

NAD83(1996)		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 59 37.15360	96 00 15.12151	437483.465	153169.835	.033	C	GPS - STATIC	2015	HWLSN

State Plane and UTM Coordinates (Feet)

NAD83(2011)		Murray County				Project Info		
MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Year	Reference
X	Y	X	Y					
2097292.258	696775.537	850100.706	15995888.313	.007		ADJUSTMENT	2015	GPS3109
2097292.258	696775.537	850100.706	15995888.313	.007	C	GPS - STATIC	2015	HWLSN
2097292.286	696775.548	850100.734	15995888.323	.131	3	GPS - RTRN	2015	RTRN2015

NAD83(1996)		Murray County				Project Info		
MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Year	Reference
X	Y	X	Y					
2097292.216	696775.510	850100.664	15995888.286	.033	C	GPS - STATIC	2015	HWLSN



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5101_J-DL7786-3N-28APR2015.jpg	N	Apr 28, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5101_J-DL7786-2-28APR2015.jpg		Apr 28, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5101_J-DL7786-1-28APR2015.jpg		Apr 28, 2015

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



Mn/DOT Name: 5101 K

NGS Name: 5101 K

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DL7787](#) [Get Map](#)
 NGS Quad / Sta Num : 43096111/
 USGS Quad: EDGERTON NE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	43 W	435938.42	960127.54	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>
2006	2015	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: (2006) Stamping: 5101 K 2006

3.7 MILES WEST OF LAKE WILSON, 4.05 MILES WEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND TRUNK HIGHWAY 91 SOUTH IN LAKE WILSON, AT TRUNK HIGHWAY 30 MILEPOINT 22.05, 183.6 FEET NORTH OF TRUNK HIGHWAY 30, 52.4 FEET WEST OF COUNTY ROAD 25, 8.6 FEET WEST-SOUTHWEST OF A POWER POLE WITH THREE GUY WIRES, 2.8 FEET SOUTH OF A RIGHT-OF-WAY SIGNPOST, 2.8 FEET SOUTH OF A WITNESS POST.

Station Pair: RIDGE - MURRAY, 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>	
1845.315	.016	2/1					VERTICAL ADJUSTMENT	2017	00000903	
1845.318	.016	2/1					VERTICAL CONTROL SURVEY	2015	VWLSN	
1845.308	.016	2/1					VERTICAL ADJUSTMENT	2011	00000425-40	
1845.308	.016	2/1					VERTICAL CONTROL SURVEY	2008	VKLN	

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>	
1845.308				1759.468	.021	2011	HORIZONTAL ADJUSTMENT	2015	GPS3109	
1845.308	.131			1759.678	.066	1996	GPS - STATIC	2015	HWLSN	
1845.308				1759.468	.021	2011	GPS - STATIC	2015	HWLSN	
1845.154	.262			1759.327	.197	2011	GPS - RTRN	2015	RTRN2015	

Geoid Separations(ft): GEOID18 = -85.846 12B = -85.827 09 = -85.728 03 = -85.630

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>									
43 59 38.41655	96 01 27.53821			432189.615	153313.636	.007		ADJUSTMENT	2015	GPS3109
43 59 38.41655	96 01 27.53821			432189.615	153313.636	.007	C	GPS - STATIC	2015	HWLSN
43 59 38.41660	96 01 27.53875			432189.576	153313.642	.131	3	GPS - RTRN	2015	RTRN2015

<u>NAD83(1996)</u>				<u>Murray 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>									
43 59 38.41627	96 01 27.53878			432189.574	153313.608	.033	C	GPS - STATIC	2015	HWLSN

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>			
<u>MN State Plane - South 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>									
2092003.310	697033.784			844813.322	15996209.684	.007		ADJUSTMENT	2015	GPS3109
2092003.310	697033.784			844813.322	15996209.684	.007	C	GPS - STATIC	2015	HWLSN
2092003.271	697033.790			844813.282	15996209.691	.131	3	GPS - RTRN	2015	RTRN2015

<u>NAD83(1996)</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>			
<u>MN State Plane - South 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>									
2092003.267	697033.757			844813.279	15996209.657	.033	C	GPS - STATIC	2015	HWLSN



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5101_K-DL7787-3W-28APR2015.jpg	W	Apr 28, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5101_K-DL7787-2-28APR2015.jpg		Apr 28, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5101_K-DL7787-1-28APR2015.jpg		Apr 28, 2015

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



Mn/DOT Name: 5101 K 1

NGS Name: 5101 K 1

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DL7788](#) [Get Map](#)
 NGS Quad / Sta Num : 44096222/
 USGS Quad: WOODSTOCK

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	43 W	440102.60	960128.30	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>
2006	2006	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 25 FT)	SURVEY DISK	MNDT

Description: (2006) **Stamping:** 5101 K1 2006

3.8 MILES NORTHWEST OF LAKE WILSON, 4.05 MILES WEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND SOUTH TRUNK HIGHWAY 91 IN LAKE WILSON, TO TRUNK HIGHWAY 30 MILEPOINT 22.05, THEN 1.65 MILES NORTH ON COUNTY ROAD 25, 50.3 FEET WEST OF COUNTY ROAD 25, 25.6 FEET NORTH OF A POWER POLE, 3.2 FEET SOUTH OF A RIGHT-OF-WAY SIGNPOST, 3.2 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>	
1791.899	.016	2/1					VERTICAL ADJUSTMENT	2011	00000425-40	
1791.903	.016	2/1					VERTICAL CONTROL SURVEY	2008	VKLIN	

Geoid Separations(ft): GEOID18 = -85.895 12B = -85.873 09 = -85.787 03 = -85.679

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5101_K_1-DL7788-3W-06DEC2006.jpg	W	Dec 6, 2006
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5101_K_1-DL7788-2-06DEC2006.jpg		Dec 6, 2006
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5101_K_1-DL7788-1-06DEC2006.jpg		Dec 6, 2006

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



Mn/DOT Name: 5101 K 2

NGS Name: 5101 K 2

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DL7789](#) [Get Map](#)
 NGS Quad / Sta Num : 44096222/
 USGS Quad: WOODSTOCK

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	107 N	43 W	440141.40	960127.30	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>
2006	2006	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: (2006) **Stamping:** 5101 K 2 2006

3.9 MILES NORTHWEST OF LAKE WILSON, 4.05 MILES WEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND SOUTH TRUNK HIGHWAY 91 IN LAKE WILSON, TO TRUNK HIGHWAY 30 MILEPOINT 22.05, THEN 2.45 MILES NORTH ON COUNTY ROAD 25, 49.6 FEET EAST OF COUNTY ROAD 25, 2.4 FEET SOUTH OF A RIGHT-OF-WAY POST, 2.4 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>	
1766.555	.016	2/1					VERTICAL ADJUSTMENT	2011	00000425-40	
1766.558	.016	2/1					VERTICAL CONTROL SURVEY	2008	VKLIN	

Geoid Separations(ft): GEOID18 = -85.925 12B = -85.905 09 = -85.817 03 = -85.705

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5101_K_2-DL7789-3E-06DEC2006.jpg	E	Dec 6, 2006
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5101_K_2-DL7789-2-06DEC2006.jpg		Dec 6, 2006
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5101_K_2-DL7789-1-06DEC2006.jpg		Dec 6, 2006

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



Mn/DOT Name: 5101 M

NGS Name: 5101 M

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DL7791](#) [Get Map](#)
 NGS Quad / Sta Num : 43096111/
 USGS Quad: EDGERTON NE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	43 W	435935.90	960349.30	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>
2006	2015	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: (2006) **Stamping:** 5101 M 2006

5.6 MILES WEST OF LAKE WILSON, 5.9 MILES WEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND TRUNK HIGHWAY 91 SOUTH IN LAKE WILSON, AT TRUNK HIGHWAY 30 MILEPOINT 20.05, 110.0 FEET EAST OF COUNTY LINE AVENUE, 70.2 FEET SOUTH OF TRUNK HIGHWAY 30, 44.3 FEET EAST OF A CORNER POST OF A PASTURE GATE, 4.1 FEET NORTH OF A FENCE, 3.3 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>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>			
1806.922	.016	2/1				VERTICAL ADJUSTMENT	2011	00000425-40
1806.916	.016	2/1				VERTICAL CONTROL SURVEY	2008	VKLIN

Geoid Separations(ft): GEOID18 = -85.774 12B = -85.758 09 = -85.656 03 = -85.548

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5101_M-DL7791-3S-08NOV2006.jpg	S	Nov 8, 2006
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5101_M-DL7791-2-08NOV2006.jpg		Nov 8, 2006
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5101_M-DL7791-1-08NOV2006.jpg		Nov 8, 2006

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



Mn/DOT Name: 5101 M RESET

NGS Name: 5101 M RESET

County: MURRAY, MN (Sheet 1)

NGS ACRN: DP9028	Get Map
NGS Quad / Sta Num : 43096111/	
USGS Quad: EDGERTON NE	

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	18	106 N	43 W	435936.24	960350.10	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2015	2015	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: (2015) **Stamping:** 5101 M RESET 2015

5.6 MILES WEST OF LAKE WILSON, 5.9 MILES WEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND TRUNK HIGHWAY 91 SOUTH IN LAKE WILSON, AT TRUNK HIGHWAY 30 MILEPOINT 20.05, 70.2 FEET SOUTH OF TRUNK HIGHWAY 30, 110.0 FEET EAST OF COUNTY LINE ROAD, 4.1 FEET NORTH OF A FENCE, 3.3 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			
1806.758	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903			
1806.758	.016	2/1				VERTICAL CONTROL SURVEY	2015	VWLSN			

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			
1806.758			1721.010	.021	2011	HORIZONTAL ADJUSTMENT	2015	GPS3109			
1806.758	.131		1721.217	.066	1996	GPS - STATIC	2015	HWLSN			
1806.758			1721.010	.021	2011	GPS - STATIC	2015	HWLSN			
1806.588	.262		1720.830	.197	2011	GPS - RTRN	2015	RTRN2015			

Geoid Separations(ft): GEOID18 = -85.774 12B = -85.758 09 = -85.656 03 = -85.548

Lat/Lon and County Coordinates (Feet)

NAD83(2011)		Murray County						Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference	
43 59 36.23750	96 03 50.10258	421766.278	153128.055	.007		ADJUSTMENT	2015	GPS3109	
43 59 36.23750	96 03 50.10258	421766.278	153128.055	.007	C	GPS - STATIC	2015	HWLSN	
43 59 36.23748	96 03 50.10088	421766.402	153128.052	.131	3	GPS - RTRN	2015	RTRN2015	

NAD83(1996)		Murray County						Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference	
43 59 36.23724	96 03 50.10318	421766.234	153128.028	.033	C	GPS - STATIC	2015	HWLSN	

State Plane and UTM Coordinates (Feet)

NAD83(2011)		MN State Plane - South Zone				UTM - Zone 15			Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference		
2081579.566	697073.788	834386.920	15996373.936	.007		ADJUSTMENT	2015	GPS3109		
2081579.566	697073.788	834386.920	15996373.936	.007	C	GPS - STATIC	2015	HWLSN		
2081579.691	697073.783	834387.044	15996373.929	.131	3	GPS - RTRN	2015	RTRN2015		

NAD83(1996)		MN State Plane - South Zone				UTM - Zone 15			Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference		
2081579.522	697073.763	834386.875	15996373.911	.033	C	GPS - STATIC	2015	HWLSN		

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5101_M_RESET-DP9028-3S-28APR2015.jpg	S	Apr 28, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5101_M_RESET-DP9028-2-28APR2015.jpg		Apr 28, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5101_M_RESET-DP9028-1-28APR2015.jpg		Apr 28, 2015

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



Mn/DOT Name: 5101 N

NGS Name: 5101 N

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DP9029](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	43 W	435928.76	955902.59	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	2015	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: (2015) Stamping: 5101 N 2015

1.65 MILES WEST OF LAKE WILSON, 1.65 MILES WEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND TRUNK HIGHWAY 91 NORTH IN LAKE WILSON, AT TRUNK HIGHWAY 30 MILEPOINT 24.05, 68.3 FEET SOUTH OF TRUNK HIGHWAY 30, 59.8 FEET WEST OF COUNTY ROAD 26(40TH AVENUE), 9.8 FEET NORTHWEST OF A FENCE CORNER, 5.0 MILES 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>					
1689.258	.016	2/1				2017	00000903	VERTICAL ADJUSTMENT				
1689.258	.016	2/1				2015	VWLSN	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>					
1689.258			1603.307	.021	2011	2015	GPS3109	HORIZONTAL ADJUSTMENT				
1689.258	.131		1603.517	.066	1996	2015	HWLSN	GPS - STATIC				
1689.258			1603.307	.021	2011	2015	HWLSN	GPS - STATIC				

Geoid Separations(ft): GEOID18 = -85.968 12B = -85.951 09 = -85.843 03 = -85.741

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Murray 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>	
43 59 28.76296	95 59 02.59441	442783.549	152305.497	.010		ADJUSTMENT		2015	GPS3109	
43 59 28.76296	95 59 02.59441	442783.549	152305.497	.010	C	GPS - STATIC		2015	HWLSN	

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Murray 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>	
43 59 28.76269	95 59 02.59498	442783.507	152305.469	.033	C	GPS - STATIC		2015	HWLSN	

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>		<u>MN State Plane - South 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>	
2102571.769	695796.823	855370.010	15994846.385	.010		ADJUSTMENT		2015	GPS3109	
2102571.769	695796.823	855370.010	15994846.385	.010	C	GPS - STATIC		2015	HWLSN	

<u>NAD83(1996)</u>		<u>MN State Plane - South 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>	
2102571.727	695796.796	855369.967	15994846.359	.033	C	GPS - STATIC		2015	HWLSN	

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5101_N-DP9029-3S-13MAY2015.jpg	S	May 13, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5101_N-DP9029-2-13MAY2015.jpg		May 13, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5101_N-DP9029-1-13MAY2015.jpg		May 13, 2015

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



Mn/DOT Name: 5102 A

NGS Name: 5102 A

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP1389](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	43 W	435935.96	955648.38	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>
1987	2024	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 20 FT)	VERTICAL CONTROL DISK	MNDT

Description: (2004) Stamping: 5102 A 1987

300.0 FEET EAST OF THE EAST JUNCTION OF TRUNK HIGHWAY 30 AND TRUNK HIGHWAY 91 IN LAKE WILSON, AT TRUNK HIGHWAY 30 MILEPOINT 25.9, 77.0 FEET SOUTH OF TRUNK HIGHWAY 30, 32.6 FEET WEST OF AN ENTRANCE TO CENTER GAS STATION NUMBER 587, 10.3 FEET EAST OF A POWER POLE, 4.6 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>	
1665.909	.016	2/1				VERTICAL ADJUSTMENT	2020	00000949	
1665.909	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903	
1665.909	.016	2/1				VERTICAL CONTROL SURVEY	2016	VRUSS	
1665.909	.016	2/1				VERTICAL CONTROL SURVEY	2015	VWLSN	
1665.896	.016	2/1				VERTICAL ADJUSTMENT	2011	00000425-40	
1665.896	.016	2/1				VERTICAL CONTROL SURVEY	2008	VKLIN	
1665.896	.016	2/1				VERTICAL ADJUSTMENT	1995	00000135	

<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>	
1665.230	.016	2/1				VERTICAL CONTROL SURVEY	1987	VSLAY	

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>	
1665.955	.262		1579.807	.197	2011	GPS - RTRN	2024	RTRN2024	
1665.896			1579.725	.008	2011	HORIZONTAL ADJUSTMENT	2015	GPS3109	
1665.896	.131		1579.882	.066	1996	GPS - STATIC	2015	HWLSN	
1665.896			1579.731	.008	2011	GPS - STATIC	2015	HWLSN	
1665.863	.262		1579.738	.197	2011	GPS - RTRN	2015	RTRN2015	
			1579.725	.008	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
			1579.816	.008	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300	
1665.909	.131		1579.882	.066	1996	HORIZONTAL ADJUSTMENT	2005	GPS2097	
1665.909	.131		1579.882	.066	1996	GPS - STATIC	2005	HPSTO	
1665.909	.131		1579.882	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1792	
1665.909	.131		1579.882	.066	1996	HORIZONTAL ADJUSTMENT	2002	GPS1767	
1665.909	.131		1579.882	.066	1996	GPS - STATIC	2002	HWLS	
1665.909	.131		1579.882	.066	1996	GPS - STATIC	2002	HLISM	
1665.876	.131		1579.895	.066	1996	HORIZONTAL ADJUSTMENT	1999	17648	
1665.909	.131		1579.895	.066	1996	HORIZONTAL ADJUSTMENT	1998	GPS937	
1665.810						GPS - STATIC	1993	HORZ	

Geoid Separations(ft): GEOID18 = -86.148 12B = -86.125 09 = -86.017 03 = -85.925



Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 59 35.96478	95 56 48.37957	452597.739	153011.150	.131	3	GPS - RTRN	2024	RTRN2024
43 59 35.96459	95 56 48.37964	452597.734	153011.131	.007		ADJUSTMENT	2015	GPS3109
43 59 35.96470	95 56 48.37967	452597.732	153011.142	.007	C	GPS - STATIC	2015	HWLSN
43 59 35.96414	95 56 48.38039	452597.679	153011.086	.131	3	GPS - RTRN	2015	RTRN2015
43 59 35.96459	95 56 48.37964	452597.734	153011.131	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 59 35.96456	95 56 48.38064	452597.661	153011.128	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 59 35.96431	95 56 48.37964	452597.734	153011.103	.033	C	GPS - STATIC	2015	HWLSN
43 59 35.96431	95 56 48.37964	452597.734	153011.103	.033	C	ADJUSTMENT	2005	GPS2097
43 59 35.96431	95 56 48.37964	452597.734	153011.103	.033	C	GPS - STATIC	2005	HPSTO
43 59 35.96431	95 56 48.37964	452597.734	153011.103	.033	C	ADJUSTMENT	2003	GPS1792
43 59 35.96431	95 56 48.37964	452597.734	153011.103	.033	C	ADJUSTMENT	2002	GPS1767
43 59 35.96431	95 56 48.37964	452597.733	153011.101	.033	C	GPS - STATIC	2002	HWLS
43 59 35.96431	95 56 48.37964	452597.734	153011.103	.033	C	GPS - STATIC	2002	HLISM
43 59 35.96414	95 56 48.37887	452597.790	153011.086	.033	C	ADJUSTMENT	1999	17648
43 59 35.96414	95 56 48.37887	452597.790	153011.086	.033	C	ADJUSTMENT	1998	GPS937

NAD83(1986)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 59 35.96138	95 56 48.36304	452598.947	153010.804	.066	2	GPS - STATIC	1993	HMARS

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2112397.827	696289.968	865204.534	15995222.489	.131	3	GPS - RTRN	2024	RTRN2024
2112397.821	696289.949	865204.528	15995222.470	.007		ADJUSTMENT	2015	GPS3109
2112397.819	696289.960	865204.526	15995222.481	.007	C	GPS - STATIC	2015	HWLSN
2112397.765	696289.905	865204.472	15995222.426	.131	3	GPS - RTRN	2015	RTRN2015
2112397.821	696289.949	865204.528	15995222.470	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2112397.748	696289.948	865204.455	15995222.469	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2112397.820	696289.921	865204.527	15995222.441	.033	C	GPS - STATIC	2015	HWLSN
2112397.820	696289.921	865204.527	15995222.441	.033	C	ADJUSTMENT	2005	GPS2097
2112397.820	696289.921	865204.527	15995222.441	.033	C	GPS - STATIC	2005	HPSTO
2112397.820	696289.921	865204.527	15995222.441	.033	C	ADJUSTMENT	2003	GPS1792
2112397.820	696289.921	865204.527	15995222.441	.033	C	ADJUSTMENT	2002	GPS1767
2112397.820	696289.920	865204.527	15995222.441	.033	C	GPS - STATIC	2002	HWLS
2112397.820	696289.921	865204.527	15995222.441	.033	C	GPS - STATIC	2002	HLISM
2112397.876	696289.902	865204.583	15995222.422	.033	C	ADJUSTMENT	1999	17648
2112397.876	696289.902	865204.583	15995222.422	.033	C	ADJUSTMENT	1998	GPS937

NAD83(1986)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2112399.027	696289.595	865205.730	15995222.101	.066	2	GPS - STATIC	1993	HMARS



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5102_A-OP1389-3S-14MAY2024.jpg	S	May 14, 2024
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5102_A-OP1389-2-14MAY2024.jpg		May 14, 2024
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5102_A-OP1389-1-14MAY2024.jpg		May 14, 2024

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



Mn/DOT Name: 5102 B

NGS Name: 5102 B

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP1387](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	42 W	435935.00	955447.00	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>
1987	2012	DESTROYED	Horz=NO Vert=NO	NO	5167	FLUSH	SEE DESCRIPTION

Monument Type

UNKNOWN

Disk Type

VERTICAL CONTROL DISK

Mon. Agency

MNDT

Description: (1987)

Stamping: 5102 B 1987

1.6 MILES EAST ON TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND TRUNK HIGHWAY 91 AT LAKE WILSON, IN THE SOUTHEAST CORNER OF TRUNK HIGHWAY 30 BRIDGE NUMBER 5167 OVER A DRAINAGE DITCH, AT TRUNK HIGHWAY 30 MILEPOINT 27.6, 15.7 FEET SOUTH OF TRUNK HIGHWAY 30.

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>	
1631.463	.016	2/1				VERTICAL ADJUSTMENT	1995	00000135	

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>	
1630.791	.016	2/1				VERTICAL CONTROL SURVEY	1987	VSLAY	

Geoid Separations(ft): GEOID18 = -86.338 12B = -86.309 09 = -86.201 03 = -86.112

* No Horizontal Positions in the Database *



Mn/DOT Name: 5102 C

NGS Name: 5102 C

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP1386](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	42 W	435936.63	955348.86	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>
1987	2015	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)	VERTICAL CONTROL DISK	MNDT

Description: (1987) Stamping: 5102 C 1987

2.74 MILES EAST OF THE TOWN OF LAKE WILSON, 2.4 MILES EAST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND TRUNK HIGHWAY 91 EAST IN LAKE WILSON, AT TRUNK HIGHWAY 30 MILEPOINT 28.4, 71.5 FEET NORTH OF TRUNK HIGHWAY 30, 130.0 FEET EAST OF A FIELD ENTRANCE, 1.5 FEET WEST OF CABINET NUMBER A, 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>		
1627.011	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903		
1627.011	.016	2/1				VERTICAL CONTROL SURVEY	2015	VWLSN		
1627.011	.016	2/1				VERTICAL ADJUSTMENT	2011	00000425-40		
1627.011	.016	2/1				VERTICAL CONTROL SURVEY	2008	VKLN		
1627.011	.016	2/1				VERTICAL ADJUSTMENT	1995	00000135		

<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>		
1626.339	.016	2/1				VERTICAL CONTROL SURVEY	1987	VSLAY		

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>		
1626.926	.262		1540.522	.197	2011	GPS - RTRN	2015	RTRN2015		
1626.739	.262		1540.440	.197	2007	GPS - RTRN	2012	RTRN2012		

Geoid Separations(ft): GEOID18 = -86.434 12B = -86.404 09 = -86.299 03 = -86.207

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>									
43 59 36.63437	95 53 48.85554			465722.622	153054.248	.131	3	2015	RTRN2015	

<u>NAD83(2007)</u>				<u>Murray 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>									
43 59 36.63411	95 53 48.85734			465722.490	153054.222	.131	3	2012	RTRN2012	

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 - South 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>									
2125519.100	696049.239			878326.124	15994825.176	.131	3	2015	RTRN2015	

<u>NAD83(2007)</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - South 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>									
2125518.968	696049.216			878325.991	15994825.155	.131	3	2012	RTRN2012	



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5102_C-OP1386-3N-27APR2015.jpg	N	Apr 27, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5102_C-OP1386-2-27APR2015.jpg		Apr 27, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5102_C-OP1386-1-27APR2015.jpg		Apr 27, 2015

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



Mn/DOT Name: 5102 D

NGS Name: 5102 D

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP1385](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	42 W	435937.33	955300.92	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>
1987	2021	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 30 FT)	VERTICAL CONTROL DISK	MNDT

Description: (1987) Stamping: 5102 D 1987

3.4 MILES EAST OF THE TOWN OF LAKE WILSON, 3.1 MILES EAST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND TRUNK HIGHWAY 91 SOUTH IN LAKE WILSON, AT TRUNK HIGHWAY 30 MILEPOINT 29.1, 155.0 FEET NORTH OF TRUNK HIGHWAY 30, 24.0 FEET EAST OF A GRAVEL ROAD, 7.1 FEET SOUTH OF THE EAST LEG OF A MINIMUM MAINTENANCE ROAD SIGNPOST, 7.0 MILES 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>	
1645.262	.016	2/1					VERTICAL ADJUSTMENT	2017	00000903	
1645.262	.016	2/1					VERTICAL CONTROL SURVEY	2015	VWLSN	
1645.262	.016	2/1					VERTICAL ADJUSTMENT	2011	00000425-40	
1645.262	.016	2/1					VERTICAL CONTROL SURVEY	2008	VKLN	
1645.262	.016	2/1					VERTICAL ADJUSTMENT	1995	00000135	

<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>	
1644.587	.016	2/1					VERTICAL CONTROL SURVEY	1987	VSLAY	

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>	
1645.089	.262			1558.580	.197	2011	GPS - OPUS	2021	GPSBM	
1645.180	.262			1558.671	.197	2011	GPS - OPUS	2021	GPSBM	
1645.262				1558.760	.023	2011	HORIZONTAL ADJUSTMENT	2015	GPS3109	
1645.262	.131			1558.970	.066	1996	GPS - STATIC	2015	HWLSN	
1645.262				1558.760	.023	2011	GPS - STATIC	2015	HWLSN	
1645.138	.262			1558.658	.197	2011	GPS - RTRN	2015	RTRN2015	
1645.062	.262			1558.678	.197	2007	GPS - RTRN	2012	RTRN2012	

Geoid Separations(ft): GEOID18 = -86.509 12B = -86.479 09 = -86.384 03 = -86.279

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>									
43 59 37.32518	95 53 00.92069			469227.169	153118.951	.131	3	GPS - OPUS	2021	GPSBM
43 59 37.32454	95 53 00.92004			469227.217	153118.886	.131	3	GPS - OPUS	2021	GPSBM
43 59 37.32474	95 53 00.91993			469227.225	153118.906	.010		ADJUSTMENT	2015	GPS3109
43 59 37.32474	95 53 00.91993			469227.225	153118.906	.010	C	GPS - STATIC	2015	HWLSN
43 59 37.32488	95 53 00.91972			469227.240	153118.920	.131	3	GPS - RTRN	2015	RTRN2015

<u>NAD83(2007)</u>				<u>Murray 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>									
43 59 37.32567	95 53 00.92054			469227.180	153119.001	.131	3	GPS - RTRN	2012	RTRN2012

<u>NAD83(1996)</u>				<u>Murray 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>									
43 59 37.32446	95 53 00.92048			469227.185	153118.878	.033	C	GPS - STATIC	2015	HWLSN

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2129023.834	696038.148	881831.525	15994772.264	.131	3	GPS - OPUS	2021	GPSBM
2129023.880	696038.082	881831.571	15994772.198	.131	3	GPS - OPUS	2021	GPSBM
2129023.889	696038.102	881831.579	15994772.218	.010		ADJUSTMENT	2015	GPS3109
2129023.889	696038.102	881831.579	15994772.218	.010	C	GPS - STATIC	2015	HWLSN
2129023.904	696038.116	881831.595	15994772.232	.131	3	GPS - RTRN	2015	RTRN2015

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2129023.846	696038.197	881831.538	15994772.314	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2129023.848	696038.075	881831.538	15994772.191	.033	C	GPS - STATIC	2015	HWLSN

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5102_D-OP1385-3N-28APR2021.jpg	N	Apr 28, 2021
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5102_D-OP1385-2-28APR2021.jpg		Apr 28, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5102_D-OP1385-1-28APR2021.jpg		Apr 28, 2021

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



Mn/DOT Name: 5102 E

NGS Name: 5102 E

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP1384](#) [Get Map](#)
 NGS Quad / Sta Num : 43095441/
 USGS Quad: SLAYTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	42 W	435936.38	955205.16	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>
1987	2015	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)	VERTICAL CONTROL DISK	MNDT

Description: (1987) Stamping: 5102 E 1987

4.17 MILES EAST OF LAKE WILSON, 3.85 MILES EAST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND TRUNK HIGHWAY 91 SOUTH IN LAKE WILSON, AT TRUNK HIGHWAY 30 MILEPOINT 29.95, 75.5 FEET NORTH OF TRUNK HIGHWAY 30, 7.1 FEET EAST-SOUTHEAST OF A WOOD CORNER POST, 2.4 FEET EAST OF A RIGHT-OF-WAY POST, 1.1 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>			
1732.018	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903
1732.018	.016	2/1				VERTICAL CONTROL SURVEY	2015	VWLSN
1732.018	.016	2/1				VERTICAL ADJUSTMENT	2011	00000425-40
1732.018	.016	2/1				VERTICAL CONTROL SURVEY	2008	VKLN
1732.018	.016	2/1				VERTICAL ADJUSTMENT	1995	00000135

<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>			
1731.342	.016	2/1				VERTICAL CONTROL SURVEY	1987	VSLAY

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>			
1731.922	.262		1645.354	.197	2011	GPS - RTRN	2015	RTRN2015
1731.794	.262		1645.308	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -86.594 12B = -86.568 09 = -86.483 03 = -86.368

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>							<u>Project Info</u>	
<u>Geodetic Position</u>		<u>Murray 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>					
43 59 36.38134	95 52 05.15540	473303.960	153017.969	.131	3	GPS - RTRN	2015	RTRN2015

<u>NAD83(2007)</u>							<u>Project Info</u>	
<u>Geodetic Position</u>		<u>Murray 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>					
43 59 36.38071	95 52 05.15703	473303.840	153017.906	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>							<u>Project Info</u>	
<u>MN State Plane - South 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>					
2133097.031	695849.064	885903.369	15994534.531	.131	3	GPS - RTRN	2015	RTRN2015

<u>NAD83(2007)</u>							<u>Project Info</u>	
<u>MN State Plane - South 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>					
2133096.910	695849.003	885903.248	15994534.471	.131	3	GPS - RTRN	2012	RTRN2012



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5102_E-OP1384-3N-08MAY2012.jpg	N	May 8, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5102_E-OP1384-2-08MAY2012.jpg		May 8, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5102_E-OP1384-1-08MAY2012.jpg		May 8, 2012

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



Mn/DOT Name: 5102 F

NGS Name: 5102 F

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP1383](#) [Get Map](#)
 NGS Quad / Sta Num : 43095441/
 USGS Quad: SLAYTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	42 W	435936.09	955056.42	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>
1987	2015	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)	VERTICAL CONTROL DISK	MNDT

Description: (1987) Stamping: 5102 F 1987

4.6 MILES WEST OF SLAYTON, 4.9 MILES WEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 59 IN SLAYTON, AT TRUNK HIGHWAY 30 MILEPOINT 30.8, 46.5 FEET NORTH OF TRUNK HIGHWAY 30, 91.5 FEET WEST OF A FIELD ENTRANCE, 1.4 FEET WEST OF A WITNESS POST.

Station Pair: HADLEY - MURRAY, 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>					
1669.423	.016	2/1				2017	00000903					
1669.423	.016	2/1				2015	VWLSN					
1669.423	.016	2/1				1995	00000135					

<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>					
1668.740	.016	2/1				1987	VSLAY					

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>					
1669.423			1582.694	.023	2011	2015	GPS3109					
1669.423	.131		1582.904	.066	1996	2015	HWLSN					
1669.423			1582.694	.023	2011	2015	HWLSN					
1669.285	.262		1582.605	.197	2011	2015	RTRN2015					
1669.285	.262		1582.681	.197	2007	2012	RTRN2012					

Geoid Separations(ft): GEOID18 = -86.709 12B = -86.680 09 = -86.601 03 = -86.473

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Murray 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>			
43 59 36.08547	95 50 56.42478	478328.735	152982.405	.010		2015	GPS3109			
43 59 36.08547	95 50 56.42478	478328.735	152982.405	.010	C	2015	HWLSN			
43 59 36.08553	95 50 56.42498	478328.720	152982.411	.131	3	2015	RTRN2015			

<u>NAD83(2007)</u>		<u>Geodetic Position</u>		<u>Murray 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>			
43 59 36.08511	95 50 56.42603	478328.643	152982.369	.131	3	2012	RTRN2012			

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Murray 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>			
43 59 36.08519	95 50 56.42534	478328.694	152982.376	.033	C	2015	HWLSN			

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South 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>
2138119.300	695704.888	890924.991	15994330.385	.010		ADJUSTMENT	2015	GPS3109
2138119.300	695704.888	890924.991	15994330.385	.010	C	GPS - STATIC	2015	HWLSN
2138119.285	695704.894	890924.977	15994330.392	.131	3	GPS - RTRN	2015	RTRN2015

NAD83(2007)

MN State Plane - South 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>
2138119.207	695704.854	890924.899	15994330.352	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

MN State Plane - South 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>
2138119.258	695704.861	890924.950	15994330.358	.033	C	GPS - STATIC	2015	HWLSN

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5102_F-OP1383-3N-27APR2015.jpg	N	Apr 27, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5102_F-OP1383-2-27APR2015.jpg		Apr 27, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5102_F-OP1383-1-27APR2015.jpg		Apr 27, 2015

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



Mn/DOT Name: 5102 G

NGS Name: 5102 G

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP1382](#) [Get Map](#)
 NGS Quad / Sta Num : 43095441/
 USGS Quad: SLAYTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	42 W	435936.00	955000.01	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>
1987	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	VERTICAL CONTROL DISK	MNDT

Description: (1987) **Stamping:** 5102 G 1987

4.15 MILES WEST ON TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND TRUNK HIGHWAY 59 AT SLAYTON, AT TRUNK HIGHWAY 30 MILEPOINT 31.6, 46.5 FEET NORTH OF TRUNK HIGHWAY 30, NEAR THE NORTH-SOUTH 1/4 SECTION LINE, 4.7 FEET WEST-SOUTHWEST OF A POWER POLE, 1.9 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>		
1657.044	.016	2/1						VERTICAL ADJUSTMENT		1995	00000135		

<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>		
1656.358	.016	2/1						VERTICAL CONTROL SURVEY		1987	VSLAY		

Geoid Separations(ft): GEOID18 = -86.808 12B = -86.778 09 = -86.703 03 = -86.562

* No Horizontal Positions in the Database *



Mn/DOT Name: 5102 H

NGS Name: 5102 H

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP1381](#) [Get Map](#)
 NGS Quad / Sta Num : 43095441/
 USGS Quad: SLAYTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	41 W	435936.27	954908.57	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>
1987	2015	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)	VERTICAL CONTROL DISK	MNDT

Description: (1987) Stamping: 5102 H 1987

3.1 MILES WEST OF SLAYTON, 3.45 MILES WEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND TRUNK HIGHWAY 59 IN SLAYTON, AT TRUNK HIGHWAY 30 MILEPOINT 32.30, 82.0 FEET NORTH OF TRUNK HIGHWAY 30, 2.0 FEET SOUTH-SOUTHWEST OF A CORNER FENCE POST, 1.4 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>	
1654.692	.016	2/1					VERTICAL ADJUSTMENT	2017	00000903	
1654.692	.016	2/1					VERTICAL CONTROL SURVEY	2015	VWLSN	
1654.692	.016	2/1					VERTICAL ADJUSTMENT	2013	00000792	
1654.692	.016	2/1					VERTICAL CONTROL SURVEY	2012	VIONA	
1654.692	.016	2/1					VERTICAL ADJUSTMENT	1995	00000135	

<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>	
1654.006	.016	2/1					VERTICAL CONTROL SURVEY	1987	VSLAY	

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>	
1654.692				1567.759	.013	2011	HORIZONTAL ADJUSTMENT	2015	GPS3109	
1654.692	.131			1568.051	.066	1996	GPS - STATIC	2015	HWLSN	
1654.692				1567.776	.013	2011	GPS - STATIC	2015	HWLSN	
1654.659	.262			1567.792	.197	2011	GPS - RTRN	2015	RTRN2015	
1654.692				1567.759	.014	2011	HORIZONTAL ADJUSTMENT	2014	GPS2998	
1654.692				1567.759	.014	2011	GPS - STATIC	2014	HIONA	
1654.590	.262			1567.799	.197	2007	GPS - RTRN	2012	RTRN2012	
1654.688	.131			1568.051	.066	1996	GPS - STATIC	2012	HIONA	
1654.659	.262			1567.868	.197	2007	GPS - RTRN	2011	RTRN2011	

Geoid Separations(ft): GEOID18 = -86.890 12B = -86.867 09 = -86.791 03 = -86.640

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 59 36.26531	95 49 08.56851	486213.990	152994.172	.007		ADJUSTMENT	2015	GPS3109
43 59 36.26523	95 49 08.56863	486213.981	152994.164	.007	C	GPS - STATIC	2015	HWLSN
43 59 36.26559	95 49 08.56871	486213.975	152994.201	.131	3	GPS - RTRN	2015	RTRN2015
43 59 36.26531	95 49 08.56851	486213.990	152994.172	.010		ADJUSTMENT	2014	GPS2998
43 59 36.26531	95 49 08.56851	486213.990	152994.172	.010	C	GPS - STATIC	2014	HIONA

NAD83(2007)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 59 36.26530	95 49 08.57060	486213.837	152994.171	.131	3	GPS - RTRN	2012	RTRN2012
43 59 36.26568	95 49 08.57021	486213.865	152994.210	.131	3	GPS - RTRN	2011	RTRN2011

NAD83(1996)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 59 36.26474	95 49 08.56882	486213.967	152994.115	.033	C	GPS - STATIC	2015	HWLSN
43 59 36.26474	95 49 08.56882	486213.967	152994.115	.033	C	GPS - STATIC	2012	HIONA

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2146002.082	695546.211	898807.479	15994077.579	.007		ADJUSTMENT	2015	GPS3109
2146002.073	695546.203	898807.470	15994077.571	.007	C	GPS - STATIC	2015	HWLSN
2146002.068	695546.239	898807.465	15994077.608	.131	3	GPS - RTRN	2015	RTRN2015
2146002.082	695546.211	898807.479	15994077.579	.010		ADJUSTMENT	2014	GPS2998
2146002.082	695546.211	898807.479	15994077.579	.010	C	GPS - STATIC	2014	HIONA

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2146001.929	695546.213	898807.326	15994077.584	.131	3	GPS - RTRN	2012	RTRN2012
2146001.958	695546.251	898807.356	15994077.621	.131	3	GPS - RTRN	2011	RTRN2011

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2146002.058	695546.153	898807.454	15994077.522	.033	C	GPS - STATIC	2015	HWLSN
2146002.058	695546.153	898807.454	15994077.522	.033	C	GPS - STATIC	2012	HIONA

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5102_H-OP1381-3N-27APR2015.jpg	N	Apr 27, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5102_H-OP1381-2-27APR2015.jpg		Apr 27, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5102_H-OP1381-1-27APR2015.jpg		Apr 27, 2015

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



Mn/DOT Name: 5102 J

NGS Name: 5102 J

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP1380](#) [Get Map](#)
 NGS Quad / Sta Num : 43095441/
 USGS Quad: SLAYTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	41 W	435938.48	954812.03	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>
1987	2015	DESTROYED	Horz=NO Vert=NO	YES		FLUSH	MARKER W/BAR MAGNET

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

Description: (2009) Stamping: 5102 J 1987

2.3 MILES WEST OF SLAYTON, 2.65 MILES WEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND TRUNK HIGHWAY 59 AT SLAYTON, AT TRUNK HIGHWAY 30 MILEPOINT 33.1, 325.0 FEET NORTH OF TRUNK HIGHWAY 30, 47.0 FEET EAST OF COUNTY ROAD 30, 2.0 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>Determination Method</u>		<u>Project Info</u>	
<u>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>	
1607.917	.016	2/1				2013	00000792	VERTICAL ADJUSTMENT		2013	00000792	
1607.917	.016	2/1				2012	VIONA	VERTICAL CONTROL SURVEY		2012	VIONA	
1607.917	.016	2/1				1995	00000135	VERTICAL ADJUSTMENT		1995	00000135	

<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>	
1607.224	.016	2/1				1987	VSLAY	VERTICAL CONTROL SURVEY		1987	VSLAY	

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>	
1607.917			1520.899	.012	2011	2014	GPS2998	HORIZONTAL ADJUSTMENT		2014	GPS2998	
1607.917			1520.899	.012	2011	2014	HIONA	GPS - STATIC		2014	HIONA	
1607.890	.262		1521.001	.197	2007	2012	RTRN2012	GPS - RTRN		2012	RTRN2012	
1607.904	.131		1521.188	.066	1996	2012	HIONA	GPS - STATIC		2012	HIONA	
1607.851	.262		1520.965	.197	2007	2011	RTRN2011	GPS - RTRN		2011	RTRN2011	

Geoid Separations(ft): GEOID18 = -86.988 12B = -86.965 09 = -86.890 03 = -86.729

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Murray 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>	
43 59 38.47969	95 48 12.03369	490347.280	153216.187	.010		ADJUSTMENT		2014	GPS2998	
43 59 38.47969	95 48 12.03369	490347.280	153216.187	.010	C	GPS - STATIC		2014	HIONA	

<u>NAD83(2007)</u>		<u>Geodetic Position</u>		<u>Murray 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>	
43 59 38.47987	95 48 12.03351	490347.293	153216.205	.131	3	GPS - RTRN		2012	RTRN2012	
43 59 38.47959	95 48 12.03476	490347.201	153216.177	.131	3	GPS - RTRN		2011	RTRN2011	

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Murray 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>	
43 59 38.47914	95 48 12.03401	490347.256	153216.131	.033	C	GPS - STATIC		2012	HIONA	



State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2150138.741	695678.816	902946.518	15994160.822	.010		ADJUSTMENT	2014	GPS2998
2150138.741	695678.816	902946.518	15994160.822	.010	C	GPS - STATIC	2014	HIONA

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2150138.755	695678.834	902946.532	15994160.839	.131	3	GPS - RTRN	2012	RTRN2012
2150138.663	695678.807	902946.440	15994160.814	.131	3	GPS - RTRN	2011	RTRN2011

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2150138.716	695678.761	902946.493	15994160.767	.033	C	GPS - STATIC	2012	HIONA

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5102_J-OP1380-3E-26APR2011.jpg	E	Apr 26, 2011
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5102_J-OP1380-2-26APR2011.jpg		Apr 26, 2011
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5102_J-OP1380-1-26APR2011.jpg		Apr 26, 2011

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



Mn/DOT Name: 5102 J RESET

NGS Name: 5102 J RESET

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DQ1130](#) [Get Map](#)
 NGS Quad / Sta Num : 43095441/
 USGS Quad: SLAYTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	41 W	435938.48	954812.03	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	2015	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 20 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2015) Stamping: 5102 J RESET 2015

2.3 MILES WEST OF SLAYTON, 2.65 MILES WEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND TRUNK HIGHWAY 59 IN SLAYTON, AT TRUNK HIGHWAY 30 MILEPOINT 33.1, 47.0 FEET EAST OF COUNTY ROAD 30(130TH AVENUE), 2.0 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>
1607.723	.016	2/1					VERTICAL ADJUSTMENT	2017	00000903
1607.720	.016	2/1					VERTICAL CONTROL SURVEY	2015	VWLSN

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>
1607.664	.262			1520.696	.197	2011	GPS - RTRN	2015	RTRN2015

Geoid Separations(ft): GEOID18 = -86.988 12B = -86.965 09 = -86.890 03 = -86.729

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>									
43 59 38.48038	95 48 12.03251			490347.366	153216.257	.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 - South 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>									
2150138.829	695678.884			902946.607	15994160.889	.131	3	GPS - RTRN	2015	RTRN2015

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5102_J_RESET-DQ1130-3E-27APR2015.jpg	E	Apr 27, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5102_J_RESET-DQ1130-2-27APR2015.jpg		Apr 27, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5102_J_RESET-DQ1130-1-27APR2015.jpg		Apr 27, 2015

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



Mn/DOT Name: 5102 K

NGS Name: 5102 K

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP1379](#) [Get Map](#)
 NGS Quad / Sta Num : 43095441/
 USGS Quad: SLAYTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	41 W	435936.00	954720.00	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>
1987	2006	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 20 FT)	VERTICAL CONTROL DISK	MNDT

Description: (1987) Stamping: 5102 K 1987

2.0 MILES WEST ON TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND TRUNK HIGHWAY 59 AT SLAYTON, AT TRUNK HIGHWAY 30 MILEPOINT 33.75, 46.5 FEET NORTH OF TRUNK HIGHWAY 30, 2.8 FEET SOUTHWEST OF A POWER POLE, 1.4 FEET EAST-SOUTHEAST OF A WITNESS POST.

Station Notes

FOUND THE CAP AND NO 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>	
1608.619	.016	2/1					VERTICAL ADJUSTMENT	1995	00000135	

<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>	
1607.927	.016	2/1					VERTICAL CONTROL SURVEY	1987	VSLAY	

Geoid Separations(ft): GEOID18 = -87.070 12B = -87.050 09 = -86.975 03 = -86.804

* No Horizontal Positions in the Database *



Mn/DOT Name: 5102 L

NGS Name: 5102 L

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP1378](#) [Get Map](#)
NGS Quad / Sta Num : 43095441/
USGS Quad: SLAYTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	41 W	435935.87	954619.37	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>
1987	2015	GOOD	Horz=NO 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)	VERTICAL CONTROL DISK	MNDT

Description: (1987) Stamping: 5102 L 1987

0.77 MILE WEST OF SLAYTON, 1.1 MILES WEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND TRUNK HIGHWAY 59 AT SLAYTON, AT TRUNK HIGHWAY 30 MILEPOINT 34.60, 77.0 FEET NORTH OF TRUNK HIGHWAY 30, 54.5 FEET EAST OF THE EAST END ENTRANCE TO THE SLAYTON INTERNATIONAL INCORPORATED IMPLEMENT DEALER, 126.5 FEET SOUTHEAST OF THE SOUTHEAST CORNER OF A LARGE METAL BUILDING, 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>		
1612.671	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903		
1612.694	.016	2/1				VERTICAL CONTROL SURVEY	2015	VGARV		
1612.674	.016	2/1				VERTICAL CONTROL SURVEY	2015	VWLSN		
1612.674	.016	2/1				VERTICAL ADJUSTMENT	2013	00000792		
1612.674	.016	2/1				VERTICAL CONTROL SURVEY	2012	VIONA		
1612.674	.016	2/1				VERTICAL ADJUSTMENT	2010	00000628		
1612.674	.016	2/1				VERTICAL CONTROL SURVEY	2007	VSLAT		
1612.674	.016	2/1				VERTICAL ADJUSTMENT	1995	00000135		

<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>		
1611.982	.016	2/1				VERTICAL CONTROL SURVEY	1987	VSLAY		

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>		
1612.749	.262		1525.601	.197	2011	GPS - RTRN	2015	RTRN2015		
1612.822	.262		1525.748	.197	2007	GPS - RTRN	2012	RTRN2012		
1612.713	.262		1525.637	.197	2007	GPS - RTRN	2011	RTRN2011		

Geoid Separations(ft): GEOID18 = -87.168 12B = -87.152 09 = -87.073 03 = -86.896

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>			<u>Murray 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>									
43 59 35.87271	95 46 19.37323		498583.645	152950.080	.131	3	GPS - RTRN	2015	RTRN2015	

<u>NAD83(2007)</u>			<u>Murray 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>									
43 59 35.87260	95 46 19.37526		498583.496	152950.069	.131	3	GPS - RTRN	2012	RTRN2012	
43 59 35.87244	95 46 19.37598		498583.443	152950.052	.131	3	GPS - RTRN	2011	RTRN2011	



State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15						Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
2158366.508	695234.809	911170.482	15993618.484	.131	3	GPS - RTRN	2015	RTRN2015	

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15						Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
2158366.359	695234.801	911170.333	15993618.478	.131	3	GPS - RTRN	2012	RTRN2012	
2158366.306	695234.786	911170.280	15993618.463	.131	3	GPS - RTRN	2011	RTRN2011	

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5102_L-OP1378-3N-10JUN2015.jpg	N	Jun 10, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5102_L-OP1378-2-10JUN2015.jpg		Jun 10, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5102_L-OP1378-1-10JUN2015.jpg		Jun 10, 2015

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



Mn/DOT Name: 5102 M

NGS Name: 5102 M

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP1377](#) [Get Map](#)
 NGS Quad / Sta Num : 43095441/
 USGS Quad: SLAYTON

				Reference	Reference	Vert	Horz
1/4	Sec	Twp	Rng	Latitude	Longitude	Order	Order
NW	15	106 N	41 W	435927.09	954532.16	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1987	2015	GOOD	Horz=NO Vert=YES	YES		FLUSH	NO MAG MATERIAL

Monument Type	Disk Type	Mon. Agency
CONCRETE FOOTING - SMALL	VERTICAL CONTROL DISK	MNDT

Description: (1987) Stamping: 5102 M 1987

IN SLAYTON, 1.0 BLOCK SOUTH ALONG JUNIPER AVENUE FROM THE JUNCTION OF JUNIPER AVENUE AND TRUNK HIGHWAY 30, IN THE SOUTHEAST QUADRANT OF THE JUNCTION OF 23RD AVENUE AND JUNIPER AVENUE, IN THE TOP OF THE CONCRETE BASE OF THE NORTHWEST LEG OF THE CITY WATER TANK, 110.0 FEET SOUTH OF 23RD STREET, 81.0 FEET EAST OF JUNIPER AVENUE, 95.6 FEET WEST OF A POWER POLE WITH A TRANSFORMER.

Leveling-Derived Orthometric Heights (Feet)

NAVD88				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1608.104	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903
1608.120	.016	2/1				VERTICAL CONTROL SURVEY	2015	VGARV
1608.107	.016	2/1				VERTICAL CONTROL SURVEY	2015	VWLSN
1608.107	.016	2/1				VERTICAL ADJUSTMENT	2013	00000792
1608.107	.016	2/1				VERTICAL CONTROL SURVEY	2012	VIONA
1608.107	.016	2/1				VERTICAL ADJUSTMENT	2010	00000628
1608.107	.016	2/1				VERTICAL CONTROL SURVEY	2007	VSLAT
1608.107	.016	2/1				VERTICAL ADJUSTMENT	1995	00000135

NGVD29				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1607.415	.016	2/1				VERTICAL CONTROL SURVEY	1987	VSLAY

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1608.150	.262		1520.932	.197	2011	GPS - RTRN	2015	RTRN2015

Geoid Separations(ft): GEOID18 = -87.234 12B = -87.218 09 = -87.142 03 = -86.958

Lat/Lon and County Coordinates (Feet)

NAD83(2011)		Murray County				Project Info		
Geodetic Position		X	Y	Acc	Order	Determination Method	Year	Reference
Latitude	Longitude							
43 59 27.08589	95 45 32.15877	502035.525	152060.300	.131	3	GPS - RTRN	2015	RTRN2015

State Plane and UTM Coordinates (Feet)

NAD83(2011)		UTM - Zone 15				Project Info		
MN State Plane - South Zone		X	Y	Acc	Order	Determination Method	Year	Reference
X	Y							
2161797.969	694270.747	914591.022	15992613.277	.131	3	GPS - RTRN	2015	RTRN2015

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5102_M-OP1377-3S-18OCT2006.jpg	S	Oct 18, 2006
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5102_M-OP1377-2-18OCT2006.jpg		Oct 18, 2006
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5102_M-OP1377-1-18OCT2006.jpg		Oct 18, 2006

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



Mn/DOT Name: 5102 N

NGS Name: 5102 N

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DL7780](#) [Get Map](#)
NGS Quad / Sta Num : 43095444/
USGS Quad: CHANDLER

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	17	106 N	42 W	435935.74	955448.71	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2006	2015	GOOD	Horz=NO Vert=NO	YES	51003	FLUSH	NO MAG MATERIAL

Monument Type	Disk Type	Mon. Agency
BRIDGE ABUTMENT	VERTICAL CONTROL DISK	MNDT

Description: (2006) Stamping: 5102 N 2006

1.75 MILES EAST OF LAKE WILSON, 1.6 MILES EAST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND TRUNK HIGHWAY 91 SOUTH OF WILSON, IN AN ABUTMENT IN THE SOUTHEAST CORNER OF TRUNK HIGHWAY 30 BRIDGE NUMBER 51003 OVER A COUNTY DITCH, AT TRUNK HIGHWAY 30 MILEPOINT 27.6, 25.0 FEET SOUTH OF TRUNK HIGHWAY 30. THE DISK WAS SET IN THE BRIDGE WHEN BUILT IN 1990 THEN STAMPED WHEN USED IN 2006.

Leveling-Derived Orthometric Heights (Feet)

NAVD88				Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)		Height	Acc	Adj	Determination Method	Year	Reference
1632.037	.016	2/1					VERTICAL ADJUSTMENT	2017	00000903
1632.037	.016	2/1					VERTICAL CONTROL SURVEY	2015	VWLSN
1632.037	.016	2/1					VERTICAL ADJUSTMENT	2011	00000425-40
1632.034	.016	2/1					VERTICAL CONTROL SURVEY	2008	VKLIN

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88				Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)		Height	Acc	Adj	Determination Method	Year	Reference
1631.932	.262			1545.624	.197	2011	GPS - RTRN	2015	RTRN2015
1631.864	.262			1545.666	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -86.335 12B = -86.306 09 = -86.197 03 = -86.109

Lat/Lon and County Coordinates (Feet)

NAD83(2011)		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 59 35.73559	95 54 48.71390	461346.303	152970.587	.131	3	GPS - RTRN	2015	RTRN2015

NAD83(2007)		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 59 35.73503	95 54 48.71522	461346.206	152970.530	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2011)		Murray County				Project Info		
MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Year	Reference
X	Y	X	Y					
2121142.486	696060.233	873948.611	15994888.388	.131	3	GPS - RTRN	2015	RTRN2015

NAD83(2007)		Murray County				Project Info		
MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Year	Reference
X	Y	X	Y					
2121142.388	696060.178	873948.512	15994888.335	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5102_N-DL7780-3W-27APR2015.jpg	W	Apr 27, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5102_N-DL7780-2-27APR2015.jpg		Apr 27, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5102_N-DL7780-1-27APR2015.jpg		Apr 27, 2015

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



Mn/DOT Name: 5102 P

NGS Name: 5102 P

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DL7781](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	43 W	435936.59	955543.38	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>
2006	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 30 FT)	SURVEY DISK	MNDT

Description: (2006) Stamping: 5102 P 2006

1.0 MILE EAST OF LAKE WILSON, 0.85 MILE EAST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND TRUNK HIGHWAY 91 SOUTH IN LAKE WILSON, AT TRUNK HIGHWAY 30 MILEPOINT 26.80, 5.3 FEET SOUTH OF A NORTH-SOUTH FENCE CORNER, 4.2 FEET SOUTH OF A WITNESS POST.

Station Pair: RAMBIE 2 MNDT RESET - MURRAY, 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>	
1654.065	.016	2/1				2017	00000903	VERTICAL ADJUSTMENT		2017	00000903	
1654.065	.016	2/1				2015	VWLSN	VERTICAL CONTROL SURVEY		2015	VWLSN	
1654.065	.016	2/1				2011	00000425-40	VERTICAL ADJUSTMENT		2011	00000425-40	
1654.065	.016	2/1				2008	VKLN	VERTICAL CONTROL SURVEY		2008	VKLN	

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>	
1654.127	.262		1567.877	.197	2011	2024	RTRN2024	GPS - RTRN		2024	RTRN2024	
1654.065			1567.832	.022	2011	2015	GPS3109	HORIZONTAL ADJUSTMENT		2015	GPS3109	
1654.065	.131		1568.041	.066	1996	2015	HWLSN	GPS - STATIC		2015	HWLSN	
1654.065			1567.832	.022	2011	2015	HWLSN	GPS - STATIC		2015	HWLSN	
1653.993	.262		1567.772	.197	2011	2015	RTRN2015	GPS - RTRN		2015	RTRN2015	
1653.891	.262		1567.776	.197	2007	2012	RTRN2012	GPS - RTRN		2012	RTRN2012	

Geoid Separations(ft): GEOID18 = -86.247 12B = -86.224 09 = -86.112 03 = -86.023

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
43 59 36.59424	95 55 43.37633	457350.168	153065.030	.131	3	GPS - RTRN	2024	RTRN2024	
43 59 36.59466	95 55 43.37674	457350.138	153065.073	.010		ADJUSTMENT	2015	GPS3109	
43 59 36.59466	95 55 43.37674	457350.138	153065.073	.010	C	GPS - STATIC	2015	HWLSN	
43 59 36.59474	95 55 43.37670	457350.141	153065.081	.131	3	GPS - RTRN	2015	RTRN2015	

<u>NAD83(2007)</u>		<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
43 59 36.59501	95 55 43.37874	457349.992	153065.109	.131	3	GPS - RTRN	2012	RTRN2012	

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
43 59 36.59438	95 55 43.37727	457350.099	153065.045	.033	C	GPS - STATIC	2015	HWLSN	

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2117149.776	696241.055	869957.089	15995116.884	.131	3	GPS - RTRN	2024	RTRN2024
2117149.747	696241.099	869957.061	15995116.928	.010		ADJUSTMENT	2015	GPS3109
2117149.747	696241.099	869957.061	15995116.928	.010	C	GPS - STATIC	2015	HWLSN
2117149.750	696241.107	869957.064	15995116.936	.131	3	GPS - RTRN	2015	RTRN2015

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2117149.602	696241.138	869956.916	15995116.968	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2117149.708	696241.071	869957.021	15995116.901	.033	C	GPS - STATIC	2015	HWLSN

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5102_P-DL7781-3N-13MAY2024.jpg	N	May 13, 2024
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5102_P-DL7781-2-13MAY2024.jpg		May 13, 2024
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5102_P-DL7781-1-13MAY2024.jpg		May 13, 2024

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



Mn/DOT Name: 5102 Q

NGS Name: 5102 Q

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DP9030](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	17	106 N	42 W	435935.35	955442.81	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2015	2015	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: (2015) Stamping: 5102 Q 2015

2.0 MILES EAST OF LAKE WILSON, 1.7 MILES EAST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND TRUNK HIGHWAY 91 SOUTH IN LAKE WILSON, AT TRUNK HIGHWAY 30 MILEPOINT 27.7, 63.3 FEET SOUTH OF TRUNK HIGHWAY 30, 34.4 FEET WEST OF A FIELD ENTRANCE, 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		
1625.778	.016	2/1					VERTICAL ADJUSTMENT	2017	00000903		
1625.778	.016	2/1					VERTICAL CONTROL SURVEY	2015	VWLSN		

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		
1625.778				1539.436	.023	2011	HORIZONTAL ADJUSTMENT	2015	GPS3109		
1625.778	.131			1539.643	.066	1996	GPS - STATIC	2015	HWLSN		
1625.778				1539.436	.023	2011	GPS - STATIC	2015	HWLSN		

Geoid Separations(ft): GEOID18 = -86.345 12B = -86.315 09 = -86.207 03 = -86.119

Lat/Lon and County Coordinates (Feet)

NAD83(2011)				Geodetic Position			Murray County			Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference			
43 59 35.34903	95 54 42.80646	461778.120	152930.675	.010		ADJUSTMENT	2015	GPS3109			
43 59 35.34903	95 54 42.80646	461778.120	152930.675	.010	C	GPS - STATIC	2015	HWLSN			

NAD83(1996)				Geodetic Position			Murray County			Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference			
43 59 35.34875	95 54 42.80697	461778.083	152930.647	.033	C	GPS - STATIC	2015	HWLSN			

State Plane and UTM Coordinates (Feet)

NAD83(2011)				MN State Plane - South Zone			UTM - Zone 15			Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference			
2121573.291	696010.998	874378.931	15994834.002	.010		ADJUSTMENT	2015	GPS3109			
2121573.291	696010.998	874378.931	15994834.002	.010	C	GPS - STATIC	2015	HWLSN			

NAD83(1996)				MN State Plane - South Zone			UTM - Zone 15			Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference			
2121573.253	696010.970	874378.893	15994833.975	.033	C	GPS - STATIC	2015	HWLSN			

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5102_Q-DP9030-3S-11MAY2015.jpg	S	May 11, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5102_Q-DP9030-2-11MAY2015.jpg		May 11, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5102_Q-DP9030-1-11MAY2015.jpg		May 11, 2015

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



Mn/DOT Name: 5102 R

NGS Name: 5102 R

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DQ1131](#) [Get Map](#)
 NGS Quad / Sta Num : 43095441/
 USGS Quad: SLAYTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	42 W	435935.20	955004.20	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>
2015	2015	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: (2015) Stamping: 5102 R 2015

1.0 MILE SOUTHEAST OF HADLEY, 0.95 MILE EAST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND COUNTY ROAD 29(105TH AVENUE) (THE JUNCTION IS 0.5 MILE SOUTH OF HADLEY), AT TRUNK HIGHWAY 30 MILEPOINT 31.55, 34.7 FEET SOUTH OF TRUNK HIGHWAY 30, 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>	
1657.789	.016	2/1					VERTICAL ADJUSTMENT	2017	00000903	
1657.789	.016	2/1					VERTICAL CONTROL SURVEY	2015	VWLSN	

Geoid Separations(ft): GEOID18 = -86.798 12B = -86.768 09 = -86.693 03 = -86.555

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5102_R-DQ1131-3S-13MAY2015.jpg	S	May 13, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5102_R-DQ1131-2-13MAY2015.jpg		May 13, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5102_R-DQ1131-1-13MAY2015.jpg		May 13, 2015

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



Mn/DOT Name: 5103 A

NGS Name: 5103 A

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 44095323/
 USGS Quad: CURRIE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	107 N	41 W	440424.00	954439.00		

<u>Year Set</u>	<u>Last Recovery</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	2015	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:

0.1 MILE EAST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND TRUNK HIGHWAY 59, AT TRUNK HIGHWAY 30 STATION 3+85, 73.0 FEET LEFT OF TRUNK HIGHWAY 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>	
1582.671	.033	3				VERTICAL CONTROL SURVEY	1954	CS5103	

Geoid Separations(ft): GEOID18 = -87.339 12B = -87.339 09 = -87.250 03 = -87.070

* No Horizontal Positions in the Database *



Mn/DOT Name: 5103 B

NGS Name: 5103 B

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 44095322/
 USGS Quad: DOVRAY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	107 N	40 W	440357.00	953724.00		

<u>Year Set</u>	<u>Last Recovery</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	2019	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:

1.7 MILES EAST ALONG TRUNK HIGHWAY 30 FROM THE EAST LIMITS OF CURRIE, 109.0 FEET NORTH OF TRUNK HIGHWAY 30, AT TRUNK HIGHWAY 30 STATION 455+67.

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>	
1521.792	.033	3				VERTICAL CONTROL SURVEY	1954	CS5103	

Geoid Separations(ft): GEOID18 = -87.716 12B = -87.713 09 = -87.621 03 = -87.451

* No Horizontal Positions in the Database *



Mn/DOT Name: 5103 C

NGS Name: 5103 C

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DL3466](#) [Get Map](#)
 NGS Quad / Sta Num : 44095322/
 USGS Quad: DOVRAY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	107 N	40 W	440339.71	953646.05	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>
1953	2019	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: (1953) Stamping: 5103 C 1953

3.0 MILES EAST OF CURRIE, 2.6 MILES EAST AND SOUTHEAST ALONG TRUNK HIGHWAY 30 FROM THE EAST JUNCTION OF TRUNK HIGHWAY 30 AND COUNTY ROAD 38 IN CURRIE, AT TRUNK HIGHWAY 30 MILEPOINT 48.35, 72.0 FEET SOUTHWEST OF TRUNK HIGHWAY 30, 34.0 FEET EAST OF 225TH AVENUE, 3.0 FEET NORTH OF A FENCE CORNER, 2.7 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>	
1542.185	.016	2/1					VERTICAL ADJUSTMENT	2020	00000949	
1542.189	.016	2/1					VERTICAL CONTROL SURVEY	2019	VDRAY	
1542.152	.016	2/2					VERTICAL ADJUSTMENT	2010	00000628	
1542.146	.016	2/2					VERTICAL CONTROL SURVEY	2007	VDOVR	

<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>	
1541.421	.033	3					VERTICAL CONTROL SURVEY	1954	CS5103	

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>	
1542.152	.131			1454.728	.066	1996	GPS - STATIC	2019	HDRAY	
1542.152				1454.475	.022	2011	GPS - STATIC	2019	HDRAY	
1542.152				1454.475	.022	2011	HORIZONTAL ADJUSTMENT	2019	GPS3311	
1542.182	.262			1454.436	.197	2011	GPS - RTRN	2019	RTRN2019	

Geoid Separations(ft): GEOID18 = -87.746 12B = -87.746 09 = -87.654 03 = -87.483

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>									
44 03 39.70925	95 36 46.04926			540452.605	177680.926	.013	C	GPS - STATIC	2019	HDRAY
44 03 39.70925	95 36 46.04926			540452.605	177680.926	.013		ADJUSTMENT	2019	GPS3311
44 03 39.70935	95 36 46.04911			540452.616	177680.936	.131	3	GPS - RTRN	2019	RTRN2019

<u>NAD83(1996)</u>				<u>Murray 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>									
44 03 39.70867	95 36 46.04939			540452.596	177680.867	.033	C	GPS - STATIC	2019	HDRAY

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 - South 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>									
2200755.014	719052.588			953850.226	16016932.345	.013	C	GPS - STATIC	2019	HDRAY
2200755.014	719052.588			953850.226	16016932.345	.013		ADJUSTMENT	2019	GPS3311
2200755.025	719052.599			953850.238	16016932.355	.131	3	GPS - RTRN	2019	RTRN2019

<u>NAD83(1996)</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - South 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>									
2200755.004	719052.530			953850.215	16016932.287	.033	C	GPS - STATIC	2019	HDRAY



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_C-DL3466-3S-01APR2019.jpg	S	Apr 1, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_C-DL3466-2-01APR2019.jpg		Apr 1, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_C-DL3466-1-01APR2019.jpg		Apr 1, 2019

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



Mn/DOT Name: 5103 D

NGS Name: 5103 D

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 44095322/
 USGS Quad: DOVRAY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	107 N	39 W	440314.00	953455.00		

<u>Year Set</u>	<u>Last Recovery</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	2019	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:

1.7 MILES WEST ALONG TRUNK HIGHWAY 30 FROM WEST LIMITS OF DOVRAY, 75.0 FEET SOUTHWEST OF TRUNK HIGHWAY 30, AT TRUNK HIGHWAY 30 STATION 574+08.

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>	
1530.400	.033	3				VERTICAL CONTROL SURVEY	1954	CS5103	

Geoid Separations(ft): GEOID18 = -87.841 12B = -87.834 09 = -87.749 03 = -87.585

* No Horizontal Positions in the Database *



Mn/DOT Name: 5103 E

NGS Name: 5103 E

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DL3463](#) [Get Map](#)
 NGS Quad / Sta Num : 44095322/
 USGS Quad: DOVRAY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	107 N	39 W	440303.90	953345.40	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>
1953	2018	DESTROYED	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 POST (PREFABRICATED)	BENCH MARK DISK	MNDT

Description: (2006) **Stamping:** 5103 E 1953

1.0 MILE WEST-NORTHWEST OF DOVRAY, 1.0 MILE WEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND COUNTY ROAD 42 AT DOVRAY, AT TRUNK HIGHWAY 30 MILEPOINT 51.0, 71.0 FEET NORTH OF TRUNK HIGHWAY 30, 48.0 FEET EAST OF 250TH AVENUE, 9.0 FEET SOUTHEAST OF A POWER POLE, AT TRUNK HIGHWAY 30 STATION 626+58, AT THE JUNCTION OF TRUNK HIGHWAY 30 AND A TOWNSHIP ROAD.

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>	
1499.511	.016	2/2					VERTICAL ADJUSTMENT	2010	00000628	
1499.505	.016	2/2					VERTICAL CONTROL SURVEY	2007	VDOVR	

<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>	
1498.780	.033	3					VERTICAL CONTROL SURVEY	1954	CS5103	

Geoid Separations(ft): GEOID18 = -87.900 12B = -87.894 09 = -87.802 03 = -87.644

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_E-DL3463-3N-17MAY2006.jpg	N	May 17, 2006
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_E-DL3463-2-17MAY2006.jpg		May 17, 2006
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_E-DL3463-1-17MAY2006.jpg		May 17, 2006

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



Mn/DOT Name: 5103 F

NGS Name: 5103 F

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 44095322/
 USGS Quad: DOVRAY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	107 N	39 W	440305.00	953229.00		

<u>Year Set</u>	<u>Last Recovery</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	2019	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	MNHD

Description: (1953) Stamping:

AT THE EAST LIMITS OF DOVRAY, 74.0 FEET NORTH OF TRUNK HIGHWAY 30, AT TRUNK HIGHWAY 30 STATION 688+73.

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>		
1495.880	.033	3							VERTICAL CONTROL SURVEY	1954	CS5103	

Geoid Separations(ft): GEOID18 = -87.962 12B = -87.956 09 = -87.864 03 = -87.713

* No Horizontal Positions in the Database *



Mn/DOT Name: 5103 G

NGS Name: 5103 G

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 44095322/
 USGS Quad: DOVRAY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	107 N	39 W	440303.00	953136.00		

<u>Year Set</u>	<u>Last Recovery</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	2019	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:

0.8 MILE EAST ALONG TRUNK HIGHWAY 30 FROM THE EAST LIMITS OF DOVRAY, 73.0 FEET SOUTH OF TRUNK HIGHWAY 30, AT TRUNK HIGHWAY 30 STATION 731+10.

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>	
1467.021	.033	3							VERTICAL CONTROL SURVEY	1954	CS5103	

Geoid Separations(ft): GEOID18 = -88.005 12B = -88.002 09 = -87.903 03 = -87.762

* No Horizontal Positions in the Database *



Mn/DOT Name: 5103 H

NGS Name: 5103 H

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 44095322/
 USGS Quad: DOVRAY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	27	107 N	39 W	440239.00	953009.00		

<u>Year Set</u>	<u>Last Recovery</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	2019	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:

2.1 MILES EAST ALONG TRUNK HIGHWAY 30 FROM EAST LIMITS OF DOVRAY, 74.0 FEET SOUTH OF TRUNK HIGHWAY 30, AT TRUNK HIGHWAY 30 STATION 800+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>	
1434.288	.033	3				VERTICAL CONTROL SURVEY	1954	CS5103	

Geoid Separations(ft): GEOID18 = -88.074 12B = -88.074 09 = -87.969 03 = -87.838

* No Horizontal Positions in the Database *



Mn/DOT Name: 5103 I

NGS Name: 5103 I

County: MURRAY, MN (Sheet 1)

NGS ACRN: DR3072	Get Map
NGS Quad / Sta Num : 44095233/	
USGS Quad: WESTBROOK	

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	107 N	39 W	440218.92	952858.73	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>
1953	2019	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: (1953) Stamping: 5103 I 1953

3.5 MILES SOUTHEAST OF DOVRAY, 3.2 MILES SOUTHEAST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND COUNTY ROAD 42 IN DOVRAY, AT TRUNK HIGHWAY 30 MILEPOINT 55.15, 72.2 FEET SOUTHWEST OF TRUNK HIGHWAY 30, 4.4 FEET NORTHWEST OF A POWER POLE, 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>	
1417.779	.016	2/1					VERTICAL ADJUSTMENT	2020	00000949	
1417.783	.016	2/1					VERTICAL CONTROL SURVEY	2019	VDRAY	

<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>	
1416.690	.033	3					VERTICAL CONTROL SURVEY	1954	CS5103	

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>	
1417.783	.262			1329.659	.197	2011	GPS - RTRN	2019	RTRN2019	

Geoid Separations(ft): GEOID18 = -88.123 12B = -88.126 09 = -88.021 03 = -87.897

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>			<u>Murray 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>									
44 02 18.92462	95 28 58.73332		574606.704	169590.536	.131	3	GPS - RTRN	2019	RTRN2019	

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 - South 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>									
2234722.415	710227.794		987714.752	16007699.343	.131	3	GPS - RTRN	2019	RTRN2019	

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_I-DR3072-3SW-02APR2019.jpg	SW	Apr 2, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_I-DR3072-2-02APR2019.jpg		Apr 2, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_I-DR3072-1-02APR2019.jpg		Apr 2, 2019

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



Mn/DOT Name: 5103 J

NGS Name: 5103 J

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DL3473](#) [Get Map](#)
NGS Quad / Sta Num : 44095323/
USGS Quad: CURRIE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	13	107 N	41 W	440420.96	954323.48	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2006	2019	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

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

Description: (2006) Stamping: 5103 J 2006

3.0 MILES WEST OF CURRIE, 3.05 MILES WEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND COUNTY ROAD 38 NORTH IN CURRIE, AT TRUNK HIGHWAY 30 MILEPOINT 42.60, 121.1 FEET SOUTH OF TRUNK HIGHWAY 30, 26.3 FEET EAST OF 170TH AVENUE, 16.0 FEET NORTH-NORTHEAST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

NAVD88				Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Determination Method	Year	Reference				
1552.372	.016	2/1	VERTICAL ADJUSTMENT	2020	00000949				
1552.372	.016	2/1	VERTICAL CONTROL SURVEY	2019	VDRAY				
1552.372	.016	2/1	VERTICAL ADJUSTMENT	2017	00000903				
1552.372	.016	2/1	VERTICAL CONTROL SURVEY	2015	VGARV				
1552.395	.016	2/2	VERTICAL ADJUSTMENT	2010	00000628				
1552.385	.016	2/2	VERTICAL CONTROL SURVEY	2007	VDOVR				
1552.398	.016	2/1	VERTICAL CONTROL SURVEY	2007	VSLAT				

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88				Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Determination Method	Year	Reference				
1552.372	.131		GPS - STATIC	2019	HDRAY				
1552.372			GPS - STATIC	2019	HDRAY				
1552.372			HORIZONTAL ADJUSTMENT	2019	GPS3311				
1552.323	.262		GPS - RTRN	2019	RTRN2019				
1552.277	.262		GPS - RTRN	2015	RTRN2015				

Geoid Separations(ft): GEOID18 = -87.411 12B = -87.408 09 = -87.323 03 = -87.139

Lat/Lon and County Coordinates (Feet)

NAD83(2011)			Murray County				Project Info		
Latitude	Longitude	Order	X	Y	Acc	Determination Method	Year	Reference	
44 04 20.96338	95 43 23.47625		511428.049	181823.979	.013	C GPS - STATIC	2019	HDRAY	
44 04 20.96338	95 43 23.47625		511428.049	181823.979	.013	ADJUSTMENT	2019	GPS3311	
44 04 20.96337	95 43 23.47543		511428.108	181823.978	.131	3 GPS - RTRN	2019	RTRN2019	
44 04 20.96394	95 43 23.47631		511428.044	181824.036	.131	3 GPS - RTRN	2015	RTRN2015	

NAD83(1996)			Murray County				Project Info		
Latitude	Longitude	Order	X	Y	Acc	Determination Method	Year	Reference	
44 04 20.96281	95 43 23.47636		511428.040	181823.921	.033	C GPS - STATIC	2019	HDRAY	

State Plane and UTM Coordinates (Feet)

NAD83(2011)		Murray County		Project Info			
X	Y	X	Y	Acc	Determination Method	Year	Reference
2171830.263	723821.049	924978.652	16022048.423	.013	C GPS - STATIC	2019	HDRAY
2171830.263	723821.049	924978.652	16022048.423	.013	ADJUSTMENT	2019	GPS3311
2171830.323	723821.047	924978.711	16022048.420	.131	3 GPS - RTRN	2019	RTRN2019
2171830.259	723821.106	924978.649	16022048.480	.131	3 GPS - RTRN	2015	RTRN2015

NAD83(1996)		Murray County		Project Info			
X	Y	X	Y	Acc	Determination Method	Year	Reference
2171830.253	723820.992	924978.642	16022048.366	.033	C GPS - STATIC	2019	HDRAY



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_J-DL3473-3E-01APR2019.jpg	E	Apr 1, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_J-DL3473-2-01APR2019.jpg		Apr 1, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_J-DL3473-1-01APR2019.jpg		Apr 1, 2019

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



Mn/DOT Name: 5103 K

NGS Name: 5103 K

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DL3472](#) [Get Map](#)
 NGS Quad / Sta Num : 44095323/
 USGS Quad: CURRIE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	107 N	41 W	440423.30	954212.80	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>
2006	2019	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: (2006) Stamping: 5103 K 2006

2.0 MILES WEST OF CURRIE, 2.10 MILES WEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND COUNTY ROAD 38 NORTH AT CURRIE, AT TRUNK HIGHWAY 30 MILEPOINT 43.60, 121.0 FEET NORTH OF TRUNK HIGHWAY 30, 18.1 FEET WEST OF 180TH AVENUE, NO 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>	
1512.901	.016	2/2					VERTICAL ADJUSTMENT	2010	00000628	
1512.887	.016	2/2					VERTICAL CONTROL SURVEY	2007	VDOVR	

Geoid Separations(ft): GEOID18 = -87.477 12B = -87.474 09 = -87.385 03 = -87.205

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_K-DL3472-3W-20JUN2006.jpg	W	Jun 20, 2006
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_K-DL3472-2-20JUN2006.jpg		Jun 20, 2006
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_K-DL3472-1-20JUN2006.jpg		Jun 20, 2006

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



Mn/DOT Name: 5103 K RESET

NGS Name: 5103 K RESET

County: MURRAY, MN (Sheet 1)

NGS ACRN: DR2695
NGS Quad / Sta Num : 44095323/
USGS Quad: CURRIE
Get Map

Table with columns: Reference, Reference, Vert, Horz, 1/4, Sec, Twp, Rng, Latitude, Longitude, Order, Order

Table with columns: Year Set, Last Recovery, Condition, Geodetic Usability, Photos, Bridge Num, F/P/R, Magnetic Properties

Table with columns: Monument Type, Disk Type, Mon. Agency

Description: (2019) Stamping: 5103 K RESET 2019

2.0 MILES WEST OF CURRIE, 2.10 MILES WEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND COUNTY ROAD 38 NORTH AT CURRIE, AT TRUNK HIGHWAY 30 MILEPOINT 43.60, 121.0 FEET NORTH OF TRUNK HIGHWAY 30, 18.1 FEET WEST OF 180TH AVENUE, NO WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

Table with columns: NAVD88, Orthometric Height, Ellipsoid (NAD83), Project Info

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

Table with columns: NAVD88, Orthometric Height, Ellipsoid (NAD83), Project Info

Geoid Separations(ft): GEOID18 = -87.477 12B = -87.474 09 = -87.388 03 = -87.208

Lat/Lon and County Coordinates (Feet)

Table with columns: NAD83(2011), Geodetic Position, Murray County, Project Info

Table with columns: NAD83(1996), Geodetic Position, Murray County, Project Info

State Plane and UTM Coordinates (Feet)

Table with columns: NAD83(2011), MN State Plane - South Zone, UTM - Zone 15, Project Info

Table with columns: NAD83(1996), MN State Plane - South Zone, UTM - Zone 15, Project Info

Station Photos

Table with columns: Type, File Name, Dir, Date

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



Mn/DOT Name: 5103 L

NGS Name: 5103 L

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DL3470](#) [Get Map](#)
 NGS Quad / Sta Num : 44095323/
 USGS Quad: CURRIE

<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	18	107 N	40 W	440421.47	954100.97	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>
2006	2019	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: (2006) Stamping: 5103 L 2006

1.0 MILE WEST OF CURRIE, 1.1 MILES NORTHWEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND COUNTY ROAD 38 NORTH IN CURRIE, AT TRUNK HIGHWAY 30 MILEPOINT 44.55, 125.8 FEET SOUTH OF TRUNK HIGHWAY 30, 22.4 FEET WEST OF 190TH AVENUE, 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>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>						
1527.343	.016	2/1				2020	00000949						
1527.343	.016	2/1				2019	VDRAY						
1527.313	.016	2/2				2010	00000628						
1527.303	.016	2/2				2007	VDOVR						

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>						
1527.313	.131		1440.053	.066	1996	2019	HDRAY						
1527.313			1439.794	.020	2011	2019	HDRAY						
1527.313			1439.794	.020	2011	2019	GPS3311						
1527.294	.262		1439.758	.197	2011	2019	RTRN2019						

Geoid Separations(ft): GEOID18 = -87.536 12B = -87.536 09 = -87.447 03 = -87.270

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Geodetic Position</u>					<u>Murray 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>						
44 04 21.47401	95 41 00.96581	521832.908	181883.678	.013	C	2019	HDRAY						
44 04 21.47401	95 41 00.96581	521832.908	181883.678	.013		2019	GPS3311						
44 04 21.47407	95 41 00.96658	521832.852	181883.684	.131	3	2019	RTRN2019						

<u>NAD83(1996)</u>		<u>Geodetic Position</u>					<u>Murray 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>						
44 04 21.47344	95 41 00.96592	521832.900	181883.620	.033	C	2019	HDRAY						

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>		<u>MN State Plane - South 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>					
2182232.702	723655.963	935380.719	16021758.526	.013	C	2019	HDRAY					
2182232.702	723655.963	935380.719	16021758.526	.013		2019	GPS3311					
2182232.646	723655.971	935380.663	16021758.534	.131	3	2019	RTRN2019					

<u>NAD83(1996)</u>		<u>MN State Plane - South 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>					
2182232.693	723655.906	935380.709	16021758.469	.033	C	2019	HDRAY					



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_L-DL3470-3W-01APR2019.jpg	W	Apr 1, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_L-DL3470-2-01APR2019.jpg		Apr 1, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_L-DL3470-1-01APR2019.jpg		Apr 1, 2019

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



Mn/DOT Name: 5103 N

NGS Name: 5103 N

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DL3469](#) [Get Map](#)
 NGS Quad / Sta Num : 44095323/
 USGS Quad: CURRIE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	107 N	40 W	440355.80	953958.60	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>
2006	2019	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 15 FT)	SURVEY DISK	MNDT

Description: (2006) Stamping: 5103 N 2006

IN CURRIE, AT THE JUNCTION OF TRUNK HIGHWAY 30 AND COUNTY ROAD 38 NORTH IN CURRIE, AT TRUNK HIGHWAY 30 MILEPOINT 45.85, 68.7 FEET SOUTH OF TRUNK HIGHWAY 30, 25.7 FEET WEST OF EXTENDED CENTERLINE OF COUNTY ROAD 38 NORTH (MILL STREET), 6.5 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>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1531.345	.016	2/2					VERTICAL ADJUSTMENT	2010	00000628	
1531.336	.016	2/2					VERTICAL CONTROL SURVEY	2007	VDOVR	

Geoid Separations(ft): GEOID18 = -87.585 12B = -87.592 09 = -87.493 03 = -87.313

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<u>Location:</u>	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_N-DL3469-3S-20JUN2006.jpg	S	Jun 20, 2006
<u>Monument:</u>	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_N-DL3469-2-20JUN2006.jpg		Jun 20, 2006
<u>Disk:</u>	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_N-DL3469-1-20JUN2006.jpg		Jun 20, 2006

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



Mn/DOT Name: 5103 N RESET

NGS Name: 5103 N RESET

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DR2696](#) [Get Map](#)
 NGS Quad / Sta Num : 44095323/
 USGS Quad: CURRIE

				Reference	Reference	Vert	Horz
1/4	Sec	Twp	Rng	Latitude	Longitude	Order	Order
NE	20	107 N	40 W	440355.80	953958.39	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2019	2019	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 15 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2019) **Stamping:** 5103 N RESET 2019

IN CURRIE, AT THE JUNCTION OF TRUNK HIGHWAY 30 AND COUNTY ROAD 38 NORTH IN CURRIE, AT TRUNK HIGHWAY 30 MILEPOINT 45.85, 68.7 FEET SOUTH OF TRUNK HIGHWAY 30, 25.7 FEET WEST OF EXTENDED CENTERLINE OF COUNTY ROAD 38 NORTH (MILL STREET), 6.5 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
1531.162	.016	2/1					VERTICAL ADJUSTMENT	2020	00000949
1531.162	.016	2/1					VERTICAL CONTROL SURVEY	2019	VDRAY

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88				Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)		Height	Acc	Adj	Determination Method	Year	Reference
1531.093	.131			1443.829	.066	1996	GPS - STATIC	2019	HDRAY
1531.126				1443.567	.030	2011	GPS - STATIC	2019	HDRAY
1531.126				1443.567	.030	2011	HORIZONTAL ADJUSTMENT	2019	GPS3311
1531.168	.262			1443.577	.197	2011	GPS - RTRN	2019	RTRN2019

Geoid Separations(ft): GEOID18 = -87.585 12B = -87.592 09 = -87.493 03 = -87.313

Lat/Lon and County Coordinates (Feet)

NAD83(2011)		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 03 55.79918	95 39 58.39058	526404.781	179288.678	.020	C	GPS - STATIC	2019	HDRAY
44 03 55.79918	95 39 58.39058	526404.781	179288.678	.020		ADJUSTMENT	2019	GPS3311
44 03 55.79944	95 39 58.39000	526404.823	179288.704	.131	3	GPS - RTRN	2019	RTRN2019

NAD83(1996)		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 03 55.79862	95 39 58.39069	526404.773	179288.621	.033	C	GPS - STATIC	2019	HDRAY

State Plane and UTM Coordinates (Feet)

NAD83(2011)		UTM - Zone 15				Project Info		
MN State Plane - South Zone		X	Y	Acc	Order	Determination Method	Year	Reference
2186746.898	720963.139	939863.254	16019011.167	.020	C	GPS - STATIC	2019	HDRAY
2186746.898	720963.139	939863.254	16019011.167	.020		ADJUSTMENT	2019	GPS3311
2186746.941	720963.165	939863.297	16019011.192	.131	3	GPS - RTRN	2019	RTRN2019

NAD83(1996)		UTM - Zone 15				Project Info		
MN State Plane - South Zone		X	Y	Acc	Order	Determination Method	Year	Reference
2186746.889	720963.083	939863.244	16019011.111	.033	C	GPS - STATIC	2019	HDRAY

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_N_RESET-DR2696-3S-01APR2019.jpg	S	Apr 1, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_N_RESET-DR2696-2-01APR2019.jpg		Apr 1, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_N_RESET-DR2696-1-01APR2019.jpg		Apr 1, 2019

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



Mn/DOT Name: 5103 P

NGS Name: 5103 P

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DL3467](#) [Get Map](#)
 NGS Quad / Sta Num : 44095322/
 USGS Quad: DOVRAY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	107 N	40 W	440354.50	953722.20	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>
2006	2019	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) (<10 FT) (DEPTH 15 FT)	SURVEY DISK	MNDT

Description: (2006) Stamping: 5103 P 2006

2.0 MILES EAST OF CURRIE, 2.0 MILES EAST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND COUNTY ROAD 38 SOUTH IN CURRIE, AT TRUNK HIGHWAY 30 MILEPOINT 47.75, 69.9 FEET SOUTH-SOUTHWEST OF TRUNK HIGHWAY 30, 29.0 FEET EAST OF A FIELD ENTRANCE, 4.5 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>	
1518.747	.016	2/2					VERTICAL ADJUSTMENT	2010	00000628	
1518.737	.016	2/2					VERTICAL CONTROL SURVEY	2007	VDOVR	

Geoid Separations(ft): GEOID18 = -87.716 12B = -87.716 09 = -87.624 03 = -87.454

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_P-DL3467-3SW-20JUN2006.jpg	SW	Jun 20, 2006
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_P-DL3467-2-20JUN2006.jpg		Jun 20, 2006
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_P-DL3467-1-20JUN2006.jpg		Jun 20, 2006

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



Mn/DOT Name: 5103 Q

NGS Name: 5103 Q

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DL3465](#) [Get Map](#)
 NGS Quad / Sta Num : 44095322/
 USGS Quad: DOVRAY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	107 N	40 W	440325.71	953549.68	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>
2006	2019	GOOD	Horz=NO Vert=YES	YES		FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE FOOTING - SMALL	SURVEY DISK	MNDT

Description: (2006) **Stamping:** 5103 Q 2006

3.0 MILES EAST OF CURRIE, 3.4 MILES EAST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND COUNTY ROAD 38 SOUTH IN CURRIE, AT TRUNK HIGHWAY 30 MILEPOINT 49.2, 51.0 FEET SOUTHEAST OF A WEATHER STATION, 41.3 FEET NORTHEAST OF TRUNK HIGHWAY 30, 12.0 FEET SOUTHEAST OF A FIELD ENTRANCE.

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>
1562.612	.016	2/1					VERTICAL ADJUSTMENT	2020	00000949
1562.615	.016	2/1					VERTICAL CONTROL SURVEY	2019	VDRAY
1562.582	.016	2/2					VERTICAL ADJUSTMENT	2010	00000628
1562.576	.016	2/2					VERTICAL CONTROL SURVEY	2007	VDOVR

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>
1562.622	.262			1474.833	.197	2011	GPS - RTRN	2019	RTRN2019

Geoid Separations(ft): GEOID18 = -87.795 12B = -87.789 09 = -87.703 03 = -87.536

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>									
44 03 25.71274	95 35 49.68229			544571.749	176271.582	.131	3	GPS - RTRN	2019	RTRN2019

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South 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>									
2204842.268	717554.803			957919.970	16015385.364	.131	3	GPS - RTRN	2019	RTRN2019

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_Q-DL3465-3NE-01APR2019.jpg	NE	Apr 1, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_Q-DL3465-2-01APR2019.jpg		Apr 1, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_Q-DL3465-1-01APR2019.jpg		Apr 1, 2019

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



Mn/DOT Name: 5103 R

NGS Name: 5103 R

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DL3464](#) [Get Map](#)
 NGS Quad / Sta Num : 44095322/
 USGS Quad: DOVRAY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	107 N	39 W	440304.80	953443.70	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>
2006	2019	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 15 FT)	SURVEY DISK	MNDT

Description: (2006) Stamping: 5103 R 2006

2.0 MILES WEST OF DOVRAY, 1.80 MILES WEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND COUNTY ROAD 42 AT DOVRAY, AT TRUNK HIGHWAY 30 MILEPOINT 50.2, 67.3 FEET SOUTHWEST OF TRUNK HIGHWAY 30, 49.4 FEET NORTHWEST OF 141ST STREET, 4.1 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>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1527.172	.016	2/2					VERTICAL ADJUSTMENT	2010	00000628	
1527.169	.016	2/2					VERTICAL CONTROL SURVEY	2007	VDOVR	

Geoid Separations(ft): GEOID18 = -87.848 12B = -87.844 09 = -87.756 03 = -87.592

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_R-DL3464-3S-20JUN2006.jpg	S	Jun 20, 2006
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_R-DL3464-2-20JUN2006.jpg		Jun 20, 2006
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_R-DL3464-1-20JUN2006.jpg		Jun 20, 2006

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



Mn/DOT Name: 5103 R RESET
 County: MURRAY, MN (Sheet 1)

NGS Name: 5103 R RESET

NGS ACRN: [DR2697](#) [Get Map](#)
 NGS Quad / Sta Num : 44095322/
 USGS Quad: DOVRAY

				Reference	Reference	Vert	Horz
1/4	Sec	Twp	Rng	Latitude	Longitude	Order	Order
SW	19	107 N	39 W	440307.86	953444.54	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2019	2019	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 15 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2019) **Stamping:** 5103 R RESET 2019

2.0 MILES WEST OF DOVRAY, 1.8 MILES WEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND COUNTY ROAD 42 AT DOVRAY, AT TRUNK HIGHWAY 30 MILEPOINT 50.2, 67.3 FEET SOUTHWEST OF TRUNK HIGHWAY 30, 49.4 FEET NORTHWEST OF 141ST STREET, 4.1 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
1527.005	.016	2/1					VERTICAL ADJUSTMENT	2020	00000949
1527.008	.016	2/1					VERTICAL CONTROL SURVEY	2019	VDRAY

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88				Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)		Height	Acc	Adj	Determination Method	Year	Reference
1526.982	.131			1439.449	.066	1996	GPS - STATIC	2019	HDRAY
1527.018				1439.203	.025	2011	GPS - STATIC	2019	HDRAY
1527.018				1439.203	.025	2011	HORIZONTAL ADJUSTMENT	2019	GPS3311
1527.061	.262			1439.220	.197	2011	GPS - RTRN	2019	RTRN2019

Geoid Separations(ft): GEOID18 = -87.848 12B = -87.841 09 = -87.756 03 = -87.592

Lat/Lon and County Coordinates (Feet)

NAD83(2011)				Murray County				Project Info		
Geodetic Position				X	Y	Acc	Order	Determination Method	Year	Reference
Latitude	Longitude									
44 03 07.85757	95 34 44.53901			549333.298	174473.707	.016	C	GPS - STATIC	2019	HDRAY
44 03 07.85757	95 34 44.53901			549333.298	174473.707	.016		ADJUSTMENT	2019	GPS3311
44 03 07.85807	95 34 44.53910			549333.291	174473.758	.131	3	GPS - RTRN	2019	RTRN2019

NAD83(1996)				Murray County				Project Info		
Geodetic Position				X	Y	Acc	Order	Determination Method	Year	Reference
Latitude	Longitude									
44 03 07.85698	95 34 44.53911			549333.290	174473.647	.033	C	GPS - STATIC	2019	HDRAY

State Plane and UTM Coordinates (Feet)

NAD83(2011)				UTM - Zone 15				Project Info		
MN State Plane - South Zone				X	Y	Acc	Order	Determination Method	Year	Reference
X	Y									
2209563.315	715654.762			962618.721	16013428.498	.016	C	GPS - STATIC	2019	HDRAY
2209563.315	715654.762			962618.721	16013428.498	.016		ADJUSTMENT	2019	GPS3311
2209563.310	715654.812			962618.716	16013428.549	.131	3	GPS - RTRN	2019	RTRN2019

NAD83(1996)				UTM - Zone 15				Project Info		
MN State Plane - South Zone				X	Y	Acc	Order	Determination Method	Year	Reference
X	Y									
2209563.307	715654.702			962618.712	16013428.439	.033	C	GPS - STATIC	2019	HDRAY

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_R_RESET-DR2697-3SW-01APR2019.jpg	SW	Apr 1, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_R_RESET-DR2697-2-01APR2019.jpg		Apr 1, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_R_RESET-DR2697-1-01APR2019.jpg		Apr 1, 2019

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



Mn/DOT Name: 5103 S

NGS Name: 5103 S

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DL3462](#) [Get Map](#)
 NGS Quad / Sta Num : 44095322/
 USGS Quad: DOVRAY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	107 N	39 W	440303.90	953231.50	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>
2006	2019	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 25 FT)	SURVEY DISK	MNDT

Description: (2006) Stamping: 5103 S 2006

IN DOVRAY, AT THE JUNCTION OF TRUNK HIGHWAY 30 AND COUNTY ROAD 42 IN DOVRAY, AT TRUNK HIGHWAY 30 MILEPOINT 52.0, 52.8 FEET NORTH OF TRUNK HIGHWAY 30, 43.0 FEET SOUTHEAST OF A RIGHT-OF-WAY POST, 27.5 FEET WEST OF A FIELD ENTRANCE, 4.2 FEET EAST OF A WITNESS POST.

Station Notes

THE SURVEY MARK IS BENT AND LEANS EAST.
 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>	
1501.729	.016	2/2					VERTICAL ADJUSTMENT	2010	00000628	
1501.726	.016	2/2					VERTICAL CONTROL SURVEY	2007	VDOVR	

Geoid Separations(ft): GEOID18 = -87.959 12B = -87.956 09 = -87.861 03 = -87.710

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_S-DL3462-3N-20JUN2006.jpg	N	Jun 20, 2006
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_S-DL3462-2-20JUN2006.jpg		Jun 20, 2006
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_S-DL3462-1-20JUN2006.jpg		Jun 20, 2006

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



Mn/DOT Name: 5103 S RESET

NGS Name: 5103 S RESET

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DR2698](#) [Get Map](#)
 NGS Quad / Sta Num : 44095322/
 USGS Quad: DOVRAY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	107 N	39 W	440303.83	953231.42	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>
2019	2019	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: (2019) **Stamping:** 5103 S RESET 2019

IN DOVRAY, AT THE JUNCTION OF TRUNK HIGHWAY 30 AND COUNTY ROAD 42 IN DOVRAY, AT TRUNK HIGHWAY 30 MILEPOINT 52.0, 52.8 FEET NORTH OF TRUNK HIGHWAY 30, 43.0 FEET SOUTHEAST OF A RIGHT-OF-WAY POST, 27.5 FEET WEST OF A FIELD ENTRANCE, 4.2 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>
1501.509	.016	2/1					VERTICAL ADJUSTMENT	2020	00000949
1501.513	.016	2/1					VERTICAL CONTROL SURVEY	2019	VDRAY

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>
1501.500	.131			1413.852	.066	1996	GPS - STATIC	2019	HDRAY
1501.532				1413.606	.020	2011	GPS - STATIC	2019	HDRAY
1501.532				1413.606	.020	2011	HORIZONTAL ADJUSTMENT	2019	GPS3311
1501.539	.262			1413.583	.197	2011	GPS - RTRN	2019	RTRN2019

Geoid Separations(ft): GEOID18 = -87.959 12B = -87.956 09 = -87.861 03 = -87.710

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>			<u>Murray 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>								
44 03 03.83188	95 32 31.41626		559057.204	174090.344	.013	C	GPS - STATIC	2019	HDRAY
44 03 03.83188	95 32 31.41626		559057.204	174090.344	.013		ADJUSTMENT	2019	GPS3311
44 03 03.83221	95 32 31.41674		559057.169	174090.377	.131	3	GPS - RTRN	2019	RTRN2019

<u>NAD83(1996)</u>			<u>Murray 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>								
44 03 03.83129	95 32 31.41636		559057.197	174090.284	.033	C	GPS - STATIC	2019	HDRAY

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>			<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South 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>								
2219275.511	715061.618		972324.704	16012718.805	.013	C	GPS - STATIC	2019	HDRAY
2219275.511	715061.618		972324.704	16012718.805	.013		ADJUSTMENT	2019	GPS3311
2219275.476	715061.653		972324.671	16012718.839	.131	3	GPS - RTRN	2019	RTRN2019

<u>NAD83(1996)</u>			<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South 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>								
2219275.502	715061.559		972324.695	16012718.745	.033	C	GPS - STATIC	2019	HDRAY

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_S_RESET-DR2698-3N-01APR2019.jpg	N	Apr 1, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_S_RESET-DR2698-2-01APR2019.jpg		Apr 1, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_S_RESET-DR2698-1-01APR2019.jpg		Apr 1, 2019

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



Mn/DOT Name: 5103 T

NGS Name: 5103 T

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DL3461](#) [Get Map](#)
 NGS Quad / Sta Num : 44095322/
 USGS Quad: DOVRAY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	107 N	39 W	440258.50	953120.80	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>
2006	2019	DESTROYED	Horz=NO Vert=NO	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
METAL ROD (W/BASE PLATE) BURIED (<10 FT) (DEPTH 25 FT)	SURVEY DISK	MNDT

Description: (2006) **Stamping:** 5103 T 2006

1.50 MILES EAST OF DOVRAY, 1.0 MILE EAST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND COUNTY ROAD 42 IN DOVRAY, AT TRUNK HIGHWAY 30 MILEPOINT 53.0, 141.0 FEET SOUTHWEST OF TRUNK HIGHWAY 30, 39.4 FEET EAST OF 270TH AVENUE, 10.0 FEET SOUTH OF A FIELD ENTRANCE, 5.5 FEET NORTH OF A WITNESS POST.

Station Notes

THE ENTRANCE HAS BEEN WIDENED.

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>		
1466.693	.016	2/2				VERTICAL ADJUSTMENT	2010	00000628		
1466.690	.016	2/2				VERTICAL CONTROL SURVEY	2007	VDOVR		

Geoid Separations(ft): GEOID18 = -88.018 12B = -88.012 09 = -87.913 03 = -87.772

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_T-DL3461-3E-21JUN2006.jpg	E	Jun 21, 2006
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_T-DL3461-2-21JUN2006.jpg		Jun 21, 2006
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_T-DL3461-1-21JUN2006.jpg		Jun 21, 2006

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



Mn/DOT Name: 5103 U

NGS Name: 5103 U

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DL3460](#) [Get Map](#)
NGS Quad / Sta Num : 44095322/
USGS Quad: DOVRAY

<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	27	107 N	39 W	440240.06	953009.23	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>
2006	2019	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 20 FT)	SURVEY DISK	MNDT

Description: (2006) Stamping: 5103 U 2006

2.5 MILES SOUTHEAST OF DOVRAY, 2.1 MILES EAST-SOUTHEAST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND COUNTY ROAD 42 IN DOVRAY, AT TRUNK HIGHWAY 30 MILEPOINT 54.10, 106.6 FEET NORTH-NORTHWEST OF TRUNK HIGHWAY 30, 30.1 FEET WEST OF COUNTY ROAD 67 (280TH AVENUE), 8.0 FEET NORTH OF A FIELD ENTRANCE, 5.0 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>					
1440.440	.016	2/1				2020	00000949	VERTICAL ADJUSTMENT				
1440.447	.016	2/1				2019	VDRAY	VERTICAL CONTROL SURVEY				
1440.404	.016	2/2				2010	00000628	VERTICAL ADJUSTMENT				
1440.404	.016	2/2				2007	VDOVR	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>					
1440.404	.131		1352.658	.066	1996	2019	HDRAY	GPS - STATIC				
1440.404			1352.412	.020	2011	2019	HDRAY	GPS - STATIC				
1440.404			1352.412	.020	2011	2019	GPS3311	HORIZONTAL ADJUSTMENT				
1440.427	.262		1352.356	.197	2011	2019	RTRN2019	GPS - RTRN				

Geoid Separations(ft): GEOID18 = -88.074 12B = -88.074 09 = -87.969 03 = -87.838

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Murray 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>			
44 02 40.05631	95 30 09.23434	569449.546	171713.404	.013	C	2019	HDRAY	GPS - STATIC		
44 02 40.05631	95 30 09.23434	569449.546	171713.404	.013		2019	GPS3311	ADJUSTMENT		
44 02 40.05658	95 30 09.23454	569449.531	171713.431	.131	3	2019	RTRN2019	GPS - RTRN		

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Murray 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>			
44 02 40.05574	95 30 09.23446	569449.538	171713.346	.033	C	2019	HDRAY	GPS - STATIC		

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>		<u>MN State Plane - South 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>			
2229612.884	712461.211	982631.681	16009994.192	.013	C	2019	HDRAY	GPS - STATIC		
2229612.884	712461.211	982631.681	16009994.192	.013		2019	GPS3311	ADJUSTMENT		
2229612.870	712461.238	982631.667	16009994.220	.131	3	2019	RTRN2019	GPS - RTRN		

<u>NAD83(1996)</u>		<u>MN State Plane - South 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>			
2229612.874	712461.153	982631.670	16009994.134	.033	C	2019	HDRAY	GPS - STATIC		



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_U-DL3460-3W-02APR2019.jpg	W	Apr 2, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_U-DL3460-2-02APR2019.jpg		Apr 2, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_U-DL3460-1-02APR2019.jpg		Apr 2, 2019

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



Mn/DOT Name: 5103 V

NGS Name: 5103 V

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DL3459](#) [Get Map](#)
 NGS Quad / Sta Num : 44095233/
 USGS Quad: WESTBROOK

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	107 N	39 W	440220.40	952858.20	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>
2006	2019	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 40 FT)	SURVEY DISK	MNDT

Description: (2006) Stamping: 5103 V 2006

3.50 MILES EAST OF DOVRAY, 3.20 MILES SOUTHEAST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND COUNTY ROAD 42 IN DOVRAY, AT TRUNK HIGHWAY 30 MILEPOINT 55.15, 89.6 FEET NORTHEAST OF TRUNK HIGHWAY 30, 53.1 FEET WEST OF 290TH AVENUE, 8.0 FEET SOUTH OF AN ENTRANCE, 1.0 FOOT EAST 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>	
1417.710	.016	2/2					VERTICAL ADJUSTMENT	2010	00000628	
1417.704	.016	2/2					VERTICAL CONTROL SURVEY	2007	VDOVR	

Geoid Separations(ft): GEOID18 = -88.126 12B = -88.126 09 = -88.021 03 = -87.900

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_V-DL3459-3N-20JUN2006.jpg	N	Jun 20, 2006
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_V-DL3459-2-20JUN2006.jpg		Jun 20, 2006
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_V-DL3459-1-20JUN2006.jpg		Jun 20, 2006

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



Mn/DOT Name: 5103 V RESET
County: MURRAY, MN (Sheet 1)

NGS Name: 5103 V RESET

NGS ACRN: [DR2699](#) [Get Map](#)
NGS Quad / Sta Num : 44095233/
USGS Quad: WESTBROOK

				Reference	Reference	Vert	Horz
1/4	Sec	Twp	Rng	Latitude	Longitude	Order	Order
SE	26	107 N	39 W	440220.44	952858.19	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2019	2019	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 40 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2019) **Stamping:** 5103 V RESET 2019

3.5 MILES EAST OF DOVRAY, 3.2 MILES SOUTHEAST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND COUNTY ROAD 42 IN DOVRAY, AT TRUNK HIGHWAY 30 MILEPOINT 55.15, 89.6 FEET NORTHEAST OF TRUNK HIGHWAY 30, 53.1 FEET WEST OF 290TH AVENUE, 8.0 FEET SOUTH OF AN ENTRANCE, 1.0 FOOT 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
1417.550	.016	2/1				VERTICAL ADJUSTMENT	2020	00000949
1417.550	.016	2/1				VERTICAL CONTROL SURVEY	2019	VDRAY

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1417.540	.131		1329.702	.066	1996	GPS - STATIC	2019	HDRAY
1417.553			1329.456	.020	2011	GPS - STATIC	2019	HDRAY
1417.553			1329.456	.020	2011	HORIZONTAL ADJUSTMENT	2019	GPS3311
1417.550	.262		1329.426	.197	2011	GPS - RTRN	2019	RTRN2019

Geoid Separations(ft): GEOID18 = -88.126 12B = -88.126 09 = -88.021 03 = -87.900

Lat/Lon and County Coordinates (Feet)

NAD83(2011)		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 02 20.43801	95 28 58.18574	574646.178	169743.932	.013	C	GPS - STATIC	2019	HDRAY
44 02 20.43801	95 28 58.18574	574646.178	169743.932	.013		ADJUSTMENT	2019	GPS3311
44 02 20.43834	95 28 58.18571	574646.180	169743.966	.131	3	GPS - RTRN	2019	RTRN2019

NAD83(1996)		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 02 20.43739	95 28 58.18585	574646.171	169743.870	.033	C	GPS - STATIC	2019	HDRAY

State Plane and UTM Coordinates (Feet)

NAD83(2011)		UTM - Zone 15				Project Info		
MN State Plane - South Zone		X	Y	Acc	Order	Determination Method	Year	Reference
		987759.355	16007851.331	.013	C	GPS - STATIC	2019	HDRAY
		987759.355	16007851.331	.013		ADJUSTMENT	2019	GPS3311
		987759.358	16007851.364	.131	3	GPS - RTRN	2019	RTRN2019

NAD83(1996)		UTM - Zone 15				Project Info		
MN State Plane - South Zone		X	Y	Acc	Order	Determination Method	Year	Reference
		987759.345	16007851.268	.033	C	GPS - STATIC	2019	HDRAY

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_V_RESET-DR2699-3N-02APR2019.jpg	N	Apr 2, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_V_RESET-DR2699-2-02APR2019.jpg		Apr 2, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_V_RESET-DR2699-1-02APR2019.jpg		Apr 2, 2019

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



Mn/DOT Name: 5103 W

NGS Name: 5103 W

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DR2700](#) [Get Map](#)
 NGS Quad / Sta Num : 44095323/
 USGS Quad: CURRIE

				Reference	Reference	Vert	Horz
1/4	Sec	Twp	Rng	Latitude	Longitude	Order	Order
SE	16	107 N	40 W	440357.17	953903.00	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2019	2019	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 22 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2019) **Stamping:** 5103 W 2019

0.8 MILE EAST OF CURRIE, 0.6 MILE EAST ALONG TRUNK HIGHWAY 30 FROM THE EAST JUNCTION OF TRUNK HIGHWAY 30 AND COUNTY ROAD 38 (MAIN STREET) IN CURRIE, AT TRUNK HIGHWAY 30 MILEPOINT 46.4, 70.7 FEET NORTH OF TRUNK HIGHWAY 30, 7.1 FEET SOUTH-SOUTHEAST OF A CABLE BOX NUMBER 13J5, 30.0 FEET EAST OF A FIELD ENTRANCE, 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				
1494.830	.016	2/1				VERTICAL ADJUSTMENT	2020	00000949	
1494.830	.016	2/1				VERTICAL CONTROL SURVEY	2019	VDRAY	

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				
1494.840	.131		1407.520	.066	1996	GPS - STATIC	2019	HDRAY	
1494.872			1407.264	.022	2011	GPS - STATIC	2019	HDRAY	
1494.872			1407.264	.022	2011	HORIZONTAL ADJUSTMENT	2019	GPS3311	
1494.817	.262		1407.179	.197	2011	GPS - RTRN	2019	RTRN2019	

Geoid Separations(ft): GEOID18 = -87.634 12B = -87.638 09 = -87.539 03 = -87.362

Lat/Lon and County Coordinates (Feet)

NAD83(2011)			Murray County				Project Info		
Geodetic Position		Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
Latitude	Longitude								
44 03 57.17074	95 39 02.99688		530449.440	179432.883	.013	C	GPS - STATIC	2019	HDRAY
44 03 57.17074	95 39 02.99688		530449.440	179432.883	.013		ADJUSTMENT	2019	GPS3311
44 03 57.17089	95 39 02.99743		530449.400	179432.898	.131	3	GPS - RTRN	2019	RTRN2019

NAD83(1996)			Murray County				Project Info		
Geodetic Position		Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
Latitude	Longitude								
44 03 57.17016	95 39 02.99699		530449.433	179432.824	.033	C	GPS - STATIC	2019	HDRAY

State Plane and UTM Coordinates (Feet)

NAD83(2011)				Project Info				
MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Year	Reference
X	Y	X	Y					
2190793.235	721019.939	943910.817	16019019.438	.013	C	GPS - STATIC	2019	HDRAY
2190793.235	721019.939	943910.817	16019019.438	.013		ADJUSTMENT	2019	GPS3311
2190793.195	721019.955	943910.778	16019019.455	.131	3	GPS - RTRN	2019	RTRN2019

NAD83(1996)				Project Info				
MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Year	Reference
X	Y	X	Y					
2190793.225	721019.880	943910.807	16019019.380	.033	C	GPS - STATIC	2019	HDRAY

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_W-DR2700-3N-22APR2019.jpg	N	Apr 22, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_W-DR2700-2-22APR2019.jpg		Apr 22, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_W-DR2700-1-22APR2019.jpg		Apr 22, 2019

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



Mn/DOT Name: 5103 X

NGS Name: 5103 X

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DR2701](#) [Get Map](#)
 NGS Quad / Sta Num : 44095323/
 USGS Quad: CURRIE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	107 N	40 W	440355.97	953751.15	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>
2019	2019	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: (2019) **Stamping:** 5103 X 2019

1.8 MILES EAST OF CURRIE, 1.6 MILES EAST ALONG TRUNK HIGHWAY 30 FROM THE EAST JUNCTION OF TRUNK HIGHWAY 30 AND COUNTY ROAD 38 (MAIN STREET) IN CURRIE, AT TRUNK HIGHWAY 30 MILEPOINT 47.4, 49.6 FEET SOUTH OF TRUNK HIGHWAY 30, 19.1 FEET EAST 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>	
1517.123	.016	2/1						VERTICAL ADJUSTMENT	2020	00000949	
1517.123	.016	2/1						VERTICAL CONTROL SURVEY	2019	VDRAY	

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>	
1517.077	.131			1429.699	.066	1996		GPS - STATIC	2019	HDRAY	
1517.100				1429.436	.022	2011		GPS - STATIC	2019	HDRAY	
1517.100				1429.436	.022	2011		HORIZONTAL ADJUSTMENT	2019	GPS3311	
1517.130	.262			1429.433	.197	2011		GPS - RTRN	2019	RTRN2019	

Geoid Separations(ft): GEOID18 = -87.693 12B = -87.693 09 = -87.598 03 = -87.424

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>				
44 03 55.97434	95 37 51.15382			535695.594	179319.732	.013	C	GPS - STATIC	2019	HDRAY	
44 03 55.97434	95 37 51.15382			535695.594	179319.732	.013		ADJUSTMENT	2019	GPS3311	
44 03 55.97477	95 37 51.15365			535695.606	179319.775	.131	3	GPS - RTRN	2019	RTRN2019	

<u>NAD83(1996)</u>				<u>Murray 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>				
44 03 55.97378	95 37 51.15394			535695.585	179319.675	.033	C	GPS - STATIC	2019	HDRAY	

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 - South 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>				
2196035.080	720793.534			949150.614	16018730.121	.013	C	GPS - STATIC	2019	HDRAY	
2196035.080	720793.534			949150.614	16018730.121	.013		ADJUSTMENT	2019	GPS3311	
2196035.093	720793.577			949150.628	16018730.164	.131	3	GPS - RTRN	2019	RTRN2019	

<u>NAD83(1996)</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>			<u>Project Info</u>	
<u>MN State Plane - South 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>				
2196035.070	720793.478			949150.604	16018730.065	.033	C	GPS - STATIC	2019	HDRAY	

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_X-DR2701-3S-22APR2019.jpg	S	Apr 22, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_X-DR2701-2-22APR2019.jpg		Apr 22, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_X-DR2701-1-22APR2019.jpg		Apr 22, 2019

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



Mn/DOT Name: 5103 Y

NGS Name: 5103 Y

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DR2702](#) [Get Map](#)
 NGS Quad / Sta Num : 44095322/
 USGS Quad: DOVRAY

<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	107 N	39 W	440302.62	953344.94	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>
2019	2019	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 39 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2019) Stamping: 5103 Y 2019

0.6 MILE WEST OF DOVRAY, 1.0 MILE WEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND COUNTY ROAD 42 IN DOVRAY, AT TRUNK HIGHWAY 30 MILEPOINT 51.0, 69.8 FEET SOUTH OF TRUNK HIGHWAY 30, 107.6 FEET EAST OF 250TH AVENUE, 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>
1496.044	.016	2/1					VERTICAL ADJUSTMENT	2020	00000949
1496.047	.016	2/1					VERTICAL CONTROL SURVEY	2019	VDRAY

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>
1496.076	.131			1408.501	.066	1996	GPS - STATIC	2019	HDRAY
1496.116				1408.252	.021	2011	GPS - STATIC	2019	HDRAY
1496.116				1408.252	.021	2011	HORIZONTAL ADJUSTMENT	2019	GPS3311
1496.112	.262			1408.216	.197	2011	GPS - RTRN	2019	RTRN2019

Geoid Separations(ft): GEOID18 = -87.900 12B = -87.897 09 = -87.802 03 = -87.644

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>			<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 03 02.61759	95 33 44.93600		553687.798	173953.405	.013	C	GPS - STATIC	2019	HDRAY
44 03 02.61759	95 33 44.93600		553687.798	173953.405	.013		ADJUSTMENT	2019	GPS3311
44 03 02.61847	95 33 44.93581		553687.812	173953.495	.131	3	GPS - RTRN	2019	RTRN2019

<u>NAD83(1996)</u>			<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 03 02.61700	95 33 44.93611		553687.790	173953.346	.033	C	GPS - STATIC	2019	HDRAY

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>				
<u>MN State Plane - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
		2213905.045	715040.636	966953.506	16012762.239	.013	C	GPS - STATIC	2019	HDRAY
		2213905.045	715040.636	966953.506	16012762.239	.013		ADJUSTMENT	2019	GPS3311
		2213905.060	715040.725	966953.523	16012762.328	.131	3	GPS - RTRN	2019	RTRN2019

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>				
<u>MN State Plane - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
		2213905.035	715040.577	966953.497	16012762.180	.033	C	GPS - STATIC	2019	HDRAY

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_Y-DR2702-3S-22APR2019.jpg	S	Apr 22, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_Y-DR2702-2-22APR2019.jpg		Apr 22, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5103_Y-DR2702-1-22APR2019.jpg		Apr 22, 2019

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



Mn/DOT Name: 5104 AA

NGS Name: 5104 AA

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DQ2426](#) [Get Map](#)
 NGS Quad / Sta Num : 43095411/
 USGS Quad: LIME CREEK

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	40 W	435530.11	953627.28	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	2025	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: (2015) Stamping: 5104 AA 2015

2.5 MILES SOUTHEAST OF AVOCA, 2.5 MILES SOUTHEAST ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND COUNTY ROAD 6 (2ND STREET) IN AVOCA, AT TRUNK HIGHWAY 59 MILEPOINT 32.2, 65.0 FEET NORTHEAST OF TRUNK HIGHWAY 59, 13.0 FEET NORTHWEST OF A FIELD ENTRANCE, 0.4 MILE NORTHWEST OF 51ST STREET, 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>	
1520.614	.016	2/1					VERTICAL ADJUSTMENT	2017	00000903	
1520.614	.016	2/1					VERTICAL CONTROL SURVEY	2015	VGARV	

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>	
1520.601	.262			1432.661	.197	2011	GPS - RTRN	2025	RTRN2025	
1520.565	.262			1432.641	.197	2011	GPS - RTRN	2015	RTRN2015	

Geoid Separations(ft): GEOID18 = -87.936 12B = -87.926 09 = -87.808 03 = -87.615

Lat/Lon and County Coordinates (Feet)

<u>Geodetic Position</u>		<u>Murray 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>	
43 55 30.10850	95 36 27.27661	541919.193	128102.421	.131	3	GPS - RTRN	2025	RTRN2025	
43 55 30.10829	95 36 27.27714	541919.154	128102.399	.131	3	GPS - RTRN	2015	RTRN2015	

State Plane and UTM Coordinates (Feet)

<u>MN State Plane - South 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>
2201150.561	669459.533	953652.822	15967329.307	.131	3	2025	RTRN2025
2201150.522	669459.513	953652.782	15967329.287	.131	3	2015	RTRN2015

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5104_AA-DQ2426-3NE-05AUG2025.jpg	NE	Aug 5, 2025
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5104_AA-DQ2426-2-05AUG2025.jpg		Aug 5, 2025
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5104_AA-DQ2426-1-05AUG2025.jpg		Aug 4, 2025

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



Mn/DOT Name: 5104 B

NGS Name: 5104 B

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 43095414/
 USGS Quad: AVOCA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	41 W	435827.00	954246.00		

<u>Year Set</u>	<u>Last Recovery</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	2015	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:

2.51 MILES SOUTHEAST OF SLAYTON, 0.1 MILE EAST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND MAPLE AVENUE, THEN 2.5 MILES SOUTHEAST ON TRUNK HIGHWAY 59, AT TRUNK HIGHWAY 59 STATION 138+00, 100.0 FEET RIGHT OF TRUNK HIGHWAY 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>		
1573.081	.033	3							VERTICAL CONTROL SURVEY	1955	CS5104	

Geoid Separations(ft): GEOID18 = -87.460 12B = -87.444 09 = -87.362 03 = -87.175

* No Horizontal Positions in the Database *



Mn/DOT Name: 5104 E

NGS Name: 5104 E

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 43095414/
 USGS Quad: AVOCA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	40 W	435811.00	954135.00		

<u>Year Set</u>	<u>Last Recovery</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	2015	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:

3.52 MILES SOUTHEAST OF SLAYTON, 0.1 MILE EAST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND MAPLE AVENUE, THEN 3.5 MILES SOUTHEAST ON TRUNK HIGHWAY 59, AT TRUNK HIGHWAY 59 STATION 194+00, 150.0 FEET LEFT OF TRUNK HIGHWAY 59.

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>	
1545.870	.033	3				VERTICAL CONTROL SURVEY	1955	CS5104	

Geoid Separations(ft): GEOID18 = -87.556 12B = -87.539 09 = -87.454 03 = -87.260

* No Horizontal Positions in the Database *



Mn/DOT Name: 5104 M

NGS Name: 5104 M

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 43095411/
 USGS Quad: LIME CREEK

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	40 W	435543.00	953644.00		

<u>Year Set</u>	<u>Last Recovery</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	2015	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:

2.07 MILES SOUTHEAST OF AVOCA, 2.0 MILES SOUTHEAST ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND SOUTHWEST 4TH STREET, AT TRUNK HIGHWAY 59 STATION 461+00, 100.0 FEET RIGHT OF TRUNK HIGHWAY 59.

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>	
1523.580	.033	3				VERTICAL CONTROL SURVEY	1955	CS5104	

Geoid Separations(ft): GEOID18 = -87.916 12B = -87.903 09 = -87.789 03 = -87.595

* No Horizontal Positions in the Database *



Mn/DOT Name: 5104 N

NGS Name: 5104 N

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DL5411](#) [Get Map](#)
NGS Quad / Sta Num : 43095412/
USGS Quad: FULDA

				Reference	Reference	Vert	Horz
1/4	Sec	Twp	Rng	Latitude	Longitude	Order	Order
SE	36	105 N	40 W	435116.67	953532.70	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1980	2018	GOOD	Horz=NO Vert=NO	YES	8237	FLUSH	NO MAG MATERIAL

Monument Type	Disk Type	Mon. Agency
CULVERT - ANY SIZE, ANY TYPE	BENCH MARK DISK	MNDT

Description: (2006) **Stamping:** 5104 N 2006

1.0 MILE SOUTH OF FULDA, IN A CULVERT IN THE SOUTHEAST CORNER OF TRUNK HIGHWAY 59 CULVERT NUMBER 8237 OVER FULDA FIRST LAKE OUTLET, 1.05 MILES SOUTH ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 62/COUNTY ROAD 2 IN FULDA, AT TRUNK HIGHWAY 59 MILEPOINT 27.15, 58.0 FEET EAST OF TRUNK HIGHWAY 59.

Station Notes

THE SURVEY MARK IS A BOX CULVERT AND UNSUITABLE FOR MNDOT GEODETIC SURVEYS.

Leveling-Derived Orthometric Heights (Feet)

NAVD88				Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference	
1500.000	.016	2/1				VERTICAL ADJUSTMENT	2013	00000792	
1500.000	.016	2/1				VERTICAL CONTROL SURVEY	2012	VFULD	
1500.000	.016	2/1				VERTICAL ADJUSTMENT	2010	00000628	
1499.997	.016	2/1				VERTICAL CONTROL SURVEY	2007	VSLAT	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88				Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference	
1499.964	.262		1412.071	.197	2011	GPS - RTRN	2018	RTRN2018	
1499.892	.262		1412.117	.197	2007	GPS - RTRN	2011	RTRN2011	

Geoid Separations(ft): GEOID18 = -87.923 12B = -87.894 09 = -87.772 03 = -87.598

Lat/Lon and County Coordinates (Feet)

NAD83(2011)				Murray County			Project Info			
Geodetic Position				X	Y	Acc	Order	Determination Method	Year	Reference
Latitude	Longitude									
43 51 16.66638	95 35 32.70479			545967.710	102445.207	.131	3	GPS - RTRN	2018	RTRN2018

NAD83(2007)				Murray County			Project Info			
Geodetic Position				X	Y	Acc	Order	Determination Method	Year	Reference
Latitude	Longitude									
43 51 16.66607	95 35 32.70476			545967.712	102445.175	.131	3	GPS - RTRN	2011	RTRN2011

State Plane and UTM Coordinates (Feet)

NAD83(2011)				UTM - Zone 15			Project Info			
MN State Plane - South Zone				X	Y	Acc	Order	Determination Method	Year	Reference
X	Y									
2204643.748	643723.394			956840.074	15941549.363	.131	3	GPS - RTRN	2018	RTRN2018

NAD83(2007)				UTM - Zone 15			Project Info			
MN State Plane - South Zone				X	Y	Acc	Order	Determination Method	Year	Reference
X	Y									
2204643.749	643723.363			956840.075	15941549.332	.131	3	GPS - RTRN	2011	RTRN2011

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5104_N-DL5411-3E-24APR2018.jpg	E	Apr 24, 2018
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5104_N-DL5411-2-24APR2018.jpg		Apr 24, 2018
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5104_N-DL5411-1-24APR2018.jpg		Apr 24, 2018

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



Mn/DOT Name: 5104 P

NGS Name: 5104 P

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DL5412](#) [Get Map](#)
 NGS Quad / Sta Num : 43095412/
 USGS Quad: FULDA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	40 W	435211.60	953531.84	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>
2006	2021	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 25 FT)	SURVEY DISK	MNDT

Description: (2006) Stamping: 5104 P 2006

IN FULDA, AT THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 62/COUNTY ROAD 2 IN FULDA, AT HIGHWAY 59 MILEPOINT 28.20, 86.9 FEET EAST OF TRUNK HIGHWAY 59, 64.7 FEET NORTH OF TRUNK HIGHWAY 62, 49.6 FEET EAST-NORTHEAST OF A STREET LIGHT POWER POLE, 1.5 FEET WEST OF A WITNESS POST.

Station Pair: KELLY - MURRAY, 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>					
1504.193	.016	2/1				2020	00000949	VERTICAL ADJUSTMENT				
1504.193	.016	2/1				2017	00000903	VERTICAL ADJUSTMENT				
1504.193	.016	2/1				2015	VGARV	VERTICAL CONTROL SURVEY				
1504.193	.016	2/1				2013	00000792	VERTICAL ADJUSTMENT				
1504.193	.016	2/1				2012	VFULD	VERTICAL CONTROL SURVEY				
1504.193	.016	2/1				2010	00000628	VERTICAL ADJUSTMENT				
1504.190	.016	2/1				2007	VSLAT	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>					
1504.114	.262		1416.145	.197	2011	2021	GPSBM	GPS - OPUS				
1504.174	.262		1416.227	.197	2011	2015	RTRN2015	GPS - RTRN				
1504.193			1416.145	.015	2011	2014	GPS2962	HORIZONTAL ADJUSTMENT				
1504.193			1416.145	.015	2011	2014	HFULD	GPS - STATIC				
1504.193	.131		1416.559	.066	1996	2013	HFULD	GPS - STATIC				
1504.082	.262		1416.260	.197	2007	2011	RTRN2011	GPS - RTRN				

Geoid Separations(ft): GEOID18 = -87.969 12B = -87.946 09 = -87.821 03 = -87.634

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Murray 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>								
43 52 11.60022	95 35 31.84130	546019.208	108008.299	.131	3	GPS - OPUS	2021	GPSBM	
43 52 11.59968	95 35 31.84089	546019.238	108008.245	.131	3	GPS - RTRN	2015	RTRN2015	
43 52 11.59990	95 35 31.84085	546019.241	108008.267	.013		ADJUSTMENT	2014	GPS2962	
43 52 11.59990	95 35 31.84085	546019.241	108008.267	.013	C	GPS - STATIC	2014	HFULD	

<u>NAD83(2007)</u>		<u>Murray 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>								
43 52 11.59954	95 35 31.84099	546019.231	108008.231	.131	3	GPS - RTRN	2011	RTRN2011	

<u>NAD83(1996)</u>		<u>Murray 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>								
43 52 11.59919	95 35 31.84083	546019.243	108008.195	.033	C	GPS - STATIC	2013	HFULD	

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2204815.344	649283.555	957077.762	15947107.926	.131	3	GPS - OPUS	2021	GPSBM
2204815.373	649283.500	957077.791	15947107.870	.131	3	GPS - RTRN	2015	RTRN2015
2204815.376	649283.522	957077.794	15947107.892	.013		ADJUSTMENT	2014	GPS2962
2204815.376	649283.522	957077.794	15947107.892	.013	C	GPS - STATIC	2014	HFULD

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2204815.365	649283.486	957077.783	15947107.856	.131	3	GPS - RTRN	2011	RTRN2011

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2204815.376	649283.450	957077.794	15947107.821	.033	C	GPS - STATIC	2013	HFULD

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5104_P-DL5412-3E-28APR2021.jpg	E	Apr 28, 2021
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5104_P-DL5412-2-28APR2021.jpg		Apr 28, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5104_P-DL5412-1-28APR2021.jpg		Apr 28, 2021

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



Mn/DOT Name: 5104 Q

NGS Name: 5104 Q

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DL5413](#) [Get Map](#)
 NGS Quad / Sta Num : 43095411/
 USGS Quad: LIME CREEK

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	40 W	435303.89	953532.05	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>
2006	2018	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 20 FT)	SURVEY DISK	MNDT

Description: (2011) **Stamping:** 5104 Q 2006

1.0 MILE NORTH OF FULDA, 1.0 MILE NORTH ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59/TRUNK HIGHWAY 62 AND COUNTY ROAD 2 IN FULDA, 117.7 FEET NORTHEAST OF TRUNK HIGHWAY 59, AT TRUNK HIGHWAY 59 MILEPOINT 29.2, 71.1 FEET NORTH OF ENTRANCE NUMBER 250 TO THE SEWAGE PONDS, 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>		
1505.804	.016	2/1				VERTICAL ADJUSTMENT	2020	00000949		
1505.804	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903		
1505.804	.016	2/1				VERTICAL CONTROL SURVEY	2015	VGARV		
1505.804	.016	2/1				VERTICAL ADJUSTMENT	2013	00000792		
1505.804	.016	2/1				VERTICAL CONTROL SURVEY	2012	VFULD		
1505.804	.016	2/1				VERTICAL ADJUSTMENT	2010	00000628		
1505.801	.016	2/1				VERTICAL CONTROL SURVEY	2007	VSLAT		

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>		
1505.834	.262		1417.851	.197	2011	GPS - RTRN	2015	RTRN2015		
1505.804			1417.750	.014	2011	HORIZONTAL ADJUSTMENT	2014	GPS2962		
1505.804			1417.750	.014	2011	GPS - STATIC	2014	HFULD		
1505.804	.131		1418.143	.066	1996	GPS - STATIC	2013	HFULD		
1505.650	.262		1417.799	.197	2007	GPS - RTRN	2011	RTRN2011		

Geoid Separations(ft): GEOID18 = -87.995 12B = -87.982 09 = -87.854 03 = -87.661

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>									
43 53 03.89441	95 35 32.04603			545993.002	113303.928	.131	3	GPS - RTRN	2015	RTRN2015
43 53 03.89417	95 35 32.04573			545993.024	113303.903	.013		ADJUSTMENT	2014	GPS2962
43 53 03.89417	95 35 32.04573			545993.024	113303.903	.013	C	GPS - STATIC	2014	HFULD

<u>NAD83(2007)</u>				<u>Murray 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>									
43 53 03.89495	95 35 32.04661			545992.959	113303.982	.131	3	GPS - RTRN	2011	RTRN2011

<u>NAD83(1996)</u>				<u>Murray 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>									
43 53 03.89359	95 35 32.04572			545993.025	113303.845	.033	C	GPS - STATIC	2013	HFULD



State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2204903.485	654578.006	957228.877	15952401.762	.131	3	GPS - RTRN	2015	RTRN2015
2204903.507	654577.982	957228.898	15952401.737	.013		ADJUSTMENT	2014	GPS2962
2204903.507	654577.982	957228.898	15952401.737	.013	C	GPS - STATIC	2014	HFULD

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2204903.444	654578.062	957228.836	15952401.818	.131	3	GPS - RTRN	2011	RTRN2011

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2204903.506	654577.923	957228.897	15952401.678	.033	C	GPS - STATIC	2013	HFULD

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5104_Q-DL5413-3NE-10JUN2015.jpg	NE	Jun 10, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5104_Q-DL5413-2-10JUN2015.jpg		Jun 10, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5104_Q-DL5413-1-10JUN2015.jpg		Jun 10, 2015

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



Mn/DOT Name: 5104 R

NGS Name: 5104 R

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DL5414](#) [Get Map](#)
 NGS Quad / Sta Num : 43095411/
 USGS Quad: LIME CREEK

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	40 W	435359.20	953607.88	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>
1996	2015	GOOD	Horz=NO Vert=NO	YES	51002	FLUSH	NO MAG MATERIAL

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

Description: (2006) Stamping: 5104 R 2006

2.0 MILES NORTH OF FULDA, IN A BRIDGE RAILING IN THE SOUTHEAST CORNER OF TRUNK HIGHWAY 59 BRIDGE NUMBER 51002 OVER LIME CREEK, 2.25 MILES NORTH AND NORTHWEST ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 62/ COUNTY ROAD 2 IN FULDA, AT TRUNK HIGHWAY 59 MILEPOINT 30.40, 23.0 FEET EAST OF TRUNK HIGHWAY 59. THE DISK WAS SET IN THE BRIDGE WHEN BUILT IN 1996, AND THEN STAMPED WHEN USED IN 2006.

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>
1497.992	.016	2/1					VERTICAL ADJUSTMENT	2013	00000792
1497.992	.016	2/1					VERTICAL CONTROL SURVEY	2012	VFULD
1497.973	.016	2/1					VERTICAL ADJUSTMENT	2010	00000628
1497.973	.016	2/1					VERTICAL CONTROL SURVEY	2007	VSLAT

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>
1497.828	.262			1410.004	.197	2007	GPS - RTRN	2011	RTRN2011

Geoid Separations(ft): GEOID18 = -87.962 12B = -87.953 09 = -87.825 03 = -87.631

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2007)</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 53 59.20362	95 36 07.88106	543357.176	118899.525	.131	3	GPS - RTRN	2011	RTRN2011

State Plane and UTM Coordinates (Feet)

<u>NAD83(2007)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South 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>							
2202389.351	660228.662	954781.773	15958082.825	.131	3	GPS - RTRN	2011	RTRN2011

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5104_R-DL5414-3E-17MAY2011.jpg	E	May 17, 2011
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5104_R-DL5414-2-17MAY2011.jpg		May 17, 2011
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5104_R-DL5414-1-17MAY2011.jpg		May 17, 2011

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



Mn/DOT Name: 5104 S

NGS Name: 5104 S

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DL5415](#) [Get Map](#)
 NGS Quad / Sta Num : 43095411/
 USGS Quad: LIME CREEK

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	12	105 N	40 W	435448.07	953607.35	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2006	2025	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

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

Description: (2006) Stamping: 5104 S 2006

3.0 MILES NORTH OF FULDA, 3.20 MILES NORTH ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 62/COUNTY ROAD 2 IN FULDA, AT HIGHWAY 59 MILEPOINT 31.30, 73.5 FEET EAST OF TRUNK HIGHWAY 59, 22.5 FEET SOUTH OF A FIELD ENTRANCE, 1.1 FEET WEST OF A WITNESS POST.

Station Pair: KRIS - MURRAY, MN

Leveling-Derived Orthometric Heights (Feet)

NAVD88			Orthometric Height			Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method			Year	Reference
1513.576	.016	2/1				VERTICAL ADJUSTMENT			2017	00000903
1513.576	.016	2/1				VERTICAL CONTROL SURVEY			2015	VGARV
1513.576	.016	2/1				VERTICAL ADJUSTMENT			2010	00000628
1513.576	.016	2/1				VERTICAL CONTROL SURVEY			2007	VSLAT

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
1513.639	.262		1425.673	.197	2011	GPS - RTRN			2025	RTRN2025
1513.576			1425.621	.019	2011	HORIZONTAL ADJUSTMENT			2016	GPS3142
1513.576	.131		1425.758	.066	1996	GPS - STATIC			2016	HGARV
1513.576			1425.621	.019	2011	GPS - STATIC			2016	HGARV
1513.517	.262		1425.565	.197	2011	GPS - RTRN			2015	RTRN2015

Geoid Separations(ft): GEOID18 = -87.966 12B = -87.956 09 = -87.831 03 = -87.638

Lat/Lon and County Coordinates (Feet)

NAD83(2011)		Geodetic Position		Murray County				Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method		Year	Reference
43 54 48.06823	95 36 07.35132	543386.082	123847.980	.131	3	GPS - RTRN		2025	RTRN2025
43 54 48.06792	95 36 07.35114	543386.095	123847.949	.010		ADJUSTMENT		2016	GPS3142
43 54 48.06792	95 36 07.35114	543386.095	123847.949	.010	C	GPS - STATIC		2016	HGARV
43 54 48.06868	95 36 07.35031	543386.155	123848.026	.131	3	GPS - RTRN		2015	RTRN2015

NAD83(1996)		Geodetic Position		Murray County				Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method		Year	Reference
43 54 48.06770	95 36 07.35186	543386.042	123847.927	.033	C	GPS - STATIC		2016	HGARV

State Plane and UTM Coordinates (Feet)

NAD83(2011)		MN State Plane - South Zone		UTM - Zone 15		Project Info					
X	Y	X	Y	X	Y	Acc	Order	Determination Method		Year	Reference
2202525.095	665174.845	954976.430	15963027.839	.131	3	GPS - RTRN		2025	RTRN2025		
2202525.107	665174.813	954976.442	15963027.807	.010		ADJUSTMENT		2016	GPS3142		
2202525.107	665174.813	954976.442	15963027.807	.010	C	GPS - STATIC		2016	HGARV		
2202525.169	665174.889	954976.505	15963027.882	.131	3	GPS - RTRN		2015	RTRN2015		

NAD83(1996)		MN State Plane - South Zone		UTM - Zone 15		Project Info					
X	Y	X	Y	X	Y	Acc	Order	Determination Method		Year	Reference
2202525.054	665174.792	954976.389	15963027.787	.033	C	GPS - STATIC		2016	HGARV		



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5104_S-DL5415-3E-05AUG2025.jpg	E	Aug 5, 2025
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5104_S-DL5415-2-05AUG2025.jpg		Aug 5, 2025
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5104_S-DL5415-1-05AUG2025.jpg		Aug 5, 2025

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



Mn/DOT Name: 5104 T

NGS Name: 5104 T

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DL5417](#) [Get Map](#)
 NGS Quad / Sta Num : 43095411/
 USGS Quad: LIME CREEK

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>					
<u>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	105 N	40 W	435556.90	953707.00	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>				
2006	2025	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 25 FT)	SURVEY DISK	MNDT

Description: (2006) Stamping: 5104 T 2006

1.5 MILES SOUTHEAST OF AVOCA, 1.75 MILES SOUTHEAST ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND COUNTY ROAD 6 IN AVOCA, AT TRUNK HIGHWAY 59 MILEPOINT 32.95, 75.5 FEET NORTHEAST OF TRUNK HIGHWAY 59, 24.1 FEET NORTHWEST OF A FIELD ENTRANCE, 1.3 FEET SOUTHWEST 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>	
1535.456	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903	
1535.456	.016	2/1				VERTICAL CONTROL SURVEY	2015	VGARV	
1535.456	.016	2/1				VERTICAL ADJUSTMENT	2010	00000628	
1535.460	.016	2/1				VERTICAL CONTROL SURVEY	2007	VSLAT	

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>	
1535.446	.262		1447.559	.197	2011	GPS - RTRN	2025	RTRN2025	
1535.456			1447.556	.017	2011	HORIZONTAL ADJUSTMENT	2016	GPS3142	
1535.456	.131		1447.694	.066	1996	GPS - STATIC	2016	HGARV	
1535.456			1447.556	.017	2011	GPS - STATIC	2016	HGARV	
1535.371	.262		1447.497	.197	2011	GPS - RTRN	2015	RTRN2015	

Geoid Separations(ft): GEOID18 = -87.890 12B = -87.874 09 = -87.762 03 = -87.569

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 55 56.89738	95 37 06.99656	539007.111	130809.845	.131	3	GPS - RTRN	2025	RTRN2025
43 55 56.89738	95 37 06.99644	539007.120	130809.845	.007		ADJUSTMENT	2016	GPS3142
43 55 56.89738	95 37 06.99644	539007.120	130809.845	.007	C	GPS - STATIC	2016	HGARV
43 55 56.89806	95 37 06.99654	539007.113	130809.914	.131	3	GPS - RTRN	2015	RTRN2015

<u>NAD83(1996)</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 55 56.89715	95 37 06.99709	539007.072	130809.822	.033	C	GPS - STATIC	2016	HGARV

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2198297.921	672228.929	950832.911	15970132.979	.131	3	GPS - RTRN	2025	RTRN2025
2198297.930	672228.929	950832.920	15970132.978	.007		ADJUSTMENT	2016	GPS3142
2198297.930	672228.929	950832.920	15970132.978	.007	C	GPS - STATIC	2016	HGARV
2198297.924	672228.998	950832.915	15970133.047	.131	3	GPS - RTRN	2015	RTRN2015

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2198297.881	672228.906	950832.872	15970132.956	.033	C	GPS - STATIC	2016	HGARV



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5104_T-DL5417-3NE-05AUG2025.jpg	NE	Aug 5, 2025
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5104_T-DL5417-2-05AUG2025.jpg		Aug 5, 2025
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5104_T-DL5417-1-05AUG2025.jpg		Aug 5, 2025

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



Mn/DOT Name: 5104 U

NGS Name: 5104 U

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DL5418](#) [Get Map](#)
 NGS Quad / Sta Num : 43095414/
 USGS Quad: AVOCA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	40 W	435631.82	953802.27	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>
2006	2025	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 25 FT)	SURVEY DISK	MNDT

Description: (2006) Stamping: 5104 U 2006

0.5 MILE SOUTHEAST OF AVOCA, 0.75 MILE SOUTHEAST ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND COUNTY ROAD 6 IN AVOCA, AT TRUNK HIGHWAY 59 MILEPOINT 33.95, 82.0 FEET SOUTHWEST OF TRUNK HIGHWAY 59, 3.5 FEET SOUTHWEST OF A CABLE MARKER POST, 1.8 FEET NORTHEAST 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)

<u>NAVD88</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>		
1528.475	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903		
1528.475	.016	2/1				VERTICAL CONTROL SURVEY	2015	VGARV		
1528.475	.016	2/1				VERTICAL ADJUSTMENT	2010	00000628		
1528.478	.016	2/1				VERTICAL CONTROL SURVEY	2007	VSLAT		

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>		
1528.462	.262		1440.640	.197	2011	GPS - RTRN	2025	RTRN2025		
1528.475			1440.643	.017	2011	HORIZONTAL ADJUSTMENT	2016	GPS3142		
1528.475	.131		1440.778	.066	1996	GPS - STATIC	2016	HGARV		
1528.475			1440.643	.017	2011	GPS - STATIC	2016	HGARV		
1528.396	.262		1440.591	.197	2011	GPS - RTRN	2015	RTRN2015		

Geoid Separations(ft): GEOID18 = -87.825 12B = -87.808 09 = -87.700 03 = -87.506

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Murray 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>	
43 56 31.82323	95 38 02.26583	534956.616	134339.814	.131	3	GPS - RTRN	2025	RTRN2025	
43 56 31.82350	95 38 02.26608	534956.597	134339.841	.007		ADJUSTMENT	2016	GPS3142	
43 56 31.82350	95 38 02.26608	534956.597	134339.841	.007	C	GPS - STATIC	2016	HGARV	
43 56 31.82343	95 38 02.26635	534956.578	134339.834	.131	3	GPS - RTRN	2015	RTRN2015	

<u>NAD83(1996)</u>		<u>Murray 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>	
43 56 31.82327	95 38 02.26673	534956.550	134339.818	.033	C	GPS - STATIC	2016	HGARV	

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Murray County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - South Zone</u>		<u>UTM - Zone 15</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>						
2194325.020	675845.174	946902.712	15973796.975	.131	3	GPS - RTRN	2025	RTRN2025	
2194325.003	675845.202	946902.694	15973797.003	.007		ADJUSTMENT	2016	GPS3142	
2194325.003	675845.202	946902.694	15973797.003	.007	C	GPS - STATIC	2016	HGARV	
2194324.983	675845.195	946902.674	15973796.997	.131	3	GPS - RTRN	2015	RTRN2015	

<u>NAD83(1996)</u>		<u>Murray County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - South Zone</u>		<u>UTM - Zone 15</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>						
2194324.955	675845.179	946902.646	15973796.981	.033	C	GPS - STATIC	2016	HGARV	



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5104_U-DL5418-3SW-05AUG2025.jpg	SW	Aug 5, 2025
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5104_U-DL5418-2-05AUG2025.jpg		Aug 5, 2025
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5104_U-DL5418-1-05AUG2025.jpg		Aug 5, 2025

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



Mn/DOT Name: 5104 V

NGS Name: 5104 V

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DL5419](#) [Get Map](#)
 NGS Quad / Sta Num : 43095414/
 USGS Quad: AVOCA

				Reference	Reference	Vert	Horz
1/4	Sec	Twp	Rng	Latitude	Longitude	Order	Order
SE	28	106 N	40 W	435701.11	953844.22	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2006	2025	POOR	Horz=NO Vert=YES	YES		RECESSED 1 IN.	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 15 FT)	SURVEY DISK	MNDT

Description: (2006) **Stamping:** 5104 V 2006

IN AVOCA, 0.1 MILE NORTHWEST ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND COUNTY ROAD 6 IN AVOCA, AT TRUNK HIGHWAY 59 MILEPOINT 34.80, 51.3 FEET SOUTHWEST OF TRUNK HIGHWAY 59, 4.0 FEET NORTHEAST OF THE NORTHEAST CORNER OF A CHAIN LINK FENCE OF A BALL FIELD, 3.4 FEET NORTHEAST OF A WITNESS POST.

Station Notes

THE DISK IS MISSING AND NEEDS TO BE RESET IN THE FUTURE.

Leveling-Derived Orthometric Heights (Feet)

NAVD88				Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference	
1536.004	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903	
1536.004	.016	2/1				VERTICAL CONTROL SURVEY	2015	VGARV	
1536.004	.016	2/1				VERTICAL ADJUSTMENT	2010	00000628	
1536.007	.016	2/1				VERTICAL CONTROL SURVEY	2007	VSLAT	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88				Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference	
1535.860	.262		1448.091	.197	2011	GPS - RTRN	2025	RTRN2025	
1535.916	.262		1448.163	.197	2011	GPS - RTRN	2015	RTRN2015	

Geoid Separations(ft): GEOID18 = -87.769 12B = -87.752 09 = -87.654 03 = -87.460

Lat/Lon and County Coordinates (Feet)

NAD83(2011)		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 57 01.10765	95 38 44.22288	531882.194	137300.656	.131	3	GPS - RTRN	2025	RTRN2025
43 57 01.10751	95 38 44.22137	531882.305	137300.642	.131	3	GPS - RTRN	2015	RTRN2015

State Plane and UTM Coordinates (Feet)

NAD83(2011)		UTM - Zone 15				Project Info		
MN State Plane - South Zone		X	Y	Acc	Order	Determination Method	Year	Reference
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2191315.583	678871.407	943929.031	15976859.443	.131	3	GPS - RTRN	2025	RTRN2025
2191315.693	678871.391	943929.141	15976859.425	.131	3	GPS - RTRN	2015	RTRN2015

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5104_V-DL5419-3SW-05AUG2025.jpg	SW	Aug 5, 2025
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5104_V-DL5419-2-05AUG2025.jpg		Aug 5, 2025
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5104_V-DL5419-1-05AUG2025.jpg		Aug 5, 2025

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



Mn/DOT Name: 5104 W

NGS Name: 5104 W

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DL5420](#) [Get Map](#)
 NGS Quad / Sta Num : 43095414/
 USGS Quad: AVOCA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	40 W	435749.64	954033.24	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>
2006	2025	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 20 FT)	SURVEY DISK	MNDT

Description: (2006) Stamping: 5104 W 2006

2.0 MILES NORTHWEST OF AVOCA, 1.9 MILES NORTHWEST ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND COUNTY ROAD 6 IN AVOCA, AT TRUNK HIGHWAY 59 MILEPOINT 36.60, 69.8 FEET SOUTH-SOUTHWEST OF TRUNK HIGHWAY 59, 41.0 FEET SOUTH OF 81ST STREET, 19.8 FEET EAST OF A POWER POLE, 2.5 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>		
1539.508	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903		
1539.508	.016	2/1				VERTICAL CONTROL SURVEY	2015	VGARV		
1539.508	.016	2/1				VERTICAL ADJUSTMENT	2010	00000628		
1539.508	.016	2/1				VERTICAL CONTROL SURVEY	2007	VSLAT		

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>		
1539.557	.262		1451.923	.197	2011	GPS - RTRN	2025	RTRN2025		
1539.508			1451.880	.020	2011	HORIZONTAL ADJUSTMENT	2016	GPS3142		
1539.508	.131		1452.031	.066	1996	GPS - STATIC	2016	HGARV		
1539.508			1451.880	.020	2011	GPS - STATIC	2016	HGARV		
1539.482	.262		1451.867	.197	2011	GPS - RTRN	2015	RTRN2015		

Geoid Separations(ft): GEOID18 = -87.634 12B = -87.615 09 = -87.529 03 = -87.333

Lat/Lon and County Coordinates (Feet)

<u>Geodetic Position</u>		<u>Murray 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>	
43 57 49.64312	95 40 33.23996	523900.911	142205.496	.131	3	GPS - RTRN	2025	RTRN2025	
43 57 49.64315	95 40 33.23992	523900.913	142205.499	.010		ADJUSTMENT	2016	GPS3142	
43 57 49.64315	95 40 33.23992	523900.913	142205.499	.010	C	GPS - STATIC	2016	HGARV	
43 57 49.64325	95 40 33.23931	523900.958	142205.509	.131	3	GPS - RTRN	2015	RTRN2015	

<u>Geodetic Position</u>		<u>Murray 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>	
43 57 49.64286	95 40 33.24040	523900.878	142205.470	.033	C	GPS - STATIC	2016	HGARV	

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 - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
X	Y								
2183442.950	683946.957	936115.992	15982029.546	.131	3	GPS - RTRN	2025	RTRN2025	
2183442.953	683946.960	936115.995	15982029.549	.010		ADJUSTMENT	2016	GPS3142	
2183442.953	683946.960	936115.995	15982029.549	.010	C	GPS - STATIC	2016	HGARV	
2183442.997	683946.969	936116.040	15982029.558	.131	3	GPS - RTRN	2015	RTRN2015	

<u>NAVD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
X	Y								
2183442.917	683946.931	936115.959	15982029.521	.033	C	GPS - STATIC	2016	HGARV	



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5104_W-DL5420-3S-05AUG2025.jpg	S	Aug 5, 2025
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5104_W-DL5420-2-05AUG2025.jpg		Aug 5, 2025
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5104_W-DL5420-1-05AUG2025.jpg		Aug 5, 2025

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



Mn/DOT Name: 5104 X

NGS Name: 5104 X

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DL5421](#) [Get Map](#)
 NGS Quad / Sta Num : 43095414/
 USGS Quad: AVOCA

<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	19	106 N	40 W	435810.87	954135.73	2	C	2006	2025	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 20 FT)	SURVEY DISK	MNDT

Description: (2006) **Stamping:** 5104 X 2006

3.0 MILES NORTHWEST OF AVOCA, 2.8 MILES NORTHWEST ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND COUNTY ROAD 6 IN AVOCA, AT TRUNK HIGHWAY 59 MILEPOINT 37.60, 102.6 FEET NORTHEAST OF TRUNK HIGHWAY 59, 5.0 FEET WEST-NORTHWEST OF 185TH AVENUE EXTENDED.

Station Pair: LIME - MURRAY, MN

Station Notes

NO WITNESS POST, THE SURVEY MARK IS IN A MOWED AREA. THE SURVEY MARK IS ON PRIVATE 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 (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>					
1545.601	.016	2/1				2017	00000903	VERTICAL ADJUSTMENT				
1545.601	.016	2/1				2015	VGARV	VERTICAL CONTROL SURVEY				
1545.601	.016	2/1				2010	00000628	VERTICAL ADJUSTMENT				
1545.604	.016	2/1				2007	VSLAT	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>					
1545.660	.262		1458.104	.197	2011	2025	RTRN2025	GPS - RTRN				
1545.601			1458.061	.017	2011	2016	GPS3142	HORIZONTAL ADJUSTMENT				
1545.601	.131		1458.225	.066	1996	2016	HGARV	GPS - STATIC				
1545.601			1458.061	.017	2011	2016	HGARV	GPS - STATIC				
1545.564	.262		1458.025	.197	2011	2015	RTRN2015	GPS - RTRN				

Geoid Separations(ft): GEOID18 = -87.556 12B = -87.539 09 = -87.454 03 = -87.260

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Murray 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>							
43 58 10.86743	95 41 35.72935	519328.202	144350.290	.131	3	GPS - RTRN	2025	RTRN2025
43 58 10.86737	95 41 35.72936	519328.201	144350.284	.007		ADJUSTMENT	2016	GPS3142
43 58 10.86737	95 41 35.72936	519328.201	144350.284	.007	C	GPS - STATIC	2016	HGARV
43 58 10.86738	95 41 35.72982	519328.167	144350.285	.131	3	GPS - RTRN	2015	RTRN2015

<u>NAD83(1996)</u>		<u>Murray 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>							
43 58 10.86706	95 41 35.72981	519328.168	144350.253	.033	C	GPS - STATIC	2016	HGARV

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2178918.132	686189.790	931617.336	15984326.682	.131	3	GPS - RTRN	2025	RTRN2025
2178918.131	686189.784	931617.335	15984326.676	.007		ADJUSTMENT	2016	GPS3142
2178918.131	686189.784	931617.335	15984326.676	.007	C	GPS - STATIC	2016	HGARV
2178918.098	686189.786	931617.302	15984326.678	.131	3	GPS - RTRN	2015	RTRN2015

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2178918.098	686189.753	931617.301	15984326.646	.033	C	GPS - STATIC	2016	HGARV

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5104_X-DL5421-3NE-05AUG2025.jpg	NE	Aug 5, 2025
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5104_X-DL5421-2-05AUG2025.jpg		Aug 5, 2025
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5104_X-DL5421-1-05AUG2025.jpg		Aug 5, 2025

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



Mn/DOT Name: 5104 Y

NGS Name: 5104 Y

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DK2713](#) [Get Map](#)
 NGS Quad / Sta Num : 43095414/
 USGS Quad: AVOCA

<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	106 N	41 W	435841.80	954403.74	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	2021	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: (2006) Stamping: 5104 Y 2006

1.5 MILES SOUTHEAST OF SLAYTON, 1.4 MILES SOUTHEAST ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 30 IN SLAYTON, AT TRUNK HIGHWAY 59 MILEPOINT 39.7, 72.5 FEET SOUTH OF TRUNK HIGHWAY 59, 37.3 FEET EAST OF A DRIVEWAY TO THE SLAYTON TRUCK STATION, 1.6 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>		
1587.959	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903		
1587.966	.016	2/1				VERTICAL CONTROL SURVEY	2015	VGARV		
1587.927	.016	2/1				VERTICAL ADJUSTMENT	2010	00000628		
1587.927	.016	2/1				VERTICAL CONTROL SURVEY	2007	VSLAT		

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>		
1587.779	.262		1500.430	.197	2011	GPS - OPUS	2021	GPSBM		
1587.900	.262		1500.568	.197	2011	GPS - RTRN	2015	RTRN2015		
			1500.561	.012	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800		
1587.884	.262		1500.630	.197	2007	GPS - RTRN	2012	RTRN2012		
			1500.653	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2386-B		
1587.923	.131		1500.794	.066	1996	HORIZONTAL ADJUSTMENT	2007	GPS2386		
1587.923	.131		1500.794	.066	1996	GPS - STATIC	2007	HSLAT		

Geoid Separations(ft): GEOID18 = -87.349 12B = -87.333 09 = -87.254 03 = -87.070

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>									
43 58 41.79731	95 44 03.74190			508501.648	147475.565	.131	3	GPS - OPUS	2021	GPSBM
43 58 41.79809	95 44 03.74074			508501.732	147475.644	.131	3	GPS - RTRN	2015	RTRN2015
43 58 41.79717	95 44 03.74108			508501.707	147475.551	.007		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>				<u>Murray 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>									
43 58 41.79773	95 44 03.74190			508501.648	147475.607	.131	3	GPS - RTRN	2012	RTRN2012
43 58 41.79710	95 44 03.74193			508501.645	147475.544	.033	C	ADJUSTMENT	2011	GPS2386-B

<u>NAD83(1996)</u>				<u>Murray 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>									
43 58 41.79662	95 44 03.74127			508501.694	147475.495	.033	C	ADJUSTMENT	2007	GPS2386
43 58 41.79662	95 44 03.74127			508501.694	147475.495	.033	C	GPS - STATIC	2007	HSLAT

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2168162.805	689547.881	920900.507	15987813.647	.131	3	GPS - OPUS	2021	GPSBM
2168162.892	689547.958	920900.594	15987813.723	.131	3	GPS - RTRN	2015	RTRN2015
2168162.865	689547.866	920900.566	15987813.631	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2168162.806	689547.923	920900.508	15987813.690	.131	3	GPS - RTRN	2012	RTRN2012
2168162.802	689547.860	920900.504	15987813.626	.033	C	ADJUSTMENT	2011	GPS2386-B

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2168162.850	689547.810	920900.550	15987813.575	.033	C	ADJUSTMENT	2007	GPS2386
2168162.850	689547.810	920900.550	15987813.575	.033	C	GPS - STATIC	2007	HSLAT

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5104_Y-DK2713-3S-28APR2021.jpg	S	Apr 28, 2021
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5104_Y-DK2713-2-28APR2021.jpg		Apr 28, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5104_Y-DK2713-1-28APR2021.jpg		Apr 28, 2021

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



Mn/DOT Name: 5104 Z

NGS Name: 5104 Z

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DQ2428](#) [Get Map](#)
 NGS Quad / Sta Num : 43095411/
 USGS Quad: LIME CREEK

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	13	105 N	40 W	435354.79	953607.22	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2015	2025	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 34 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2015) **Stamping:** 5104 Z 2015

2.1 MILES NORTH OF FULDA, 2.1 MILES NORTH ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 62 IN FULDA, AT TRUNK HIGHWAY 59 MILEPOINT 30.3, 68.7 FEET EAST OF TRUNK HIGHWAY 59, 61.1 FEET EAST OF A FIELD ENTRANCE, 4.5 FEET WEST OF A FENCE, 0.3 MILES NORTH OF COUNTY ROAD 39, 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
1490.584	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903
1490.578	.016	2/1				VERTICAL CONTROL SURVEY	2015	VGARV

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1490.604	.262		1402.638	.197	2011	GPS - RTRN	2025	RTRN2025
1490.506	.262		1402.553	.197	2011	GPS - RTRN	2015	RTRN2015

Geoid Separations(ft): GEOID18 = -87.962 12B = -87.953 09 = -87.821 03 = -87.631

Lat/Lon and County Coordinates (Feet)

NAD83(2011)		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 53 54.79044	95 36 07.21707	543406.688	118452.712	.131	3	GPS - RTRN	2025	RTRN2025
43 53 54.79013	95 36 07.21716	543406.682	118452.681	.131	3	GPS - RTRN	2015	RTRN2015

State Plane and UTM Coordinates (Feet)

NAD83(2011)		UTM - Zone 15				Project Info		
MN State Plane - South Zone X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2202429.199	659780.929	954816.295	15957634.578	.131	3	GPS - RTRN	2025	RTRN2025
2202429.192	659780.898	954816.287	15957634.547	.131	3	GPS - RTRN	2015	RTRN2015

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5104_Z-DQ2428-3E-05AUG2025.jpg	E	Aug 5, 2025
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5104_Z-DQ2428-2-05AUG2025.jpg		Aug 5, 2025
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5104_Z-DQ2428-1-05AUG2025.jpg		Aug 5, 2025

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



Mn/DOT Name: 5105 A

NGS Name: 5105 A

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 43095441/
 USGS Quad: SLAYTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	41 W	435944.00	954511.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1946	2006	DESTROYED	Horz=NO Vert=NO	YES			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	SURVEY DISK	MNDT

Description: (1946) Stamping:

IN SLAYTON, THE STATION IS A BRASS PLUG IN THE NORTHEAST HEADWALL OF A TRUNK HIGHWAY 59 BOX CULVERT, AT TRUNK HIGHWAY 59 STATION 15+55=24+68.

Station Notes
 THE BOX CULVERT DOES NOT EXIST ANYMORE.

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>	
1559.039	.033	3					VERTICAL CONTROL SURVEY	1949	CS5105	

Geoid Separations(ft): GEOID18 = -87.270 12B = -87.260 09 = -87.182 03 = -86.995

* No Horizontal Positions in the Database *



Mn/DOT Name: 5105 AA

NGS Name: 5105 AA

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DQ2409](#) [Get Map](#)
 NGS Quad / Sta Num : 44095324/
 USGS Quad: TRACY WEST

				Reference	Reference	Vert	Horz
1/4	Sec	Twp	Rng	Latitude	Longitude	Order	Order
NW	2	108 N	41 W	441122.80	954436.99	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2015	2016	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: (2015) **Stamping:** 5105 AA 2015

1.6 MILES SOUTH OF GARVIN, 1.6 MILES SOUTH ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND COUNTY ROAD 14 EAST IN GARVIN, AT TRUNK HIGHWAY 59 MILEPOINT 54.95, 86.3 FEET EAST OF TRUNK HIGHWAY 59, 21.2 FEET SOUTH OF A FIELD ENTRANCE, 0.45 MILE SOUTHEAST OF LYON MURRAY ROAD, 5.0 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
1537.280	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903
1537.280	.016	2/1				VERTICAL CONTROL SURVEY	2015	VGARV

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1537.280			1449.751	.018	2011	HORIZONTAL ADJUSTMENT	2016	GPS3142
1537.280	.131		1449.902	.066	1996	GPS - STATIC	2016	HGARV
1537.280			1449.751	.018	2011	GPS - STATIC	2016	HGARV
1537.248	.262		1449.666	.197	2011	GPS - RTRN	2015	RTRN2015

Geoid Separations(ft): GEOID18 = -87.565 12B = -87.579 09 = -87.493 03 = -87.316

Lat/Lon and County Coordinates (Feet)

NAD83(2011)		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 11 22.80152	95 44 36.99293	506048.527	224541.854	.007		ADJUSTMENT	2016	GPS3142
44 11 22.80152	95 44 36.99293	506048.527	224541.854	.007	C	GPS - STATIC	2016	HGARV
44 11 22.80171	95 44 36.99292	506048.528	224541.873	.131	3	GPS - RTRN	2015	RTRN2015

NAD83(1996)		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 11 22.80120	95 44 36.99359	506048.479	224541.822	.033	C	GPS - STATIC	2016	HGARV

State Plane and UTM Coordinates (Feet)

NAD83(2011)		Murray County				Project Info		
MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Year	Reference
X	Y	X	Y					
2167375.608	766639.567	921038.276	16064927.923	.007		ADJUSTMENT	2016	GPS3142
2167375.608	766639.567	921038.276	16064927.923	.007	C	GPS - STATIC	2016	HGARV
2167375.610	766639.586	921038.278	16064927.942	.131	3	GPS - RTRN	2015	RTRN2015

NAD83(1996)		Murray County				Project Info		
MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Year	Reference
X	Y	X	Y					
2167375.560	766639.536	921038.227	16064927.892	.033	C	GPS - STATIC	2016	HGARV

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_AA-DQ2409-3E-07JUL2015.jpg	E	Jul 7, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_AA-DQ2409-2-07JUL2015.jpg		Jul 7, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_AA-DQ2409-1-07JUL2015.jpg		Jul 7, 2015

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



Mn/DOT Name: 5105 B

NGS Name: 5105 B

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DL5423](#) [Get Map](#)
 NGS Quad / Sta Num : 44095332/
 USGS Quad: HADLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	41 W	440032.22	954512.91	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>
1946	2015	GOOD	Horz=NO Vert=NO	YES	NONE	FLUSH	NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CULVERT - ANY SIZE, ANY TYPE	GRAVITY PLUG	MNDT

Description: (2006)

Stamping:

1.0 MILE NORTH OF SLAYTON, 1.15 MILES NORTH ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 30 AT SLAYTON, AT TRUNK HIGHWAY 59 MILEPOINT 42.25, AT TRUNK HIGHWAY 59 STATION 73+41, 36.5 FEET WEST OF TRUNK HIGHWAY 59, STATION 5105 B IS BRASS PLUG IN THE SOUTHWEST CORNER OF A TRUNK HIGHWAY 59 CULVERT.

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>	
1552.713	.016	2/1					VERTICAL ADJUSTMENT	2010	00000628	
1552.713	.016	2/1					VERTICAL CONTROL SURVEY	2007	VSLAT	

<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>	
1552.120	.033	3					VERTICAL CONTROL SURVEY	1949	CS5105	

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>	
1552.618	.262			1465.420	.197	2007	GPS - RTRN	2012	RTRN2012	

Geoid Separations(ft): GEOID18 = -87.287 12B = -87.277 09 = -87.198 03 = -87.008

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2007)</u>		<u>Murray 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>	
44 00 32.21647	95 45 12.91290	503441.581	158656.169	.131	3	GPS - RTRN	2012	RTRN2012	

State Plane and UTM Coordinates (Feet)

<u>NAD83(2007)</u>		<u>UTM - Zone 15</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
2163346.057	700833.949	916217.788	15999159.092	.131	3	GPS - RTRN	2012	RTRN2012	

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_B-DL5423-3W-18OCT2006.jpg	W	Oct 18, 2006
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_B-DL5423-2-18OCT2006.jpg		Oct 18, 2006
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_B-DL5423-1-18OCT2006.jpg		Oct 18, 2006

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



Mn/DOT Name: 5105 D

NGS Name: 5105 D

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP1376](#) [Get Map](#)
 NGS Quad / Sta Num : 43095441/
 USGS Quad: SLAYTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	41 W	435947.82	954513.50	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>
1987	2015	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)	VERTICAL CONTROL DISK	MNDT

Description: (1987) Stamping: 5105 D 1987

0.3 MILE NORTH ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 30 TO THE JUNCTION OF TRUNK HIGHWAY 59 AND MAPLE AVENUE IN SLAYTON, AT TRUNK HIGHWAY 59 MILEPOINT 41.30, 27.5 FEET WEST OF A SERVICE ROAD, 5.5 FEET NORTH-NORTHEAST OF A POWER POLE NUMBER 35, 84.0 FEET WEST OF MAPLE AVENUE SOUTH, 1.1 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>		
1573.977	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903		
1573.986	.016	2/1				VERTICAL CONTROL SURVEY	2015	VGARV		
1573.960	.016	2/1				VERTICAL ADJUSTMENT	2010	00000628		
1573.960	.016	2/1				VERTICAL CONTROL SURVEY	2007	VSLAT		
1573.960	.016	2/1				VERTICAL ADJUSTMENT	1995	00000135		

<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>		
1573.268	.016	2/1				VERTICAL CONTROL SURVEY	1987	VSLAY		

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>		
1573.963	.262		1486.706	.197	2011	GPS - RTRN	2015	RTRN2015		
1573.901	.262		1486.719	.197	2007	GPS - RTRN	2012	RTRN2012		

Geoid Separations(ft): GEOID18 = -87.270 12B = -87.257 09 = -87.178 03 = -86.995

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>									
43 59 47.81996	95 45 13.49894			503399.452	154160.182	.131	3	2015	RTRN2015	

<u>NAD83(2007)</u>				<u>Murray 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>									
43 59 47.81999	95 45 13.50094			503399.306	154160.185	.131	3	2012	RTRN2012	

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 - South 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>									
2163206.798	696340.432			916024.808	15994666.483	.131	3	2015	RTRN2015	

<u>NAD83(2007)</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - South 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>									
2163206.651	696340.438			916024.662	15994666.491	.131	3	2012	RTRN2012	



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_D-OP1376-3W-10JUN2015.jpg	W	Jun 10, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_D-OP1376-2-10JUN2015.jpg		Jun 10, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_D-OP1376-1-10JUN2015.jpg		Jun 10, 2015

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



Mn/DOT Name: 5105 E

NGS Name: 5105 E

County: MURRAY, MN (Sheet 1)

NGS ACRN: [PQ1375](#) [Get Map](#)
 NGS Quad / Sta Num : 44095332/
 USGS Quad: HADLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	41 W	440027.72	954516.23	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>
1987	2015	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 30 FT)	VERTICAL CONTROL DISK	MNDT

Description: (1987) Stamping: 5105 E 1987

1.05 MILES NORTH ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 30 AT SLAYTON, AT TRUNK HIGHWAY 59 MILEPOINT 42.15, 275.0 FEET WEST OF TRUNK HIGHWAY 59, 35.0 FEET NORTH OF 111TH STREET, 14.3 FEET SOUTH OF AN EAST-WEST WOOD FENCE, 8.8 FEET EAST-NORTHEAST OF A POWER POLE, 1.3 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>	
1553.163	.016	2/1					VERTICAL ADJUSTMENT	2017	00000903	
1553.166	.016	2/1					VERTICAL CONTROL SURVEY	2015	VGARV	
1553.153	.016	2/1					VERTICAL ADJUSTMENT	2010	00000628	
1553.153	.016	2/1					VERTICAL CONTROL SURVEY	2007	VSLAT	
1553.153	.016	2/1					VERTICAL ADJUSTMENT	1995	00000135	

<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>	
1552.461	.016	2/1					VERTICAL CONTROL SURVEY	1987	VSLAY	

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>	
1553.222	.262			1465.949	.197	2011	GPS - RTRN	2015	RTRN2015	
				1465.857	.013	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
1553.124	.262			1465.932	.197	2007	GPS - RTRN	2012	RTRN2012	
				1465.949	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2386-B	
1553.146	.131			1466.096	.066	1996	HORIZONTAL ADJUSTMENT	2007	GPS2386	
1553.146	.131			1466.096	.066	1996	GPS - STATIC	2007	HSLAT	

Geoid Separations(ft): GEOID18 = -87.280 12B = -87.270 09 = -87.191 03 = -87.001

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>									
44 00 27.71822	95 45 16.23079			503199.145	158200.599	.131	3	GPS - RTRN	2015	RTRN2015
44 00 27.71823	95 45 16.23144			503199.097	158200.600	.010		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>				<u>Murray 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>									
44 00 27.71765	95 45 16.23272			503199.003	158200.541	.131	3	GPS - RTRN	2012	RTRN2012
44 00 27.71817	95 45 16.23226			503199.037	158200.594	.033	C	ADJUSTMENT	2011	GPS2386-B

<u>NAD83(1996)</u>				<u>Murray 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>									
44 00 27.71769	95 45 16.23160			503199.085	158200.545	.033	C	ADJUSTMENT	2007	GPS2386
44 00 27.71769	95 45 16.23160			503199.085	158200.545	.033	C	GPS - STATIC	2007	HSLAT



State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2163093.861	700383.776	915960.168	15998711.857	.131	3	GPS - RTRN	2015	RTRN2015
2163093.814	700383.778	915960.121	15998711.860	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2163093.719	700383.721	915960.025	15998711.804	.131	3	GPS - RTRN	2012	RTRN2012
2163093.754	700383.773	915960.061	15998711.856	.033	C	ADJUSTMENT	2011	GPS2386-B

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2163093.801	700383.724	915960.107	15998711.806	.033	C	ADJUSTMENT	2007	GPS2386
2163093.801	700383.724	915960.107	15998711.806	.033	C	GPS - STATIC	2007	HSLAT

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_E-PQ1375-3N-10JUN2015.jpg	N	Jun 10, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_E-PQ1375-2-10JUN2015.jpg		Jun 10, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_E-PQ1375-1-10JUN2015.jpg		Jun 10, 2015

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



Mn/DOT Name: 5105 F

NGS Name: 5105 F

County: MURRAY, MN (Sheet 1)

NGS ACRN: [PQ1373](#) [Get Map](#)
 NGS Quad / Sta Num : 44095332/
 USGS Quad: HADLEY

				Reference	Reference	Vert	Horz
1/4	Sec	Twp	Rng	Latitude	Longitude	Order	Order
SW	34	107 N	41 W	440133.05	954513.74	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1987	2015	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 30 FT)	VERTICAL CONTROL DISK	MNDT

Description: (1987) Stamping: 5105 F 1987

2.75 MILES NORTH OF SLAYTON, 2.3 MILES NORTH ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 30 IN SLAYTON, AT TRUNK HIGHWAY 59 MILEPOINT 43.4, 44.0 FEET WEST OF TRUNK HIGHWAY 59, 8.0 FEET NORTH OF DRIVEWAY NUMBER 1226 EXTENDED, 93.1 FEET WEST-SOUTHWEST OF A CABLE POST, 7.7 FEET SOUTH OF A POWER POLE WITH AN ANCHOR WIRE, 0.8 FOOT 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		
1585.066	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903		
1585.066	.016	2/1				VERTICAL CONTROL SURVEY	2015	VGARV		
1585.066	.016	2/1				VERTICAL ADJUSTMENT	2010	00000628		
1585.066	.016	2/1				VERTICAL CONTROL SURVEY	2007	VSLAT		
1585.066	.016	2/1				VERTICAL ADJUSTMENT	1995	00000135		

NGVD29				Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj		Year	Reference		
1584.377	.016	2/1				VERTICAL CONTROL SURVEY	1987	VSLAY		

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88				Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj		Year	Reference		
1585.122	.262		1497.825	.197	2011	GPS - RTRN	2015	RTRN2015		
			1497.763	.011	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800		
1585.000	.262		1497.786	.197	2007	GPS - RTRN	2012	RTRN2012		
			1497.864	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2386-B		
1585.069	.131		1498.015	.066	1996	HORIZONTAL ADJUSTMENT	2007	GPS2386		
1585.069	.131		1498.015	.066	1996	GPS - STATIC	2007	HSLAT		

Geoid Separations(ft): GEOID18 = -87.303 12B = -87.296 09 = -87.214 03 = -87.018

Lat/Lon and County Coordinates (Feet)

NAD83(2011)			Murray County				Project Info		
Latitude	Longitude		X	Y	Acc	Order	Determination Method	Year	Reference
44 01 33.04532	95 45 13.73754		503380.348	164816.237	.131	3	GPS - RTRN	2015	RTRN2015
44 01 33.04501	95 45 13.73848		503380.279	164816.205	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)			Murray County				Project Info		
Latitude	Longitude		X	Y	Acc	Order	Determination Method	Year	Reference
44 01 33.04442	95 45 13.73893		503380.246	164816.146	.131	3	GPS - RTRN	2012	RTRN2012
44 01 33.04496	95 45 13.73925		503380.223	164816.201	.033	C	ADJUSTMENT	2011	GPS2386-B

NAD83(1996)			Murray County				Project Info		
Latitude	Longitude		X	Y	Acc	Order	Determination Method	Year	Reference
44 01 33.04449	95 45 13.73857		503380.272	164816.153	.033	C	ADJUSTMENT	2007	GPS2386
44 01 33.04449	95 45 13.73857		503380.272	164816.153	.033	C	GPS - STATIC	2007	HSLAT

NAD83(1986)			Murray County				Project Info		
Latitude	Longitude		X	Y	Acc	Order	Determination Method	Year	Reference
44 01 33.04219	95 45 13.72437		503381.310	164815.920	3.281		CLASSICAL SURVEY	1988	HSLAY

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2163417.946	706993.191	916363.346	16005318.523	.131	3	GPS - RTRN	2015	RTRN2015
2163417.877	706993.161	916363.276	16005318.494	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2163417.842	706993.102	916363.241	16005318.435	.131	3	GPS - RTRN	2012	RTRN2012
2163417.820	706993.157	916363.219	16005318.490	.033	C	ADJUSTMENT	2011	GPS2386-B

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2163417.869	706993.108	916363.268	16005318.441	.033	C	ADJUSTMENT	2007	GPS2386
2163417.869	706993.108	916363.268	16005318.441	.033	C	GPS - STATIC	2007	HSLAT

NAD83(1986)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2163418.901	706992.853	916364.297	16005318.174	3.281		CLASSICAL SURVEY	1988	HSLAY

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_F-PQ1373-3W-16JUN2015.jpg	W	Jun 16, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_F-PQ1373-2-16JUN2015.jpg		Jun 16, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_F-PQ1373-1-16JUN2015.jpg		Jun 16, 2015

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



Mn/DOT Name: 5105 G

NGS Name: 5105 G

County: MURRAY, MN (Sheet 1)

NGS ACRN: [PQ1372](#) [Get Map](#)
 NGS Quad / Sta Num : 44095332/
 USGS Quad: HADLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	107 N	41 W	440212.00	954513.00	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>
1987	2015	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	MARKER W/BAR MAGNET

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

Description: (1987) **Stamping:** 5105 G 1987

3.05 MILES NORTH ON TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 30 AT SLAYTON, AT TRUNK HIGHWAY 59 MILEPOINT 44.15, 75.5 FEET WEST OF TRUNK HIGHWAY 59, 4.4 FEET SOUTH OF THE SOUTHEAST CORNER OF AN ENTRANCE TO THE MASON TOWN HALL, 7.8 FEET EAST OF THE SOUTHEAST CORNER OF THE MAIN BUILDING, 38.6 FEET NORTHWEST OF A POWER POLE WITH A TRANSFORMER.

Station Notes
 THE TIES FALL UNDER THE STEPS.

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>	
1585.761	.016	2/1					VERTICAL ADJUSTMENT	1995	00000135	

<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>	
1585.069	.016	2/1					VERTICAL CONTROL SURVEY	1987	VSLAY	

Geoid Separations(ft): GEOID18 = -87.310 12B = -87.303 09 = -87.218 03 = -87.024

* No Horizontal Positions in the Database *



Mn/DOT Name: 5105 H

NGS Name: 5105 H

County: MURRAY, MN (Sheet 1)

NGS ACRN: [PQ1371](#) [Get Map](#)
 NGS Quad / Sta Num : 44095332/
 USGS Quad: HADLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	22	107 N	41 W	440304.36	954510.61	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>
1987	2015	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)	VERTICAL CONTROL DISK	MNDT

Description: (2009) Stamping: 5105 H 1987

4.0 MILES NORTH OF SLAYTON, 4.05 MILES NORTH ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 30 AT SLAYTON, AT TRUNK HIGHWAY 59 MILEPOINT 45.15, 140.0 FEET EAST OF TRUNK HIGHWAY 59, 28.5 FEET NORTH OF 141ST STREET, 20.0 FEET WEST OF AN ENTRANCE, 58.8 FEET SOUTH-SOUTHWEST OF A POWER POLE WITH A METER AND A LIGHT, 37.6 FEET WEST OF A POWER POLE WITH A TRANSFORMER 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>		
1594.216	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903		
1594.216	.016	2/1				VERTICAL CONTROL SURVEY	2015	VGARV		
1594.216	.016	2/1				VERTICAL ADJUSTMENT	2010	00000628		
1594.216	.016	2/1				VERTICAL CONTROL SURVEY	2007	VSLAT		
1594.216	.016	2/1				VERTICAL ADJUSTMENT	1995	00000135		

<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>		
1593.527	.016	2/1				VERTICAL CONTROL SURVEY	1987	VSLAY		

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>		
1594.190	.262		1506.883	.197	2011	GPS - RTRN	2015	RTRN2015		
			1506.887	.011	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800		
1594.127	.262		1506.906	.197	2007	GPS - RTRN	2012	RTRN2012		
			1506.992	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2386-B		
1594.223	.131		1507.143	.066	1996	HORIZONTAL ADJUSTMENT	2007	GPS2386		
1594.223	.131		1507.143	.066	1996	GPS - STATIC	2007	HSLAT		

Geoid Separations(ft): GEOID18 = -87.313 12B = -87.306 09 = -87.221 03 = -87.034

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>									
44 03 04.36026	95 45 10.61411			503607.034	174063.682	.131	3	GPS - RTRN	2015	RTRN2015
44 03 04.36052	95 45 10.61401			503607.041	174063.708	.007		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>				<u>Murray 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>									
44 03 04.36103	95 45 10.61578			503606.912	174063.759	.131	3	GPS - RTRN	2012	RTRN2012
44 03 04.36048	95 45 10.61480			503606.984	174063.704	.033	C	ADJUSTMENT	2011	GPS2386-B

<u>NAD83(1996)</u>				<u>Murray 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>									
44 03 04.36001	95 45 10.61414			503607.032	174063.656	.033	C	ADJUSTMENT	2007	GPS2386
44 03 04.36001	95 45 10.61414			503607.032	174063.656	.033	C	GPS - STATIC	2007	HSLAT



State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2163844.362	716232.484	916900.443	16014554.304	.131	3	GPS - RTRN	2015	RTRN2015
2163844.369	716232.509	916900.451	16014554.330	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2163844.241	716232.564	916900.324	16014554.386	.131	3	GPS - RTRN	2012	RTRN2012
2163844.312	716232.507	916900.394	16014554.328	.033	C	ADJUSTMENT	2011	GPS2386-B

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2163844.359	716232.458	916900.440	16014554.279	.033	C	ADJUSTMENT	2007	GPS2386
2163844.359	716232.458	916900.440	16014554.279	.033	C	GPS - STATIC	2007	HSLAT

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_H-PQ1371-3N-16JUN2015.jpg	N	Jun 16, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_H-PQ1371-2-16JUN2015.jpg		Jun 16, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_H-PQ1371-1-16JUN2015.jpg		Jun 16, 2015

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



Mn/DOT Name: 5105 J

NGS Name: 5105 J

County: MURRAY, MN (Sheet 1)

NGS ACRN: [PQ1369](#) [Get Map](#)
 NGS Quad / Sta Num : 44095323/
 USGS Quad: CURRIE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	14	107 N	41 W	440426.34	954435.17	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>
1987	2019	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 25 FT)	VERTICAL CONTROL DISK	MNDT

Description: (1987) Stamping: 5105 J 1987

4.0 MILES WEST OF CURRIE, 4.1 MILES WEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND COUNTY ROAD 38 NORTH IN CURRIE TO TRUNK HIGHWAY 30 MILEPOINT 41.60, THEN 0.15 MILE NORTH ALONG 160TH AVENUE, 39.8 FEET EAST OF 160TH AVENUE, 40.0 FEET EAST OF TRUNK HIGHWAY 59 EXTENDED, 0.9 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>		
1584.692	.016	2/1				VERTICAL ADJUSTMENT	2020	00000949		
1584.692	.016	2/1				VERTICAL CONTROL SURVEY	2019	VDRAY		
1584.692	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903		
1584.692	.016	2/1				VERTICAL CONTROL SURVEY	2015	VGARV		
1584.692	.016	2/2				VERTICAL ADJUSTMENT	2010	00000628		
1584.692	.016	2/2				VERTICAL CONTROL SURVEY	2007	VDOVR		
1584.692	.016	2/1				VERTICAL CONTROL SURVEY	2007	VSLAT		
1584.692	.016	2/1				VERTICAL ADJUSTMENT	1995	00000135		

<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>		
1584.003	.016	2/1				VERTICAL CONTROL SURVEY	1987	VSLAY		

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>	
1584.692	.131		1497.654	.066	1996	GPS - STATIC	2019	HDRAY	
1584.692			1497.382	.013	2011	GPS - STATIC	2019	HDRAY	
1584.692			1497.382	.013	2011	HORIZONTAL ADJUSTMENT	2019	GPS3311	
1584.672	.262		1497.330	.197	2011	GPS - RTRN	2019	RTRN2019	
1584.659	.262		1497.317	.197	2011	GPS - RTRN	2015	RTRN2015	
			1497.382	.015	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
			1497.464	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2386-B	
1584.708	.131		1497.654	.066	1996	HORIZONTAL ADJUSTMENT	2007	GPS2386	
1584.708	.131		1497.654	.066	1996	GPS - STATIC	2007	HSLAT	
			1497.464	.029	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300	
1584.708	.131		1497.618	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1919	
1584.675	.131		1497.654	.066	1996	GPS - STATIC	2003	HMURR	

Geoid Separations(ft): GEOID18 = -87.342 12B = -87.342 09 = -87.257 03 = -87.073

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 04 26.33972	95 44 35.17383	506193.139	182366.312	.007	C	GPS - STATIC	2019	HDRAY
44 04 26.33972	95 44 35.17383	506193.139	182366.312	.007		ADJUSTMENT	2019	GPS3311
44 04 26.33954	95 44 35.17295	506193.203	182366.294	.131	3	GPS - RTRN	2019	RTRN2019
44 04 26.33991	95 44 35.17367	506193.150	182366.331	.131	3	GPS - RTRN	2015	RTRN2015
44 04 26.33972	95 44 35.17383	506193.139	182366.312	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 04 26.33964	95 44 35.17466	506193.078	182366.304	.033	C	ADJUSTMENT	2011	GPS2386-B
44 04 26.33964	95 44 35.17466	506193.078	182366.304	.016		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 04 26.33916	95 44 35.17409	506193.120	182366.255	.033	C	GPS - STATIC	2019	HDRAY
44 04 26.33916	95 44 35.17409	506193.120	182366.255	.033	C	ADJUSTMENT	2007	GPS2386
44 04 26.33916	95 44 35.17409	506193.120	182366.255	.033	C	GPS - STATIC	2007	HSLAT
44 04 26.33916	95 44 35.17405	506193.122	182366.255	.033	C	ADJUSTMENT	2003	GPS1919
44 04 26.33916	95 44 35.17409	506193.120	182366.255	.033	C	GPS - STATIC	2003	HMURR

NAD83(1986)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 04 26.33659	95 44 35.16103	506194.073	182365.994	3.281		CLASSICAL SURVEY	1988	HSLAY

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2166608.937	724476.288	919764.310	16022766.396	.007	C	GPS - STATIC	2019	HDRAY
2166608.937	724476.288	919764.310	16022766.396	.007		ADJUSTMENT	2019	GPS3311
2166609.000	724476.269	919764.374	16022766.376	.131	3	GPS - RTRN	2019	RTRN2019
2166608.949	724476.307	919764.323	16022766.415	.131	3	GPS - RTRN	2015	RTRN2015
2166608.937	724476.288	919764.310	16022766.396	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2166608.876	724476.281	919764.249	16022766.390	.033	C	ADJUSTMENT	2011	GPS2386-B
2166608.876	724476.281	919764.249	16022766.390	.016		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2166608.916	724476.232	919764.289	16022766.340	.033	C	GPS - STATIC	2019	HDRAY
2166608.916	724476.232	919764.289	16022766.340	.033	C	ADJUSTMENT	2007	GPS2386
2166608.916	724476.232	919764.289	16022766.340	.033	C	GPS - STATIC	2007	HSLAT
2166608.919	724476.232	919764.292	16022766.340	.033	C	ADJUSTMENT	2003	GPS1919
2166608.916	724476.232	919764.289	16022766.340	.033	C	GPS - STATIC	2003	HMURR

NAD83(1986)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2166609.864	724475.951	919765.234	16022766.048	3.281		CLASSICAL SURVEY	1988	HSLAY

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_J-PQ1369-3E-01APR2019.jpg	E	Apr 1, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_J-PQ1369-2-01APR2019.jpg		Apr 1, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_J-PQ1369-1-01APR2019.jpg		Apr 1, 2019

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



Mn/DOT Name: 5105 K

NGS Name: 5105 K

County: MURRAY, MN (Sheet 1)

NGS ACRN: [PQ1368](#) [Get Map](#)
 NGS Quad / Sta Num : 44095323/
 USGS Quad: CURRIE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	107 N	41 W	440514.66	954438.09	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>
1987	2018	GOOD	Horz=YES Vert=YES	YES		RECESSED 8 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: (1987) Stamping: 5105 K 1987

6.75 MILES NORTH OF SLAYTON, 6.8 MILES NORTH ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 30 IN SLAYTON, AT TRUNK HIGHWAY 59 MILEPOINT 47.9, 175.0 FEET WEST OF TRUNK HIGHWAY 59, 31.5 FEET NORTH OF 166TH STREET, 57.5 FEET EAST OF A FIELD ENTRANCE, 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>
1538.376	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903
1538.376	.016	2/1				VERTICAL CONTROL SURVEY	2015	VGARV
1538.376	.016	2/2				VERTICAL ADJUSTMENT	2010	00000628
1538.376	.016	2/2				VERTICAL CONTROL SURVEY	2007	VDOVR
1538.376	.016	2/1				VERTICAL CONTROL SURVEY	2007	VSLAT
1538.376	.016	2/1				VERTICAL ADJUSTMENT	1995	00000135

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>
1537.690	.016	2/1				VERTICAL CONTROL SURVEY	1987	VSLAY

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>
1538.265	.262		1450.922	.197	2011	GPS - RTRN	2015	RTRN2015
			1451.047	.016	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			1451.149	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2386-B
1538.383	.131		1451.313	.066	1996	HORIZONTAL ADJUSTMENT	2007	GPS2386
1538.383	.131		1451.313	.066	1996	GPS - STATIC	2007	HSLAT

Geoid Separations(ft): GEOID18 = -87.346 12B = -87.342 09 = -87.257 03 = -87.080

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 05 14.65993	95 44 38.09316	505978.648	187259.647	.131	3	GPS - RTRN	2015	RTRN2015
44 05 14.66029	95 44 38.09350	505978.623	187259.684	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 05 14.66027	95 44 38.09437	505978.560	187259.682	.033	C	ADJUSTMENT	2011	GPS2386-B

NAD83(1996)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 05 14.65979	95 44 38.09372	505978.607	187259.633	.033	C	ADJUSTMENT	2007	GPS2386
44 05 14.65979	95 44 38.09372	505978.607	187259.633	.033	C	GPS - STATIC	2007	HSLAT



State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2166500.248	729372.507	919714.346	16027664.764	.131	3	GPS - RTRN	2015	RTRN2015
2166500.223	729372.544	919714.322	16027664.802	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2166500.160	729372.544	919714.259	16027664.802	.033	C	ADJUSTMENT	2011	GPS2386-B

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2166500.206	729372.494	919714.304	16027664.752	.033	C	ADJUSTMENT	2007	GPS2386
2166500.206	729372.494	919714.304	16027664.752	.033	C	GPS - STATIC	2007	HSLAT

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_K-PQ1368-3N-16JUN2015.jpg	N	Jun 16, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_K-PQ1368-2-16JUN2015.jpg		Jun 16, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_K-PQ1368-1-16JUN2015.jpg		Jun 16, 2015

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



Mn/DOT Name: 5105 L

NGS Name: 5105 L

County: MURRAY, MN (Sheet 1)

NGS ACRN: [PQ1367](#) [Get Map](#)
 NGS Quad / Sta Num : 44095323/
 USGS Quad: CURRIE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	107 N	41 W	440539.19	954437.87	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>
1987	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 20 FT)	VERTICAL CONTROL DISK	MNDT

Description: (1987) Stamping: 5105 L 1987

7.2 MILES NORTH OF SLAYTON, 7.25 MILES NORTH ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 30 AT SLAYTON, AT TRUNK HIGHWAY 59 MILEPOINT 48.35, 135.5 FEET WEST OF TRUNK HIGHWAY 59, 25.0 FEET SOUTH OF DRIVEWAY NUMBER 1697, 56.6 FEET SOUTHEAST OF A TELEPHONE CABLE MARKER POST, 0.9 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>		
1554.396	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903		
1554.396	.016	2/1				VERTICAL CONTROL SURVEY	2015	VGARV		
1554.396	.016	2/2				VERTICAL ADJUSTMENT	2010	00000628		
1554.396	.016	2/2				VERTICAL CONTROL SURVEY	2007	VDOVR		
1554.396	.016	2/1				VERTICAL CONTROL SURVEY	2007	VSLAT		
1554.396	.016	2/1				VERTICAL ADJUSTMENT	1995	00000135		

<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>		
1553.708	.016	2/1				VERTICAL CONTROL SURVEY	1987	VSLAY		

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>		
1554.337	.262		1466.989	.197	2011	GPS - OPUS	2021	GPSBM		
1554.295	.262		1466.952	.197	2011	GPS - RTRN	2015	RTRN2015		
			1467.126	.020	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800		
			1467.225	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2386-B		
1554.393	.131		1467.392	.066	1996	HORIZONTAL ADJUSTMENT	2007	GPS2386		
1554.393	.131		1467.392	.066	1996	GPS - STATIC	2007	HSLAT		

Geoid Separations(ft): GEOID18 = -87.349 12B = -87.346 09 = -87.260 03 = -87.086

Lat/Lon and County Coordinates (Feet)

<u>Geodetic Position</u>		<u>Murray 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>	
44 05 39.18811	95 44 37.86576	505994.559	189743.629	.131	3	GPS - OPUS	2021	GPSBM	
44 05 39.18830	95 44 37.86501	505994.614	189743.648	.131	3	GPS - RTRN	2015	RTRN2015	
44 05 39.18825	95 44 37.86535	505994.589	189743.643	.007		ADJUSTMENT	2012	GPS2800	

<u>Geodetic Position</u>		<u>Murray 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>	
44 05 39.18825	95 44 37.86630	505994.520	189743.643	.033	C	ADJUSTMENT	2011	GPS2386-B	

<u>Geodetic Position</u>		<u>Murray 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>	
44 05 39.18777	95 44 37.86562	505994.569	189743.595	.033	C	ADJUSTMENT	2007	GPS2386	
44 05 39.18777	95 44 37.86562	505994.569	189743.595	.033	C	GPS - STATIC	2007	HSLAT	



State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2166569.821	731855.253	919813.734	16030147.107	.131	3	GPS - OPUS	2021	GPSBM
2166569.876	731855.272	919813.789	16030147.124	.131	3	GPS - RTRN	2015	RTRN2015
2166569.852	731855.267	919813.764	16030147.120	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2166569.782	731855.269	919813.695	16030147.122	.033	C	ADJUSTMENT	2011	GPS2386-B

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2166569.831	731855.219	919813.743	16030147.072	.033	C	ADJUSTMENT	2007	GPS2386
2166569.831	731855.219	919813.743	16030147.072	.033	C	GPS - STATIC	2007	HSLAT

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_L-PQ1367-3W-28APR2021.jpg	W	Apr 28, 2021
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_L-PQ1367-2-28APR2021.jpg		Apr 28, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_L-PQ1367-1-28APR2021.jpg		Apr 28, 2021

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



Mn/DOT Name: 5105 M

NGS Name: 5105 M

County: MURRAY, MN (Sheet 1)

NGS ACRN: [PQ1365](#) [Get Map](#)
 NGS Quad / Sta Num : 44095323/
 USGS Quad: CURRIE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	108 N	41 W	440725.00	954439.93	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>
1987	2016	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 20 FT)	VERTICAL CONTROL DISK	MNDT

Description: (1987) Stamping: 5105 M 1987

6.5 MILES SOUTH OF GARVIN, 6.35 MILES SOUTH ALONG TRUNK HIGHWAY 59 FROM THE SOUTH JUNCTION OF TRUNK HIGHWAY 59 AND COUNTY ROAD 14 IN GARVIN, AT TRUNK HIGHWAY 59 MILEPOINT 50.35, 200.0 FEET WEST OF TRUNK HIGHWAY 59, 26.5 FEET SOUTH OF 191ST STREET, 40.0 FEET WEST OF THE MOST WESTERLY RIGHT-OF-WAY POST, 1.4 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>	
1545.958	.016	2/1					VERTICAL ADJUSTMENT	2017	00000903	
1545.968	.016	2/1					VERTICAL CONTROL SURVEY	2015	VGARV	
1545.968	.016	2/1					VERTICAL ADJUSTMENT	1995	00000135	

<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>	
1545.282	.016	2/1					VERTICAL CONTROL SURVEY	1987	VSLAY	

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>	
1545.968				1458.573	.018	2011	HORIZONTAL ADJUSTMENT	2016	GPS3142	
1545.968	.131			1458.734	.066	1996	GPS - STATIC	2016	HGARV	
1545.968				1458.573	.018	2011	GPS - STATIC	2016	HGARV	
1545.843	.262			1458.478	.197	2011	GPS - RTRN	2015	RTRN2015	

Geoid Separations(ft): GEOID18 = -87.372 12B = -87.369 09 = -87.283 03 = -87.123

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>									
44 07 25.00247	95 44 39.93080			505840.951	200459.483	.007		ADJUSTMENT	2016	GPS3142
44 07 25.00247	95 44 39.93080			505840.951	200459.483	.007	C	GPS - STATIC	2016	HGARV
44 07 25.00250	95 44 39.93063			505840.963	200459.486	.131	3	GPS - RTRN	2015	RTRN2015

<u>NAD83(1996)</u>				<u>Murray 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>									
44 07 25.00213	95 44 39.93138			505840.908	200459.448	.033	C	GPS - STATIC	2016	HGARV

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 - South 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>									
2166647.793	742570.551			920020.459	16040863.349	.007		ADJUSTMENT	2016	GPS3142
2166647.793	742570.551			920020.459	16040863.349	.007	C	GPS - STATIC	2016	HGARV
2166647.805	742570.553			920020.472	16040863.352	.131	3	GPS - RTRN	2015	RTRN2015

<u>NAD83(1996)</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - South 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>									
2166647.750	742570.517			920020.416	16040863.317	.033	C	GPS - STATIC	2016	HGARV



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_M-PQ1365-3S-16JUN2015.jpg	S	Jun 16, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_M-PQ1365-2-16JUN2015.jpg		Jun 16, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_M-PQ1365-1-16JUN2015.jpg		Jun 16, 2015

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



Mn/DOT Name: 5105 N

NGS Name: 5105 N

County: MURRAY, MN (Sheet 1)

NGS ACRN: [PQ1364](#) [Get Map](#)
 NGS Quad / Sta Num : 44095324/
 USGS Quad: TRACY WEST

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	23	108 N	41 W	440818.43	954435.64	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1987	2015	GOOD	Horz=NO Vert=YES	YES		RECESSED 0 IN.	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 20 FT)	VERTICAL CONTROL DISK	MNDT

Description: (1987) **Stamping:** 5105 N 1987

5.5 MILES SOUTH-SOUTHEAST OF GARVIN, 5.75 MILES SOUTH ALONG TRUNK HIGHWAY 59 NORTH FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND COUNTY ROAD 14 IN GARVIN, AT TRUNK HIGHWAY 59 MILEPOINT 51.4, 164.5 FEET EAST OF TRUNK HIGHWAY 59, 97.0 FEET NORTH OF COUNTY ROAD 50 (201ST STREET), 14.5 FEET WEST OF AN ENTRANCE TO A POWER SUB-STATION, 10.2 FEET WEST-SOUTHWEST OF A WEST GATE POST, 2.2 FEET SOUTH OF A FENCE, 2.2 FEET SOUTH 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		
1539.055	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903		
1539.059	.016	2/1				VERTICAL CONTROL SURVEY	2015	VGARV		
1538.845	.016	2/1				VERTICAL ADJUSTMENT	1995	00000135		

NGVD29				Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj		Year	Reference		
1538.163	.016	2/1				VERTICAL CONTROL SURVEY	1987	VSLAY		

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88				Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj		Year	Reference		
1539.055	.262		1451.651	.197	2011	GPS - RTRN	2015	RTRN2015		

Geoid Separations(ft): GEOID18 = -87.411 12B = -87.405 09 = -87.319 03 = -87.168

Lat/Lon and County Coordinates (Feet)

NAD83(2011)		Murray County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 08 18.43399	95 44 35.63525	506152.767	205870.641	.131	3	GPS - RTRN	2015	RTRN2015

NAD83(1986)		Murray County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 08 18.42995	95 44 35.62160	506153.765	205870.235	3.281		CLASSICAL SURVEY	1988	HSLAY

State Plane and UTM Coordinates (Feet)

NAD83(2011)		Murray County				Project Info		
MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Year	Reference
X	Y	X	Y					
2167076.408	747972.998	920514.131	16046261.601	.131	3	GPS - RTRN	2015	RTRN2015

NAD83(1986)		Murray County				Project Info		
MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Year	Reference
X	Y	X	Y					
2167077.394	747972.568	920515.112	16046261.158	3.281		CLASSICAL SURVEY	1988	HSLAY

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_N-PQ1364-3N-15JUN2015.jpg	N	Jun 15, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_N-PQ1364-2-15JUN2015.jpg		Jun 15, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_N-PQ1364-1-15JUN2015.jpg		Jun 15, 2015

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



Mn/DOT Name: 5105 P

NGS Name: 5105 P

County: MURRAY, MN (Sheet 1)

NGS ACRN: [PQ1362](#) [Get Map](#)
 NGS Quad / Sta Num : 44095324/
 USGS Quad: TRACY WEST

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	108 N	41 W	441001.84	954433.26	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>
1987	2015	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	VERTICAL CONTROL DISK	MNDT

Description: (1987) Stamping: 5105 P 1987

3.5 MILES SOUTH OF GARVIN, 3.75 MILES SOUTH OF THE RAILROAD CROSSING OF TRUNK HIGHWAY 59, AT TRUNK HIGHWAY 59 MILEPOINT 53.35, 350.0 FEET EAST OF TRUNK HIGHWAY 59, 33.0 FEET NORTH OF A GRAVEL ROAD, 11.5 FEET WEST OF A POWER POLE, 1.2 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>		
1529.433	.016	2/1						VERTICAL ADJUSTMENT		1995	00000135		

<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>		
1528.754	.016	2/1						VERTICAL CONTROL SURVEY		1987	VSLAY		

Geoid Separations(ft): GEOID18 = -87.510 12B = -87.493 09 = -87.421 03 = -87.267

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1986)</u>				<u>Geodetic Position</u>				<u>Murray 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>				
44 10 01.84091	95 44 33.26623	506322.478	216342.874	3.281		CLASSICAL SURVEY				1988	HSLAY				

State Plane and UTM Coordinates (Feet)

<u>NAD83(1986)</u>				<u>MN State Plane - South 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>				
2167472.316	758437.715	921036.117	16056723.422	3.281		CLASSICAL SURVEY				1988	HSLAY				



Mn/DOT Name: 5105 Q

NGS Name: 5105 Q

County: MURRAY, MN (Sheet 1)

NGS ACRN: [PQ1361](#) [Get Map](#)
 NGS Quad / Sta Num : 44095324/
 USGS Quad: TRACY WEST

				Reference	Reference	Vert	Horz
1/4	Sec	Twp	Rng	Latitude	Longitude	Order	Order
SW	2	108 N	41 W	441054.12	954431.96	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1987	2015	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 20 FT)	VERTICAL CONTROL DISK	MNDT

Description: (1987) Stamping: 5105 Q 1987

2.5 MILES SOUTH OF GARVIN, 2.7 MILES SOUTH ALONG TRUNK HIGHWAY 59 FROM THE NORTH JUNCTION OF TRUNK HIGHWAY 59 AND COUNTY ROAD 14 IN GARVIN, AT TRUNK HIGHWAY 59 MILEPOINT 54.4, THEN 0.1 MILE EAST ALONG COUNTY ROAD 21 (231ST STREET), 47.0 FEET NORTH OF COUNTY ROAD 21 (231ST STREET), 13.5 FEET WEST OF A FIELD ENTRANCE, 3.5 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
1517.015	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903
1517.011	.016	2/1				VERTICAL CONTROL SURVEY	2015	VGARV
1517.015	.016	2/1				VERTICAL ADJUSTMENT	1995	00000135

NGVD29				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1516.336	.016	2/1				VERTICAL CONTROL SURVEY	1987	VSLAY

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1516.939	.262		1429.387	.197	2011	GPS - RTRN	2015	RTRN2015

Geoid Separations(ft): GEOID18 = -87.549 12B = -87.552 09 = -87.470 03 = -87.303

Lat/Lon and County Coordinates (Feet)

NAD83(2011)		Murray County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 10 54.12197	95 44 31.95988	506416.135	221637.515	.131	3	GPS - RTRN	2015	RTRN2015

State Plane and UTM Coordinates (Feet)

NAD83(2011)		UTM - Zone 15				Project Info		
MN State Plane - South Zone		X	Y	Acc	Order	Determination Method	Year	Reference
2167680.330	763728.368	921307.942	16062012.521	.131	3	GPS - RTRN	2015	RTRN2015

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_Q-PQ1361-3N-15JUN2015.jpg	N	Jun 15, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_Q-PQ1361-2-15JUN2015.jpg		Jun 15, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_Q-PQ1361-1-15JUN2015.jpg		Jun 15, 2015

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



Mn/DOT Name: 5105 R

NGS Name: 5105 R

County: MURRAY, MN (Sheet 1)

NGS ACRN: [PQ1360](#) [Get Map](#)
 NGS Quad / Sta Num : 44095324/
 USGS Quad: TRACY WEST

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	108 N	41 W	441137.00	954436.00	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>
1987	2015	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	MARKER W/BAR MAGNET

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

Description: (1987) Stamping: 5105 R 1987

1.9 MILES SOUTH OF THE RAILROAD CROSSING OF TRUNK HIGHWAY 59 AT GARVIN, AT TRUNK HIGHWAY 59 MILEPOINT 55.25, 300.0 FEET NORTHEAST OF TRUNK HIGHWAY 59, 31.5 FEET EAST OF A GRAVEL ROAD, 11.8 FEET SOUTH OF A POWER POLE, 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>		
1533.694	.016	2/1						VERTICAL ADJUSTMENT		1995	00000135		

<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>		
1533.019	.016	2/1						VERTICAL CONTROL SURVEY		1987	VSLAY		

Geoid Separations(ft): GEOID18 = -87.582 12B = -87.595 09 = -87.506 03 = -87.326

* No Horizontal Positions in the Database *



Mn/DOT Name: 5105 S

NGS Name: 5105 S

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DL5422](#) [Get Map](#)
 NGS Quad / Sta Num : 44095332/
 USGS Quad: HADLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	41 W	440004.60	954512.20	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>
1988	2006	GOOD	Horz=NO Vert=NO	YES	51001	FLUSH	MARKER W/BAR MAGNET

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

Description: (2006) Stamping: 5105 S 2006

0.5 MILE NORTH OF SLAYTON, IN THE SOUTHEAST CORNER OF A BRIDGE RAIL OF TRUNK HIGHWAY 59 BRIDGE NUMBER 51001 OVER BEAVER CREEK, 0.6 MILE NORTH ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 30 IN SLAYTON, AT TRUNK HIGHWAY 59 MILEPOINT 41.10, 23.5 FEET EAST OF TRUNK HIGHWAY 59, 18.5 FEET NORTH OF A BRIDGE RAIL END.

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>
1574.170	.016	2/1					VERTICAL ADJUSTMENT	2010	00000628
1574.170	.016	2/1					VERTICAL CONTROL SURVEY	2007	VSLAT

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>
1574.068	.262			1486.880	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -87.277 12B = -87.267 09 = -87.188 03 = -87.001

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2007)</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 00 04.47022	95 45 12.10946	503500.757	155846.348	.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 - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
		916182.647	15996348.514	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_S-DL5422-3E-24OCT2006.jpg	E	Oct 24, 2006
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_S-DL5422-2-24OCT2006.jpg		Oct 24, 2006
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_S-DL5422-1-24OCT2006.jpg		Oct 24, 2006

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



Mn/DOT Name: 5105 T

NGS Name: 5105 T

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DK2714](#) [Get Map](#)
 NGS Quad / Sta Num : 44095332/
 USGS Quad: HADLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	107 N	41 W	440211.89	954513.50	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>
2006	2016	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: (2013) Stamping: 5105 T 2006

3.0 MILES NORTH OF SLAYTON, 3.1 MILES NORTH ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 30 IN SLAYTON, AT TRUNK HIGHWAY 59 MILEPOINT 44.10, 45.7 FEET WEST OF TRUNK HIGHWAY 59, 123.4 FEET SOUTH OF AN ENTRANCE TO THE MASON TOWN HALL, 32.8 FEET NORTH OF A POWER POLE, 2.0 FEET NORTH OF 131ST STREET EXTENDED, 1.5 FEET NORTH OF A WITNESS POST.

Station Pair: RUTH - MURRAY, 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>	
1584.108	.016	2/1					VERTICAL ADJUSTMENT	2017	00000903	
1584.108	.016	2/1					VERTICAL CONTROL SURVEY	2015	VGARV	
1584.108	.016	2/1					VERTICAL ADJUSTMENT	2010	00000628	
1584.108	.016	2/1					VERTICAL CONTROL SURVEY	2007	VSLAT	

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>	
1584.108				1496.805	.010	2011	HORIZONTAL ADJUSTMENT	2016	GPS3142	
1584.108	.131			1497.057	.066	1996	GPS - STATIC	2016	HGARV	
1584.108				1496.805	.010	2011	GPS - STATIC	2016	HGARV	
1584.095	.262			1496.792	.197	2011	GPS - RTRN	2015	RTRN2015	
				1496.805	.010	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
1584.022	.262			1496.801	.197	2007	GPS - RTRN	2012	RTRN2012	
				1496.906	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2386-B	
1584.118	.131			1497.057	.066	1996	HORIZONTAL ADJUSTMENT	2007	GPS2386	
1584.118	.131			1497.057	.066	1996	GPS - STATIC	2007	HSLAT	

Geoid Separations(ft): GEOID18 = -87.310 12B = -87.303 09 = -87.218 03 = -87.024

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>									
44 02 11.89096	95 45 13.50300			503396.869	168750.109	.007		ADJUSTMENT	2016	GPS3142
44 02 11.89096	95 45 13.50300			503396.869	168750.109	.007	C	GPS - STATIC	2016	HGARV
44 02 11.89109	95 45 13.50139			503396.986	168750.122	.131	3	GPS - RTRN	2015	RTRN2015
44 02 11.89096	95 45 13.50300			503396.869	168750.109	.007		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>				<u>Murray 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>									
44 02 11.89102	95 45 13.50246			503396.908	168750.115	.131	3	GPS - RTRN	2012	RTRN2012
44 02 11.89092	95 45 13.50378			503396.812	168750.105	.033	C	ADJUSTMENT	2011	GPS2386-B

<u>NAD83(1996)</u>				<u>Murray 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>									
44 02 11.89045	95 45 13.50310			503396.861	168750.057	.033	C	GPS - STATIC	2016	HGARV
44 02 11.89045	95 45 13.50310			503396.861	168750.057	.033	C	ADJUSTMENT	2007	GPS2386
44 02 11.89045	95 45 13.50310			503396.861	168750.057	.033	C	GPS - STATIC	2007	HSLAT

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2163519.460	710925.325	916511.934	16009250.118	.007		ADJUSTMENT	2016	GPS3142
2163519.460	710925.325	916511.934	16009250.118	.007	C	GPS - STATIC	2016	HGARV
2163519.578	710925.336	916512.052	16009250.127	.131	3	GPS - RTRN	2015	RTRN2015
2163519.460	710925.325	916511.934	16009250.118	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2163519.500	710925.330	916511.973	16009250.123	.131	3	GPS - RTRN	2012	RTRN2012
2163519.403	710925.323	916511.877	16009250.116	.033	C	ADJUSTMENT	2011	GPS2386-B

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2163519.452	710925.274	916511.925	16009250.067	.033	C	GPS - STATIC	2016	HGARV
2163519.452	710925.274	916511.925	16009250.067	.033	C	ADJUSTMENT	2007	GPS2386
2163519.452	710925.274	916511.925	16009250.067	.033	C	GPS - STATIC	2007	HSLAT

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_T-DK2714-3W-16JUN2015.jpg	W	Jun 16, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_T-DK2714-2-16JUN2015.jpg		Jun 16, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_T-DK2714-1-16JUN2015.jpg		Jun 16, 2015

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

Mn/DOT Name: 5105 U

NGS Name: 5105 U

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DQ2423](#) [Get Map](#)
 NGS Quad / Sta Num : 4409533Z/
 USGS Quad: HADLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	41 W	440002.55	954511.97	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>
2015	2016	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: (2015) Stamping: 5105 U 2015

0.5 MILE NORTH OF SLAYTON, 0.55 MILE NORTH ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 30 WEST IN SLAYTON, AT TRUNK HIGHWAY 59 MILEPOINT 41.65, 33.1 FEET EAST OF TRUNK HIGHWAY 59, 5.2 FEET EAST OF THE SOUTH END OF A GUARDRAIL, 0.15 MILE NORTH OF 15TH STREET, 3.7 FEET EAST-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>				
1572.772	.016	2/1				2017	00000903				
1572.782	.016	2/1				2015	VGARV				

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>				
1572.782			1485.492	.016	2011	2016	GPS3142				
1572.782	.131		1485.663	.066	1996	2016	HGARV				
1572.782			1485.492	.016	2011	2016	HGARV				
1572.736	.262		1485.469	.197	2011	2015	RTRN2015				

Geoid Separations(ft): GEOID18 = -87.277 12B = -87.267 09 = -87.188 03 = -87.001

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>			<u>Murray County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>
44 00 02.54672	95 45 11.96674		503511.222	155651.559	.007		2016	GPS3142
44 00 02.54672	95 45 11.96674		503511.222	155651.559	.007	C	2016	HGARV
44 00 02.54690	95 45 11.96589		503511.284	155651.578	.131	3	2015	RTRN2015

<u>NAD83(1996)</u>			<u>Murray County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>
44 00 02.54638	95 45 11.96719		503511.189	155651.525	.033	C	2016	HGARV

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>			<u>UTM - Zone 15</u>				<u>Project Info</u>	
<u>MN State Plane - South Zone</u>		<u>Order</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>							
2163350.753	697828.878		916186.571	15996153.459	.007		2016	GPS3142
2163350.753	697828.878		916186.571	15996153.459	.007	C	2016	HGARV
2163350.815	697828.895		916186.633	15996153.475	.131	3	2015	RTRN2015

<u>NAD83(1996)</u>			<u>UTM - Zone 15</u>				<u>Project Info</u>	
<u>MN State Plane - South Zone</u>		<u>Order</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>							
2163350.719	697828.844		916186.536	15996153.426	.033	C	2016	HGARV

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_U-DQ2423-3E-07JUL2015.jpg	E	Jul 7, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_U-DQ2423-2-07JUL2015.jpg		Jul 7, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_U-DQ2423-1-07JUL2015.jpg		Jul 7, 2015

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



Mn/DOT Name: 5105 V

NGS Name: 5105 V

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DQ2420](#) [Get Map](#)
NGS Quad / Sta Num : 44095332/
USGS Quad: HADLEY

				Reference	Reference	Vert	Horz
1/4	Sec	Twp	Rng	Latitude	Longitude	Order	Order
NE	22	107 N	41 W	440330.70	954511.70	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2015	2016	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 44 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2015) Stamping: 5105 V 2015

4.3 MILES WEST-SOUTHWEST OF CURRIE, 1.1 MILES SOUTHWEST ALONG TRUNK HIGHWAY 59/TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 30 EAST (THE JUNCTION IS 4.0 MILES WEST OF CURRIE), AT TRUNK HIGHWAY 59 MILEPOINT 45.65, 42.0 FEET EAST OF TRUNK HIGHWAY 59, 21.9 FEET NORTH OF A FIELD ENTRANCE, 0.5 MILE NORTH OF COUNTY ROAD 77 (141ST STREET), 5.0 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	
1562.881	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903	
1562.881	.016	2/1				VERTICAL CONTROL SURVEY	2015	VGARV	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88				Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference	
1562.881			1475.565	.016	2011	HORIZONTAL ADJUSTMENT	2016	GPS3142	
1562.881	.131		1475.739	.066	1996	GPS - STATIC	2016	HGARV	
1562.881			1475.565	.016	2011	GPS - STATIC	2016	HGARV	
1562.809	.262		1475.506	.197	2011	GPS - RTRN	2015	RTRN2015	

Geoid Separations(ft): GEOID18 = -87.310 12B = -87.306 09 = -87.221 03 = -87.034

Lat/Lon and County Coordinates (Feet)

NAD83(2011)		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 03 30.70052	95 45 11.69564	503527.607	176731.138	.007		ADJUSTMENT	2016	GPS3142
44 03 30.70052	95 45 11.69564	503527.607	176731.138	.007	C	GPS - STATIC	2016	HGARV
44 03 30.70035	95 45 11.69540	503527.625	176731.121	.131	3	GPS - RTRN	2015	RTRN2015

NAD83(1996)		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 03 30.70015	95 45 11.69619	503527.567	176731.101	.033	C	GPS - STATIC	2016	HGARV

State Plane and UTM Coordinates (Feet)

NAD83(2011)		UTM - Zone 15				Project Info		
MN State Plane - South Zone		X	Y	Acc	Order	Determination Method	Year	Reference
2163822.598	718900.711	916910.645	16017223.258	.007		ADJUSTMENT	2016	GPS3142
2163822.598	718900.711	916910.645	16017223.258	.007	C	GPS - STATIC	2016	HGARV
2163822.615	718900.694	916910.662	16017223.240	.131	3	GPS - RTRN	2015	RTRN2015

NAD83(1996)		UTM - Zone 15				Project Info		
MN State Plane - South Zone		X	Y	Acc	Order	Determination Method	Year	Reference
2163822.557	718900.675	916910.604	16017223.222	.033	C	GPS - STATIC	2016	HGARV

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_V-DQ2420-3E-07JUL2015.jpg	E	Jul 7, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_V-DQ2420-2-07JUL2015.jpg		Jul 7, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_V-DQ2420-1-07JUL2015.jpg		Jul 7, 2015

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



Mn/DOT Name: 5105 W
 County: MURRAY, MN (Sheet 1)

NGS Name: 5105 W

NGS ACRN: [DQ2417](#) [Get Map](#)
 NGS Quad / Sta Num : 44095332/
 USGS Quad: HADLEY

				Reference	Reference	Vert	Horz
1/4	Sec	Twp	Rng	Latitude	Longitude	Order	Order
SE	15	107 N	41 W	440419.18	954500.15	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2015	2019	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: (2015) **Stamping:** 5105 W 2015

4.2 MILES WEST OF CURRIE, 0.1 MILE SOUTHWEST ALONG TRUNK HIGHWAY 59/TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 30 EAST (THE JUNCTION IS 4.0 MILES WEST OF CURRIE), AT TRUNK HIGHWAY 59 MILEPOINT 46.65, 169.1 FEET NORTHWEST OF TRUNK HIGHWAY 59/TRUNK HIGHWAY 30, 45.8 FEET NORTHEAST OF COUNTY ROAD 12, 5.2 FEET SOUTHEAST OF A RIGHT-OF-WAY POST, 1.5 FEET SOUTHWEST 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
1594.472	.016	2/1					VERTICAL ADJUSTMENT	2020	00000949
1594.472	.016	2/1					VERTICAL CONTROL SURVEY	2019	VDRAY
1594.472	.016	2/1					VERTICAL ADJUSTMENT	2017	00000903
1594.472	.016	2/1					VERTICAL CONTROL SURVEY	2015	VGARV

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88				Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)		Height	Acc	Adj	Determination Method	Year	Reference
1594.472	.131			1507.418	.066	1996	GPS - STATIC	2019	HDRAY
1594.472				1507.172	.021	2011	GPS - STATIC	2019	HDRAY
1594.472				1507.172	.021	2011	HORIZONTAL ADJUSTMENT	2019	GPS3311
1594.492	.262			1507.175	.197	2011	GPS - RTRN	2019	RTRN2019
1594.449	.262			1507.133	.197	2011	GPS - RTRN	2015	RTRN2015

Geoid Separations(ft): GEOID18 = -87.319 12B = -87.316 09 = -87.231 03 = -87.047

Lat/Lon and County Coordinates (Feet)

NAD83(2011)		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 04 19.17601	95 45 00.14529	504370.124	181640.399	.013	C	GPS - STATIC	2019	HDRAY
44 04 19.17601	95 45 00.14529	504370.124	181640.399	.013		ADJUSTMENT	2019	GPS3311
44 04 19.17598	95 45 00.14440	504370.189	181640.396	.131	3	GPS - RTRN	2019	RTRN2019
44 04 19.17543	95 45 00.14490	504370.153	181640.340	.131	3	GPS - RTRN	2015	RTRN2015

NAD83(1996)		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 04 19.17543	95 45 00.14541	504370.116	181640.340	.033	C	GPS - STATIC	2019	HDRAY

State Plane and UTM Coordinates (Feet)

NAD83(2011)		Murray County				Project Info		
MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Year	Reference
X	Y	X	Y					
2164770.889	723790.022	917917.714	16022102.054	.013	C	GPS - STATIC	2019	HDRAY
2164770.889	723790.022	917917.714	16022102.054	.013		ADJUSTMENT	2019	GPS3311
2164770.954	723790.018	917917.778	16022102.049	.131	3	GPS - RTRN	2019	RTRN2019
2164770.916	723789.963	917917.740	16022101.994	.131	3	GPS - RTRN	2015	RTRN2015

NAD83(1996)		Murray County				Project Info		
MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Year	Reference
X	Y	X	Y					
2164770.879	723789.964	917917.703	16022101.996	.033	C	GPS - STATIC	2019	HDRAY



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_W-DQ2417-3NE-01APR2019.jpg	NE	Apr 1, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_W-DQ2417-2-01APR2019.jpg		Apr 1, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_W-DQ2417-1-01APR2019.jpg		Apr 1, 2019

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



Mn/DOT Name: 5105 X

NGS Name: 5105 X

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DQ2414](#) [Get Map](#)
 NGS Quad / Sta Num : 44095324/
 USGS Quad: TRACY WEST

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	27	108 N	41 W	440816.34	954439.09	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>
2015	2016	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 23 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2015) Stamping: 5105 X 2015

5.3 MILES SOUTH OF GARVIN, 5.2 MILES SOUTH ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND COUNTY ROAD 14 EAST IN GARVIN, AT TRUNK HIGHWAY 59 MILEPOINT 51.4, 89.1 FEET WEST OF TRUNK HIGHWAY 59, 113.0 FEET SOUTH OF COUNTY ROAD 16 (201ST STREET), 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>	
1532.697	.016	2/1						VERTICAL ADJUSTMENT	2017	00000903	
1532.697	.016	2/1						VERTICAL CONTROL SURVEY	2015	VGARV	

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>	
1532.697				1445.279	.019	2011		HORIZONTAL ADJUSTMENT	2016	GPS3142	
1532.697	.131			1445.437	.066	1996		GPS - STATIC	2016	HGARV	
1532.697				1445.279	.019	2011		GPS - STATIC	2016	HGARV	
1532.569	.262			1445.171	.197	2011		GPS - RTRN	2015	RTRN2015	

Geoid Separations(ft): GEOID18 = -87.408 12B = -87.401 09 = -87.316 03 = -87.162

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>				
44 08 16.33595	95 44 39.09072			505900.816	205658.100	.007		ADJUSTMENT	2016	GPS3142	
44 08 16.33595	95 44 39.09072			505900.816	205658.100	.007	C	GPS - STATIC	2016	HGARV	
44 08 16.33512	95 44 39.09095			505900.799	205658.016	.131	3	GPS - RTRN	2015	RTRN2015	

<u>NAD83(1996)</u>				<u>Murray 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>				
44 08 16.33562	95 44 39.09130			505900.774	205658.066	.033	C	GPS - STATIC	2016	HGARV	

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 - South 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>				
2166819.956	747765.978			920255.143	16046057.629	.007		ADJUSTMENT	2016	GPS3142	
2166819.956	747765.978			920255.143	16046057.629	.007	C	GPS - STATIC	2016	HGARV	
2166819.938	747765.895			920255.123	16046057.546	.131	3	GPS - RTRN	2015	RTRN2015	

<u>NAD83(1996)</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>			<u>Project Info</u>	
<u>MN State Plane - South 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>				
2166819.913	747765.945			920255.099	16046057.597	.033	C	GPS - STATIC	2016	HGARV	

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_X-DQ2414-3W-14JUL2015.jpg	W	Jul 14, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_X-DQ2414-2-14JUL2015.jpg		Jul 14, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_X-DQ2414-1-14JUL2015.jpg		Jul 14, 2015

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



Mn/DOT Name: 5105 Y

NGS Name: 5105 Y

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DQ2413](#) [Get Map](#)
 NGS Quad / Sta Num : 44095324/
 USGS Quad: TRACY WEST

				Reference	Reference	Vert	Horz
1/4	Sec	Twp	Rng	Latitude	Longitude	Order	Order
NE	22	108 N	41 W	440845.45	954439.22	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2015	2016	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 23 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2015) **Stamping:** 5105 Y 2015

4.7 MILES SOUTH OF GARVIN, 4.65 MILES SOUTH ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND COUNTY ROAD 14 EAST IN GARVIN, AT TRUNK HIGHWAY 59 MILEPOINT 51.95, 88.3 FEET WEST OF TRUNK HIGHWAY 59, 39.2 FEET NORTH OF A FIELD ENTRANCE, 28.5 FEET NORTH-NORTHEAST OF A CABLE BOX, 0.45 MILE SOUTH OF 211TH STREET, 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
1542.254	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903
1542.254	.016	2/1				VERTICAL CONTROL SURVEY	2015	VGARV

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1542.254			1454.804	.018	2011	HORIZONTAL ADJUSTMENT	2016	GPS3142
1542.254	.131		1454.954	.066	1996	GPS - STATIC	2016	HGARV
1542.254			1454.804	.018	2011	GPS - STATIC	2016	HGARV
1542.366	.262		1454.945	.197	2011	GPS - RTRN	2015	RTRN2015

Geoid Separations(ft): GEOID18 = -87.431 12B = -87.421 09 = -87.339 03 = -87.191

Lat/Lon and County Coordinates (Feet)

NAD83(2011)		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 08 45.44623	95 44 39.21513	505890.940	208606.136	.007		ADJUSTMENT	2016	GPS3142
44 08 45.44623	95 44 39.21513	505890.940	208606.136	.007	C	GPS - STATIC	2016	HGARV
44 08 45.44638	95 44 39.21416	505891.011	208606.151	.131	3	GPS - RTRN	2015	RTRN2015

NAD83(1996)		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 08 45.44589	95 44 39.21572	505890.897	208606.101	.033	C	GPS - STATIC	2016	HGARV

State Plane and UTM Coordinates (Feet)

NAD83(2011)		UTM - Zone 15				Project Info		
MN State Plane - South Zone		X	Y	Acc	Order	Determination Method	Year	Reference
2166873.778	750713.148	920344.442	16049004.677	.007		ADJUSTMENT	2016	GPS3142
2166873.778	750713.148	920344.442	16049004.677	.007	C	GPS - STATIC	2016	HGARV
2166873.849	750713.161	920344.513	16049004.690	.131	3	GPS - RTRN	2015	RTRN2015

NAD83(1996)		UTM - Zone 15				Project Info		
MN State Plane - South Zone		X	Y	Acc	Order	Determination Method	Year	Reference
2166873.735	750713.114	920344.398	16049004.644	.033	C	GPS - STATIC	2016	HGARV

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_Y-DQ2413-3W-07JUL2015.jpg	W	Jul 7, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_Y-DQ2413-2-07JUL2015.jpg		Jul 7, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_Y-DQ2413-1-07JUL2015.jpg		Jul 7, 2015

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



Mn/DOT Name: 5105 Z

NGS Name: 5105 Z

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DQ2410](#) [Get Map](#)
 NGS Quad / Sta Num : 44095324/
 USGS Quad: TRACY WEST

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	108 N	41 W	441023.04	954436.18	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	2016	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 18 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2015) Stamping: 5105 Z 2015

3.0 MILES SOUTH OF GARVIN, 2.8 MILES SOUTH ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND COUNTY ROAD 14 EAST IN GARVIN, AT TRUNK HIGHWAY 59 MILEPOINT 53.8, 105.1 FEET EAST OF TRUNK HIGHWAY 59, 134.5 FEET NORTH OF DRIVEWAY NUMBER 2239 EXTENDED, 0.4 MILE NORTH OF 221ST STREET, 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>			
1508.406	.016	2/1				2017	00000903	VERTICAL ADJUSTMENT		
1508.402	.016	2/1				2015	VGARV	VERTICAL CONTROL SURVEY		

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>			
1508.402			1420.867	.017	2011	2016	GPS3142	HORIZONTAL ADJUSTMENT		
1508.402	.131		1421.021	.066	1996	2016	HGARV	GPS - STATIC		
1508.402			1420.867	.017	2011	2016	HGARV	GPS - STATIC		
1508.370	.262		1420.857	.197	2011	2015	RTRN2015	GPS - RTRN		

Geoid Separations(ft): GEOID18 = -87.523 12B = -87.513 09 = -87.437 03 = -87.280

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Murray County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 10 23.03518	95 44 36.17882	506109.559	218489.200	.007		ADJUSTMENT	2016	GPS3142
44 10 23.03518	95 44 36.17882	506109.559	218489.200	.007	C	GPS - STATIC	2016	HGARV
44 10 23.03468	95 44 36.17867	506109.570	218489.150	.131	3	GPS - RTRN	2015	RTRN2015

<u>NAD83(1996)</u>		<u>Murray County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 10 23.03487	95 44 36.17948	506109.511	218489.169	.033	C	GPS - STATIC	2016	HGARV

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>		<u>UTM - Zone 15</u>			<u>Project Info</u>			
<u>MN State Plane - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
		920895.530	16058875.946	.007		ADJUSTMENT	2016	GPS3142
2167305.847	760587.845	920895.530	16058875.946	.007	C	GPS - STATIC	2016	HGARV
2167305.857	760587.794	920895.539	16058875.895	.131	3	GPS - RTRN	2015	RTRN2015

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>			<u>Project Info</u>			
<u>MN State Plane - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2167305.799	760587.815	920895.480	16058875.916	.033	C	GPS - STATIC	2016	HGARV

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_Z-DQ2410-3E-07JUL2015.jpg	E	Jul 7, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_Z-DQ2410-2-07JUL2015.jpg		Jul 7, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5105_Z-DQ2410-1-07JUL2015.jpg		Jul 7, 2015

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



Mn/DOT Name: 5106 A

NGS Name: 5106 A

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DO7221](#) [Get Map](#)
 NGS Quad / Sta Num : 43095412/
 USGS Quad: FULDA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	39 W	435153.51	953431.12	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>
2011	2015	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 20 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDDT

Description: (2011) Stamping: 5106 A 2011

1.0 MILE EAST OF FULDA, 0.95 MILE EAST ALONG TRUNK HIGHWAY 62 FROM THE JUNCTION OF TRUNK HIGHWAY 62 AND TRUNK HIGHWAY 59 IN FULDA, AT TRUNK HIGHWAY 62 MILEPOINT 0.95, 69.1 FEET SOUTHWEST OF TRUNK HIGHWAY 62, 15.6 FEET SOUTHEAST OF A FIELD ENTRANCE, 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>		
1511.532	.016	2/1				VERTICAL ADJUSTMENT	2013	00000792		
1511.532	.016	2/1				VERTICAL CONTROL SURVEY	2012	VFULD		

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>		
1511.513	.262		1423.495	.197	2011	GPS - RTRN	2015	RTRN2015		
1511.532			1423.432	.014	2011	HORIZONTAL ADJUSTMENT	2014	GPS2962		
1511.532			1423.432	.014	2011	GPS - STATIC	2014	HFULD		
1511.532	.131		1423.826	.066	1996	GPS - STATIC	2013	HFULD		
1511.398	.262		1423.504	.197	2007	GPS - RTRN	2011	RTRN2011		

Geoid Separations(ft): GEOID18 = -88.041 12B = -88.018 09 = -87.894 03 = -87.707

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>									
43 51 53.50709	95 34 31.11865			550472.025	106185.944	.131	3	GPS - RTRN	2015	RTRN2015
43 51 53.50781	95 34 31.11764			550472.099	106186.017	.013		ADJUSTMENT	2014	GPS2962
43 51 53.50781	95 34 31.11764			550472.099	106186.017	.013	C	GPS - STATIC	2014	HFULD

<u>NAD83(2007)</u>				<u>Murray 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>									
43 51 53.50891	95 34 31.11873			550472.019	106186.128	.131	3	GPS - RTRN	2011	RTRN2011

<u>NAD83(1996)</u>				<u>Murray 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>									
43 51 53.50720	95 34 31.11759			550472.103	106185.955	.033	C	GPS - STATIC	2013	HFULD

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2209227.355	647365.659	961467.312	15945137.432	.131	3	GPS - RTRN	2015	RTRN2015
2209227.431	647365.731	961467.388	15945137.502	.013		ADJUSTMENT	2014	GPS2962
2209227.431	647365.731	961467.388	15945137.502	.013	C	GPS - STATIC	2014	HFULD

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2209227.353	647365.843	961467.312	15945137.616	.131	3	GPS - RTRN	2011	RTRN2011

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2209227.433	647365.669	961467.390	15945137.440	.033	C	GPS - STATIC	2013	HFULD

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5106_A-DO7221-3SW-13JUN2011.jpg	SW	Jun 13, 2011
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5106_A-DO7221-2-13JUN2011.jpg		Jun 13, 2011
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5106_A-DO7221-1-13JUN2011.jpg		Jun 13, 2011

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



Mn/DOT Name: 5106 B

NGS Name: 5106 B

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DO7220](#) [Get Map](#)
 NGS Quad / Sta Num : 43095412/
 USGS Quad: FULDA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	39 W	435151.79	953346.72	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>
2011	2021	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 20 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) Stamping: 5106 B 2011

1.6 MILES EAST OF FULDA, 1.6 MILES EAST ALONG TRUNK HIGHWAY 62 FROM THE JUNCTION OF TRUNK HIGHWAY 62 AND TRUNK HIGHWAY 59 IN FULDA, AT TRUNK HIGHWAY 62 MILEPOINT 1.6, 77.5 FEET NORTH OF TRUNK HIGHWAY 62, 102.3 FEET WEST OF 250TH AVENUE, 70.0 FEET WEST-SOUTHWEST OF A POWER POLE, 17.8 FEET EAST OF A FIELD ENTRANCE, 2.4 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>	
1491.834	.016	2/1						VERTICAL ADJUSTMENT	2013	00000792	
1491.834	.016	2/1						VERTICAL CONTROL SURVEY	2012	VFULD	

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>	
1491.811	.262			1403.711	.197	2011		GPS - OPUS	2021	GPSBM	
1491.824	.262			1403.747	.197	2011		GPS - RTRN	2015	RTRN2015	
1491.834				1403.691	.014	2011		HORIZONTAL ADJUSTMENT	2014	GPS2962	
1491.834				1403.691	.014	2011		GPS - STATIC	2014	HFULD	
1491.834	.131			1404.069	.066	1996		GPS - STATIC	2013	HFULD	
1491.841	.262			1403.885	.197	2007		GPS - RTRN	2011	RTRN2011	

Geoid Separations(ft): GEOID18 = -88.100 12B = -88.081 09 = -87.953 03 = -87.766

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>											
43 51 51.79392	95 33 46.71500			553725.754	106020.254	.131	3	GPS - OPUS		2021	GPSBM	
43 51 51.79398	95 33 46.71549			553725.718	106020.260	.131	3	GPS - RTRN		2015	RTRN2015	
43 51 51.79408	95 33 46.71459			553725.784	106020.270	.013		ADJUSTMENT		2014	GPS2962	
43 51 51.79408	95 33 46.71459			553725.784	106020.270	.013	C	GPS - STATIC		2014	HFULD	

<u>NAD83(2007)</u>				<u>Murray 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>											
43 51 51.79519	95 33 46.71544			553725.721	106020.382	.131	3	GPS - RTRN		2011	RTRN2011	

<u>NAD83(1996)</u>				<u>Murray 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>											
43 51 51.79353	95 33 46.71458			553725.785	106020.215	.033	C	GPS - STATIC		2013	HFULD	

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2212476.442	647129.779	964713.823	15944862.908	.131	3	GPS - OPUS	2021	GPSBM
2212476.406	647129.785	964713.787	15944862.916	.131	3	GPS - RTRN	2015	RTRN2015
2212476.472	647129.794	964713.853	15944862.924	.013		ADJUSTMENT	2014	GPS2962
2212476.472	647129.794	964713.853	15944862.924	.013	C	GPS - STATIC	2014	HFULD

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2212476.412	647129.908	964713.794	15944863.038	.131	3	GPS - RTRN	2011	RTRN2011

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2212476.472	647129.739	964713.852	15944862.868	.033	C	GPS - STATIC	2013	HFULD

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5106_B-DO7220-3N-28APR2021.jpg	N	Apr 28, 2021
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5106_B-DO7220-2-28APR2021.jpg		Apr 28, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5106_B-DO7220-1-28APR2021.jpg		Apr 28, 2021

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



Mn/DOT Name: 5106 C

NGS Name: 5106 C

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DO7217](#) [Get Map](#)
 NGS Quad / Sta Num : 43095412/
 USGS Quad: FULDA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	39 W	435144.29	953129.26	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>
2011	2021	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 20 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2011) Stamping: 5106 C 2011

3.5 MILES EAST OF FULDA, 3.55 MILES EAST ALONG TRUNK HIGHWAY 62 FROM THE JUNCTION OF TRUNK HIGHWAY 62 AND TRUNK HIGHWAY 59 IN FULDA, AT TRUNK HIGHWAY 62 MILEPOINT 3.55, 62.6 FEET SOUTH OF TRUNK HIGHWAY 62, 24.2 FEET EAST OF A FIELD ENTRANCE, 2.0 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>	
1486.857	.016	2/1						VERTICAL ADJUSTMENT	2013	00000792	
1486.861	.016	2/1						VERTICAL CONTROL SURVEY	2012	VFULD	

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>	
1486.824	.262			1398.560	.197	2011		GPS - OPUS	2021	GPSBM	
1486.861				1398.609	.021	2011		HORIZONTAL ADJUSTMENT	2014	GPS2962	
1486.861				1398.609	.021	2011		GPS - STATIC	2014	HFULD	
1486.861	.131			1398.918	.066	1996		GPS - STATIC	2013	HFULD	
1486.966	.262			1398.842	.197	2007		GPS - RTRN	2011	RTRN2011	

Geoid Separations(ft): GEOID18 = -88.264 12B = -88.245 09 = -88.126 03 = -87.943

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Murray 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>	
43 51 44.28508	95 31 29.25995	563798.908	105287.084	.131	3	GPS - OPUS		2021	GPSBM	
43 51 44.28449	95 31 29.25915	563798.967	105287.024	.013		ADJUSTMENT		2014	GPS2962	
43 51 44.28449	95 31 29.25915	563798.967	105287.024	.013	C	GPS - STATIC		2014	HFULD	

<u>NAD83(2007)</u>		<u>Murray 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>	
43 51 44.28519	95 31 29.26048	563798.869	105287.095	.131	3	GPS - RTRN		2011	RTRN2011	

<u>NAD83(1996)</u>		<u>Murray 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>	
43 51 44.28432	95 31 29.25951	563798.941	105287.007	.033	C	GPS - STATIC		2013	HFULD	

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South 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>
2222530.475	646179.404	974757.155	15943792.927	.131	3	GPS - OPUS	2021	GPSBM
2222530.532	646179.344	974757.212	15943792.866	.013		ADJUSTMENT	2014	GPS2962
2222530.532	646179.344	974757.212	15943792.866	.013	C	GPS - STATIC	2014	HFULD

NAD83(2007)

MN State Plane - South 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>
2222530.436	646179.416	974757.116	15943792.939	.131	3	GPS - RTRN	2011	RTRN2011

NAD83(1996)

MN State Plane - South 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>
2222530.505	646179.327	974757.185	15943792.849	.033	C	GPS - STATIC	2013	HFULD

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5106_C-DO7217-3S-28APR2021.jpg	S	Apr 28, 2021
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5106_C-DO7217-2-28APR2021.jpg		Apr 28, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5106_C-DO7217-1-28APR2021.jpg		Apr 28, 2021

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



Mn/DOT Name: 5106 D

NGS Name: 5106 D

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DO7214](#) [Get Map](#)
 NGS Quad / Sta Num : 43095143/
 USGS Quad: DUNDEE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	26	105 N	39 W	435145.95	952932.70	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>
2011	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 20 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2011) Stamping: 5106 D 2011

5.0 MILES EAST OF FULDA, 5.15 MILES EAST ALONG TRUNK HIGHWAY 62 FROM THE SOUTH JUNCTION OF TRUNK HIGHWAY 62 AND TRUNK HIGHWAY 59 IN FULDA, AT TRUNK HIGHWAY 62 MILEPOINT 5.15, 99.2 FEET NORTH OF TRUNK HIGHWAY 62, 20.7 FEET WEST OF A POWER POLE, 4.5 FEET EAST OF A WOOD FENCE 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>	
1466.546	.016	2/1					VERTICAL ADJUSTMENT	2013	00000792	
1466.549	.016	2/1					VERTICAL CONTROL SURVEY	2012	VFULD	

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>	
1466.532	.262			1378.134	.197	2011	GPS - OPUS	2019	GPSBM	
1466.569	.262			1378.167	.197	2011	GPS - RTRN	2019	RTRN2019	
1466.549				1378.147	.017	2011	HORIZONTAL ADJUSTMENT	2014	GPS2962	
1466.549				1378.147	.017	2011	GPS - STATIC	2014	HFULD	
1466.549	.131			1378.459	.066	1996	GPS - STATIC	2013	HFULD	
1466.651	.262			1378.393	.197	2007	GPS - RTRN	2011	RTRN2011	

Geoid Separations(ft): GEOID18 = -88.399 12B = -88.382 09 = -88.258 03 = -88.090

Lat/Lon and County Coordinates (Feet)

<u>Geodetic Position</u>		<u>Murray 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>	
43 51 45.94619	95 29 32.69530	572338.982	105482.040	.131	3	GPS - OPUS	2019	GPSBM	
43 51 45.94703	95 29 32.69622	572338.914	105482.125	.131	3	GPS - RTRN	2019	RTRN2019	
43 51 45.94637	95 29 32.69507	572338.999	105482.058	.010		ADJUSTMENT	2014	GPS2962	
43 51 45.94637	95 29 32.69507	572338.999	105482.058	.010	C	GPS - STATIC	2014	HFULD	

<u>Geodetic Position</u>		<u>Murray 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>	
43 51 45.94660	95 29 32.69524	572338.986	105482.081	.131	3	GPS - RTRN	2011	RTRN2011	

<u>Geodetic Position</u>		<u>Murray 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>	
43 51 45.94609	95 29 32.69520	572338.990	105482.030	.033	C	GPS - STATIC	2013	HFULD	

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2231071.964	646189.977	983299.157	15943701.902	.131	3	GPS - OPUS	2019	GPSBM
2231071.898	646190.063	983299.093	15943701.990	.131	3	GPS - RTRN	2019	RTRN2019
2231071.981	646189.995	983299.175	15943701.920	.010		ADJUSTMENT	2014	GPS2962
2231071.981	646189.995	983299.175	15943701.920	.010	C	GPS - STATIC	2014	HFULD

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2231071.969	646190.018	983299.163	15943701.944	.131	3	GPS - RTRN	2011	RTRN2011

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2231071.971	646189.967	983299.165	15943701.892	.033	C	GPS - STATIC	2013	HFULD

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5106_D-DO7214-3N-22OCT2019.jpg	N	Oct 22, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5106_D-DO7214-2-22OCT2019.jpg		Oct 22, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5106_D-DO7214-1-22OCT2019.jpg		Oct 22, 2019

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



Mn/DOT Name: 5106 E

NGS Name: 5106 E

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DO7213](#) [Get Map](#)
 NGS Quad / Sta Num : 43095143/
 USGS Quad: DUNDEE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	39 W	435144.14	952821.02	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>
2011	2021	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 20 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2011) Stamping: 5106 E 2011

6.0 MILES EAST OF FULDA, 6.15 MILES EAST ALONG TRUNK HIGHWAY 62 FROM THE JUNCTION OF TRUNK HIGHWAY 62 AND TRUNK HIGHWAY 59 IN FULDA, AT TRUNK HIGHWAY 62 MILEPOINT 6.15, 65.2 FEET SOUTH OF TRUNK HIGHWAY 62, 10.7 FEET NORTH OF A FENCE POST, IN THE CENTER OF A DOUBLE FIELD ENTRANCE, 8.0 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>	
1462.783	.016	2/1						VERTICAL ADJUSTMENT	2013	00000792	
1462.786	.016	2/1						VERTICAL CONTROL SURVEY	2012	VFULD	

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>	
1462.887	.262			1374.413	.197	2011		GPS - OPUS	2021	GPSBM	
1462.786				1374.341	.018	2011		HORIZONTAL ADJUSTMENT	2014	GPS2962	
1462.786				1374.341	.018	2011		GPS - STATIC	2014	HFULD	
1462.786	.131			1374.610	.066	1996		GPS - STATIC	2013	HFULD	
1462.907	.262			1374.574	.197	2007		GPS - RTRN	2011	RTRN2011	

Geoid Separations(ft): GEOID18 = -88.471 12B = -88.455 09 = -88.333 03 = -88.176

Lat/Lon and County Coordinates (Feet)

<u>Geodetic Position</u>		<u>Murray 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>	
43 51 44.13514	95 28 21.01850	577591.314	105316.752	.131	3	GPS - OPUS		2021	GPSBM	
43 51 44.13539	95 28 21.01788	577591.359	105316.777	.016		ADJUSTMENT		2014	GPS2962	
43 51 44.13539	95 28 21.01788	577591.359	105316.777	.016	C	GPS - STATIC		2014	HFULD	

<u>Geodetic Position</u>		<u>Murray 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>	
43 51 44.13593	95 28 21.01843	577591.319	105316.832	.131	3	GPS - RTRN		2011	RTRN2011	

<u>Geodetic Position</u>		<u>Murray 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>	
43 51 44.13503	95 28 21.01794	577591.355	105316.740	.033	C	GPS - STATIC		2013	HFULD	

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South 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>
2236319.012	645911.396	988543.074	15943360.883	.131	3	GPS - OPUS	2021	GPSBM
2236319.058	645911.420	988543.120	15943360.907	.016		ADJUSTMENT	2014	GPS2962
2236319.058	645911.420	988543.120	15943360.907	.016	C	GPS - STATIC	2014	HFULD

NAD83(2007)

MN State Plane - South 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>
2236319.018	645911.476	988543.082	15943360.963	.131	3	GPS - RTRN	2011	RTRN2011

NAD83(1996)

MN State Plane - South 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>
2236319.053	645911.384	988543.115	15943360.870	.033	C	GPS - STATIC	2013	HFULD

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5106_E-DO7213-3S-28APR2021.jpg	S	Apr 28, 2021
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5106_E-DO7213-2-28APR2021.jpg		Apr 28, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5106_E-DO7213-1-28APR2021.jpg		Apr 28, 2021

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



Mn/DOT Name: 5107 A

NGS Name: 5107 A

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP1396](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	42 W	435536.70	955635.40	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>
1963	2016	GOOD	Horz=NO Vert=NO	YES	6753	FLUSH	NO MAG MATERIAL

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

Description: (2001) Stamping: 5107 A 1963

IN CHANDLER, IN THE SOUTHEAST CORNER OF TRUNK HIGHWAY 91 BRIDGE NUMBER 6753, 0.1 MILE SOUTH ON TRUNK HIGHWAY 91 FROM THE JUNCTION OF TRUNK HIGHWAY 91 AND COUNTY ROAD 4, 19.0 FEET EAST OF TRUNK HIGHWAY 91, AT TRUNK HIGHWAY 91 MILEPOINT 33.8.

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>
1649.288	.016	2/1				VERTICAL ADJUSTMENT	2020	00000949
1649.232	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903
1649.245	.016	2/1				VERTICAL CONTROL SURVEY	2016	VRUSS
1649.232	.016	2/1				VERTICAL ADJUSTMENT	1995	00000135

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>
1648.579	.016	2/1				VERTICAL CONTROL SURVEY	1987	VSLAY
1648.579	.016	2				VERTICAL CONTROL SURVEY	1965	L92 MINN

Geoid Separations(ft): GEOID18 = -86.086 12B = -86.086 09 = -85.978 03 = -85.869

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5107_A-OP1396-3N-22MAR2016.jpg	N	Mar 22, 2016
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5107_A-OP1396-2-22MAR2016.jpg		Mar 22, 2016
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5107_A-OP1396-1-22MAR2016.jpg		Mar 22, 2016

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



Mn/DOT Name: 5107 B

NGS Name: 5107 B

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 43095443/
 USGS Quad: SLAYTON 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	105 N	42 W	435147.00	955635.00		

<u>Year Set</u>	<u>Last Recovery</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	2016	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:

5.0 MILES SOUTHEAST OF CHANDLER, 0.4 MILE EAST ALONG 61ST STREET FROM THE JUNCTION OF 61ST STREET AND 5TH STREET, 5.0 MILES SOUTH ON TRUNK HIGHWAY 91, THEN 282.0 FEET EAST ON 11TH STREET, AT TRUNK HIGHWAY 91 STATION 91+53, 57.0 FEET RIGHT OF TRUNK HIGHWAY 91.

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>	
1719.780	.033	3				VERTICAL CONTROL SURVEY	1953	CS5107	

Geoid Separations(ft): GEOID18 = -86.253 12B = -86.233 09 = -86.135 03 = -86.037

* No Horizontal Positions in the Database *



Mn/DOT Name: 5107 C

NGS Name: 5107 C

County: MURRAY, MN (Sheet 1)

NGS ACRN: [AI7663](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	42 W	435239.13	955637.40	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>
1953	2018	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: (2001) Stamping: 5107 C 1953

3.5 MILES SOUTH OF CHANDLER, 3.45 MILES SOUTH ALONG TRUNK HIGHWAY 91 FROM THE JUNCTION OF TRUNK HIGHWAY 91 AND COUNTY ROAD 4 IN CHANDLER, AT TRUNK HIGHWAY 91 MILEPOINT 30.4, 74.0 FEET EAST OF TRUNK HIGHWAY 91, 57.0 FEET SOUTH OF COUNTY ROAD 1, 72.4 FEET WEST-SOUTHWEST OF A CABLE PEDESTAL, 0.7 FOOT 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>Year</u>	<u>Reference</u>
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		
1727.349	.016	2/1				2020	00000949
1726.903	.016	2/1				2017	00000903
1726.899	.016	2/1				2016	VRUSS
1726.647	.016	2/1				2001	00000380
1726.630	.016	2/1				2000	VLISM

<u>NGVD29</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>		
1725.731	.033	3				1953	CS5107

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>		
1727.100	.262		1640.883	.197	2011	2018	RTRN2018
			1640.433	.008	2011	2012	GPS2800
			1640.528	.009	2007	2007	GPS2300
1726.637	.131		1640.614	.066	1996	2002	GPS1767
1726.637	.131		1640.614	.066	1996	2002	HLISM

Geoid Separations(ft): GEOID18 = -86.253 12B = -86.217 09 = -86.135 03 = -86.037

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>									
43 52 39.12543	95 56 37.39674			453309.998	110797.128	.131	3	GPS - RTRN	2018	RTRN2018
43 52 39.12513	95 56 37.39663			453310.005	110797.098	.007		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>				<u>Murray 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>									
43 52 39.12511	95 56 37.39750			453309.942	110797.096	.007		ADJUSTMENT	2007	GPS2300

<u>NAD83(1996)</u>				<u>Murray 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>									
43 52 39.12466	95 56 37.39661			453310.007	110797.050	.033	C	ADJUSTMENT	2002	GPS1767
43 52 39.12466	95 56 37.39661			453310.005	110797.052	.033	C	GPS - STATIC	2002	HLISM



State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2112196.903	654074.810	864501.645	15952999.334	.131	3	GPS - RTRN	2018	RTRN2018
2112196.910	654074.780	864501.652	15952999.303	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2112196.847	654074.779	864501.588	15952999.304	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2112196.911	654074.732	864501.651	15952999.256	.033	C	ADJUSTMENT	2002	GPS1767
2112196.911	654074.732	864501.651	15952999.256	.033	C	GPS - STATIC	2002	HLISM

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5107_C-AI7663-3E-22MAR2016.jpg	E	Mar 22, 2016
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5107_C-AI7663-2-22MAR2016.jpg		Mar 22, 2016
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5107_C-AI7663-1-22MAR2016.jpg		Mar 22, 2016

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



Mn/DOT Name: 5107 D

NGS Name: 5107 D

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	42 W	435421.00	955636.00		

<u>Year Set</u>	<u>Last Recovery</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	2016	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:

2.07 MILES SOUTHEAST OF CHANDLER, 0.4 MILE EAST ALONG 61ST STREET FROM THE JUNCTION OF 61ST STREET AND 5TH STREET, THEN 2.0 MILES SOUTH ON TRUNK HIGHWAY 91, AT TRUNK HIGHWAY 91 STATION 194+24, 59.0 FEET RIGHT OF TRUNK HIGHWAY 91.

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>	
1803.212	.033	3				VERTICAL CONTROL SURVEY	1953	CS5107	

Geoid Separations(ft): GEOID18 = -86.171 12B = -86.142 09 = -86.060 03 = -85.958

* No Horizontal Positions in the Database *



Mn/DOT Name: 5107 G

NGS Name: 5107 G

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP1394](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	43 W	435659.19	955638.23	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>
1953	2015	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: 5107 G 1953

1.5 MILES NORTH OF CHANDLER, 1.55 MILES NORTH ALONG TRUNK HIGHWAY 91 FROM THE JUNCTION OF TRUNK HIGHWAY 91 AND COUNTY ROAD 4 IN CHANDLER, AT TRUNK HIGHWAY 91 MILEPOINT 35.4, 85.5 FEET WEST OF TRUNK HIGHWAY 91, 174.6 FEET NORTH-NORTHWEST OF A POWER POLE, 67.9 FEET SOUTH-SOUTHWEST OF A WOOD CORNER FENCE POST, 27.6 FEET WEST OF A NORTH-SOUTH FENCE LINE, 1.0 FOOT SOUTH OF A WITNESS POST.

Station Notes

ON PRIVATE PROPERTY (2016)

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>	
1662.241	.016	2/1					VERTICAL ADJUSTMENT	2020	00000949	
1662.205	.016	2/1					VERTICAL ADJUSTMENT	2017	00000903	
1662.205	.016	2/1					VERTICAL CONTROL SURVEY	2016	VRUSS	
1662.205	.016	2/1					VERTICAL ADJUSTMENT	1995	00000135	

<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>	
1661.549	.016	2/1					VERTICAL CONTROL SURVEY	1987	VSLAY	
1661.539	.033	3					VERTICAL CONTROL SURVEY	1953	CS5107	

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>	
				1576.211	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
				1576.299	.009	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300	
1662.201	.131			1576.391	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1792	
1662.201	.131			1576.391	.066	1996	GPS - STATIC	2002	HWILS	

Geoid Separations(ft): GEOID18 = -86.046 12B = -86.043 09 = -85.928 03 = -85.827

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>									
43 56 59.19018	95 56 38.22665			453305.856	137133.285	.010	ADJUSTMENT	2012	GPS2800	

<u>NAD83(2007)</u>				<u>Murray 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>									
43 56 59.19017	95 56 38.22762			453305.785	137133.284	.010	ADJUSTMENT	2007	GPS2300	

<u>NAD83(1996)</u>				<u>Murray 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>									
43 56 59.18985	95 56 38.22672			453305.851	137133.252	.033	C ADJUSTMENT	2003	GPS1792	
43 56 59.18985	95 56 38.22672			453305.852	137133.253	.033	C GPS - STATIC	2002	HWILS	



State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South 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>
2112762.319	680402.235	865379.850	15979326.424	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South 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>
2112762.248	680402.235	865379.778	15979326.425	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South 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>
2112762.313	680402.202	865379.843	15979326.391	.033	C	ADJUSTMENT	2003	GPS1792
2112762.313	680402.201	865379.843	15979326.391	.033	C	GPS - STATIC	2002	HWILS

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:			
Monument:			
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5107_G-OP1394-1-12MAY2016.jpg		May 12, 2016

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



Mn/DOT Name: 5107 H

NGS Name: 5107 H

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DF3590](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	43 W	435753.00	955636.00		

<u>Year Set</u>	<u>Last Recovery</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	2001	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)	UNKNOWN	MNDT

Description: (1953) Stamping:

2.04 MILES SOUTHEAST OF LAKE WILSON, 2.0 MILES SOUTH ALONG TRUNK HIGHWAY 91 FROM THE JUNCTION OF TRUNK HIGHWAY 91 AND TRUNK HIGHWAY 30, AT TRUNK HIGHWAY 91 STATION 472+80, 66.0 FEET LEFT OF TRUNK HIGHWAY 91.

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>	
1640.509	.033	3				VERTICAL CONTROL SURVEY	1953	CS5107	

Geoid Separations(ft): GEOID18 = -86.063 12B = -86.056 09 = -85.941 03 = -85.843

* No Horizontal Positions in the Database *



Mn/DOT Name: 5107 I

NGS Name: 5107 I

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	43 W	435936.00	955639.00		

<u>Year Set</u>	<u>Last Recovery</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	NONE		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:

IN LAKE WILSON, THE STATION IS A BRASS PLUG IN THE SOUTHWEST CORNER OF A TRUNK HIGHWAY 30 AND TRUNK HIGHWAY 91 CULVERT, AT TRUNK HIGHWAY 30 STATION 957+05.

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>	
1646.719	.033	3				VERTICAL CONTROL SURVEY	1953	CS5107	

Geoid Separations(ft): GEOID18 = -86.161 12B = -86.138 09 = -86.030 03 = -85.938

* No Horizontal Positions in the Database *



Mn/DOT Name: 5107 J

NGS Name: 5107 J

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP1395](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	31	106 N	42 W	435624.39	955631.43	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>
1987	2016	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)	VERTICAL CONTROL DISK	MNDT

Description: (2004) **Stamping:** 5107 J 1987

0.85 MILE NORTH OF CHANDLER, 0.85 MILE NORTH ALONG TRUNK HIGHWAY 91 FROM THE JUNCTION OF TRUNK HIGHWAY 91 AND COUNTY ROAD 4 IN CHANDLER, AT TRUNK HIGHWAY 91 MILEPOINT 34.7, 59.0 FEET SOUTHWEST OF TRUNK HIGHWAY 91, 14.0 FEET SOUTHEAST OF A FIELD ENTRANCE, 2.0 FEET EAST-NORTHEAST OF A FENCE LINE, 1.4 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>	
1673.465	.016	2/1					VERTICAL ADJUSTMENT	2020	00000949	
1673.422	.016	2/1					VERTICAL ADJUSTMENT	2017	00000903	
1673.422	.016	2/1					VERTICAL CONTROL SURVEY	2016	VRUSS	
1673.422	.016	2/1					VERTICAL ADJUSTMENT	1995	00000135	

<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>	
1672.766	.016	2/1					VERTICAL CONTROL SURVEY	1987	VSLAY	

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>	
				1587.405	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
				1587.497	.009	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300	
1673.422	.131			1587.589	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1792	
1673.422	.131			1587.589	.066	1996	GPS - STATIC	2002	HWILS	

Geoid Separations(ft): GEOID18 = -86.060 12B = -86.060 09 = -85.941 03 = -85.840

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>									
43 56 24.38739	95 56 31.42930			453795.665	133607.825	.010		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>				<u>Murray 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>									
43 56 24.38738	95 56 31.43027			453795.593	133607.824	.010		ADJUSTMENT	2007	GPS2300

<u>NAD83(1996)</u>				<u>Murray 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>									
43 56 24.38705	95 56 31.42936			453795.660	133607.790	.033	C	ADJUSTMENT	2003	GPS1792
43 56 24.38705	95 56 31.42936			453795.661	133607.791	.033	C	GPS - STATIC	2002	HWILS



State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15			Project Info			
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2113175.720	676867.378	865751.301	15975785.778	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15			Project Info			
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2113175.648	676867.379	865751.230	15975785.780	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15			Project Info			
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2113175.714	676867.344	865751.296	15975785.744	.033	C	ADJUSTMENT	2003	GPS1792
2113175.714	676867.344	865751.296	15975785.744	.033	C	GPS - STATIC	2002	HWILS

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5107_J-OP1395-3SW-22MAR2016.jpg	SW	Mar 22, 2016
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5107_J-OP1395-2-22MAR2016.jpg		Mar 22, 2016
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5107_J-OP1395-1-22MAR2016.jpg		Mar 22, 2016

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



Mn/DOT Name: 5107 K

NGS Name: 5107 K

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP1393](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	43 W	435729.82	955637.37	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>
1987	2016	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 40 FT)	VERTICAL CONTROL DISK	MNDT

Description: (2001) Stamping: 5107 K 1987

2.1 MILES NORTH OF CHANDLER, 2.1 MILES NORTH ALONG TRUNK HIGHWAY 91 FROM THE JUNCTION OF TRUNK HIGHWAY 91 AND COUNTY ROAD 4 IN CHANDLER, AT TRUNK HIGHWAY 91 MILEPOINT 35.95, 54.5 FEET WEST OF TRUNK HIGHWAY 91, 50.0 FEET NORTH OF A FIELD ENTRANCE, 3.3 FEET SOUTH-SOUTHEAST OF A POWER POLE, 0.9 FOOT WEST OF A WITNESS POST.

Station Pair: ELLS - MURRAY, 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>			
1655.938	.016	2/1				VERTICAL ADJUSTMENT		2020	00000949			
1655.912	.016	2/1				VERTICAL ADJUSTMENT		2017	00000903			
1655.912	.016	2/1				VERTICAL CONTROL SURVEY		2016	VRUSS			
1655.912	.016	2/1				VERTICAL ADJUSTMENT		1995	00000135			

<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>			
1655.256	.016	2/1				VERTICAL CONTROL SURVEY		1987	VSLAY			

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>			
1655.912			1569.895	.010	2011	HORIZONTAL ADJUSTMENT		2015	GPS3109			
1655.912	.131		1570.076	.066	1996	GPS - STATIC		2015	HWLSN			
1655.912			1569.898	.010	2011	GPS - STATIC		2015	HWLSN			
1655.876	.262		1569.830	.197	2011	GPS - RTRN		2015	RTRN2015			
			1569.895	.009	2011	HORIZONTAL ADJUSTMENT		2012	GPS2800			
			1569.987	.009	2007	HORIZONTAL ADJUSTMENT		2007	GPS2300			
1655.902	.131		1570.076	.066	1996	HORIZONTAL ADJUSTMENT		2003	GPS1792			
1655.902	.131		1570.076	.066	1996	GPS - STATIC		2002	HWLS			

Geoid Separations(ft): GEOID18 = -86.050 12B = -86.046 09 = -85.932 03 = -85.833

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>			<u>Geodetic Position</u>				<u>Murray 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>			
43 57 29.81846	95 56 37.36782		453375.352	140234.807	.010		ADJUSTMENT		2015	GPS3109			
43 57 29.81849	95 56 37.36784		453375.351	140234.810	.010	C	GPS - STATIC		2015	HWLSN			
43 57 29.81787	95 56 37.36671		453375.433	140234.747	.131	3	GPS - RTRN		2015	RTRN2015			
43 57 29.81846	95 56 37.36782		453375.352	140234.807	.013		ADJUSTMENT		2012	GPS2800			

<u>NAD83(2007)</u>			<u>Geodetic Position</u>				<u>Murray 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>			
43 57 29.81845	95 56 37.36882		453375.279	140234.806	.013		ADJUSTMENT		2007	GPS2300			

<u>NAD83(1996)</u>			<u>Geodetic Position</u>				<u>Murray 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>			
43 57 29.81817	95 56 37.36797		453375.341	140234.778	.033	C	GPS - STATIC		2015	HWLSN			
43 57 29.81817	95 56 37.36797		453375.341	140234.778	.033	C	ADJUSTMENT		2003	GPS1792			
43 57 29.81817	95 56 37.36797		453375.340	140234.779	.033	C	GPS - STATIC		2002	HWLS			

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2112898.867	683501.198	865553.314	15982424.531	.010		ADJUSTMENT	2015	GPS3109
2112898.865	683501.201	865553.312	15982424.534	.010	C	GPS - STATIC	2015	HWLSN
2112898.946	683501.136	865553.393	15982424.468	.131	3	GPS - RTRN	2015	RTRN2015
2112898.867	683501.198	865553.314	15982424.531	.013		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2112898.794	683501.199	865553.241	15982424.532	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2112898.855	683501.169	865553.302	15982424.502	.033	C	GPS - STATIC	2015	HWLSN
2112898.855	683501.169	865553.302	15982424.502	.033	C	ADJUSTMENT	2003	GPS1792
2112898.855	683501.169	865553.302	15982424.502	.033	C	GPS - STATIC	2002	HWILS

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5107_K-OP1393-3W-27APR2015.jpg	W	Apr 27, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5107_K-OP1393-2-27APR2015.jpg		Apr 27, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5107_K-OP1393-1-27APR2015.jpg		Apr 27, 2015

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



Mn/DOT Name: 5107 L

NGS Name: 5107 L

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP1392](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	42 W	435817.90	955636.30	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>
1987	2016	GOOD	Horz=NO Vert=NO	YES	6754	FLUSH	NO MAG MATERIAL

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

Description: (2001) Stamping: 5107 L 1987

1.7 MILES SOUTH-SOUTHEAST OF LAKE WILSON, IN THE SOUTHEAST CORNER OF A BRIDGE ABUTMENT OF TRUNK HIGHWAY 91 BRIDGE NUMBER 6754 OVER A DRAINAGE DITCH, AT TRUNK HIGHWAY 91 MILEPOINT 36.85, 1.55 MILES SOUTH ALONG TRUNK HIGHWAY 91 FROM THE JUNCTION OF TRUNK HIGHWAY 91 AND TRUNK HIGHWAY 30 IN LAKE WILSON, 18.0 FEET EAST OF TRUNK HIGHWAY 91.

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>	
1638.825	.016	2/1					VERTICAL ADJUSTMENT	2020	00000949	
1638.796	.016	2/1					VERTICAL ADJUSTMENT	2017	00000903	
1638.796	.016	2/1					VERTICAL CONTROL SURVEY	2016	VRUSS	
1638.796	.016	2/1					VERTICAL ADJUSTMENT	1995	00000135	

<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>	
1638.136	.016	2/1					VERTICAL CONTROL SURVEY	1987	VSLAY	
1638.120	.033	3					VERTICAL CONTROL SURVEY	1953	CS5107	

Geoid Separations(ft): GEOID18 = -86.076 12B = -86.069 09 = -85.955 03 = -85.859

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5107_L-OP1392-3N-22MAR2016.jpg	N	Mar 22, 2016
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5107_L-OP1392-2-22MAR2016.jpg		Mar 22, 2016
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5107_L-OP1392-1-22MAR2016.jpg		Mar 22, 2016

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



Mn/DOT Name: 5107 M

NGS Name: 5107 M

County: MURRAY, MN (Sheet 1)

NGS ACRN: [AI7664](#) [Get Map](#)
 NGS Quad / Sta Num : 43095443/
 USGS Quad: SLAYTON 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	36	105 N	43 W	435104.19	955639.82	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>
1999	2018	DESTROYED	Horz=NO Vert=NO	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 15 FT)	SURVEY DISK	MNDT

Description: (2001) Stamping: 5107 M 1999

5.3 MILES SOUTH OF CHANDLER, 5.3 MILES SOUTH ALONG TRUNK HIGHWAY 91 FROM THE JUNCTION OF TRUNK HIGHWAY 91 AND COUNTY ROAD 4 IN CHANDLER, AT TRUNK HIGHWAY 91 MILEPOINT 28.55, 71.0 FEET SOUTHWEST OF TRUNK HIGHWAY 91, 29.5 FEET WEST OF A ROAD, 7.7 FEET SOUTHEAST OF A POWER POLE, 3.0 FEET EAST OF A FENCE, 2.1 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>		
1712.283	.016	2/1				VERTICAL ADJUSTMENT	2020	00000949		
1712.244	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903		
1712.244	.016	2/1				VERTICAL CONTROL SURVEY	2016	VRUSS		
1712.244	.016	2/1				VERTICAL ADJUSTMENT	2001	00000380		
1712.228	.016	2/1				VERTICAL CONTROL SURVEY	2000	VLISM		

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>		
			1626.050	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800		
			1626.145	.009	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300		
1712.234	.131		1626.230	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1919		
1712.234	.131		1626.230	.066	1996	GPS - STATIC	2003	HMURR		
1712.234	.131		1626.230	.066	1996	HORIZONTAL ADJUSTMENT	2002	GPS1767		
1712.234	.131		1626.230	.066	1996	GPS - STATIC	2002	HLISM		

Geoid Separations(ft): GEOID18 = -86.233 12B = -86.230 09 = -86.109 03 = -86.017

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>									
43 51 04.18718	95 56 39.81765			453111.932	101183.442	.007		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>				<u>Murray 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>									
43 51 04.18717	95 56 39.81850			453111.869	101183.442	.007		ADJUSTMENT	2007	GPS2300

<u>NAD83(1996)</u>				<u>Murray 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>									
43 51 04.18674	95 56 39.81754			453111.940	101183.398	.033	C	ADJUSTMENT	2003	GPS1919
43 51 04.18674	95 56 39.81754			453111.940	101183.398	.033	C	GPS - STATIC	2003	HMURR
43 51 04.18674	95 56 39.81754			453111.940	101183.398	.033	C	ADJUSTMENT	2002	GPS1767
43 51 04.18674	95 56 39.81754			453111.938	101183.397	.033	C	GPS - STATIC	2002	HLISM



State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South 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>
2111790.991	644468.562	863981.865	15943395.637	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South 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>
2111790.929	644468.563	863981.803	15943395.638	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South 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>
2111790.998	644468.517	863981.872	15943395.592	.033	C	ADJUSTMENT	2003	GPS1919
2111790.998	644468.517	863981.872	15943395.592	.033	C	GPS - STATIC	2003	HMURR
2111790.998	644468.517	863981.872	15943395.592	.033	C	ADJUSTMENT	2002	GPS1767
2111790.998	644468.517	863981.872	15943395.592	.033	C	GPS - STATIC	2002	HLISM

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:			
Monument:			
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5107_M-A17664-1-11MAY2016.jpg		May 11, 2016

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



Mn/DOT Name: 5107 M RESET

NGS Name: 5107 M RESET

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DR2985](#) [Get Map](#)
 NGS Quad / Sta Num : 43095443/
 USGS Quad: SLAYTON SW

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	36	105 N	43 W	435104.19	955639.82	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2018	2019	GOOD	Horz=YES Vert=YES	YES		RECESSED 5 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: (2018) **Stamping:** 5107 M RESET 2018

5.3 MILES SOUTH OF CHANDLER, 5.3 MILES SOUTH ALONG TRUNK HIGHWAY 91 FROM THE JUNCTION OF TRUNK HIGHWAY 91 AND COUNTY ROAD 4 IN CHANDLER, AT TRUNK HIGHWAY 91 MILEPOINT 28.55, 71.0 FEET SOUTHWEST OF TRUNK HIGHWAY 91, 29.5 FEET WEST OF 60TH AVENUE, 7.7 FEET SOUTHEAST OF A POWER POLE, 3.0 FEET EAST OF A FENCE, 2.1 FEET EAST OF A WITNESS POST.

Station Pair: JAHN - NOBLES, MN

Leveling-Derived Orthometric Heights (Feet)

NAVD88			Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1712.113	.016	2/1				VERTICAL ADJUSTMENT	2020	00000949

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88			Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1712.119			1625.876	.022	2011	GPS - STATIC	2019	H19ROCK
1712.109	.131		1626.076	.066	1996	GPS - STATIC	2019	H19ROCK
1712.119			1625.876	.022	2011	HORIZONTAL ADJUSTMENT	2019	GPS3335
1712.132	.262		1625.906	.197	2011	GPS - RTRN	2018	RTRN2018

Geoid Separations(ft): GEOID18 = -86.233 12B = -86.230 09 = -86.109 03 = -86.017

Lat/Lon and County Coordinates (Feet)

NAD83(2011)		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 51 04.18663	95 56 39.81796	453111.909	101183.387	.016	C	GPS - STATIC	2019	H19ROCK
43 51 04.18663	95 56 39.81796	453111.909	101183.387	.016		ADJUSTMENT	2019	GPS3335
43 51 04.18670	95 56 39.81757	453111.937	101183.394	.131	3	GPS - RTRN	2018	RTRN2018

NAD83(1996)		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 51 04.18648	95 56 39.81817	453111.893	101183.372	.033	C	GPS - STATIC	2019	H19ROCK

State Plane and UTM Coordinates (Feet)

NAD83(2011)		Murray County				Project Info		
MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Year	Reference
X	Y	X	Y					
2111790.967	644468.507	863981.841	15943395.582	.016	C	GPS - STATIC	2019	H19ROCK
2111790.967	644468.507	863981.841	15943395.582	.016		ADJUSTMENT	2019	GPS3335
2111790.996	644468.514	863981.869	15943395.588	.131	3	GPS - RTRN	2018	RTRN2018

NAD83(1996)		Murray County				Project Info		
MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Year	Reference
X	Y	X	Y					
2111790.951	644468.493	863981.825	15943395.568	.033	C	GPS - STATIC	2019	H19ROCK

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5107_M_RESET-DR2985-3W-01MAY2018.jpg	W	May 1, 2018
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5107_M_RESET-DR2985-2-01MAY2018.jpg		May 1, 2018
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5107_M_RESET-DR2985-1-01MAY2018.jpg		May 1, 2018

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



Mn/DOT Name: 5107 N

NGS Name: 5107 N

County: MURRAY, MN (Sheet 1)

NGS ACRN: [AI7665](#) [Get Map](#)
 NGS Quad / Sta Num : 43095443/
 USGS Quad: SLAYTON SW

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	31	105 N	42 W	435147.17	955637.67	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1999	2016	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
UNKNOWN	SURVEY DISK	MNDT

Description: (2001) **Stamping:** 5107 N 1999

4.45 MILES SOUTH ALONG TRUNK HIGHWAY 91 FROM THE JUNCTION OF TRUNK HIGHWAY 91 AND COUNTY ROAD 4 IN CHANDLER, AT TRUNK HIGHWAY 91 MILEPOINT 29.40, 93.0 FEET EAST OF TRUNK HIGHWAY 91, 36.0 FEET SOUTH OF 11 TH STREET, 34.6 FEET EAST OF A CABLE MARKER, 16.0 FEET EAST OF AN ENTRANCE, 1.8 FEET 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		
1718.888	.016	2/1				VERTICAL ADJUSTMENT	2001	00000380		
1718.871	.016	2/1				VERTICAL CONTROL SURVEY	2000	VLISM		

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		
			1632.638	.008	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800		
			1632.733	.009	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300		
1718.894	.131		1632.818	.066	1996	HORIZONTAL ADJUSTMENT	2002	GPS1767		
1718.894	.131		1632.818	.066	1996	GPS - STATIC	2002	HLISM		

Geoid Separations(ft): GEOID18 = -86.253 12B = -86.233 09 = -86.132 03 = -86.037

Lat/Lon and County Coordinates (Feet)

NAD83(2011)		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 51 47.17198	95 56 37.66867	453278.771	105536.022	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 51 47.17196	95 56 37.66953	453278.708	105536.020	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 51 47.17150	95 56 37.66865	453278.773	105535.973	.033	C	ADJUSTMENT	2002	GPS1767
43 51 47.17150	95 56 37.66865	453278.772	105535.973	.033	C	GPS - STATIC	2002	HLISM

State Plane and UTM Coordinates (Feet)

NAD83(2011)		Murray County				Project Info		
MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Year	Reference
X	Y	X	Y					
2112051.908	648816.109	864294.313	15947741.111	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)		Murray County				Project Info		
MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Year	Reference
X	Y	X	Y					
2112051.845	648816.109	864294.250	15947741.111	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)		Murray County				Project Info		
MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Year	Reference
X	Y	X	Y					
2112051.908	648816.061	864294.312	15947741.062	.033	C	ADJUSTMENT	2002	GPS1767
2112051.908	648816.061	864294.313	15947741.062	.033	C	GPS - STATIC	2002	HLISM



Mn/DOT Name: 5107 N RESET

NGS Name: 5107 N RESET

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DQ3105](#) [Get Map](#)
 NGS Quad / Sta Num : 43095443/
 USGS Quad: SLAYTON 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	105 N	42 W	435147.17	955637.67	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>
2016	2021	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 20 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2016) **Stamping:** 5107 N RESET 2016

4.5 MILES SOUTH OF CHANDLER, 4.5 MILES SOUTH ALONG TRUNK HIGHWAY 91 FROM THE JUNCTION OF TRUNK HIGHWAY 91 AND COUNTY ROAD 4 IN CHANDLER, AT TRUNK HIGHWAY 91 MILEPOINT 29.4, 93.0 FEET EAST OF TRUNK HIGHWAY 91, 36.0 FEET SOUTH OF 11TH STREET, 16.0 FEET EAST OF A FIELD ENTRANCE, 6.4 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>
1718.760	.016	2/1					VERTICAL ADJUSTMENT	2020	00000949
1718.714	.016	2/1					VERTICAL ADJUSTMENT	2017	00000903
1718.710	.016	2/1					VERTICAL CONTROL SURVEY	2016	VRUSS

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>
1718.760	.262			1632.507	.197	2011	GPS - OPUS	2021	GPSBM
1718.645	.262			1632.392	.197	2011	GPS - OPUS	2021	GPSBM
1718.779	.262			1632.543	.197	2011	GPS - RTRN	2018	RTRN2018

Geoid Separations(ft): GEOID18 = -86.253 12B = -86.233 09 = -86.132 03 = -86.037

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 51 47.17199	95 56 37.66916	453278.736	105536.023	.131	3	GPS - OPUS	2021	GPSBM
43 51 47.17246	95 56 37.66909	453278.741	105536.070	.131	3	GPS - OPUS	2021	GPSBM
43 51 47.17297	95 56 37.66873	453278.767	105536.122	.131	3	GPS - RTRN	2018	RTRN2018

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South 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>							
2112051.872	648816.111	864294.277	15947741.113	.131	3	GPS - OPUS	2021	GPSBM
2112051.878	648816.159	864294.284	15947741.161	.131	3	GPS - OPUS	2021	GPSBM
2112051.906	648816.210	864294.312	15947741.211	.131	3	GPS - RTRN	2018	RTRN2018

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5107_N_RESET-DQ3105-3S-28APR2021.jpg	S	Apr 28, 2021
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5107_N_RESET-DQ3105-2-28APR2021.jpg		Apr 28, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5107_N_RESET-DQ3105-1-28APR2021.jpg		Apr 28, 2021

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



Mn/DOT Name: 5107 P

NGS Name: 5107 P

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DQ3102](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	43 W	435538.20	955636.00	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>
2016	2016	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: (2016) **Stamping:** 5107 P 2016

IN CHANDLER, 0.1 MILE SOUTH ALONG TRUNK HIGHWAY 91 FROM THE JUNCTION OF TRUNK HIGHWAY 91 AND COUNTY ROAD 4 IN CHANDLER, AT TRUNK HIGHWAY 91 MILEPOINT 33.8, 46.7 FEET NORTHWEST OF TRUNK HIGHWAY 91, 21.5 FEET SOUTHWEST OF AN ENTRANCE, 5.2 FEET SOUTHWEST OF A GUARDRAIL END, 1.5 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>	
1645.203	.016	2/1					VERTICAL ADJUSTMENT	2020	00000949	
1645.151	.016	2/1					VERTICAL ADJUSTMENT	2017	00000903	
1645.161	.016	2/1					VERTICAL CONTROL SURVEY	2016	VRUSS	

Geoid Separations(ft): GEOID18 = -86.086 12B = -86.083 09 = -85.974 03 = -85.866

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5107_P-DQ3102-3NW-30MAR2016.jpg	NW	Mar 30, 2016
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5107_P-DQ3102-2-30MAR2016.jpg		Mar 30, 2016
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5107_P-DQ3102-1-30MAR2016.jpg		Mar 30, 2016

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



Mn/DOT Name: 5107 Q

NGS Name: 5107 Q

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DQ3100](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	43 W	435825.70	955637.40	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>
2016	2016	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: (2016) Stamping: 5107 Q 2016

1.5 MILES SOUTH OF LAKE WILSON, 1.4 MILES SOUTH ALONG TRUNK HIGHWAY 91 FROM THE EAST JUNCTION OF TRUNK HIGHWAY 91 AND TRUNK HIGHWAY 30 IN LAKE WILSON, AT TRUNK HIGHWAY 91 MILEPOINT 37.0, 53.2 FEET WEST OF TRUNK HIGHWAY 91, 31.5 FEET SOUTH OF AN ENTRANCE, 10.5 FEET EAST OF A FENCE, 9.4 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>	
1633.996	.016	2/1					VERTICAL ADJUSTMENT	2020	00000949	
1633.973	.016	2/1					VERTICAL ADJUSTMENT	2017	00000903	
1633.973	.016	2/1					VERTICAL CONTROL SURVEY	2016	VRUSS	

Geoid Separations(ft): GEOID18 = -86.083 12B = -86.076 09 = -85.961 03 = -85.863

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5107_Q-DQ3100-3W-05APR2016.jpg	W	Apr 5, 2016
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5107_Q-DQ3100-2-05APR2016.jpg		Apr 5, 2016
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5107_Q-DQ3100-1-05APR2016.jpg		Apr 5, 2016

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



Mn/DOT Name: 5108 A

NGS Name: 5108 A

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DQ3099](#) [Get Map](#)
 NGS Quad / Sta Num : 44095333/
 USGS Quad: BALATON 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	7	106 N	42 W	440022.90	955636.53	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>
2016	2024	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 22 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2016) Stamping: 5108 A 2016

0.8 MILE NORTH OF LAKE WILSON, 1.2 MILES NORTH ALONG TRUNK HIGHWAY 91 FROM THE WEST JUNCTION OF TRUNK HIGHWAY 91 AND TRUNK HIGHWAY 30 IN LAKE WILSON, AT TRUNK HIGHWAY 91 MILEPOINT 39.95, 70.3 FEET WEST OF TRUNK HIGHWAY 91, 4.9 FEET WEST OF A FENCE LINE, 9.5 FEET SOUTH-SOUTHWEST OF A FENCE CORNER, 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>
1641.795	.016	2/1					VERTICAL ADJUSTMENT	2020	00000949
1641.795	.016	2/1					VERTICAL ADJUSTMENT	2017	00000903
1641.791	.016	2/1					VERTICAL CONTROL SURVEY	2016	VRUSS

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>
1641.837	.262			1555.604	.197	2011	GPS - RTRN	2024	RTRN2024

Geoid Separations(ft): GEOID18 = -86.233 12B = -86.197 09 = -86.096 03 = -86.007

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>									
44 00 22.90126	95 56 36.53056			453474.202	157762.461	.131	3	GPS - RTRN	2024	RTRN2024

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South 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>									
2113376.738	701020.676			866240.138	15999942.721	.131	3	GPS - RTRN	2024	RTRN2024

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5108_A-DQ3099-3E-13MAY2024.jpg	E	May 13, 2024
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5108_A-DQ3099-2-13MAY2024.jpg		May 13, 2024
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5108_A-DQ3099-1-13MAY2024.jpg		May 13, 2024

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



Mn/DOT Name: 5108 B

NGS Name: 5108 B

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DQ3098](#) [Get Map](#)
 NGS Quad / Sta Num : 44095333/
 USGS Quad: BALATON SW

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	1	106 N	43 W	440054.45	955638.31	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2016	2024	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 34 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2016) **Stamping:** 5108 B 2016

1.4 MILES NORTH OF LAKE WILSON, 1.8 MILES NORTH ALONG TRUNK HIGHWAY 91 FROM THE WEST JUNCTION OF TRUNK HIGHWAY 91 AND TRUNK HIGHWAY 30 IN LAKE WILSON, AT TRUNK HIGHWAY 91 MILEPOINT 40.55, 57.0 FEET WEST OF TRUNK HIGHWAY 91, 17.6 FEET EAST OF A FENCE LINE, 13.4 FEET EAST OF A POWERLINE, 27.2 FEET SOUTH OF A FIELD ENTRANCE, 10.5 FEET EAST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

NAVD88				Orthometric Height			Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Determination Method	Height	Acc	Adj	Year	Reference			
1642.562	.016	2/1	VERTICAL ADJUSTMENT				2020	00000949			
1642.562	.016	2/1	VERTICAL ADJUSTMENT				2017	00000903			
1642.559	.016	2/1	VERTICAL CONTROL SURVEY				2016	VRUSS			

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88				Orthometric Height			Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Determination Method	Height	Acc	Adj	Year	Reference			
1642.651	.262		GPS - RTRN	1556.381	.197	2011	2024	RTRN2024			

Geoid Separations(ft): GEOID18 = -86.273 12B = -86.233 09 = -86.135 03 = -86.043

Lat/Lon and County Coordinates (Feet)

NAD83(2011)				Geodetic Position			Murray County			Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference			
44 00 54.44740	95 56 38.31245	453350.832	160957.377	.131	3	GPS - RTRN	2024	RTRN2024			

State Plane and UTM Coordinates (Feet)

NAD83(2011)				MN State Plane - South Zone			UTM - Zone 15			Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference			
2113322.505	704217.146	866224.051	16003140.654	.131	3	GPS - RTRN	2024	RTRN2024			

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5108_B-DQ3098-3W-13MAY2024.jpg	W	May 13, 2024
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5108_B-DQ3098-2-13MAY2024.jpg		May 13, 2024
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5108_B-DQ3098-1-13MAY2024.jpg		May 13, 2024

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



Mn/DOT Name: 5108 C

NGS Name: 5108 C

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DQ3097](#) [Get Map](#)
 NGS Quad / Sta Num : 44095333/
 USGS Quad: BALATON 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	107 N	42 W	440202.81	955636.74	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>
2016	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 23 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2016) Stamping: 5108 L 2016

2.8 MILES NORTH OF LAKE WILSON, 3.15 MILES NORTH ALONG TRUNK HIGHWAY 91 FROM THE WEST JUNCTION OF TRUNK HIGHWAY 91 AND TRUNK HIGHWAY 30 IN LAKE WILSON, AT TRUNK HIGHWAY 91 MILEPOINT 41.85, 58.7 FEET EAST OF TRUNK HIGHWAY 91, 38.9 FEET NORTH 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>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>
1669.767	.016	2/1					VERTICAL ADJUSTMENT	2020	00000949
1669.767	.016	2/1					VERTICAL ADJUSTMENT	2017	00000903
1669.764	.016	2/1					VERTICAL CONTROL SURVEY	2016	VRUSS

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>
1669.806	.262			1583.461	.197	2011	GPS - RTRN	2024	RTRN2024

Geoid Separations(ft): GEOID18 = -86.342 12B = -86.319 09 = -86.230 03 = -86.112

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>									
44 02 02.81494	95 56 36.73826			453480.735	167880.636	.131	3	GPS - RTRN	2024	RTRN2024

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South 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>									
2113602.085	711135.170			866586.355	16010057.115	.131	3	GPS - RTRN	2024	RTRN2024

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5108_C-DQ3097-3E-13MAY2024.jpg	E	May 13, 2024
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5108_C-DQ3097-2-13MAY2024.jpg		May 13, 2024
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5108_C-DQ3097-1-13MAY2024.jpg		May 13, 2024

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



Mn/DOT Name: 5108 D

NGS Name: 5108 D

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DQ3096](#) [Get Map](#)
 NGS Quad / Sta Num : 44095333/
 USGS Quad: BALATON 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	30	107 N	42 W	440251.74	955636.38	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>
2016	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 43 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2016) Stamping: 5108 D 2016

3.6 MILES NORTH OF LAKE WILSON, 4.05 MILES NORTH ALONG TRUNK HIGHWAY 91 FROM THE WEST JUNCTION OF TRUNK HIGHWAY 91 AND TRUNK HIGHWAY 30 IN LAKE WILSON, AT TRUNK HIGHWAY 91 MILEPOINT 42.8, 66.0 FEET EAST OF TRUNK HIGHWAY 91, 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>
1684.672	.016	2/1					VERTICAL ADJUSTMENT	2020	00000949
1684.672	.016	2/1					VERTICAL ADJUSTMENT	2017	00000903
1684.665	.016	2/1					VERTICAL CONTROL SURVEY	2016	VRUSS

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>
1684.718	.262			1598.330	.197	2011	GPS - RTRN	2024	RTRN2024

Geoid Separations(ft): GEOID18 = -86.388 12B = -86.371 09 = -86.283 03 = -86.148

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>									
44 02 51.74202	95 56 36.38429			453517.223	172835.386	.131	3	GPS - RTRN	2024	RTRN2024

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South 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>									
2113745.711	716087.384			866789.236	16015008.892	.131	3	GPS - RTRN	2024	RTRN2024

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5108_D-DQ3096-3E-13MAY2024.jpg	E	May 13, 2024
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5108_D-DQ3096-2-13MAY2024.jpg		May 13, 2024
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5108_D-DQ3096-1-13MAY2024.jpg		May 13, 2024

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



Mn/DOT Name: 5108 E

NGS Name: 5108 E

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DQ3095](#) [Get Map](#)
 NGS Quad / Sta Num : 44095333/
 USGS Quad: BALATON 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	24	107 N	43 W	440356.50	955637.95	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>
2016	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: (2016) Stamping: 5108 E 2016

4.9 MILES NORTH OF LAKE WILSON, 5.3 MILES NORTH ALONG TRUNK HIGHWAY 91 FROM THE WEST JUNCTION OF TRUNK HIGHWAY 91 AND TRUNK HIGHWAY 30 IN LAKE WILSON, AT TRUNK HIGHWAY 91 MILEPOINT 44.05, 71.4 FEET WEST OF TRUNK HIGHWAY 91, 104.8 FEET SOUTH OF COUNTY ROAD 10 (151ST STREET), 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>
1688.235	.016	2/1					VERTICAL ADJUSTMENT	2020	00000949
1688.235	.016	2/1					VERTICAL ADJUSTMENT	2017	00000903
1688.228	.016	2/1					VERTICAL CONTROL SURVEY	2016	VRUSS

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>
1688.300	.262			1601.867	.197	2011	GPS - RTRN	2024	RTRN2024
1688.179	.262			1601.742	.197	2011	GPS - OPUS	2021	GPSBM
1688.212	.262			1601.775	.197	2011	GPS - OPUS	2021	GPSBM

Geoid Separations(ft): GEOID18 = -86.434 12B = -86.430 09 = -86.338 03 = -86.187

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>									
44 03 56.50165	95 56 37.94653			453417.214	179393.806	.131	3	GPS - RTRN	2024	RTRN2024
44 03 56.50128	95 56 37.94723			453417.163	179393.768	.131	3	GPS - OPUS	2021	GPSBM
44 03 56.50146	95 56 37.94723			453417.163	179393.786	.131	3	GPS - OPUS	2021	GPSBM

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South 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>									
2113787.571	722645.639			866909.596	16021568.352	.131	3	GPS - RTRN	2024	RTRN2024
2113787.519	722645.603			866909.543	16021568.316	.131	3	GPS - OPUS	2021	GPSBM
2113787.519	722645.621			866909.544	16021568.335	.131	3	GPS - OPUS	2021	GPSBM

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<u>Location:</u>	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5108_E-DQ3095-3W-13MAY2024.jpg	W	May 13, 2024
<u>Monument:</u>	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5108_E-DQ3095-2-13MAY2024.jpg		May 13, 2024
<u>Disk:</u>	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5108_E-DQ3095-1-13MAY2024.jpg		May 13, 2024

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



Mn/DOT Name: 5108 F

NGS Name: 5108 F

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DQ3094](#) [Get Map](#)
 NGS Quad / Sta Num : 44095333/
 USGS Quad: BALATON 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	107 N	43 W	440449.87	955637.68	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>
2016	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 18 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2016) Stamping: 5108 F 2016

5.9 MILES NORTH OF LAKE WILSON, 6.3 MILES NORTH ALONG TRUNK HIGHWAY 91 FROM THE WEST JUNCTION OF TRUNK HIGHWAY 91 AND TRUNK HIGHWAY 30 IN LAKE WILSON, AT TRUNK HIGHWAY 91 MILEPOINT 45.05, 70.9 FEET WEST OF TRUNK HIGHWAY 91, 13.0 FEET NORTH OF 161ST STREET EXTENDED AND A FIELD ENTRANCE, 2.1 FEET EAST OF A RIGHT-OF-WAY POST, 2.1 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>
1684.918	.016	2/1					VERTICAL ADJUSTMENT	2020	00000949
1684.918	.016	2/1					VERTICAL ADJUSTMENT	2017	00000903
1684.911	.016	2/1					VERTICAL CONTROL SURVEY	2016	VRUSS

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>
1684.957	.262			1598.478	.197	2011	GPS - RTRN	2024	RTRN2024

Geoid Separations(ft): GEOID18 = -86.479 12B = -86.476 09 = -86.381 03 = -86.227

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>									
44 04 49.87167	95 56 37.67536			453448.631	184798.533	.131	3	GPS - RTRN	2024	RTRN2024

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South 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>									
2113935.858	728047.757			867122.632	16026970.109	.131	3	GPS - RTRN	2024	RTRN2024

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5108_F-DQ3094-3W-13MAY2024.jpg	W	May 13, 2024
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5108_F-DQ3094-2-13MAY2024.jpg		May 13, 2024
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5108_F-DQ3094-1-13MAY2024.jpg		May 13, 2024

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



Mn/DOT Name: 5108 G

NGS Name: 5108 G

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DQ3093](#) [Get Map](#)
 NGS Quad / Sta Num : 44095333/
 USGS Quad: BALATON 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	6	107 N	42 W	440542.24	955635.45	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>
2016	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: (2016) Stamping: 5108 G 2016

6.9 MILES NORTH OF LAKE WILSON, 7.3 MILES NORTH ALONG TRUNK HIGHWAY 91 FROM THE WEST JUNCTION OF TRUNK HIGHWAY 91 AND TRUNK HIGHWAY 30 IN LAKE WILSON, AT TRUNK HIGHWAY 91 MILEPOINT 46.05, 72.5 FEET EAST OF TRUNK HIGHWAY 91, 32.7 FEET NORTH OF 171ST STREET, 10.3 FEET SOUTH OF A CABLE BOX, 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>		
1698.927	.016	2/1				VERTICAL ADJUSTMENT	2020	00000949		
1698.927	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903		
1698.920	.016	2/1				VERTICAL CONTROL SURVEY	2016	VRUSS		

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>		
1698.950	.262		1612.431	.197	2011	GPS - RTRN	2024	RTRN2024		

Geoid Separations(ft): GEOID18 = -86.522 12B = -86.516 09 = -86.427 03 = -86.273

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>									
44 05 42.23717	95 56 35.45210			453622.290	190101.243	.131	3	GPS - RTRN	2024	RTRN2024

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 - South 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>									
2114224.130	733344.807			867474.482	16032265.097	.131	3	GPS - RTRN	2024	RTRN2024

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5108_G-DQ3093-3E-13MAY2024.jpg	E	May 13, 2024
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5108_G-DQ3093-2-13MAY2024.jpg		May 13, 2024
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5108_G-DQ3093-1-13MAY2024.jpg		May 13, 2024

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



Mn/DOT Name: 5108 H

NGS Name: 5108 H

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DQ3091](#) [Get Map](#)
 NGS Quad / Sta Num : 44095333/
 USGS Quad: BALATON SW

				Reference	Reference	Vert	Horz
1/4	Sec	Twp	Rng	Latitude	Longitude	Order	Order
SE	36	108 N	43 W	440634.43	955637.11	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2016	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 18 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2016) **Stamping:** 5108 H 2016

7.9 MILES NORTH OF LAKE WILSON, 8.3 MILES NORTH ALONG TRUNK HIGHWAY 91 FROM THE WEST JUNCTION OF TRUNK HIGHWAY 91 AND TRUNK HIGHWAY 30 IN LAKE WILSON, AT TRUNK HIGHWAY 91 MILEPOINT 47.05, 67.8 FEET EAST OF TRUNK HIGHWAY 91, 32.5 FEET NORTH OF 181ST STREET, 7.2 FEET EAST OF A RIGHT-OF-WAY POST, 4.2 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	
1718.461	.016	2/1				VERTICAL ADJUSTMENT	2020	00000949	
1718.461	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903	
1718.458	.016	2/1				VERTICAL CONTROL SURVEY	2016	VRUSS	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88				Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference	
1718.497	.262		1631.942	.197	2011	GPS - RTRN	2024	RTRN2024	
1718.402	.262		1631.847	.197	2011	GPS - OPUS	2021	GPSBM	
1718.409	.262		1631.854	.197	2011	GPS - OPUS	2021	GPSBM	

Geoid Separations(ft): GEOID18 = -86.555 12B = -86.548 09 = -86.466 03 = -86.312

Lat/Lon and County Coordinates (Feet)

NAD83(2011)		Murray County					Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference	
44 06 34.42504	95 56 37.10848	453512.749	195386.585	.131	3	GPS - RTRN	2024	RTRN2024	
44 06 34.42500	95 56 37.10828	453512.764	195386.581	.131	3	GPS - OPUS	2021	GPSBM	
44 06 34.42486	95 56 37.10832	453512.761	195386.567	.131	3	GPS - OPUS	2021	GPSBM	

State Plane and UTM Coordinates (Feet)

NAD83(2011)		UTM - Zone 15				Project Info		
MN State Plane - South Zone		X	Y	Acc	Order	Determination Method	Year	Reference
X	Y							
2114228.930	738630.610	867542.699	16037552.240	.131	3	GPS - RTRN	2024	RTRN2024
2114228.944	738630.605	867542.713	16037552.236	.131	3	GPS - OPUS	2021	GPSBM
2114228.941	738630.591	867542.710	16037552.222	.131	3	GPS - OPUS	2021	GPSBM

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5108_H-DQ3091-3W-13MAY2024.jpg	W	May 13, 2024
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5108_H-DQ3091-2-13MAY2024.jpg		May 13, 2024
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5108_H-DQ3091-1-13MAY2024.jpg		May 13, 2024

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



Mn/DOT Name: 5108 J

NGS Name: 5108 J

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DQ3090](#) [Get Map](#)
 NGS Quad / Sta Num : 44095333/
 USGS Quad: BALATON 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	30	108 N	42 W	440726.82	955635.22	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>
2016	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: (2016) Stamping: 5108 J 2016

8.9 MILES NORTH OF LAKE WILSON, 9.3 MILES NORTH ALONG TRUNK HIGHWAY 91 FROM THE WEST JUNCTION OF TRUNK HIGHWAY 91 AND TRUNK HIGHWAY 30 IN LAKE WILSON, AT TRUNK HIGHWAY 91 MILEPOINT 48.05, 58.8 FEET EAST OF TRUNK HIGHWAY 91, 31.4 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>
1665.239	.016	2/1					VERTICAL ADJUSTMENT	2020	00000949
1665.239	.016	2/1					VERTICAL ADJUSTMENT	2017	00000903
1665.233	.016	2/1					VERTICAL CONTROL SURVEY	2016	VRUSS

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>
1665.289	.262			1578.691	.197	2011	GPS - RTRN	2024	RTRN2024

Geoid Separations(ft): GEOID18 = -86.598 12B = -86.591 09 = -86.506 03 = -86.352

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>									
44 07 26.81756	95 56 35.22025			453661.885	200692.114	.131	3	GPS - RTRN	2024	RTRN2024

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South 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>									
2114492.747	743930.986			867870.227	16042850.858	.131	3	GPS - RTRN	2024	RTRN2024

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5108_J-DQ3090-3E-13MAY2024.jpg	E	May 13, 2024
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5108_J-DQ3090-2-13MAY2024.jpg		May 13, 2024
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5108_J-DQ3090-1-13MAY2024.jpg		May 13, 2024

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



Mn/DOT Name: 5108 K

NGS Name: 5108 K

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DQ3089](#) [Get Map](#)
 NGS Quad / Sta Num : 44095333/
 USGS Quad: BALATON 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	30	108 N	42 W	440818.36	955635.00	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>
2016	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 34 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2016) Stamping: 5108 K 2016

9.9 MILES NORTH OF LAKE WILSON, 10.3 MILES NORTH ALONG TRUNK HIGHWAY 91 FROM THE WEST JUNCTION OF TRUNK HIGHWAY 91 AND TRUNK HIGHWAY 30 IN LAKE WILSON, AT TRUNK HIGHWAY 91 MILEPOINT 49.05, 65.2 FEET EAST OF TRUNK HIGHWAY 91, 11.3 FEET SOUTH OF 201ST STREET EXTENDED, 22.7 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>
1666.063	.016	2/1					VERTICAL ADJUSTMENT	2020	00000949
1666.063	.016	2/1					VERTICAL ADJUSTMENT	2017	00000903
1666.056	.016	2/1					VERTICAL CONTROL SURVEY	2016	VRUSS

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>
1666.056	.262			1579.426	.197	2011	GPS - RTRN	2024	RTRN2024

Geoid Separations(ft): GEOID18 = -86.630 12B = -86.627 09 = -86.542 03 = -86.391

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>									
44 08 18.35728	95 56 34.99900			453689.196	205911.554	.131	3	GPS - RTRN	2024	RTRN2024

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South 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>									
2114632.921	749147.930			868073.127	16048067.510	.131	3	GPS - RTRN	2024	RTRN2024

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5108_K-DQ3089-3E-13MAY2024.jpg	E	May 13, 2024
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5108_K-DQ3089-2-13MAY2024.jpg		May 13, 2024
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5108_K-DQ3089-1-13MAY2024.jpg		May 13, 2024

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



Mn/DOT Name: 5108 L

NGS Name: 5108 L

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DQ3088](#) [Get Map](#)
 NGS Quad / Sta Num : 44095334/
 USGS Quad: CURRENT 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>
NW	19	108 N	42 W	440910.31	955632.97	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>
2016	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 18 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2016) Stamping: 5108 L 2016

11.6 MILES SOUTH OF RUSSELL, 6.3 MILES SOUTH ALONG TRUNK HIGHWAY 91 FROM THE JUNCTION OF TRUNK HIGHWAY 91 AND TRUNK HIGHWAY 23 IN RUSSELL, AT TRUNK HIGHWAY 91 MILEPOINT 50.05, 129.8 FEET EAST OF TRUNK HIGHWAY 91, 41.1 FEET SOUTH OF 211TH STREET, 39.8 EAST OF A STEEL GUARDRAIL, 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>
1663.586	.016	2/1					VERTICAL ADJUSTMENT	2020	00000949
1663.586	.016	2/1					VERTICAL ADJUSTMENT	2017	00000903
1663.586	.016	2/1					VERTICAL CONTROL SURVEY	2016	VRUSS

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>
1663.622	.262			1576.959	.197	2011	GPS - RTRN	2024	RTRN2024
1663.510	.262			1576.847	.197	2011	GPS - OPUS	2021	GPSBM
1663.602	.262			1576.939	.197	2011	GPS - OPUS	2021	GPSBM

Geoid Separations(ft): GEOID18 = -86.660 12B = -86.663 09 = -86.575 03 = -86.430

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Murray County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 09 10.30827	95 56 32.96906	453848.464	211172.379	.131	3	GPS - RTRN	2024	RTRN2024
44 09 10.30871	95 56 32.97001	453848.394	211172.423	.131	3	GPS - OPUS	2021	GPSBM
44 09 10.30831	95 56 32.96969	453848.418	211172.383	.131	3	GPS - OPUS	2021	GPSBM

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South 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>							
2114905.899	754403.378	868409.377	16053321.083	.131	3	GPS - RTRN	2024	RTRN2024
2114905.831	754403.424	868409.309	16053321.130	.131	3	GPS - OPUS	2021	GPSBM
2114905.854	754403.383	868409.331	16053321.089	.131	3	GPS - OPUS	2021	GPSBM

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5108_L-DQ3088-3E-13MAY2024.jpg	E	May 13, 2024
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5108_L-DQ3088-2-13MAY2024.jpg		May 13, 2024
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5108_L-DQ3088-1-13MAY2024.jpg		May 13, 2024

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



Mn/DOT Name: 5108 M

NGS Name: 5108 M

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DQ3087](#) [Get Map](#)
 NGS Quad / Sta Num : 44095334/
 USGS Quad: CURRENT 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>
NW	7	108 N	42 W	441042.54	955630.92	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>
2016	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 18 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2016) Stamping: 5108 M 2016

9.6 MILES SOUTH OF RUSSELL, 9.6 MILES SOUTH ALONG TRUNK HIGHWAY 91 FROM THE JUNCTION OF TRUNK HIGHWAY 91 AND TRUNK HIGHWAY 23 IN RUSSELL, AT TRUNK HIGHWAY 91 MILEPOINT 51.93, 90.5 FEET NORTHEAST OF TRUNK HIGHWAY 91, 4.3 FEET SOUTHWEST OF A RIGHT-OF WAY POST, 101.4 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>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>
1664.006	.016	2/1					VERTICAL ADJUSTMENT	2020	00000949
1664.006	.016	2/1					VERTICAL ADJUSTMENT	2017	00000903
1664.006	.016	2/1					VERTICAL CONTROL SURVEY	2016	VRUSS

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>
1663.966	.262			1577.244	.197	2011	GPS - RTRN	2024	RTRN2024

Geoid Separations(ft): GEOID18 = -86.722 12B = -86.729 09 = -86.637 03 = -86.496

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>									
44 10 42.53813	95 56 30.92325			454017.491	220512.332	.131	3	GPS - RTRN	2024	RTRN2024

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South 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>									
2115276.845	763736.220			868892.775	16062651.970	.131	3	GPS - RTRN	2024	RTRN2024

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5108_M-DQ3087-3NE-13MAY2024.jpg	NE	May 13, 2024
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5108_M-DQ3087-2-13MAY2024.jpg		May 13, 2024
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5108_M-DQ3087-1-13MAY2024.jpg		May 13, 2024

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



Mn/DOT Name: 5108 N

NGS Name: 5108 N

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DQ3086](#) [Get Map](#)
 NGS Quad / Sta Num : 44095334/
 USGS Quad: CURRENT 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>
SW	1	108 N	43 W	441121.28	955711.20	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>
2016	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 18 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2016) Stamping: 5108 N 2016

9.0 MILES SOUTH OF RUSSELL, 9.0 MILES SOUTH ALONG TRUNK HIGHWAY 91 FROM THE JUNCTION OF TRUNK HIGHWAY 91 AND TRUNK HIGHWAY 23 IN RUSSELL, AT TRUNK HIGHWAY 91 MILEPOINT 52.9, 69.3 FEET SOUTHWEST OF TRUNK HIGHWAY 91, 49.8 FEET SOUTHEAST 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>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>
1675.499	.016	2/1					VERTICAL ADJUSTMENT	2020	00000949
1675.499	.016	2/1					VERTICAL ADJUSTMENT	2017	00000903
1675.499	.016	2/1					VERTICAL CONTROL SURVEY	2016	VRUSS

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>
1675.446	.262			1588.760	.197	2011	GPS - RTRN	2024	RTRN2024

Geoid Separations(ft): GEOID18 = -86.686 12B = -86.696 09 = -86.607 03 = -86.466

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>									
44 11 21.27643	95 57 11.20302			451090.728	224441.879	.131	3	GPS - RTRN	2024	RTRN2024

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South 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>									
2112436.153	767727.598			866099.403	16066678.667	.131	3	GPS - RTRN	2024	RTRN2024

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5108_N-DQ3086-3SW-13MAY2024.jpg	SW	May 13, 2024
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5108_N-DQ3086-2-13MAY2024.jpg		May 13, 2024
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5108_N-DQ3086-1-13MAY2024.jpg		May 13, 2024

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



Mn/DOT Name: 5109 A

NGS Name: 5109 A

County: MURRAY, MN (Sheet 1)

NGS ACRN: DO7184	Get Map
NGS Quad / Sta Num : 43095441/	
USGS Quad: SLAYTON	

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	41 W	435456.52	954703.50	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>
2011	2021	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: (2011) Stamping: 5109 A 2011

IN IONA, AT THE JUNCTION OF TRUNK HIGHWAY 267 AND COUNTY ROAD 4 WEST IN IONA, AT TRUNK HIGHWAY 267 MILEPOINT 0.0, 55.5 FEET WEST OF TRUNK HIGHWAY 267 (PARWELL STREET), 25.2 FEET NORTH OF COUNTY ROAD 4 WEST (GRACE AVENUE), 12.6 FEET WEST OF A POWER POLE, 24.7 FEET SOUTH OF THE SOUTHEAST LEG OF THE WELCOME TO IONA SIGN, 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>	
1634.081	.016	2/1				VERTICAL ADJUSTMENT		2013	00000792	
1634.075	.016	2/1				VERTICAL CONTROL SURVEY		2012	VIONA	

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>	
1634.081			1547.182	.016	2011	HORIZONTAL ADJUSTMENT		2014	GPS2998	
1634.081			1547.182	.016	2011	GPS - STATIC		2014	HIONA	
1634.085	.131		1547.415	.066	1996	GPS - STATIC		2012	HIONA	

Geoid Separations(ft): GEOID18 = -86.929 12B = -86.913 09 = -86.814 03 = -86.660

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>			<u>Geodetic Position</u>				<u>Murray County</u>			<u>Project Info</u>	
<u>Latitude</u>		<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
43 54 56.52157	95 47 03.50317		495351.298	124661.196	.013		ADJUSTMENT	2014	GPS2998		
43 54 56.52157	95 47 03.50317		495351.298	124661.196	.013	C	GPS - STATIC	2014	HIONA		

<u>NAD83(1996)</u>			<u>Geodetic Position</u>				<u>Murray County</u>			<u>Project Info</u>	
<u>Latitude</u>		<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
43 54 56.52104	95 47 03.50345		495351.278	124661.142	.033	C	GPS - STATIC	2012	HIONA		

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>			<u>MN State Plane - South 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>
2154523.948	667025.401		906991.052	15965449.997		906991.052	15965449.997	.013		ADJUSTMENT	2014	GPS2998
2154523.948	667025.401		906991.052	15965449.997		906991.052	15965449.997	.013	C	GPS - STATIC	2014	HIONA

<u>NAD83(1996)</u>			<u>MN State Plane - South 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>
2154523.926	667025.347		906991.030	15965449.944		906991.030	15965449.944	.033	C	GPS - STATIC	2012	HIONA

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5109_A-DO7184-3N-28APR2021.jpg	N	Apr 28, 2021
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5109_A-DO7184-2-28APR2021.jpg		Apr 28, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5109_A-DO7184-1-28APR2021.jpg		Apr 28, 2021

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



Mn/DOT Name: 5109 B

NGS Name: 5109 B

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DO7181](#) [Get Map](#)
 NGS Quad / Sta Num : 43095441/
 USGS Quad: SLAYTON

				Reference	Reference	Vert	Horz
1/4	Sec	Twp	Rng	Latitude	Longitude	Order	Order
SW	33	106 N	41 W	435608.59	954700.11	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2011	2011	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: (2011) Stamping: 5109 B 2011

1.4 MILES NORTH OF IONA, 1.4 MILES NORTH ALONG TRUNK HIGHWAY 267 FROM THE JUNCTION OF TRUNK HIGHWAY 267 AND COUNTY ROAD 4 WEST IN IONA, AT TRUNK HIGHWAY 267 MILEPOINT 1.4, 95.8 FEET EAST OF TRUNK HIGHWAY 267, 214.2 FEET NORTH OF 61ST STREET, 4.2 FEET WEST OF A NORTH/SOUTH FENCE LINE, 14.3 FEET SOUTH OF A FIELD ENTRANCE, 3.3 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	
1596.057	.016	2/1				VERTICAL ADJUSTMENT	2013	00000792	
1596.053	.016	2/1				VERTICAL CONTROL SURVEY	2012	VIONA	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88				Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference	
1596.057			1509.091	.012	2011	HORIZONTAL ADJUSTMENT	2014	GPS2998	
1596.057			1509.091	.012	2011	GPS - STATIC	2014	HIONA	
1596.060	.131		1509.354	.066	1996	GPS - STATIC	2012	HIONA	

Geoid Separations(ft): GEOID18 = -86.968 12B = -86.949 09 = -86.857 03 = -86.699

Lat/Lon and County Coordinates (Feet)

NAD83(2011)		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 56 08.58674	95 47 00.11001	495601.171	131959.009	.010		ADJUSTMENT	2014	GPS2998
43 56 08.58674	95 47 00.11001	495601.171	131959.009	.010	C	GPS - STATIC	2014	HIONA

NAD83(1996)		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 56 08.58621	95 47 00.11026	495601.152	131958.956	.033	C	GPS - STATIC	2012	HIONA

State Plane and UTM Coordinates (Feet)

NAD83(2011)		Murray County				Project Info		
MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Year	Reference
X	Y	X	Y					
2154931.444	674315.360	907485.369	15972736.357	.010		ADJUSTMENT	2014	GPS2998
2154931.444	674315.360	907485.369	15972736.357	.010	C	GPS - STATIC	2014	HIONA

NAD83(1996)		Murray County				Project Info		
MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Year	Reference
X	Y	X	Y					
2154931.425	674315.307	907485.349	15972736.303	.033	C	GPS - STATIC	2012	HIONA

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5109_B-DO7181-3E-24MAY2011.jpg	E	May 24, 2011
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5109_B-DO7181-2-24MAY2011.jpg		May 24, 2011
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5109_B-DO7181-1-24MAY2011.jpg		May 24, 2011

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



Mn/DOT Name: 5109 C

NGS Name: 5109 C

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DQ7178](#) [Get Map](#)
 NGS Quad / Sta Num : 43095441/
 USGS Quad: SLAYTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	41 W	435803.13	954701.18	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	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 20 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2011) Stamping: 5109 C 2011

2.4 MILES SOUTHWEST OF SLAYTON, 1.7 MILES SOUTH ALONG TRUNK HIGHWAY 267 FROM THE JUNCTION OF TRUNK HIGHWAY 267 AND TRUNK HIGHWAY 30 (THE JUNCTION 1.7 MILES WEST OF SLAYTON), AT TRUNK HIGHWAY 267 MILEPOINT 3.6, 54.7 FEET WEST OF TRUNK HIGHWAY 267, 23.0 FEET SOUTH OF A FIELD ENTRANCE, 4.9 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>
1615.053	.016	2/1					VERTICAL ADJUSTMENT	2013	00000792
1615.053	.016	2/1					VERTICAL CONTROL SURVEY	2012	VIONA

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>
1615.059	.262			1528.022	.197	2011	GPS - OPUS	2021	GPSBM
1615.053				1527.992	.010	2011	HORIZONTAL ADJUSTMENT	2014	GPS2998
1615.053				1527.992	.010	2011	GPS - STATIC	2014	HIONA
1615.016	.262			1528.074	.197	2007	GPS - RTRN	2012	RTRN2012
1615.056	.131			1528.278	.066	1996	GPS - STATIC	2012	HIONA

Geoid Separations(ft): GEOID18 = -87.037 12B = -87.014 09 = -86.939 03 = -86.778

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Murray County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 58 03.13313	95 47 01.17960	495525.290	143558.905	.131	3	GPS - OPUS	2021	GPSBM
43 58 03.13321	95 47 01.17971	495525.282	143558.913	.010		ADJUSTMENT	2014	GPS2998
43 58 03.13321	95 47 01.17971	495525.282	143558.913	.010	C	GPS - STATIC	2014	HIONA

<u>NAD83(2007)</u>		<u>Murray County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 58 03.13273	95 47 01.17991	495525.267	143558.864	.131	3	GPS - RTRN	2012	RTRN2012

<u>NAD83(1996)</u>		<u>Murray County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 58 03.13269	95 47 01.17996	495525.264	143558.861	.033	C	GPS - STATIC	2012	HIONA

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South 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>
2155106.266	685912.953	907798.418	15984333.894	.131	3	GPS - OPUS	2021	GPSBM
2155106.258	685912.962	907798.410	15984333.902	.010		ADJUSTMENT	2014	GPS2998
2155106.258	685912.962	907798.410	15984333.902	.010	C	GPS - STATIC	2014	HIONA

NAD83(2007)

MN State Plane - South 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>
2155106.242	685912.913	907798.394	15984333.854	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

MN State Plane - South 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>
2155106.239	685912.909	907798.390	15984333.850	.033	C	GPS - STATIC	2012	HIONA

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5109_C-DO7178-3W-28APR2021.jpg	W	Apr 28, 2021
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5109_C-DO7178-2-28APR2021.jpg		Apr 28, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5109_C-DO7178-1-28APR2021.jpg		Apr 28, 2021

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



Mn/DOT Name: 5109 D

NGS Name: 5109 D

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DQ7177](#) [Get Map](#)
 NGS Quad / Sta Num : 43095441/
 USGS Quad: SLAYTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	41 W	435843.80	954659.82	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>
2011	2015	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: (2011) Stamping: 5109 D 2011

1.9 MILES SOUTHWEST OF SLAYTON, 1.0 MILE SOUTH ALONG TRUNK HIGHWAY 267 FROM THE JUNCTION OF TRUNK HIGHWAY 267 AND TRUNK HIGHWAY 30 (THE JUNCTION IS 1.7 MILES WEST OF SLAYTON), AT TRUNK HIGHWAY 267 MILEPOINT 4.3, 72.7 FEET EAST OF TRUNK HIGHWAY 267, 87.4 FEET NORTH OF COUNTY ROAD 7 (91ST STREET), 36.3 FEET NORTH-NORTHEAST OF A POWER POLE WITH A GUY WIRE, 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>		
1609.154	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903		
1609.154	.016	2/1				VERTICAL CONTROL SURVEY	2015	VWLSN		
1609.154	.016	2/1				VERTICAL ADJUSTMENT	2013	00000792		
1609.154	.016	2/1				VERTICAL CONTROL SURVEY	2012	VIONA		

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>		
1609.098	.262		1522.054	.197	2011	GPS - RTRN	2015	RTRN2015		
1609.154			1522.064	.009	2011	HORIZONTAL ADJUSTMENT	2014	GPS2998		
1609.154			1522.064	.009	2011	GPS - STATIC	2014	HIONA		
1609.075	.262		1522.103	.197	2007	GPS - RTRN	2012	RTRN2012		
1609.150	.131		1522.349	.066	1996	GPS - STATIC	2012	HIONA		

Geoid Separations(ft): GEOID18 = -87.070 12B = -87.044 09 = -86.972 03 = -86.804

Lat/Lon and County Coordinates (Feet)

<u>Geodetic Position</u>		<u>Murray 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>	
43 58 43.79743	95 46 59.81536	495625.901	147676.889	.131	3	GPS - RTRN	2015	RTRN2015	
43 58 43.79730	95 46 59.81528	495625.907	147676.876	.007		ADJUSTMENT	2014	GPS2998	
43 58 43.79730	95 46 59.81528	495625.907	147676.876	.007	C	GPS - STATIC	2014	HIONA	

<u>Geodetic Position</u>		<u>Murray 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>	
43 58 43.79671	95 46 59.81579	495625.870	147676.816	.131	3	GPS - RTRN	2012	RTRN2012	

<u>Geodetic Position</u>		<u>Murray 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>	
43 58 43.79675	95 46 59.81552	495625.890	147676.820	.033	C	GPS - STATIC	2012	HIONA	

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2155295.833	690027.351	908037.100	15988446.761	.131	3	GPS - RTRN	2015	RTRN2015
2155295.839	690027.337	908037.106	15988446.748	.007		ADJUSTMENT	2014	GPS2998
2155295.839	690027.337	908037.106	15988446.748	.007	C	GPS - STATIC	2014	HIONA

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2155295.800	690027.279	908037.066	15988446.689	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2155295.820	690027.282	908037.086	15988446.693	.033	C	GPS - STATIC	2012	HIONA

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5109_D-DO7177-3E-24MAY2011.jpg	E	May 24, 2011
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5109_D-DO7177-2-24MAY2011.jpg		May 24, 2011
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/5109_D-DO7177-1-24MAY2011.jpg		May 24, 2011

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



Mn/DOT Name: 6 JMK

NGS Name: 6 JMK

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 44095322/
 USGS Quad: DOVRAY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	107 N	40 W	440453.00	953646.00		

<u>Year Set</u>	<u>Last Recovery</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)	SEE DESCRIPTION	USGS

Description: (1966) Stamping: 6 JMK 1966 1542

0.76 MILE NORTH AND 2.63 MILES EAST OF CURRIE, 0.6 MILE NORTH ALONG 200TH AVENUE FROM THE JUNCTION OF 200TH AVENUE AND 1ST STREET NORTH, 2.6 MILES EAST ON 161ST STREET, THEN 469.0 FEET NORTH ON 225TH AVENUE, 800.0 FEET NORTH OF THE CROSSROADS, 16.0 FEET SOUTH AND 51.0 FEET WEST OF A ROAD AT A DRIVE WEST, 3.0 FEET NORTH OF 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>	
1541.874	.033	3							VERTICAL CONTROL SURVEY	1967	USGS-VERT	

Geoid Separations(ft): GEOID18 = -87.759 12B = -87.756 09 = -87.670 03 = -87.506

* No Horizontal Positions in the Database *



Mn/DOT Name: 7 JMK

NGS Name: 7 JMK

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 44095322/
 USGS Quad: DOVRAY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	26	107 N	40 W	440213.00	953647.00		

<u>Year Set</u>	<u>Last Recovery</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)	SEE DESCRIPTION	USGS

Description: (1966) **Stamping:** 7 JMK 1966 1460

2.32 MILES SOUTH AND 2.63 MILES EAST OF CURRIE, 0.3 MILE SOUTH ALONG MILL STREET FROM THE JUNCTION OF MILL STREET AND 2ND STREET, 2.7 MILES EAST ON TRUNK HIGHWAY 30, 1.7 MILES SOUTH ON 225TH AVENUE, THEN 351.0 FEET WEST ON 131ST STREET, 53.0 FEET NORTH AND 145.0 FEET WEST OF A TEE-ROAD SOUTH, 5.0 FEET 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>	
1460.050	.033	3				VERTICAL CONTROL SURVEY	1967	USGS-VERT	

Geoid Separations(ft): GEOID18 = -87.759 12B = -87.759 09 = -87.664 03 = -87.483

* No Horizontal Positions in the Database *



Mn/DOT Name: 8 JMK

NGS Name: 8 JMK

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 44095322/
 USGS Quad: DOVRAY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	40 W	440029.00	953602.00		

<u>Year Set</u>	<u>Last Recovery</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)	SEE DESCRIPTION	USGS

Description: (1966) **Stamping:** 8 JMK 1966 1496

2.96 MILES SOUTH AND 2.52 MILES WEST OF DOVRAY, 1.5 MILES WEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND WOODMAN AVENUE, 0.2 MILE SOUTHWEST ON 141ST STREET, 3.0 MILES SOUTH ON 240TH AVENUE, THEN 0.9 MILE WEST ON 111TH STREET, 39.0 FEET NORTH AND 438.0 FEET EAST OF THE CROSSROADS, 79.0 FEET EAST OF A DRIVE NORTH, 3.0 FEET NORTH OF A 2.0 FEET SQUARE GRANITE ROCK.

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>	
1496.513	.033	3							VERTICAL CONTROL SURVEY	1968	USGS-VERT	

Geoid Separations(ft): GEOID18 = -87.831 12B = -87.825 09 = -87.729 03 = -87.546

* No Horizontal Positions in the Database *



Mn/DOT Name: 9 JMK

NGS Name: 9 JMK

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 44095322/
 USGS Quad: DOVRAY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	39 W	440028.00	953237.00		

<u>Year Set</u>	<u>Last Recovery</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)	SEE DESCRIPTION	USGS

Description: (1966) Stamping: 9 JMK 1966 1500

2.97 MILES SOUTHEAST OF DOVRAY, 0.4 MILE EAST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND WOODMAN AVENUE, 3.0 MILES SOUTH ON 260TH AVENUE, THEN 167.0 FEET WEST ON COUNTY ROAD 8, 41.0 FEET SOUTH AND 226.0 FEET WEST OF THE CROSSROADS (COUNTY ROAD 42 AND AN EAST-WEST TOWNSHIP ROAD), 2.0 FEET EAST OF A POWER POLE, 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>	
1499.994	.033	3					VERTICAL CONTROL SURVEY	1968	USGS-VERT	

Geoid Separations(ft): GEOID18 = -87.972 12B = -87.969 09 = -87.871 03 = -87.710

* No Horizontal Positions in the Database *



Mn/DOT Name: A 230

NGS Name: A 230

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP0592](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	43 W	435513.00	955921.00	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>
1963	1987	POOR	Horz=? Vert=YES	NO		PROJECTS 8 IN.	MARKER IS STEEL ROD

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
COPPER CLAD ROD (NO SLEEVE) (DEPTH 23 FT)	BENCH MARK DISK	NGS

Description: (1987) **Stamping:** A 230 1963

2.0 MILES WEST OF CHANDLER, 2.6 MILES WEST ON COUNTY ROAD 4 FROM THE JUNCTION OF COUNTY ROAD 4 AND TRUNK HIGHWAY 91, 82.5 FEET WEST OF RAILROAD MILEPOST 267, 43.5 FEET SOUTH OF THE SOUTH RAIL OF THE RAILROAD TRACKS, 181.0 FEET SOUTH OF COUNTY ROAD 4, AT A CURVE, 1.0 FOOT NORTH OF A FENCE, 0.8 FOOT EAST OF A WITNESS POST, STATION A 230 HAS BEEN HIT.

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>	
1628.274	.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>	
1627.592	.007	1/2					UNKNOWN/APPROXIMATE	1992	UNCHECKD	
1627.592	.007	1					VERTICAL CONTROL SURVEY	1965	L92 MINN	

Geoid Separations(ft): GEOID18 = -86.056 12B = -86.027 09 = -85.928 03 = -85.843

* No Horizontal Positions in the Database *



Mn/DOT Name: ALOJADO

NGS Name: ALOJADO

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DH4949](#) [Get Map](#)
 NGS Quad / Sta Num : 44095332/
 USGS Quad: HADLEY

<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	3	106 N	41 W	440103.85	954513.71	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>
2005	2024	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 10 FT)	SURVEY DISK	MNDT

Description: (2005) **Stamping:** ALOJADO 2005

1.5 MILES NORTH OF SLAYTON, 1.7 MILES NORTH ALONG TRUNK HIGHWAY 30/TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND TRUNK HIGHWAY 59 IN SLAYTON, AT TRUNK HIGHWAY 30/TRUNK HIGHWAY 59 MILEPOINT 42.9, 46.2 FEET WEST OF TRUNK HIGHWAY 30/TRUNK HIGHWAY 59, 13.7 FEET SOUTH OF A FIELD ENTRANCE, 1.8 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>
1576.417	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903
1576.417	.016	2/1				VERTICAL CONTROL SURVEY	2015	VGARV
1576.417	.016	2/1				VERTICAL ADJUSTMENT	2010	00000628
1576.414	.016	2/1				VERTICAL CONTROL SURVEY	2007	VSLAT

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>
1576.509	.262		1489.216	.197	2011	GPS - RTRN	2024	RTRN2024
1576.417			1489.144	.010	2011	HORIZONTAL ADJUSTMENT	2018	GPS3119
1576.417	.131		1489.393	.066	1996	GPS - STATIC	2017	HMNCORS07
1576.417			1489.144	.010	2011	GPS - STATIC	2017	HMNPH
1576.417			1489.144	.009	2011	HORIZONTAL ADJUSTMENT	2016	GPS3142
1576.417	.131		1489.393	.066	1996	GPS - STATIC	2016	HGARV
1576.417			1489.144	.009	2011	GPS - STATIC	2016	HGARV
1576.457	.262		1489.174	.197	2011	GPS - RTRN	2015	RTRN2015
1576.378	.262		1489.092	.197	2011	GPS - RTRN	2015	RTRN2015
1576.417			1489.144	.009	2011	HORIZONTAL ADJUSTMENT	2014	GPS2998
1576.417			1489.141	.009	2011	GPS - STATIC	2014	HIONA
			1489.144	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1576.372	.262		1489.167	.197	2007	GPS - RTRN	2012	RTRN2012
1576.440	.131		1489.436	.066	1996	GPS - STATIC	2012	HIONA
			1489.229	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2386-B
1576.368	.262		1489.160	.197	2007	GPS - RTRN	2011	RTRN2011
1576.408	.131		1489.393	.066	1996	HORIZONTAL ADJUSTMENT	2007	GPS2386
1576.408	.131		1489.393	.066	1996	GPS - STATIC	2007	HSLAT
			1489.229	.011	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
1576.375	.098		1489.393	.049	1996	GPS - STATIC	2005	GPS2036

Geoid Separations(ft): GEOID18 = -87.296 12B = -87.287 09 = -87.205 03 = -87.011



Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 01 03.84641	95 45 13.71269	503382.624	161859.290	.131	3	GPS - RTRN	2024	RTRN2024
44 01 03.84616	95 45 13.71347	503382.568	161859.265	.007		ADJUSTMENT	2018	GPS3119
44 01 03.84616	95 45 13.71347	503382.568	161859.265	.007	C	GPS - STATIC	2017	HMNPH
44 01 03.84616	95 45 13.71347	503382.568	161859.265	.007		ADJUSTMENT	2016	GPS3142
44 01 03.84616	95 45 13.71347	503382.568	161859.265	.007	C	GPS - STATIC	2016	HGARV
44 01 03.84591	95 45 13.71184	503382.687	161859.240	.131	3	GPS - RTRN	2015	RTRN2015
44 01 03.84635	95 45 13.71275	503382.620	161859.284	.131	3	GPS - RTRN	2015	RTRN2015
44 01 03.84616	95 45 13.71347	503382.568	161859.265	.007		ADJUSTMENT	2014	GPS2998
44 01 03.84617	95 45 13.71345	503382.569	161859.266	.007	C	GPS - STATIC	2014	HIONA
44 01 03.84616	95 45 13.71347	503382.568	161859.265	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 01 03.84517	95 45 13.71373	503382.549	161859.164	.131	3	GPS - RTRN	2012	RTRN2012
44 01 03.84610	95 45 13.71409	503382.522	161859.259	.033	C	ADJUSTMENT	2011	GPS2386-B
44 01 03.84571	95 45 13.71476	503382.473	161859.219	.131	3	GPS - RTRN	2011	RTRN2011
44 01 03.84610	95 45 13.71408	503382.523	161859.259	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 01 03.84565	95 45 13.71345	503382.569	161859.213	.033	C	GPS - STATIC	2017	HMNCORS07
44 01 03.84565	95 45 13.71345	503382.569	161859.213	.033	C	GPS - STATIC	2016	HGARV
44 01 03.84565	95 45 13.71345	503382.569	161859.213	.033	C	GPS - STATIC	2012	HIONA
44 01 03.84565	95 45 13.71345	503382.569	161859.213	.033	C	ADJUSTMENT	2007	GPS2386
44 01 03.84565	95 45 13.71345	503382.569	161859.213	.033	C	GPS - STATIC	2007	HSLAT
44 01 03.84565	95 45 13.71345	503382.569	161859.213	.016	B	GPS - STATIC	2005	GPS2036

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2163356.331	704037.228	916266.363	16002362.792	.131	3	GPS - RTRN	2024	RTRN2024
2163356.274	704037.204	916266.305	16002362.769	.007		ADJUSTMENT	2018	GPS3119
2163356.274	704037.204	916266.305	16002362.769	.007	C	GPS - STATIC	2017	HMNPH
2163356.274	704037.204	916266.305	16002362.769	.007		ADJUSTMENT	2016	GPS3142
2163356.274	704037.204	916266.305	16002362.769	.007	C	GPS - STATIC	2016	HGARV
2163356.392	704037.177	916266.424	16002362.740	.131	3	GPS - RTRN	2015	RTRN2015
2163356.327	704037.223	916266.358	16002362.787	.131	3	GPS - RTRN	2015	RTRN2015
2163356.274	704037.204	916266.305	16002362.769	.007		ADJUSTMENT	2014	GPS2998
2163356.275	704037.205	916266.307	16002362.770	.007	C	GPS - STATIC	2014	HIONA
2163356.274	704037.204	916266.305	16002362.769	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2163356.253	704037.104	916266.283	16002362.669	.131	3	GPS - RTRN	2012	RTRN2012
2163356.228	704037.199	916266.260	16002362.765	.033	C	ADJUSTMENT	2011	GPS2386-B
2163356.179	704037.161	916266.209	16002362.727	.131	3	GPS - RTRN	2011	RTRN2011
2163356.229	704037.199	916266.261	16002362.765	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2163356.274	704037.153	916266.305	16002362.717	.033	C	GPS - STATIC	2017	HMNCORS07
2163356.274	704037.153	916266.305	16002362.717	.033	C	GPS - STATIC	2016	HGARV
2163356.274	704037.153	916266.305	16002362.717	.033	C	GPS - STATIC	2012	HIONA
2163356.274	704037.153	916266.305	16002362.717	.033	C	ADJUSTMENT	2007	GPS2386
2163356.274	704037.153	916266.305	16002362.717	.033	C	GPS - STATIC	2007	HSLAT
2163356.274	704037.153	916266.305	16002362.717	.016	B	GPS - STATIC	2005	GPS2036



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/ALOJADO-DH4949-3W-13MAY2024.jpg	W	May 13, 2024
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/ALOJADO-DH4949-2-13MAY2024.jpg		May 13, 2024
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/ALOJADO-DH4949-1-13MAY2024.jpg		May 13, 2024

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



Mn/DOT Name: AMBIE MNDT

NGS Name: AMBIE

County: MURRAY, MN (Sheet 1)

NGS ACRN: [AH3644](#) [Get Map](#)
 NGS Quad / Sta Num : 44095333/
 USGS Quad: BALATON 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	1	106 N	43 W	440120.79	955700.12	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>
1993	2016	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: (2001) Stamping: AMBIE 1993

1.74 MILES NORTH OF LAKE WILSON, 2.3 MILES NORTH ALONG TRUNK HIGHWAY 91 FROM THE JUNCTION OF TRUNK HIGHWAY 91 AND TRUNK HIGHWAY 30 IN LAKE WILSON TO TRUNK HIGHWAY 91 MILEPOINT 41.05, THEN 0.3 MILE WEST ON 121ST STREET, 24.0 FEET SOUTH OF 121ST STREET, 2.8 FEET NORTH OF A WITNESS POST.

Station Pair: HURD MNDT RESET - MURRAY, MN

Station Notes

DURING RECENT WORK IN WESTERN MURRAY COUNTY WE FOUND THE BENCHMARK AMBIE MNDT, GSID 20770 IS OBLITERATED. 10/1/2021 BY KLJ SURVEYING.

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>
1670.902	.016	2/1				VERTICAL ADJUSTMENT	2020	00000949
1670.902	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903
1670.899	.016	2/1				VERTICAL CONTROL SURVEY	2016	VRUSS

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>
1670.860			1584.620	.017	2011	HORIZONTAL ADJUSTMENT	2015	GPS3109
1670.866	.131		1584.836	.066	1996	GPS - STATIC	2015	HWLSN
1670.860			1584.606	.017	2011	GPS - STATIC	2015	HWLSN
1670.814	.262		1584.580	.197	2011	GPS - RTRN	2015	RTRN2015
			1584.620	.025	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			1584.679	.010	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
1670.896	.131		1584.836	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1919
1670.896	.131		1584.833	.066	1996	GPS - STATIC	2003	HMURR
1670.863	.131		1584.777	.066	1996	HORIZONTAL ADJUSTMENT	1999	17648
1670.830	.131		1584.777	.066	1996	HORIZONTAL ADJUSTMENT	1998	GPS937

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>
1670.108						GPS - STATIC	1993	HORZ

Geoid Separations(ft): GEOID18 = -86.270 12B = -86.233 09 = -86.142 03 = -86.040

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 01 20.79389	95 57 00.12046	451762.997	163628.941	.007		ADJUSTMENT	2015	GPS3109
44 01 20.79391	95 57 00.12035	451763.005	163628.943	.007	C	GPS - STATIC	2015	HWLSN
44 01 20.79372	95 57 00.11897	451763.106	163628.924	.131	3	GPS - RTRN	2015	RTRN2015
44 01 20.79389	95 57 00.12046	451762.997	163628.941	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 01 20.79374	95 57 00.12105	451762.954	163628.926	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 01 20.79339	95 57 00.12065	451762.983	163628.891	.033	C	GPS - STATIC	2015	HWLSN
44 01 20.79339	95 57 00.12065	451762.983	163628.891	.033	C	ADJUSTMENT	2003	GPS1919
44 01 20.79339	95 57 00.12065	451762.983	163628.891	.033	C	GPS - STATIC	2003	HMURR
44 01 20.79299	95 57 00.11887	451763.113	163628.850	.033	C	ADJUSTMENT	1999	17648
44 01 20.79299	95 57 00.11887	451763.113	163628.850	.033	C	ADJUSTMENT	1998	GPS937

NAD83(1986)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 01 20.79019	95 57 00.10301	451764.271	163628.564	.066	2	GPS - STATIC	1993	HMARS

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2111793.001	706922.116	864726.459	16005864.589	.007		ADJUSTMENT	2015	GPS3109
2111793.009	706922.118	864726.467	16005864.590	.007	C	GPS - STATIC	2015	HWLSN
2111793.110	706922.096	864726.567	16005864.567	.131	3	GPS - RTRN	2015	RTRN2015
2111793.001	706922.116	864726.459	16005864.589	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2111792.958	706922.102	864726.416	16005864.575	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2111792.986	706922.066	864726.444	16005864.538	.033	C	GPS - STATIC	2015	HWLSN
2111792.986	706922.066	864726.444	16005864.538	.033	C	ADJUSTMENT	2003	GPS1919
2111792.986	706922.066	864726.444	16005864.538	.033	C	GPS - STATIC	2003	HMURR
2111793.115	706922.022	864726.572	16005864.493	.033	C	ADJUSTMENT	1999	17648
2111793.115	706922.022	864726.572	16005864.493	.033	C	ADJUSTMENT	1998	GPS937

NAD83(1986)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2111794.267	706921.711	864727.720	16005864.168	.066	2	GPS - STATIC	1993	HMARS

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/AMBIE-AH3644-3S-28APR2015.jpg	S	Apr 28, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/AMBIE-AH3644-2-28APR2015.jpg		Apr 28, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/AMBIE-AH3644-1-28APR2015.jpg		Apr 28, 2015

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



Mn/DOT Name: AMBIE MNDT RESET

NGS Name: AMBIE RESET

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 44095333/
 USGS Quad: BALATON 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	1	106 N	43 W	440120.79	955700.12		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>
2024	2024	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 20 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2024) Stamping: AMBIE 1993 2024

1.74 MILES NORTH OF LAKE WILSON, 2.3 MILES NORTH ALONG TRUNK HIGHWAY 91 FROM THE JUNCTION OF TRUNK HIGHWAY 91 AND TRUNK HIGHWAY 30 IN LAKE WILSON TO TRUNK HIGHWAY 91 MILEPOINT 41.05, THEN 0.3 MILE WEST ON 121ST STREET, 24.0 FEET SOUTH OF 121ST STREET, 2.8 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>		
1670.413	.262		1584.144	.197	2011	GPS - RTRN		2024	RTRN2024		

No Geoid Separations Available

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Geodetic Position</u>				<u>Murray County</u>			<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>		<u>Year</u>	<u>Reference</u>	
44 01 20.79384	95 57 00.11980	451763.045	163628.936	.131	3	GPS - RTRN		2024	RTRN2024	

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>		<u>MN State Plane - South 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>	
2111793.049	706922.110	864726.507	16005864.582	.131	3	GPS - RTRN		2024	RTRN2024	

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/AMBIE_RESET-3S-14MAY2024.jpg	S	May 14, 2024
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/AMBIE_RESET-2-14MAY2024.jpg		May 14, 2024
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/AMBIE_RESET-1-14MAY2024.jpg		May 14, 2024

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



Mn/DOT Name: AVOCA MNDT

NGS Name: AVOCA

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP0842](#) [Get Map](#)
 NGS Quad / Sta Num : 43095414/
 USGS Quad: AVOCA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>				
<u>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	106 N	40 W	435735.05	953944.70	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>			
1980	2025	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)	HORIZONTAL CONTROL DISK	MNDT

Description: (1988) **Stamping:** AVOCA 1980

1.0 MILE NORTHWEST OF AVOCA, 1.2 MILES NORTHWEST ALONG TRUNK HIGHWAY 59 FROM THE NORTH JUNCTION OF TRUNK HIGHWAY 59 AND COUNTY ROAD 6 IN AVOCA, AT TRUNK HIGHWAY 59 MILEPOINT 35.9, 23.0 FEET SOUTHWEST OF TRUNK HIGHWAY 59, 116.0 FEET EAST OF 200TH AVENUE, 49.2 FEET NORTHEAST OF A WITNESS POST, 55.08 FEET NORTH-NORTHWEST OF AVOCA MNDT RM 1, 57.24 FEET NORTHEAST OF AVOCA MNDT RM 2, 31.3 FEET NORTHWEST OF AN ADOPT A HIGHWAY SIGN.

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>			
1554.761	.016	2/1				VERTICAL ADJUSTMENT		2017	00000903			
1554.761	.016	2/1				VERTICAL CONTROL SURVEY		2015	VGARV			
1554.787	.016	2/1				VERTICAL ADJUSTMENT		2010	00000628			
1554.790	.016	2/1				VERTICAL CONTROL SURVEY		2007	VSLAT			

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>			
1554.797	.262		1467.103	.197	2011	GPS - RTRN		2025	RTRN2025			
1554.787			1467.044	.010	2011	HORIZONTAL ADJUSTMENT		2016	GPS3142			
1554.787	.131		1467.258	.066	1996	GPS - STATIC		2016	HGARV			
1554.787			1467.044	.010	2011	GPS - STATIC		2016	HGARV			
1554.711	.262		1467.034	.197	2011	GPS - RTRN		2015	RTRN2015			
			1467.044	.010	2011	HORIZONTAL ADJUSTMENT		2012	GPS2800			
1554.643	.262		1467.061	.197	2007	GPS - RTRN		2012	RTRN2012			
			1467.130	.066	2007	HORIZONTAL ADJUSTMENT		2011	GPS2386-B			
1554.787	.131		1467.258	.066	1996	HORIZONTAL ADJUSTMENT		2007	GPS2386			
1554.787	.131		1467.258	.066	1996	GPS - STATIC		2007	HSLAT			
			1467.130	.012	2007	HORIZONTAL ADJUSTMENT		2007	GPS2300			
1554.656	.131		1467.267	.066	1996	HORIZONTAL ADJUSTMENT		2003	GPS1919			
1554.623	.131		1467.258	.066	1996	GPS - STATIC		2003	HMURR			
1554.459	.197		1467.110	.131	1996	HORIZONTAL ADJUSTMENT		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>			
1554.098						RECIPROCAL VERTICAL ANGLE		1981	HORZ			

Geoid Separations(ft): GEOID18 = -87.690 12B = -87.677 09 = -87.585 03 = -87.388



Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Murray County		Acc	Order	Determination Method	Project Info	
Latitude	Longitude	X	Y				Year	Reference
43 57 35.05175	95 39 44.69734	527453.435	140732.057	.131	3	GPS - RTRN	2025	RTRN2025
43 57 35.05268	95 39 44.69675	527453.478	140732.152	.007		ADJUSTMENT	2016	GPS3142
43 57 35.05268	95 39 44.69675	527453.478	140732.152	.007	C	GPS - STATIC	2016	HGARV
43 57 35.05244	95 39 44.69616	527453.521	140732.127	.131	3	GPS - RTRN	2015	RTRN2015
43 57 35.05268	95 39 44.69675	527453.478	140732.152	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Murray County		Acc	Order	Determination Method	Project Info	
Latitude	Longitude	X	Y				Year	Reference
43 57 35.05172	95 39 44.69743	527453.428	140732.054	.131	3	GPS - RTRN	2012	RTRN2012
43 57 35.05275	95 39 44.69750	527453.423	140732.158	.033	C	ADJUSTMENT	2011	GPS2386-B
43 57 35.05275	95 39 44.69750	527453.423	140732.158	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Murray County		Acc	Order	Determination Method	Project Info	
Latitude	Longitude	X	Y				Year	Reference
43 57 35.05225	95 39 44.69680	527453.474	140732.108	.033	C	GPS - STATIC	2016	HGARV
43 57 35.05225	95 39 44.69680	527453.474	140732.108	.033	C	ADJUSTMENT	2007	GPS2386
43 57 35.05225	95 39 44.69680	527453.474	140732.108	.033	C	GPS - STATIC	2007	HSLAT
43 57 35.05224	95 39 44.69676	527453.477	140732.107	.033	C	ADJUSTMENT	2003	GPS1919
43 57 35.05225	95 39 44.69680	527453.474	140732.108	.033	C	GPS - STATIC	2003	HMURR
43 57 35.05365	95 39 44.69613	527453.523	140732.250	.066	2	ADJUSTMENT	1999	17648
43 57 35.05378	95 39 44.69480	527453.620	140732.263	.066	2	ADJUSTMENT	1998	17655

NAD83(1986)

Geodetic Position		Murray County		Acc	Order	Determination Method	Project Info	
Latitude	Longitude	X	Y				Year	Reference
43 57 35.05169	95 39 44.68101	527454.629	140732.053	.066	2	ADJUSTMENT	1986	17289

NAD27

Geodetic Position		X	Y	Acc	Order	Determination Method	Project Info	
Latitude	Longitude						Year	Reference
43 57 35.17928	95 39 43.64560			.100	2	CLASSICAL SURVEY	1982	16710

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15						Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
2186962.438	682397.291	939617.434	15980437.684	.131	3	GPS - RTRN	2025	RTRN2025	
2186962.483	682397.384	939617.480	15980437.777	.007		ADJUSTMENT	2016	GPS3142	
2186962.483	682397.384	939617.480	15980437.777	.007	C	GPS - STATIC	2016	HGARV	
2186962.526	682397.359	939617.522	15980437.751	.131	3	GPS - RTRN	2015	RTRN2015	
2186962.483	682397.384	939617.480	15980437.777	.007		ADJUSTMENT	2012	GPS2800	

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15						Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
2186962.431	682397.288	939617.427	15980437.681	.131	3	GPS - RTRN	2012	RTRN2012	
2186962.428	682397.392	939617.425	15980437.786	.033	C	ADJUSTMENT	2011	GPS2386-B	
2186962.428	682397.392	939617.425	15980437.786	.010		ADJUSTMENT	2007	GPS2300	

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15						Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
2186962.478	682397.341	939617.475	15980437.734	.033	C	GPS - STATIC	2016	HGARV	
2186962.478	682397.341	939617.475	15980437.734	.033	C	ADJUSTMENT	2007	GPS2386	
2186962.478	682397.341	939617.475	15980437.734	.033	C	GPS - STATIC	2007	HSLAT	
2186962.481	682397.340	939617.478	15980437.732	.033	C	ADJUSTMENT	2003	GPS1919	
2186962.478	682397.341	939617.475	15980437.734	.033	C	GPS - STATIC	2003	HMURR	
2186962.530	682397.482	939617.528	15980437.874	.066	2	ADJUSTMENT	1999	17648	
2186962.628	682397.493	939617.626	15980437.884	.066	2	ADJUSTMENT	1998	17655	

NAD83(1986)

MN State Plane - South Zone		UTM - Zone 15						Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
2186963.632	682397.261	939618.627	15980437.639	.066	2	ADJUSTMENT	1986	17289	

NAD27

MN State Plane - South 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>	
1562360.325	354321.575			.100	2	CLASSICAL SURVEY	1982	16710	

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/AVOCA-OP0842-3SW-05AUG2025.jpg	SW	Aug 5, 2025
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/AVOCA-OP0842-2-05AUG2025.jpg		Aug 5, 2025
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/AVOCA-OP0842-1-05AUG2025.jpg		Aug 5, 2025

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



Mn/DOT Name: AVOCA MNDT RM 1

NGS Name: AVOCA RM 1

County: MURRAY, MN (Sheet 1)

NGS ACRN: [CO2119](#) [Get Map](#)
 NGS Quad / Sta Num : 43095414/
 USGS Quad: AVOCA

				Reference	Reference	Vert	Horz
1/4	Sec	Twp	Rng	Latitude	Longitude	Order	Order
NW	28	106 N	40 W	435734.51	953944.65	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1980	2025	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	MNDT

Description: (1980) **Stamping:** AVOCA NO 1 1980

1.0 MILE NORTHWEST OF AVOCA, 1.2 MILES NORTHWEST ALONG TRUNK HIGHWAY 59 FROM THE NORTH JUNCTION OF TRUNK HIGHWAY 59 AND COUNTY ROAD 6 IN AVOCA, AT TRUNK HIGHWAY 59 MILEPOINT 35.9, 55.5 FEET SOUTHEAST OF AVOCA MNDT RM 2, 55.08 FEET SOUTH-SOUTHEAST OF STATION AVOCA MNDT, 73.0 FEET SOUTHWEST OF TRUNK HIGHWAY 59, 1.0 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
1554.334	.016	2/1					VERTICAL ADJUSTMENT	2017	00000903
1554.334	.016	2/1					VERTICAL CONTROL SURVEY	2015	VGARV
1554.334	.016	2/1					VERTICAL ADJUSTMENT	2010	00000628
1554.337	.016	2/1					VERTICAL CONTROL SURVEY	2007	VSLAT

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88				Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)		Height	Acc	Adj	Determination Method	Year	Reference
1554.318	.262			1466.624	.197	2011	GPS - RTRN	2025	RTRN2025
1554.288	.262			1466.611	.197	2011	GPS - RTRN	2015	RTRN2015

Geoid Separations(ft): GEOID18 = -87.693 12B = -87.677 09 = -87.585 03 = -87.388

Lat/Lon and County Coordinates (Feet)

NAD83(2011)		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 57 34.51112	95 39 44.64945	527457.007	140677.313	.131	3	GPS - RTRN	2025	RTRN2025
43 57 34.51085	95 39 44.64982	527456.980	140677.286	.131	3	GPS - RTRN	2015	RTRN2015

State Plane and UTM Coordinates (Feet)

NAD83(2011)		UTM - Zone 15				Project Info		
MN State Plane - South Zone		X	Y	Acc	Order	Determination Method	Year	Reference
X	Y							
2186964.827	682342.488	939619.169	15980382.846	.131	3	GPS - RTRN	2025	RTRN2025
2186964.799	682342.461	939619.141	15980382.820	.131	3	GPS - RTRN	2015	RTRN2015

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/AVOCA_RM_1-CO2119-3SW-05AUG2025.jpg	SW	Aug 5, 2025
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/AVOCA_RM_1-CO2119-2-05AUG2025.jpg		Aug 5, 2025
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/AVOCA_RM_1-CO2119-1-05AUG2025.jpg		Aug 5, 2025

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



Mn/DOT Name: AVOCA MNDT RM 2

NGS Name: AVOCA RM 2

County: MURRAY, MN (Sheet 1)

NGS ACRN: [CO2120](#) [Get Map](#)
 NGS Quad / Sta Num : 43095414/
 USGS Quad: AVOCA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	40 W	435734.73	953945.34	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>
1980	2025	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)	REFERENCE MARK DISK	MNDT

Description: (2003) Stamping: AVOCA NO 2 1980

1.0 MILE NORTHWEST OF AVOCA, 1.2 MILES NORTHWEST ALONG TRUNK HIGHWAY 59 FROM THE NORTH JUNCTION OF TRUNK HIGHWAY 59 AND COUNTY ROAD 6 IN AVOCA, AT TRUNK HIGHWAY 59 MILEPOINT 35.9, 71.3 FEET SOUTHWEST OF TRUNK HIGHWAY 59, 69.0 FEET EAST OF 200TH AVENUE, 91.5 FEET NORTH-NORTHEAST OF A POWER POLE, 57.24 FEET SOUTHWEST OF STATION AVOCA MNDT, 55.5 FEET NORTHWEST OF AVOCA MNDT RM 1, 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>		
1554.380	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903		
1554.380	.016	2/1				VERTICAL CONTROL SURVEY	2015	VGARV		
1554.380	.016	2/1				VERTICAL ADJUSTMENT	2010	00000628		
1554.383	.016	2/1				VERTICAL CONTROL SURVEY	2007	VSLAT		

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>		
1554.416	.262		1466.723	.197	2011	GPS - RTRN	2025	RTRN2025		
1554.314	.262		1466.641	.197	2011	GPS - RTRN	2015	RTRN2015		
			1466.788	.012	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800		
			1466.907	.014	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300		
1554.426	.131		1467.051	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1919		
1554.393	.131		1467.038	.066	1996	GPS - STATIC	2003	HMURR		

Geoid Separations(ft): GEOID18 = -87.690 12B = -87.677 09 = -87.582 03 = -87.388

Lat/Lon and County Coordinates (Feet)

<u>Geodetic Position</u>		<u>Murray County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 57 34.73430	95 39 45.34127	527406.372	140699.850	.131	3	GPS - RTRN	2025	RTRN2025
43 57 34.73503	95 39 45.34077	527406.408	140699.924	.131	3	GPS - RTRN	2015	RTRN2015
43 57 34.73434	95 39 45.34189	527406.326	140699.854	.007		ADJUSTMENT	2012	GPS2800

<u>Geodetic Position</u>		<u>Murray County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 57 34.73433	95 39 45.34272	527406.266	140699.853	.010		ADJUSTMENT	2007	GPS2300

<u>Geodetic Position</u>		<u>Murray County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 57 34.73382	95 39 45.34196	527406.321	140699.802	.033	C	ADJUSTMENT	2003	GPS1919
43 57 34.73385	95 39 45.34198	527406.320	140699.805	.033	C	GPS - STATIC	2003	HMURR



State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2186914.695	682366.111	939569.313	15980407.070	.131	3	GPS - RTRN	2025	RTRN2025
2186914.733	682366.184	939569.352	15980407.143	.131	3	GPS - RTRN	2015	RTRN2015
2186914.650	682366.116	939569.268	15980407.076	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2186914.589	682366.117	939569.207	15980407.077	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2186914.644	682366.064	939569.261	15980407.023	.033	C	ADJUSTMENT	2003	GPS1919
2186914.643	682366.067	939569.260	15980407.027	.033	C	GPS - STATIC	2003	HMURR

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/AVOCA_RM_2-CO2120-3SW-05AUG2025.jpg	SW	Aug 5, 2025
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/AVOCA_RM_2-CO2120-2-05AUG2025.jpg		Aug 5, 2025
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/AVOCA_RM_2-CO2120-1-05AUG2025.jpg		Aug 5, 2025

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



Mn/DOT Name: B 230

NGS Name: B 230

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP0593](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

	<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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 2 105 N 43 W	435532.00	955754.00	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>
1963	1987	NOT FOUND	Horz=? Vert=YES	NO		PROJECTS 3 IN.	SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
COPPER CLAD ROD (NO SLEEVE) (DEPTH 18 FT)	BENCH MARK DISK	NGS

Description: (1987) **Stamping:** B 230 1963

0.8 MILE WEST ON A RAILROAD FROM THE RAILROAD STATION AT CHANDLER, 82.5 FEET EAST OF RAILROAD MILEPOST 266, 32.5 FEET NORTH OF THE NORTH RAIL OF THE RAILROAD TRACKS, 26.5 FEET EAST OF A FIELD ROAD, 3.0 FEET EAST OF A TELEPHONE POLE, 1.6 FEET WEST OF A WITNESS POST-THE RAILROAD AND THE REFERENCE TIES HAVE BEEN REMOVED.

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>	
1644.006	.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>	
1643.333	.007	1/2					UNKNOWN/APPROXIMATE	1992	UNCHECKD	
1643.333	.007	1					VERTICAL CONTROL SURVEY	1965	L92 MINN	

Geoid Separations(ft): GEOID18 = -86.050 12B = -86.033 09 = -85.938 03 = -85.840

* No Horizontal Positions in the Database *



Mn/DOT Name: BALLISTIC CAMERA BC 4 279

NGS Name: BALLISTIC CAMERA BC 4 279

County: MURRAY, MN (Sheet 1)

NGS ACRN: OP0708 Get Map NGS Quad / Sta Num : 43095444/ USGS Quad: CHANDLER
--

<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	19	105 N	42 W	435300.82	955544.70	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>
1963	1972	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)	UNKNOWN	NGS

Description: **Stamping:**
 3.84 MILES SOUTHEAST OF CHANDLER, DEPART FROM CHANDLER 0.22 MILE EAST ON COUNTY ROAD 4 (MAIN AVENUE),
 1.74 MILES SOUTH ON TRUNK HIGHWAY 91, 0.13 MILE SOUTH ON COUNTY ROAD, 0.63 MILE SOUTH ON TRUNK HIGHWAY
 91, 0.97 MILE EAST ON 31ST STREET, 0.62 MILE SOUTH ON 70TH AVENUE.

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>	
1837.447	.007	1/2							VERTICAL ADJUSTMENT	1991	00000025	

Geoid Separations(ft): GEOID18 = -86.266 12B = -86.230 09 = -86.151 03 = -86.056

* No Horizontal Positions in the Database *



Mn/DOT Name: BEAUT MNDT

NGS Name: BEAUT

County: MURRAY, MN (Sheet 1)

NGS ACRN: [PQ1391](#) [Get Map](#)
 NGS Quad / Sta Num : 4409533Z/
 USGS Quad: HADLEY

<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	107 N	41 W	440145.90	954544.34	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>
1987	2015	GOOD	Horz=YES Vert=YES	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 23 FT)	HORIZONTAL CONTROL DISK	MNDT

Description: (2006) **Stamping:** BEAUT 1987

2.5 MILES NORTH OF SLAYTON, 2.55 MILES NORTH ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 30 IN SLAYTON TO TRUNK HIGHWAY 59 MILEPOINT 43.6, THEN 0.45 MILE WEST ON 126TH STREET, 10.0 FEET NORTH OF 126TH STREET, 24.68 FEET SOUTHWEST OF BEAUT MNDT RM 1 RESET, 25.62 FEET SOUTHEAST OF BEAUT MNDT RM 2, 6.0 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>		
1597.851	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903		
1597.868	.016	2/1				VERTICAL CONTROL SURVEY	2015	VGARV		
1597.868	.016	2/1				VERTICAL ADJUSTMENT	2010	00000628		
1597.868	.016	2/1				VERTICAL CONTROL SURVEY	2007	VSLAT		
1597.868	.016	2/1				VERTICAL ADJUSTMENT	1995	00000135		

<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>		
1597.179	.016	2/1				VERTICAL CONTROL SURVEY	1987	VSLAY		

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>		
1597.874	.262		1510.610	.197	2011	GPS - RTRN	2015	RTRN2015		
			1510.617	.010	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800		
1597.808	.262		1510.630	.197	2007	GPS - RTRN	2012	RTRN2012		
			1510.715	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2386-B		
1597.864	.131		1510.866	.066	1996	HORIZONTAL ADJUSTMENT	2007	GPS2386		
1597.864	.131		1510.866	.066	1996	GPS - STATIC	2007	HSLAT		

Geoid Separations(ft): GEOID18 = -87.270 12B = -87.260 09 = -87.178 03 = -86.985

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>			<u>Murray 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>	
44 01 45.89739	95 45 44.33922		501144.247	166117.522	.131	3	GPS - RTRN	2015	RTRN2015	
44 01 45.89733	95 45 44.33938		501144.236	166117.517	.007		ADJUSTMENT	2012	GPS2800	

<u>NAD83(2007)</u>			<u>Murray 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>	
44 01 45.89722	95 45 44.34074		501144.136	166117.505	.131	3	GPS - RTRN	2012	RTRN2012	
44 01 45.89728	95 45 44.34015		501144.179	166117.511	.033	C	ADJUSTMENT	2011	GPS2386-B	

<u>NAD83(1996)</u>			<u>Murray 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>	
44 01 45.89681	95 45 44.33947		501144.229	166117.464	.033	C	ADJUSTMENT	2007	GPS2386	
44 01 45.89681	95 45 44.33947		501144.229	166117.464	.033	C	GPS - STATIC	2007	HSLAT	

<u>NAD83(1986)</u>			<u>Murray 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>	
44 01 45.89239	95 45 44.32499		501145.287	166117.017	3.281		CLASSICAL SURVEY	1988	HSLAY	



State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15						Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
2161210.747	708342.337	914171.906	16006694.310	.131	3	GPS - RTRN	2015	RTRN2015	
2161210.735	708342.331	914171.894	16006694.305	.007		ADJUSTMENT	2012	GPS2800	

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15						Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
2161210.635	708342.322	914171.794	16006694.297	.131	3	GPS - RTRN	2012	RTRN2012	
2161210.679	708342.327	914171.838	16006694.302	.033	C	ADJUSTMENT	2011	GPS2386-B	

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15						Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
2161210.727	708342.279	914171.886	16006694.252	.033	C	ADJUSTMENT	2007	GPS2386	
2161210.727	708342.279	914171.886	16006694.252	.033	C	GPS - STATIC	2007	HSLAT	

NAD83(1986)

MN State Plane - South Zone		UTM - Zone 15						Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
2161211.775	708341.808	914172.928	16006693.770	3.281		CLASSICAL SURVEY	1988	HSLAY	

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BEAUT-PQ1391-3N-16JUN2015.jpg	N	Jun 16, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BEAUT-PQ1391-2-16JUN2015.jpg		Jun 16, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BEAUT-PQ1391-1-16JUN2015.jpg		Jun 16, 2015

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



Mn/DOT Name: BEAUT MNDT RM 1

NGS Name: BEAUT RM 1

County: MURRAY, MN (Sheet 1)

NGS ACRN: [PQ1390](#) [Get Map](#)
 NGS Quad / Sta Num : 44095332/
 USGS Quad: HADLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	107 N	41 W	440146.10	954544.00	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>
1987	2015	DESTROYED	Horz=NO Vert=NO	YES		RECESSED 2 IN.	MARKER W/BAR MAGNET

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

Description: (1987) **Stamping:** BEAUT NO 1 1987

2.55 MILES NORTH OF THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 30 AT SLAYTON THEN 0.45 MILE WEST ON 126TH STREET, 29.0 FEET NORTH OF 126TH STREET, 24.68 FEET NORTHEAST OF STATION BEAUT MNDT, 35.01 FEET EAST OF BEAUT MNDT RM 2, 20.5 FEET NORTHEAST 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>
1595.453	.016	2/1				VERTICAL ADJUSTMENT	2010	00000628
1595.453	.016	2/1				VERTICAL CONTROL SURVEY	2007	VSLAT
1595.453	.016	2/1				VERTICAL ADJUSTMENT	1995	00000135

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>
1594.761	.016	2/1				VERTICAL CONTROL SURVEY	1987	VSLAY

Geoid Separations(ft): GEOID18 = -87.270 12B = -87.264 09 = -87.178 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:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BEAUT_RM_1-PQ1390-3N-18OCT2006.jpg	N	Oct 18, 2006
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BEAUT_RM_1-PQ1390-2-18OCT2006.jpg		Oct 18, 2006
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BEAUT_RM_1-PQ1390-1-18OCT2006.jpg		Oct 18, 2006

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



Mn/DOT Name: BEAUT MNDT RM 1 RESET

NGS Name: BEAUT RM 1 RESET

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DQ2422](#) [Get Map](#)
 NGS Quad / Sta Num : 44095332/
 USGS Quad: HADLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	107 N	41 W	440146.08	954544.11	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	2015	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 18 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2015) Stamping: BEAUT NO 1 1987 2015

2.5 MILES NORTH OF SLAYTON, 2.55 MILES NORTH ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 30 IN SLAYTON TO TRUNK HIGHWAY 59 MILEPOINT 43.6, THEN 0.45 MILE WEST ON 126TH STREET, 29.0 FEET NORTH OF 126TH STREET, 24.68 FEET NORTHEAST OF STATION BEAUT MNDT, 35.01 FEET EAST OF BEAUT MNDT RM 2, 20.5 FEET NORTHEAST 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>
1595.289	.016	2/1					VERTICAL ADJUSTMENT	2017	00000903
1595.305	.016	2/1					VERTICAL CONTROL SURVEY	2015	VGARV

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>
1595.312	.262			1508.051	.197	2011	GPS - RTRN	2015	RTRN2015

Geoid Separations(ft): GEOID18 = -87.270 12B = -87.260 09 = -87.178 03 = -86.985

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>									
44 01 46.07503	95 45 44.10899			501161.068	166135.513	.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 - South 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>									
2161227.950	708359.957			914189.323	16006711.728	.131	3	GPS - RTRN	2015	RTRN2015

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BEAUT_RM_1_RESET-DQ2422-3N-16JUN2015.jpg	N	Jun 16, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BEAUT_RM_1_RESET-DQ2422-2-16JUN2015.jpg		Jun 16, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BEAUT_RM_1_RESET-DQ2422-1-16JUN2015.jpg		Jun 16, 2015

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



Mn/DOT Name: BEAUT MNDT RM 2

NGS Name: BEAUT RM 2

County: MURRAY, MN (Sheet 1)

NGS ACRN: [PQ1392](#) [Get Map](#)
 NGS Quad / Sta Num : 44095332/
 USGS Quad: HADLEY

<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	107 N	41 W	440146.07	954544.59	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>
1987	2015	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)	REFERENCE MARK DISK	MNDT

Description: (1987) Stamping: BEAUT NO 2 1987

2.5 MILES NORTH OF SLAYTON, 2.55 MILES NORTH ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 30 IN SLAYTON TO TRUNK HIGHWAY 59 MILEPOINT 43.6, THEN 0.45 MILE WEST ON 126TH STREET, 29.5 FEET NORTH OF 126TH STREET, 25.62 FEET NORTHWEST OF STATION BEAUT MNDT, 35.01 FEET WEST OF BEAUT MNDT RM 1 RESET, 21.7 FEET 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>		
1595.532	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903		
1595.555	.016	2/1				VERTICAL CONTROL SURVEY	2015	VGARV		
1595.532	.016	2/1				VERTICAL ADJUSTMENT	2010	00000628		
1595.532	.016	2/1				VERTICAL CONTROL SURVEY	2007	VSLAT		
1595.545	.016	2				VERTICAL ADJUSTMENT	1995	00000135		

<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>		
1594.856	.016	2/1				VERTICAL CONTROL SURVEY	1987	VSLAY		

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>		
1595.482	.262		1508.219	.197	2011	GPS - RTRN	2015	RTRN2015		

Geoid Separations(ft): GEOID18 = -87.270 12B = -87.260 09 = -87.178 03 = -86.981

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 01 46.07345	95 45 44.58799	501126.070	166135.351	.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 - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2161192.961	708360.552	914154.335	16006712.741	.131	3	GPS - RTRN	2015	RTRN2015

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BEAUT_RM_2-PQ1392-3N-16JUN2015.jpg	N	Jun 16, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BEAUT_RM_2-PQ1392-2-16JUN2015.jpg		Jun 16, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BEAUT_RM_2-PQ1392-1-16JUN2015.jpg		Jun 16, 2015

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



Mn/DOT Name: BEIER

NGS Name: BEIER

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DO7215](#) [Get Map](#)
 NGS Quad / Sta Num : 43095412/
 USGS Quad: FULDA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	39 W	435145.58	953026.34	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>
2011	2011	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: (2011) Stamping: BEIER 2011

4.5 MILES EAST OF FULDA, 4.5 MILES EAST ALONG TRUNK HIGHWAY 62 FROM THE JUNCTION OF TRUNK HIGHWAY 62 AND TRUNK HIGHWAY 59 IN FULDA, AT TRUNK HIGHWAY 62 MILEPOINT 4.5, 60.8 FEET NORTH OF TRUNK HIGHWAY 62, IN THE CENTER OF A FIELD ENTRANCE, 11.6 FEET SOUTH OF A FENCE POST, 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>
1473.481	.016	2/1					VERTICAL ADJUSTMENT	2013	00000792
1473.485	.016	2/1					VERTICAL CONTROL SURVEY	2012	VFULD

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>
1473.485				1385.165	.021	2011	HORIZONTAL ADJUSTMENT	2014	GPS2962
1473.485				1385.165	.021	2011	GPS - STATIC	2014	HFULD
1473.485	.131			1385.463	.066	1996	GPS - STATIC	2013	HFULD
1473.603	.262			1385.404	.197	2007	GPS - RTRN	2011	RTRN2011

Geoid Separations(ft): GEOID18 = -88.340 12B = -88.320 09 = -88.199 03 = -88.021

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>									
43 51 45.57584	95 30 26.34338			568408.364	105431.811	.013		ADJUSTMENT	2014	GPS2962
43 51 45.57584	95 30 26.34338			568408.364	105431.811	.013	C	GPS - STATIC	2014	HFULD

<u>NAD83(2007)</u>				<u>Murray 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>									
43 51 45.57622	95 30 26.34404			568408.315	105431.850	.131	3	GPS - RTRN	2011	RTRN2011

<u>NAD83(1996)</u>				<u>Murray 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>									
43 51 45.57557	95 30 26.34374			568408.338	105431.784	.033	C	GPS - STATIC	2013	HFULD

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>			
<u>MN State Plane - South 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>									
2227141.547	646224.596			979368.987	15943783.278	.013		ADJUSTMENT	2014	GPS2962
2227141.547	646224.596			979368.987	15943783.278	.013	C	GPS - STATIC	2014	HFULD

<u>NAD83(2007)</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>			
<u>MN State Plane - South 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>									
2227141.499	646224.635			979368.941	15943783.318	.131	3	GPS - RTRN	2011	RTRN2011

<u>NAD83(1996)</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>			
<u>MN State Plane - South 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>									
2227141.520	646224.569			979368.960	15943783.251	.033	C	GPS - STATIC	2013	HFULD



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BEIER-DO7215-3N-08JUN2011.jpg	N	Jun 8, 2011
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BEIER-DO7215-2-08JUN2011.jpg		Jun 8, 2011
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BEIER-DO7215-1-08JUN2011.jpg		Jun 8, 2011

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



Mn/DOT Name: BELFAST MNDT

NGS Name: BELFAST

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP0839](#) [Get Map](#)
 NGS Quad / Sta Num : 43095412/
 USGS Quad: FULDA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	39 W	435205.49	953233.01	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>
1980	2011	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	STEEL ROD IMBED IN MON

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

Description: (2002) Stamping: BELFAST 1980

2.96 MILES SOUTHEAST OF FULDA, 2.6 MILES SOUTHEAST ALONG TRUNK HIGHWAY 62 FROM THE JUNCTION OF TRUNK HIGHWAY 62 AND TRUNK HIGHWAY 59, THEN 0.4 MILE NORTH ON 260TH AVENUE, 31.0 FEET EAST OF THE CENTER OF THE 260TH AVENUE, 54.0 FEET SOUTHWEST OF A POWER POLE, 52.15 FEET SOUTHWEST OF BELFAST MNDT RM 1, 48.63 FEET NORTHWEST OF BELFAST MNDT RM 2, 44.0 FEET WEST OF A WITNESS POST, 11.0 FEET WEST OF A GRAVEL ROAD, 8.0 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>	
1497.881	.016	2/1				VERTICAL ADJUSTMENT	2013	00000792	
1497.884	.016	2/1				VERTICAL CONTROL SURVEY	2012	VFULD	

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>	
1497.884			1409.656	.017	2011	HORIZONTAL ADJUSTMENT	2014	GPS2962	
1497.884			1409.656	.017	2011	GPS - STATIC	2014	HFULD	
1497.884	.131		1410.017	.066	1996	GPS - STATIC	2013	HFULD	
1497.799	.262		1409.745	.197	2007	GPS - RTRN	2011	RTRN2011	
1498.028	.197		1410.233	.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>	
1497.504						RECIPROCAL VERTICAL ANGLE	1981	HORZ	

Geoid Separations(ft): GEOID18 = -88.199 12B = -88.179 09 = -88.054 03 = -87.867

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 52 05.48591	95 32 33.01138	559122.029	107420.809	.013		ADJUSTMENT	2014	GPS2962
43 52 05.48591	95 32 33.01138	559122.029	107420.809	.013	C	GPS - STATIC	2014	HFULD

NAD83(2007)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 52 05.48651	95 32 33.01234	559121.959	107420.870	.131	3	GPS - RTRN	2011	RTRN2011

NAD83(1996)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 52 05.48546	95 32 33.01137	559122.030	107420.764	.033	C	GPS - STATIC	2013	HFULD
43 52 05.48455	95 32 33.01073	559122.078	107420.672	.066	2	ADJUSTMENT	1999	17648
43 52 05.48358	95 32 33.00200	559122.717	107420.575	.066	2	ADJUSTMENT	1998	17655

NAD83(1986)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 52 05.48278	95 32 32.99293	559123.382	107420.496	.066	2	ADJUSTMENT	1986	17289

NAD27

Geodetic Position						Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 52 05.61866	95 32 31.98096			.100	2	CLASSICAL SURVEY	1982	16710

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2217901.184	648413.384	970154.175	15946082.088	.013		ADJUSTMENT	2014	GPS2962
2217901.184	648413.384	970154.175	15946082.088	.013	C	GPS - STATIC	2014	HFULD

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2217901.115	648413.446	970154.106	15946082.151	.131	3	GPS - RTRN	2011	RTRN2011

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2217901.184	648413.338	970154.174	15946082.042	.033	C	GPS - STATIC	2013	HFULD
2217901.229	648413.245	970154.218	15946081.949	.066	2	ADJUSTMENT	1999	17648
2217901.867	648413.135	970154.854	15946081.831	.066	2	ADJUSTMENT	1998	17655

NAD83(1986)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2217902.530	648413.042	970155.516	15946081.730	.066	2	ADJUSTMENT	1986	17289

NAD27

MN State Plane - South Zone						Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1593298.539	320338.657			.100	2	CLASSICAL SURVEY	1982	16710

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BELFAST-OP0839-3W-17MAY2011.jpg	W	May 17, 2011
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BELFAST-OP0839-2-17MAY2011.jpg		May 17, 2011
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BELFAST-OP0839-1-17MAY2011.jpg		May 17, 2011

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



Mn/DOT Name: BELFAST MNDT RM 1

NGS Name: BELFAST RM 1

County: MURRAY, MN (Sheet 1)

NGS ACRN: [CO2215](#) [Get Map](#)
 NGS Quad / Sta Num : 43095412/
 USGS Quad: FULDA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	39 W	435205.79	953232.44	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>
1980	2011	GOOD	Horz=NO Vert=YES	YES		RECESSED 4 IN.	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	MNDT

Description: (2011) **Stamping:** BELFAST NO 1 1980

2.96 MILES SOUTHEAST OF FULDA, 2.6 MILES SOUTHEAST ALONG TRUNK HIGHWAY 62 FROM THE JUNCTION OF TRUNK HIGHWAY 62 AND TRUNK HIGHWAY 59, THEN 0.4 MILE NORTH ON 260TH AVENUE, 31.0 FEET EAST OF THE CENTER OF THE 260TH AVENUE, 52.15 FEET NORTHEAST OF STATION BELFAST MNDT, 2.4 FEET WEST OF A FENCE, 2.0 FEET SOUTHWEST OF A POWER POLE, AND 25.4 FEET NORTH OF A STEEL 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>
1496.870	.016	2/1					VERTICAL ADJUSTMENT	2013	00000792
1496.870	.016	2/1					VERTICAL CONTROL SURVEY	2012	VFULD

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>
1496.847	.262			1408.790	.197	2007	GPS - RTRN	2011	RTRN2011

Geoid Separations(ft): GEOID18 = -88.199 12B = -88.179 09 = -88.058 03 = -87.867

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2007)</u>				<u>Murray 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>									
43 52 05.78906	95 32 32.43653			559164.061	107451.623	.131	3	GPS - RTRN	2011	RTRN2011

State Plane and UTM Coordinates (Feet)

<u>NAD83(2007)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South 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>									
2217943.867	648443.280			970197.215	15946111.478	.131	3	GPS - RTRN	2011	RTRN2011

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BELFAST_RM_1-CO2215-3E-17MAY2011.jpg	E	May 17, 2011
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BELFAST_RM_1-CO2215-2-17MAY2011.jpg		May 17, 2011
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BELFAST_RM_1-CO2215-1-17MAY2011.jpg		May 17, 2011

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



Mn/DOT Name: BELFAST MNDT RM 2

NGS Name: BELFAST RM 2

County: MURRAY, MN (Sheet 1)

NGS ACRN: [CO2216](#) [Get Map](#)
 NGS Quad / Sta Num : 43095412/
 USGS Quad: FULDA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	39 W	435205.27	953232.42	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	2011	GOOD	Horz=YES Vert=YES	YES		RECESSED 6 IN.	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	MNDT

Description: (2011) **Stamping:** BELFAST NO 2 1980

2.96 MILES SOUTHEAST OF FULDA, 2.6 MILES SOUTHEAST ALONG TRUNK HIGHWAY 62 FROM THE JUNCTION OF TRUNK HIGHWAY 62 AND TRUNK HIGHWAY 59, THEN 0.4 MILE NORTH ON 260TH AVENUE, 31.0 FEET EAST OF THE CENTER OF THE 260TH AVENUE 54.4 FEET SOUTH OF A POWER POLE, 48.63 FEET SOUTHEAST OF STATION BELFAST MNDT, 2.3 FEET WEST OF A FENCE, AND 27.3 FEET SOUTH OF A STEEL 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>
1496.450	.016	2/1					VERTICAL ADJUSTMENT	2013	00000792
1496.454	.016	2/1					VERTICAL CONTROL SURVEY	2012	VFULD

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>
1496.359	.262			1408.304	.197	2007	GPS - RTRN	2011	RTRN2011

Geoid Separations(ft): GEOID18 = -88.199 12B = -88.179 09 = -88.058 03 = -87.867

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2007)</u>				<u>Murray 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>									
43 52 05.26771	95 32 32.42018			559165.402	107398.831	.131	3	GPS - RTRN	2011	RTRN2011

State Plane and UTM Coordinates (Feet)

<u>NAD83(2007)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South 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>									
2217944.069	648390.477			970196.789	15946058.669	.131	3	GPS - RTRN	2011	RTRN2011

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BELFAST_RM_2-CO2216-3E-17MAY2011.jpg	E	May 17, 2011
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BELFAST_RM_2-CO2216-2-17MAY2011.jpg		May 17, 2011
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BELFAST_RM_2-CO2216-1-17MAY2011.jpg		May 17, 2011

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



Mn/DOT Name: BELLE

NGS Name: BELLE

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DQ3103](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	42 W	435333.70	955637.40	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>
2016	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 22 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2016) Stamping: BELLE 2016

2.6 MILES SOUTH OF CHANDLER, 2.45 MILES SOUTH ALONG TRUNK HIGHWAY 91 FROM THE JUNCTION OF TRUNK HIGHWAY 91 AND COUNTY ROAD 4 IN CHANDLER, AT TRUNK HIGHWAY 91 MILEPOINT 31.4, 48.8 FEET EAST OF TRUNK HIGHWAY 91, 41.3 FEET SOUTH OF A FIELD ENTRANCE, 1.5 FEET SOUTH OF A WITNESS POST.

Station Pair: CORA - MURRAY, 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>
1803.225	.016	2/1					VERTICAL ADJUSTMENT	2020	00000949
1803.169	.016	2/1					VERTICAL ADJUSTMENT	2017	00000903
1803.176	.016	2/1					VERTICAL CONTROL SURVEY	2016	VRUSS

Geoid Separations(ft): GEOID18 = -86.220 12B = -86.178 09 = -86.102 03 = -86.007

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BELLE-DQ3103-3E-05APR2016.jpg	E	Apr 5, 2016
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BELLE-DQ3103-2-05APR2016.jpg		Apr 5, 2016
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BELLE-DQ3103-1-05APR2016.jpg		Apr 5, 2016

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



Mn/DOT Name: BLOODY
County: MURRAY, MN (Sheet 1)

NGS Name: BLOODY

NGS ACRN: [DK2715](#) [Get Map](#)
NGS Quad / Sta Num : 44095323/
USGS Quad: CURRIE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	3	107 N	41 W	440632.70	954456.37	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>
2006	2016	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: (2006) Stamping: BLOODY 2006

8.5 MILES NORTH OF SLAYTON, 8.3 MILES NORTH ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 30 IN SLAYTON TO TRUNK HIGHWAY 59 MILEPOINT 49.35, THEN 0.3 MILE WEST ON COUNTY ROAD 48 (181ST STREET), 43.2 FEET SOUTH COUNTY ROAD 48 (181ST STREET), 15.4 FEET EAST OF A FIELD ENTRANCE, 5.3 FEET WEST OF A WITNESS POST.

Station Pair: MACIE - MURRAY, 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>	
1567.208	.016	2/1					VERTICAL ADJUSTMENT	2017	00000903	
1567.208	.016	2/1					VERTICAL CONTROL SURVEY	2015	VGARV	
1567.208	.016	2/1					VERTICAL ADJUSTMENT	2010	00000628	
1567.208	.016	2/1					VERTICAL CONTROL SURVEY	2007	VSLAT	

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>	
1567.208				1479.922	.014	2011	HORIZONTAL ADJUSTMENT	2016	GPS3142	
1567.208	.131			1480.089	.066	1996	GPS - STATIC	2016	HGARV	
1567.208				1479.922	.014	2011	GPS - STATIC	2016	HGARV	
1567.103	.262			1479.771	.197	2011	GPS - RTRN	2015	RTRN2015	
				1479.922	.018	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
				1480.020	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2386-B	
1567.221	.131			1480.187	.066	1996	HORIZONTAL ADJUSTMENT	2007	GPS2386	
1567.221	.131			1480.187	.066	1996	GPS - STATIC	2007	HSLAT	

Geoid Separations(ft): GEOID18 = -87.339 12B = -87.333 09 = -87.254 03 = -87.083

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Murray 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>	
44 06 32.70256	95 44 56.36533	504643.208	195162.736	.007		ADJUSTMENT	2016	GPS3142	
44 06 32.70256	95 44 56.36533	504643.208	195162.736	.007	C	GPS - STATIC	2016	HGARV	
44 06 32.70297	95 44 56.36569	504643.181	195162.778	.131	3	GPS - RTRN	2015	RTRN2015	
44 06 32.70256	95 44 56.36533	504643.208	195162.736	.007		ADJUSTMENT	2012	GPS2800	

<u>NAD83(2007)</u>		<u>Murray 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>	
44 06 32.70255	95 44 56.36628	504643.138	195162.735	.033	C	ADJUSTMENT	2011	GPS2386-B	

<u>NAD83(1996)</u>		<u>Murray 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>	
44 06 32.70207	95 44 56.36560	504643.188	195162.686	.033	C	GPS - STATIC	2016	HGARV	
44 06 32.70207	95 44 56.36560	504643.188	195162.686	.033	C	ADJUSTMENT	2007	GPS2386	
44 06 32.70207	95 44 56.36560	504643.188	195162.686	.033	C	GPS - STATIC	2007	HSLAT	

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2165336.043	737301.603	918645.149	16035609.233	.007		ADJUSTMENT	2016	GPS3142
2165336.043	737301.603	918645.149	16035609.233	.007	C	GPS - STATIC	2016	HGARV
2165336.017	737301.645	918645.125	16035609.276	.131	3	GPS - RTRN	2015	RTRN2015
2165336.043	737301.603	918645.149	16035609.233	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2165335.973	737301.603	918645.080	16035609.234	.033	C	ADJUSTMENT	2011	GPS2386-B

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2165336.022	737301.554	918645.128	16035609.184	.033	C	GPS - STATIC	2016	HGARV
2165336.022	737301.554	918645.128	16035609.184	.033	C	ADJUSTMENT	2007	GPS2386
2165336.022	737301.554	918645.128	16035609.184	.033	C	GPS - STATIC	2007	HSLAT

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BLOODY-DK2715-3S-16JUN2015.jpg	S	Jun 16, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BLOODY-DK2715-2-16JUN2015.jpg		Jun 16, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BLOODY-DK2715-1-16JUN2015.jpg		Jun 16, 2015

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



Mn/DOT Name: BLOOM 1 MN105

NGS Name: BLOOM 1

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DE9574](#) [Get Map](#)
 NGS Quad / Sta Num : 43095413/
 USGS Quad: FULDA 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	1	104 N	41 W	435053.15	954212.79		C

<u>Year Set</u>	<u>Last Recovery</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	2019	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 MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MN-105

Description: (2008) **Stamping:** BLOOM 1 2000

5.2 MILES WEST-SOUTHWEST OF FULDA, 5.8 MILES WEST ALONG COUNTY ROAD 2 FROM THE JUNCTION OF COUNTY ROAD 2 AND TRUNK HIGHWAY 59/62 IN FULDA, THEN 1.95 MILES SOUTH ON COUNTY ROAD 34, THEN 0.1 MILE EAST ON 1ST STREET, 62.8 FEET SOUTH OF 1ST STREET, 32.8 FEET WEST 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)

<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>		
1584.173	.262		1496.910	.197	2011	2019	GPSBM	2019	GPSBM	2019	GPSBM		
1584.219	.262		1496.956	.197	2011	2019	GPSBM	2019	GPSBM	2019	RTRN2019		
1584.157	.262		1496.897	.197	2011	2019	RTRN2019	2019	RTRN2019	2018	RTRN2018		
1584.252	.262		1497.025	.197	2011	2018	RTRN2018	2018	RTRN2018	2012	GPS2800		
			1496.943	.010	2011	2012	GPS2800	2012	GPS2800	2007	GPS2300		
			1497.034	.010	2007	2007	GPS2300	2007	GPS2300	2003	GPS1919		
1584.118	.131		1497.143	.066	1996	2003	GPS1919	2003	GPS1919	2003	HMURR		
1584.085	.131		1497.143	.066	1996	2003	HMURR	2003	HMURR	2003	GPS1780		
1584.118	.131		1497.143	.066	1996	2003	GPS1780	2003	GPS1780	2002	HNOBL		
1584.118	.131		1497.143	.066	1996	2002	HNOBL	2002	HNOBL				

Geoid Separations(ft): GEOID18 = -87.264 12B = -87.228 09 = -87.123 03 = -86.968

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>			<u>Murray 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>								
43 50 53.14999	95 42 12.79228		516651.441	100021.565	.131	3	GPS - OPUS	2019	GPSBM
43 50 53.15024	95 42 12.79238		516651.434	100021.590	.131	3	GPS - OPUS	2019	GPSBM
43 50 53.15002	95 42 12.79134		516651.510	100021.568	.131	3	GPS - RTRN	2019	RTRN2019
43 50 53.15047	95 42 12.79163		516651.489	100021.613	.131	3	GPS - RTRN	2018	RTRN2018
43 50 53.14998	95 42 12.79196		516651.465	100021.564	.010		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>			<u>Nobles 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>								
43 50 53.14993	95 42 12.79278		565020.932	226994.567	.010		ADJUSTMENT	2007	GPS2300

<u>NAD83(1996)</u>			<u>Nobles 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>								
43 50 53.14936	95 42 12.79221		565020.974	226994.509	.033	C	ADJUSTMENT	2003	GPS1919
43 50 53.14936	95 42 12.79221		565020.974	226994.509	.033	C	GPS - STATIC	2003	HMURR
43 50 53.14936	95 42 12.79221		565020.974	226994.509	.033	C	ADJUSTMENT	2003	GPS1780
43 50 53.14936	95 42 12.79221		565020.973	226994.510	.033	C	GPS - STATIC	2002	HNOBL

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2175284.684	641933.683	927456.804	15940107.997	.131	3	GPS - OPUS	2019	GPSBM
2175284.677	641933.709	927456.797	15940108.022	.131	3	GPS - OPUS	2019	GPSBM
2175284.752	641933.685	927456.872	15940107.998	.131	3	GPS - RTRN	2019	RTRN2019
2175284.732	641933.731	927456.853	15940108.044	.131	3	GPS - RTRN	2018	RTRN2018
2175284.707	641933.682	927456.827	15940107.995	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2175284.647	641933.678	927456.766	15940107.992	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2175284.687	641933.619	927456.806	15940107.933	.033	C	ADJUSTMENT	2003	GPS1919
2175284.687	641933.619	927456.806	15940107.933	.033	C	GPS - STATIC	2003	HMURR
2175284.687	641933.619	927456.806	15940107.933	.033	C	ADJUSTMENT	2003	GPS1780
2175284.687	641933.619	927456.806	15940107.933	.033	C	GPS - STATIC	2002	HNOBL

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BLOOM_1-DE9574-3E-22OCT2019.jpg	E	Oct 22, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BLOOM_1-DE9574-2-22OCT2019.jpg		Oct 22, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BLOOM_1-DE9574-1-22OCT2019.jpg		Oct 22, 2019

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



Mn/DOT Name: BLOOM 6 MN105

NGS Name: BLOOM 6

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DE9576](#) [Get Map](#)
 NGS Quad / Sta Num : 43095442/
 USGS Quad: WILMONT

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	41 W	435054.02	954842.54		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>
2000	2019	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 MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MN-105

Description: (2000) **Stamping:** BLOOM 6 2000

5.8 MILES NORTH-NORTHEAST OF WILMONT, 0.8 MILE EAST ALONG COUNTY ROAD 25/COUNTY ROAD 16 FROM THE JUNCTION OF COUNTY ROAD 25 AND COUNTY ROAD 16 AND COUNTY ROAD 29 IN WILMONT, THEN 6.0 MILES NORTH ON COUNTY ROAD 13, THEN 0.05 MILE WEST ON 1ST STREET, 66.4 FEET NORTH OF 1ST STREET, 4.7 FEET EAST 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>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1696.046	.262		1609.410	.197	2011	GPS - OPUS	2019	GPSBM
1696.050	.262		1609.413	.197	2011	GPS - OPUS	2019	GPSBM
1696.046	.262		1609.406	.197	2011	GPS - RTRN	2019	RTRN2019
1696.060	.262		1609.446	.197	2011	GPS - RTRN	2018	RTRN2018
			1609.432	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			1609.528	.009	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
1696.027	.131		1609.626	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1919
1696.027	.131		1609.626	.066	1996	GPS - STATIC	2003	HMURR
1696.060	.131		1609.626	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1780
1696.060	.131		1609.626	.066	1996	GPS - STATIC	2002	HNOBL

Geoid Separations(ft): GEOID18 = -86.637 12B = -86.614 09 = -86.509 03 = -86.397

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 50 54.01936	95 48 42.54016	488087.918	100106.490	.131	3	GPS - OPUS	2019	GPSBM
43 50 54.01939	95 48 42.54034	488087.904	100106.493	.131	3	GPS - OPUS	2019	GPSBM
43 50 54.01938	95 48 42.54058	488087.887	100106.492	.131	3	GPS - RTRN	2019	RTRN2019
43 50 54.01961	95 48 42.53917	488087.990	100106.515	.131	3	GPS - RTRN	2018	RTRN2018
43 50 54.01950	95 48 42.53984	488087.941	100106.504	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 50 54.01945	95 48 42.54065	488087.882	100106.499	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 50 54.01880	95 48 42.53992	488087.935	100106.433	.033	C	ADJUSTMENT	2003	GPS1919
43 50 54.01880	95 48 42.53992	488087.935	100106.433	.033	C	GPS - STATIC	2003	HMURR
43 50 54.01880	95 48 42.53992	488087.935	100106.433	.033	C	ADJUSTMENT	2003	GPS1780
43 50 54.01880	95 48 42.53992	488087.935	100106.434	.033	C	GPS - STATIC	2002	HNOBL

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2146732.292	642635.780	898908.521	15941148.708	.131	3	GPS - OPUS	2019	GPSBM
2146732.279	642635.783	898908.509	15941148.711	.131	3	GPS - OPUS	2019	GPSBM
2146732.262	642635.783	898908.491	15941148.710	.131	3	GPS - RTRN	2019	RTRN2019
2146732.366	642635.804	898908.595	15941148.730	.131	3	GPS - RTRN	2018	RTRN2018
2146732.316	642635.793	898908.545	15941148.721	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2146732.257	642635.790	898908.486	15941148.718	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2146732.309	642635.723	898908.537	15941148.650	.033	C	ADJUSTMENT	2003	GPS1919
2146732.309	642635.723	898908.537	15941148.650	.033	C	GPS - STATIC	2003	HMURR
2146732.309	642635.723	898908.537	15941148.650	.033	C	ADJUSTMENT	2003	GPS1780
2146732.309	642635.723	898908.537	15941148.650	.033	C	GPS - STATIC	2002	HNOBL

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BLOOM_6-DE9576-3N-22OCT2019.jpg	N	Oct 22, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BLOOM_6-DE9576-2-22OCT2019.jpg		Oct 22, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BLOOM_6-DE9576-1-22OCT2019.jpg		Oct 22, 2019

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



Mn/DOT Name: BONDIN MNDT

NGS Name: BONDIN

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP0843](#) [Get Map](#)
 NGS Quad / Sta Num : 43095414/
 USGS Quad: AVOCA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	40 W	435245.48	953947.67		C

<u>Year Set</u>	<u>Last Recovery</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	2021	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)	HORIZONTAL CONTROL DISK	MNDT

Description: (1980) **Stamping:** BONDIN 1980

3.0 MILES WEST-NORTHWEST OF FULDA, 3.9 MILES WEST AND NORTH ALONG COUNTY ROAD 2 FROM THE JUNCTION OF COUNTY ROAD 2 AND TRUNK HIGHWAY 59/TRUNK HIGHWAY 62 IN FULDA, THEN 0.25 MILE NORTH ON COUNTY ROAD 68 (200TH AVENUE), 18.5 FEET EAST OF COUNTY ROAD 68 (200TH AVENUE), 204.0 FEET NORTH-NORTHEAST OF UNDERGROUND CABLE MARKER NUMBER LP4, 16.9 FEET WEST OF A WITNESS POST, 31.34 FEET SOUTHWEST OF BONDIN MNDT RM 1, 34.22 FEET NORTHWEST OF BONDIN MNDT RM 2, 16.8 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>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1583.084	.262		1495.466	.197	2011	GPS - OPUS	2021	GPSBM
1582.989	.262		1495.371	.197	2011	GPS - OPUS	2021	GPSBM
1583.051	.262		1495.453	.197	2011	GPS - RTRN	2015	RTRN2015
			1495.515	.015	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1583.038	.262		1495.558	.197	2007	GPS - RTRN	2011	RTRN2011
			1495.607	.016	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
1583.035	.131		1495.729	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1919
1583.002	.131		1495.725	.066	1996	GPS - STATIC	2003	HMURR
1582.346	.197		1495.109	.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>
1582.412						RECIPROCAL VERTICAL ANGLE	1981	HORZ

Geoid Separations(ft): GEOID18 = -87.621 12B = -87.598 09 = -87.483 03 = -87.296



Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 52 45.47820	95 39 47.67440	527272.461	111407.415	.131	3	GPS - OPUS	2021	GPSBM
43 52 45.47849	95 39 47.67509	527272.410	111407.444	.131	3	GPS - OPUS	2021	GPSBM
43 52 45.47876	95 39 47.67383	527272.502	111407.472	.131	3	GPS - RTRN	2015	RTRN2015
43 52 45.47834	95 39 47.67510	527272.409	111407.429	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 52 45.47847	95 39 47.67476	527272.434	111407.442	.131	3	GPS - RTRN	2011	RTRN2011
43 52 45.47829	95 39 47.67591	527272.350	111407.424	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 52 45.47774	95 39 47.67521	527272.401	111407.368	.033	C	ADJUSTMENT	2003	GPS1919
43 52 45.47775	95 39 47.67521	527272.401	111407.369	.033	C	GPS - STATIC	2003	HMURR
43 52 45.47818	95 39 47.67678	527272.286	111407.413	.066	2	ADJUSTMENT	1999	17648
43 52 45.47832	95 39 47.67674	527272.289	111407.427	.066	2	ADJUSTMENT	1998	17655

NAD83(1986)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 52 45.47666	95 39 47.65875	527273.607	111407.260	.066	2	ADJUSTMENT	1986	17289

NAD27

Geodetic Position						Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 52 45.60316	95 39 46.63023			.100	2	CLASSICAL SURVEY	1982	16710

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2186148.164	653086.386	938453.993	15951133.021	.131	3	GPS - OPUS	2021	GPSBM
2186148.115	653086.416	938453.943	15951133.052	.131	3	GPS - OPUS	2021	GPSBM
2186148.207	653086.442	938454.036	15951133.077	.131	3	GPS - RTRN	2015	RTRN2015
2186148.113	653086.401	938453.942	15951133.037	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2186148.139	653086.414	938453.967	15951133.049	.131	3	GPS - RTRN	2011	RTRN2011
2186148.054	653086.397	938453.882	15951133.034	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2186148.104	653086.341	938453.932	15951132.977	.033	C	ADJUSTMENT	2003	GPS1919
2186148.104	653086.342	938453.932	15951132.978	.033	C	GPS - STATIC	2003	HMURR
2186147.990	653086.387	938453.818	15951133.025	.066	2	ADJUSTMENT	1999	17648
2186147.993	653086.402	938453.822	15951133.039	.066	2	ADJUSTMENT	1998	17655

NAD83(1986)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2186149.307	653086.207	938455.134	15951132.828	.066	2	ADJUSTMENT	1986	17289

NAD27

MN State Plane - South Zone						Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1561545.596	325010.715			.100	2	CLASSICAL SURVEY	1982	16710



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BONDIN-OP0843-3E-28APR2021.jpg	E	Apr 28, 2021
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BONDIN-OP0843-2-28APR2021.jpg		Apr 28, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BONDIN-OP0843-1-28APR2021.jpg		Apr 28, 2021

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



Mn/DOT Name: BONDIN MNDT RM 1

NGS Name: BONDIN RM 1

County: MURRAY, MN (Sheet 1)

NGS ACRN: [CO2283](#) [Get Map](#)
 NGS Quad / Sta Num : 43095414/
 USGS Quad: AVOCA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	40 W	435245.71	953947.39		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	2011	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 MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	MNDT

Description: (2011) **Stamping:** BONDIN NO 1 1980

3.0 MILES WEST-NORTHWEST OF FULDA, 3.9 MILES WEST AND NORTH ALONG COUNTY ROAD 2 FROM THE JUNCTION OF COUNTY ROAD 2 AND TRUNK HIGHWAY 59/TRUNK HIGHWAY 62 IN FULDA, THEN 0.25 MILE NORTH ON COUNTY ROAD 68 (200TH AVENUE), 39.0 FEET EAST OF COUNTY ROAD 68 (200TH AVENUE), 25.1 FEET NORTH-NORTHEAST OF A STEEL 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>	<u>Determination Method</u>		
1580.082	.262		1492.599	.197	2007	GPS - RTRN		
Geoid Separations(ft): GEOID18 = -87.621 12B = -87.598 09 = -87.483 03 = -87.296								

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2007)</u>							<u>Project Info</u>	
<u>Geodetic Position</u>			<u>Murray 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>	
43 52 45.71049	95 39 47.39565		527292.849	111430.964	.131	3	GPS - RTRN	

State Plane and UTM Coordinates (Feet)

<u>NAD83(2007)</u>						<u>Project Info</u>	
<u>MN State Plane - South 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>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>
2186169.055	653109.487		938475.160	15951155.876	.131	3	GPS - RTRN

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BONDIN_RM_1-CO2283-3E-17MAY2011.jpg	E	May 17, 2011
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BONDIN_RM_1-CO2283-2-17MAY2011.jpg		May 17, 2011
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BONDIN_RM_1-CO2283-1-17MAY2011.jpg		May 17, 2011

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



Mn/DOT Name: BONDIN MNDT RM 2

NGS Name: BONDIN RM 2

County: MURRAY, MN (Sheet 1)

NGS ACRN: [CO2284](#) [Get Map](#)
 NGS Quad / Sta Num : 43095414/
 USGS Quad: AVOCA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	40 W	435245.21	953947.39		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	2011	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	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:** BONDIN NO 2 1980

3.0 MILES WEST-NORTHWEST OF FULDA, 3.9 MILES WEST AND NORTH ALONG COUNTY ROAD 2 FROM THE JUNCTION OF COUNTY ROAD 2 AND TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 69 IN FULDA, THEN 0.25 MILE NORTH ON COUNTY ROAD 68 (200TH AVENUE), 39.0 FEET EAST OF COUNTY ROAD 68 (200TH AVENUE), 187.0 FEET NORTH-NORTHEAST OF UNDERGROUND CABLE MARKER NUMBER LP4, AND 26.6 FEET SOUTH-SOUTHEAST OF A STEEL 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>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>			
1580.125	.262		1492.641	.197	2007	GPS - RTRN	2011	RTRN2011

Geoid Separations(ft): GEOID18 = -87.621 12B = -87.598 09 = -87.483 03 = -87.296

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2007)</u>							<u>Project Info</u>		
<u>Geodetic Position</u>		<u>Murray 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>						
43 52 45.20798	95 39 47.39662	527292.842	111380.076	.131	3	GPS - RTRN	2011	RTRN2011	

State Plane and UTM Coordinates (Feet)

<u>NAD83(2007)</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>			
<u>MN State Plane - South 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>									
2186167.949	653058.616			938473.449	15951105.013	.131	3	GPS - RTRN	2011	RTRN2011

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BONDIN_RM_2-CO2284-3E-17MAY2011.jpg	E	May 17, 2011
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BONDIN_RM_2-CO2284-2-17MAY2011.jpg		May 17, 2011
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BONDIN_RM_2-CO2284-1-17MAY2011.jpg		May 17, 2011

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



Mn/DOT Name: BR 5166

NGS Name: BR 5166

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 44095332/
 USGS Quad: HADLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	41 W	440005.00	954512.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1946	1988	DESTROYED	Horz=NO Vert=NO	NO	5166		SEE DESCRIPTION

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

Description: (1988)

Stamping:

THE STATION IS A RIVET IN THE NORTHWEST CORNER OF A TRUNK HIGHWAY 59 BRIDGE NUMBER 5166, AT TRUNK HIGHWAY 59 STATION 46+65. BRIDGE NUMBER 5166 WAS REPLACED BY BRIDGE NUMBER 51001 IN 1988.

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>	
1567.070	.033	3				VERTICAL CONTROL SURVEY	1953	CS5105	

Geoid Separations(ft): GEOID18 = -87.280 12B = -87.267 09 = -87.188 03 = -87.001

* No Horizontal Positions in the Database *



Mn/DOT Name: BR 6782

NGS Name: BR 6782

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DL3468](#) [Get Map](#)
 NGS Quad / Sta Num : 44095323/
 USGS Quad: CURRIE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	107 N	40 W	440356.30	953841.26	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>
1953	2019	GOOD	Horz=NO Vert=NO	YES	6782	FLUSH	NO MAG MATERIAL

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

Description: (2006) **Stamping:** BR 6782 1953

1.0 MILE EAST OF CURRIE, IN THE SOUTHEAST WING WALL OF A TRUNK HIGHWAY 30 BRIDGE NUMBER 6782 OVER THE DES MOINES RIVER, 0.9 MILE EAST ALONG TRUNK HIGHWAY 30 FROM THE EAST JUNCTION OF TRUNK HIGHWAY 30 AND COUNTY ROAD 38 IN CURRIE, AT TRUNK HIGHWAY 30 MILEPOINT 46.7, AT TRUNK HIGHWAY 30 STATION 398+67, 17.0 FEET SOUTH OF TRUNK HIGHWAY 30.

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>	
1475.315	.016	2/2					VERTICAL ADJUSTMENT	2010	00000628	
1475.302	.016	2/2					VERTICAL CONTROL SURVEY	2007	VDOVR	

<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>	
1474.571	.033	3					VERTICAL CONTROL SURVEY	1954	CS5103	

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>	
1475.361	.262			1387.707	.197	2011	GPS - RTRN	2019	RTRN2019	

Geoid Separations(ft): GEOID18 = -87.654 12B = -87.654 09 = -87.556 03 = -87.382

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Murray 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>	
44 03 56.29533	95 38 41.26136	532036.692	179346.519	.131	3	GPS - RTRN	2019	RTRN2019	

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 - South 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>								
2192378.056	720899.327	945494.399	16018879.799	.131	3	GPS - RTRN	2019	RTRN2019	

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BR_6782-DL3468-3S-01APR2019.jpg	S	Apr 1, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BR_6782-DL3468-2-01APR2019.jpg		Apr 1, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BR_6782-DL3468-1-01APR2019.jpg		Apr 1, 2019

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



Mn/DOT Name: BR 6822

NGS Name: BR 6822

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DL3471](#) [Get Map](#)
NGS Quad / Sta Num : 44095323/
USGS Quad: CURRIE

				Reference	Reference	Vert	Horz
1/4	Sec	Twp	Rng	Latitude	Longitude	Order	Order
SW	18	107 N	40 W	440422.31	954151.10	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1953	2019	GOOD	Horz=NO Vert=NO	YES	6822	FLUSH	NO MAG MATERIAL

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

Description: (2006) **Stamping:** BR 6822 1953

1.50 MILES WEST OF CURRIE, IN THE SOUTHEAST CORNER OF TRUNK HIGHWAY 30 BRIDGE NUMBER 6822 OVER BEAVER CREEK, 1.80 MILES NORTHWEST-WEST FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND COUNTY ROAD 38 NORTH IN CURRIE, AT TRUNK HIGHWAY 30 MILEPOINT 43.90, 18.0 FEET SOUTH OF TRUNK HIGHWAY 30, AT TRUNK HIGHWAY 30 STATION 128+51.

Station Notes

THE SURVEY MARK HAS BEEN DEEMED UNSAFE DUE TO A FALL RISK 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	
1503.015	.016	2/2				VERTICAL ADJUSTMENT	2010	00000628	
1503.002	.016	2/2				VERTICAL CONTROL SURVEY	2007	VDOVR	

NGVD29				Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference	
1502.349	.033	3				VERTICAL CONTROL SURVEY	1954	CS5103	

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88				Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference	
1502.996	.262		1415.502	.197	2011	GPS - RTRN	2019	RTRN2019	

Geoid Separations(ft): GEOID18 = -87.497 12B = -87.493 09 = -87.405 03 = -87.224

Lat/Lon and County Coordinates (Feet)

NAD83(2011)		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 04 22.31087	95 41 51.10154	518172.358	181965.047	.131	3	GPS - RTRN	2019	RTRN2019

State Plane and UTM Coordinates (Feet)

NAD83(2011)		UTM - Zone 15				Project Info		
MN State Plane - South Zone X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2178575.215	723816.373	931724.610	16021962.838	.131	3	GPS - RTRN	2019	RTRN2019

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BR_6822-DL3471-3S-01APR2019.jpg	S	Apr 1, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BR_6822-DL3471-2-01APR2019.jpg		Apr 1, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BR_6822-DL3471-1-01APR2019.jpg		Apr 1, 2019

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



Mn/DOT Name: BRYAN

NGS Name: BRYAN

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DQ2411](#) [Get Map](#)
 NGS Quad / Sta Num : 44095324/
 USGS Quad: TRACY WEST

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	108 N	41 W	440948.72	954438.81	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>
2015	2016	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: (2015) Stamping: BRYAN 2015

3.6 MILES SOUTH OF GARVIN, 3.4 MILES SOUTH ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND COUNTY ROAD 14 EAST IN GARVIN, AT TRUNK HIGHWAY 59 MILEPOINT 53.15, 71.6 FEET WEST OF TRUNK HIGHWAY 59, 20.5 FEET SOUTH OF A FIELD ENTRANCE, 0.25 MILE SOUTH OF 221ST STREET, 1.5 FEET EAST OF A WITNESS POST.

Station Pair: REESE - MURRAY, 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>			
1538.261	.016	2/1					VERTICAL ADJUSTMENT		2017	00000903			
1538.261	.016	2/1					VERTICAL CONTROL SURVEY		2015	VGARV			

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>			
1538.261				1450.758	.018	2011	HORIZONTAL ADJUSTMENT		2016	GPS3142			
1538.261	.131			1450.909	.066	1996	GPS - STATIC		2016	HGARV			
1538.261				1450.758	.018	2011	GPS - STATIC		2016	HGARV			
1538.156	.262			1450.683	.197	2011	GPS - RTRN		2015	RTRN2015			

Geoid Separations(ft): GEOID18 = -87.493 12B = -87.477 09 = -87.405 03 = -87.250

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Geodetic Position</u>				<u>Murray 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>				
44 09 48.71583		95 44 38.80919		505918.788	215013.560	.007		ADJUSTMENT		2016	GPS3142				
44 09 48.71583		95 44 38.80919		505918.788	215013.560	.007	C	GPS - STATIC		2016	HGARV				
44 09 48.71638		95 44 38.80876		505918.820	215013.616	.131	3	GPS - RTRN		2015	RTRN2015				

<u>NAD83(1996)</u>				<u>Geodetic Position</u>				<u>Murray 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>				
44 09 48.71552		95 44 38.80986		505918.739	215013.529	.033	C	GPS - STATIC		2016	HGARV				

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>				<u>MN State Plane - South 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>						
2167040.053	757117.612	920587.870	16055408.289	.007		ADJUSTMENT		2016	GPS3142						
2167040.053	757117.612	920587.870	16055408.289	.007	C	GPS - STATIC		2016	HGARV						
2167040.086	757117.667	920587.903	16055408.344	.131	3	GPS - RTRN		2015	RTRN2015						

<u>NAD83(1996)</u>				<u>MN State Plane - South 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>						
2167040.004	757117.582	920587.820	16055408.260	.033	C	GPS - STATIC		2016	HGARV						



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BRYAN-DQ2411-3E-07JUL2015.jpg	E	Jul 7, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BRYAN-DQ2411-2-07JUL2015.jpg		Jul 7, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/BRYAN-DQ2411-1-07JUL2015.jpg		Jul 7, 2015

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



Mn/DOT Name: BUF MNDT TEMP

NGS Name: BUF TEMP

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP0898](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

<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	34	106 N	43 W	435650.06	955901.53		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>
1980	1980	GOOD	Horz=? Vert=YES	YES			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
PIPE (<10 FT)	UNMONUMENTED	MNDT

Description: (1980) **Stamping:** BUF 1980

2.0 MILES NORTHWEST OF CHANDLER, 0.2 MILE SOUTH OF THE JUNCTION OF COUNTY ROAD 5 AND COUNTY ROAD 26, 14.0 FEET WEST OF COUNTY ROAD 5, 133.59 FEET NORTHWEST OF A MINNESOTA DEPARTMENT OF TRANSPORTATION NAIL AND DISK IN A POWER POLE.

* 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>		
1843.172	.197		1757.388	.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>		
1840.515						RECIPROCAL VERTICAL ANGLE	1981	HORZ		

Geoid Separations(ft): GEOID18 = -85.938 12B = -85.925 09 = -85.823 03 = -85.728

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Murray County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 56 50.06210	95 59 01.53294	442818.822	136233.991	.066	2	ADJUSTMENT	1999	17648
43 56 50.06207	95 59 01.53308	442818.812	136233.988	.066	2	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>Geodetic Position</u>		<u>Murray County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 56 50.05969	95 59 01.51679	442820.003	136233.744	.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>
43 56 50.18320	95 59 00.45167			.100	2	CLASSICAL SURVEY	1982	16710

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>		<u>MN State Plane - South 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>
2102259.399	679730.063	854866.236	15978779.024	.066	2	ADJUSTMENT	1999	17648
2102259.389	679730.061	854866.226	15978779.022	.066	2	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>MN State Plane - South 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>
2102260.574	679729.791	854867.409	15978778.738	.066	2	ADJUSTMENT	1986	17289

<u>NAD27</u>		<u>MN State Plane - South 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>
1477657.052	351653.441			.100	2	CLASSICAL SURVEY	1982	16710



Mn/DOT Name: C 230

NGS Name: C 230

County: MURRAY, MN (Sheet 1)

NGS ACRN: OP0603	Get Map
NGS Quad / Sta Num : 43095444/	
USGS Quad: CHANDLER	

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	42 W	435501.59	955638.36	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>
1963	2021	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER IS STEEL ROD

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
COPPER CLAD ROD (NO SLEEVE) (DEPTH 31 FT)	BENCH MARK DISK	NGS

Description: (2001) **Stamping:** C 230 1963

0.8 MILE SOUTH OF CHANDLER, 0.8 MILE SOUTH ALONG TRUNK HIGHWAY 91 FROM THE JUNCTION OF TRUNK HIGHWAY 91 AND COUNTY ROAD 4 IN CHANDLER, AT TRUNK HIGHWAY 91 MILEPOINT 33.1, 62.0 FEET WEST OF TRUNK HIGHWAY 91, 63.0 FEET NORTH OF DRIVEWAY NUMBER 475, 1.7 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>		
1778.103	.016	2/1				VERTICAL ADJUSTMENT	2020	00000949		
1778.044	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903		
1778.067	.016	2/1				VERTICAL CONTROL SURVEY	2016	VRUSS		
1778.044	.007	1				VERTICAL ADJUSTMENT	1995	00000135		
1778.044	.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>		
1777.385	.007	1/2				UNKNOWN/APPROXIMATE	1992	UNCHECKD		
1777.385	.016	2/1				VERTICAL CONTROL SURVEY	1987	VSLAY		
1777.385	.007	1				VERTICAL CONTROL SURVEY	1965	L92 MINN		

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>	
1778.054	.262		1691.932	.197	2011	GPS - OPUS	2021	GPSBM	
			1691.988	.008	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
			1692.083	.008	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300	
1778.048	.131		1692.169	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1919	
1778.048	.131		1692.169	.066	1996	GPS - STATIC	2003	HMURR	
1778.048	.131		1692.169	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1792	
1778.048	.131		1692.169	.066	1996	HORIZONTAL ADJUSTMENT	2002	GPS1767	
1778.048	.131		1692.169	.066	1996	GPS - STATIC	2002	HWILS	
1778.048	.131		1692.169	.066	1996	GPS - STATIC	2002	HLISM	

Geoid Separations(ft): GEOID18 = -86.122 12B = -86.109 09 = -86.014 03 = -85.905

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 55 01.59136	95 56 38.36126	453270.385	125224.372	.131	3	GPS - OPUS	2021	GPSBM
43 55 01.59101	95 56 38.36099	453270.405	125224.336	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 55 01.59099	95 56 38.36190	453270.338	125224.335	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 55 01.59066	95 56 38.36086	453270.414	125224.301	.033	C	ADJUSTMENT	2003	GPS1919
43 55 01.59066	95 56 38.36086	453270.414	125224.301	.033	C	GPS - STATIC	2003	HMURR
43 55 01.59066	95 56 38.36086	453270.414	125224.301	.033	C	ADJUSTMENT	2003	GPS1792
43 55 01.59066	95 56 38.36086	453270.414	125224.301	.033	C	ADJUSTMENT	2002	GPS1767
43 55 01.59066	95 56 38.36086	453270.416	125224.300	.033	C	GPS - STATIC	2002	HWILS
43 55 01.59066	95 56 38.36086	453270.414	125224.301	.033	C	GPS - STATIC	2002	HLISM

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2112469.314	668498.111	864945.253	15967422.863	.131	3	GPS - OPUS	2021	GPSBM
2112469.333	668498.075	864945.271	15967422.827	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2112469.267	668498.074	864945.204	15967422.827	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2112469.342	668498.039	864945.280	15967422.791	.033	C	ADJUSTMENT	2003	GPS1919
2112469.342	668498.039	864945.279	15967422.791	.033	C	GPS - STATIC	2003	HMURR
2112469.342	668498.039	864945.280	15967422.791	.033	C	ADJUSTMENT	2003	GPS1792
2112469.342	668498.039	864945.280	15967422.791	.033	C	ADJUSTMENT	2002	GPS1767
2112469.342	668498.039	864945.279	15967422.791	.033	C	GPS - STATIC	2002	HWILS
2112469.342	668498.039	864945.280	15967422.791	.033	C	GPS - STATIC	2002	HLISM

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/C_230-OP0603-3W-28APR2021.jpg	W	Apr 28, 2021
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/C_230-OP0603-2-28APR2021.jpg		Apr 28, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/C_230-OP0603-1-28APR2021.jpg		Apr 28, 2021

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



Mn/DOT Name: CAMERA
 County: MURRAY, MN (Sheet 1)

NGS Name: CAMERA

NGS ACRN: [OP0892](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/1031
 USGS Quad: CHANDLER

<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	19	105 N	42 W	435300.82	955544.70		C

<u>Year Set</u>	<u>Last Recovery</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=YES Vert=YES	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	MNDT

Description: (1981) **Stamping:** CAMERA 1963

3.0 MILES SOUTH OF CHANDLER, 2.6 MILES SOUTH ON TRUNK HIGHWAY 91 FROM THE JUNCTION OF COUNTY ROAD 4 AT CHANDLER, THEN 1.0 MILE EAST ON A GRAVEL ROAD THEN 0.6 MILE SOUTH ON A GRAVEL ROAD TO AN ENTRANCE WEST, THEN 0.2 MILE WEST ON A DRIVE TO THE TOP OF A HILL, 66.0 FEET SOUTH OF A TRANSMITTING ANTENNA POLE, 75.0 FEET NORTH OF A CYCLONE FENCE, 79.0 FEET SOUTHWEST OF A DRIVE, 80.0 FEET WEST OF A GATE, 108.69 FEET NORTHWEST OF CHANDLER RM 1, 75.58 FEET NORTH OF CHANDLER RM 2, 39.47 FEET NORTHWEST OF STATION CHANDLER.

* 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>
			1746.365	.025	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			1746.463	.026	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
1832.608	.131		1746.552	.066	1996	HORIZONTAL ADJUSTMENT	1999	17648
1832.598	.131		1746.552	.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>
1832.214						RECIPROCAL VERTICAL ANGLE	1963	HORZ

Geoid Separations(ft): GEOID18 = -86.266 12B = -86.230 09 = -86.151 03 = -86.056

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 53 00.82462	95 55 44.70226	457174.250	112986.586	.013		ADJUSTMENT	2012	GPS2800

NAD83(2007)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 53 00.82461	95 55 44.70312	457174.187	112986.585	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 53 00.82409	95 55 44.70246	457174.236	112986.533	.033	C	ADJUSTMENT	1999	17648
43 53 00.82409	95 55 44.70247	457174.235	112986.533	.033	C	GPS - STATIC	1997	GPS805-C

NAD83(1986)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 53 00.82134	95 55 44.68640	457175.411	112986.252	.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>
43 53 00.94481	95 55 43.62081			.100	1	CLASSICAL SURVEY	1991	17504
43 53 00.94920	95 55 43.63347			.100	1	CLASSICAL SURVEY	1977	15592



State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15			Project Info			
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2116107.228	656179.977	868437.841	15955058.637	.013		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15			Project Info			
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2116107.165	656179.978	868437.778	15955058.638	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15			Project Info			
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2116107.212	656179.924	868437.824	15955058.584	.033	C	ADJUSTMENT	1999	17648
2116107.212	656179.924	868437.823	15955058.584	.033	C	GPS - STATIC	1997	GPS805-C

NAD83(1986)

MN State Plane - South Zone		UTM - Zone 15			Project Info			
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2116108.382	656179.618	868438.990	15955058.264	.033	1	ADJUSTMENT	1986	17289

NAD27

MN State Plane - South Zone		UTM - Zone 15			Project Info			
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1491505.391	328103.538			.100	1	CLASSICAL SURVEY	1991	17504
1491504.475	328104.004			.100	1	CLASSICAL SURVEY	1977	15592



Mn/DOT Name: CAMERA AZ MK

NGS Name: CAMERA AZ MK

County: MURRAY, MN (Sheet 1)

NGS ACRN: [A17560](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	42 W	435301.78	955637.43	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>
1966	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>
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	NGS

Description: (2001) Stamping: CAMERA 1963 1966

3.0 MILES SOUTH OF CHANDLER, 3.05 MILES SOUTH ALONG TRUNK HIGHWAY 91 FROM THE JUNCTION OF TRUNK HIGHWAY 91 AND COUNTY ROAD 4 IN CHANDLER, AT TRUNK HIGHWAY 91 MILEPOINT 30.8, 57.0 FEET EAST OF TRUNK HIGHWAY 91, 1.5 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>
1765.531	.016	2/1					VERTICAL ADJUSTMENT	2020	00000949
1765.479	.016	2/1					VERTICAL ADJUSTMENT	2017	00000903
1765.479	.016	2/1					VERTICAL CONTROL SURVEY	2016	VRUSS
1765.479	.016	2/1					VERTICAL ADJUSTMENT	2001	00000380
1765.469	.016	2/1					VERTICAL CONTROL SURVEY	2000	VLISM

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>
1765.492	.262			1679.288	.197	2011	GPS - RTRN	2018	RTRN2018
				1679.281	.008	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
				1679.377	.008	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
1765.482	.131			1679.465	.066	1996	HORIZONTAL ADJUSTMENT	2002	GPS1767
1765.482	.131			1679.465	.066	1996	GPS - STATIC	2002	HLISM

Geoid Separations(ft): GEOID18 = -86.243 12B = -86.204 09 = -86.125 03 = -86.027

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>									
43 53 01.78205	95 56 37.43275			453312.289	113091.496	.131	3	GPS - RTRN	2018	RTRN2018
43 53 01.78256	95 56 37.43392			453312.203	113091.548	.007		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>				<u>Murray 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>									
43 53 01.78255	95 56 37.43481			453312.138	113091.547	.007		ADJUSTMENT	2007	GPS2300

<u>NAD83(1996)</u>				<u>Murray 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>									
43 53 01.78213	95 56 37.43384			453312.209	113091.504	.033	C	ADJUSTMENT	2002	GPS1767
43 53 01.78213	95 56 37.43384			453312.210	113091.503	.033	C	GPS - STATIC	2002	HLISM



State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2112248.813	656368.370	864580.755	15955292.823	.131	3	GPS - RTRN	2018	RTRN2018
2112248.729	656368.424	864580.671	15955292.878	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2112248.663	656368.425	864580.606	15955292.879	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2112248.733	656368.381	864580.675	15955292.834	.033	C	ADJUSTMENT	2002	GPS1767
2112248.733	656368.380	864580.675	15955292.834	.033	C	GPS - STATIC	2002	HLISM

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/CAMERA_AZ_MK-AI7560-3E-22MAR2016.jpg	E	Mar 22, 2016
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/CAMERA_AZ_MK-AI7560-2-22MAR2016.jpg		Mar 22, 2016
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/CAMERA_AZ_MK-AI7560-1-22MAR2016.jpg		Mar 22, 2016

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



Mn/DOT Name: CHAN MNDT

NGS Name: CHAN

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OQ0643](#) [Get Map](#)
 NGS Quad / Sta Num : 43096111/
 USGS Quad: EDGERTON NE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	43 W	435503.31	960016.36		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>
1980	1980	GOOD	Horz=? 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)	HORIZONTAL CONTROL DISK	MNDT

Description: (1980) **Stamping:** CHAN 1980

3.5 MILES WEST OF CHANDLER, 19.0 FEET SOUTHEAST OF A GRAVEL ROAD, 10.4 FEET NORTHWEST OF A FENCE, 10.0 FEET NORTHWEST OF A WITNESS POST, 35.81 FEET SOUTHWEST OF CHAN MNDT RM 1, 25.90 FEET NORTHEAST OF CHAN MNDT RM 2.

Station Notes

LOCAL SURVEYOR REPORTED THAT HE POSITIONED THIS STATION USING RTRN IN 2024. NAVD88 ELEVATION REPORTED AS 1728.9 FEET.

* 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>		
1733.264	.197		1647.402	.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>		
1727.687						RECIPROCAL VERTICAL ANGLE	1981	HORZ	

Geoid Separations(ft): GEOID18 = -86.069 12B = -86.037 09 = -85.928 03 = -85.850

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Murray 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>		
43 55 03.30925	96 00 16.35986	437312.892	125438.534	.066	2	ADJUSTMENT	1999	17648	
43 55 03.30924	96 00 16.35974	437312.901	125438.533	.066	2	ADJUSTMENT	1998	17655	

<u>NAD83(1986)</u>		<u>Murray 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>		
43 55 03.30700	96 00 16.34356	437314.085	125438.302	.066	2	ADJUSTMENT	1986	17289	

<u>NAD27</u>		<u>Murray 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>		
43 55 03.42792	96 00 15.26894			.100	2	CLASSICAL SURVEY	1982	16710	

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>		
2096521.808	669057.352	849000.284	15968171.621	.066	2	ADJUSTMENT	1999	17648	
2096521.817	669057.351	849000.293	15968171.619	.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>		
2096522.995	669057.095	849001.468	15968171.350	.066	2	ADJUSTMENT	1986	17289	

<u>NAD27</u>		<u>Murray 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>		
1471920.048	340980.558			.100	2	CLASSICAL SURVEY	1982	16710	



Mn/DOT Name: CHAN MNDT RM 1

NGS Name: CHAN RM 1

County: MURRAY, MN (Sheet 1)

NGS ACRN: [CO2841](#) [Get Map](#)
 NGS Quad / Sta Num : 43096111/
 USGS Quad: EDGERTON NE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	43 W	435503.52	960015.97		

<u>Year Set</u>	<u>Last Recovery</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	1980	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

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

Description: **Stamping:** CHAN NO 1 1980

3.06 MILES SOUTHWEST OF CHANDLER, 3.0 MILES SOUTHWEST ALONG VALLEY ROAD FROM THE JUNCTION OF VALLEY ROAD AND 8TH STREET, THEN 0.3 MILE NORTH-NORTHWEST ON 30TH AVENUE, STATION CHAN MNDT RM 1 IS 23.0 FEET SOUTHEAST OF THE CENTER OF A GRAVEL ROAD, 2.2 FEET NORTHWEST OF A FENCE, AND 27.3 FEET NORTHEAST OF A STEEL WITNESS POST.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -86.069 12B = -86.037 09 = -85.928 03 = -85.850



Mn/DOT Name: CHAN MNDT RM 2

NGS Name: CHAN RM 2

County: MURRAY, MN (Sheet 1)

NGS ACRN: [CO2842](#) [Get Map](#)
 NGS Quad / Sta Num : 43096111/
 USGS Quad: EDGERTON NE

<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	9	105 N	43 W	435503.07	960016.50		

<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>
1980	1980	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

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

Description: **Stamping:** CHAN NO 2 1980

3.07 MILES SOUTHWEST OF CHANDLER, 3.0 MILES SOUTHWEST ALONG VALLEY ROAD FROM THE JUNCTION OF VALLEY ROAD AND 8TH STREET, THEN 0.3 MILE NORTH-NORTHWEST ON 30TH AVENUE, STATION CHAN MNDT RM 2 IS 38.0 FEET SOUTHEAST OF THE CENTER OF A GRAVEL ROAD, 4.0 FEET NORTHEAST OF A CORNER FENCE POST, 2.0 FEET NORTHWEST OF A FENCE, AND 32.0 FEET WEST-SOUTHWEST OF A STEEL WITNESS POST.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -86.069 12B = -86.037 09 = -85.928 03 = -85.850



Mn/DOT Name: CHANDLER

NGS Name: CHANDLER

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP0609](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/1031
 USGS Quad: CHANDLER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	42 W	435300.62	955544.24	1	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>
1963	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: (2015) **Stamping:** CHANDLER 1963

3.0 MILES SOUTH OF CHANDLER, 2.6 MILES SOUTH ALONG TRUNK HIGHWAY 91 FROM THE JUNCTION OF COUNTY ROAD 4 AT CHANDLER, THEN 1.0 MILE EAST ALONG 31ST AVENUE, THEN 0.6 MILE SOUTH ALONG 70TH AVENUE TO ENTRANCE, THEN 0.2 MILE WEST ALONG A ROAD TO A CELL TOWER (FIRE NUMBERS 235 / 239), 190.0 FEET SOUTH OF A BLOCK BUILDING, 70.24 FEET NORTHWEST OF CHANDLER RM 1, 72.54 FEET NORTHEAST OF CHANDLER RM 2, 3.0 FEET NORTH OF A WITNESS POST.

Station Notes
 THE ADDRESS IS 235 70TH AVENUE.

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>	
1832.874	.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>	
1832.191	.007	1/2					UNKNOWN/APPROXIMATE	1992	UNCHECKD	
1832.191	.007	1					VERTICAL CONTROL SURVEY	1965	L92 MINN	

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>	
1832.874				1746.640	.008	2011	HORIZONTAL ADJUSTMENT	2018	GPS3119	
1832.874	.131			1746.827	.066	1996	GPS - STATIC	2017	HMNCORS07	
1832.874				1746.640	.008	2011	GPS - STATIC	2017	HMNPH	
1832.841	.262			1746.611	.197	2011	GPS - RTRN	2015	RTRN2015	
				1746.640	.007	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
				1746.739	.007	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300	
1832.870	.098			1746.909	.049	1996	GPS - STATIC	2005	GPS2036	
1832.870	.131			1746.827	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1919	
1832.870	.131			1746.827	.066	1996	GPS - STATIC	2003	HMURR	
1832.870	.131			1746.827	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1792	
1832.870	.131			1746.827	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1780	
1832.870	.131			1746.827	.066	1996	HORIZONTAL ADJUSTMENT	2002	GPS1767	
1832.870	.131			1746.827	.066	1996	GPS - STATIC	2002	HWILS	
1832.870	.131			1746.827	.066	1996	GPS - STATIC	2002	HNOBL	
1832.870	.131			1746.827	.066	1996	GPS - STATIC	2002	HLISM	
1832.870	.066			1746.827	.033	1996	HORIZONTAL ADJUSTMENT	1999	17648	
1832.870	.131			1746.827	.066	1996	HORIZONTAL ADJUSTMENT	1998	GPS937	
1832.870	.098			1746.827	.049	1996	HORIZONTAL ADJUSTMENT	1997	GPS941	
1832.874	.098			1746.827	.049	1996	GPS - STATIC	1997	GPS805-B	
1832.874	.131			1746.827	.066	1996	GPS - STATIC	1997	GPS805-C	
1832.874	.098			1746.827	.049	1996	HORIZONTAL ADJUSTMENT	1996	GPS1121	

Geoid Separations(ft): GEOID18 = -86.266 12B = -86.230 09 = -86.151 03 = -86.056



Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 53 00.62392	95 55 44.24040	457208.039	112966.195	.003		ADJUSTMENT	2018	GPS3119
43 53 00.62392	95 55 44.24040	457208.039	112966.195	.003	C	GPS - STATIC	2017	HMNPH
43 53 00.62410	95 55 44.23992	457208.074	112966.213	.131	3	GPS - RTRN	2015	RTRN2015
43 53 00.62392	95 55 44.24040	457208.039	112966.195	.003		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 53 00.62392	95 55 44.24126	457207.976	112966.195	.003		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 53 00.62339	95 55 44.24061	457208.023	112966.142	.033	C	GPS - STATIC	2017	HMNCORS07
43 53 00.62339	95 55 44.24061	457208.023	112966.142	.016	B	GPS - STATIC	2005	GPS2036
43 53 00.62339	95 55 44.24060	457208.024	112966.142	.033	C	ADJUSTMENT	2003	GPS1919
43 53 00.62339	95 55 44.24061	457208.023	112966.142	.033	C	GPS - STATIC	2003	HMURR
43 53 00.62339	95 55 44.24061	457208.023	112966.142	.033	C	ADJUSTMENT	2003	GPS1792
43 53 00.62339	95 55 44.24061	457208.023	112966.142	.033	C	ADJUSTMENT	2003	GPS1780
43 53 00.62339	95 55 44.24061	457208.023	112966.142	.033	C	ADJUSTMENT	2002	GPS1767
43 53 00.62339	95 55 44.24061	457208.023	112966.142	.033	C	GPS - STATIC	2002	HWILS
43 53 00.62339	95 55 44.24061	457208.023	112966.142	.033	C	GPS - STATIC	2002	HNOBL
43 53 00.62339	95 55 44.24061	457208.023	112966.142	.033	C	GPS - STATIC	2002	HLISM
43 53 00.62339	95 55 44.24061	457208.023	112966.142	.003	A	ADJUSTMENT	1999	17648
43 53 00.62339	95 55 44.24061	457208.023	112966.142	.033	C	ADJUSTMENT	1998	GPS937
43 53 00.62341	95 55 44.24062	457208.023	112966.143	.016	B	ADJUSTMENT	1997	GPS941
43 53 00.62339	95 55 44.24061	457208.023	112966.142	.016	B	GPS - STATIC	1997	GPS805-B
43 53 00.62339	95 55 44.24061	457208.023	112966.142	.033	C	GPS - STATIC	1997	GPS805-C
43 53 00.62341	95 55 44.24067	457208.019	112966.143	.016	B	ADJUSTMENT	1996	GPS1121

NAD83(1986)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 53 00.62053	95 55 44.22482	457209.179	112965.850	.066	2	GPS - STATIC	1993	HMARS
43 53 00.62053	95 55 44.22482	457209.177	112965.850	.033	C	GPS - STATIC	1988	HSLAY
43 53 00.62053	95 55 44.22482	457209.179	112965.850	.033	1	ADJUSTMENT	1986	17289

NAD27

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 53 00.74800	95 55 43.17100			.100	3	CLASSICAL SURVEY	1968	USGS-HORZ
43 53 00.74840	95 55 43.17190			.100	1	CLASSICAL SURVEY	1963	13262

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2116140.564	656158.863	868470.934	15955037.122	.003		ADJUSTMENT	2018	GPS3119
2116140.564	656158.863	868470.934	15955037.122	.003	C	GPS - STATIC	2017	HMNPH
2116140.600	656158.880	868470.970	15955037.139	.131	3	GPS - RTRN	2015	RTRN2015
2116140.564	656158.863	868470.934	15955037.122	.003		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2116140.501	656158.864	868470.871	15955037.124	.003		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2116140.548	656158.809	868470.917	15955037.069	.033	C	GPS - STATIC	2017	HMNCORS07
2116140.548	656158.809	868470.917	15955037.069	.016	B	GPS - STATIC	2005	GPS2036
2116140.549	656158.809	868470.918	15955037.069	.033	C	ADJUSTMENT	2003	GPS1919
2116140.548	656158.809	868470.917	15955037.069	.033	C	GPS - STATIC	2003	HMURR
2116140.548	656158.809	868470.917	15955037.069	.033	C	ADJUSTMENT	2003	GPS1792
2116140.548	656158.809	868470.917	15955037.069	.033	C	ADJUSTMENT	2003	GPS1780
2116140.548	656158.809	868470.917	15955037.069	.033	C	ADJUSTMENT	2002	GPS1767
2116140.548	656158.809	868470.917	15955037.069	.033	C	GPS - STATIC	2002	HWILS
2116140.548	656158.809	868470.917	15955037.069	.033	C	GPS - STATIC	2002	HNOBL
2116140.548	656158.809	868470.917	15955037.069	.033	C	GPS - STATIC	2002	HLISM
2116140.548	656158.809	868470.917	15955037.069	.003	A	ADJUSTMENT	1999	17648
2116140.548	656158.809	868470.917	15955037.069	.033	C	ADJUSTMENT	1998	GPS937
2116140.547	656158.811	868470.916	15955037.071	.016	B	ADJUSTMENT	1997	GPS941
2116140.548	656158.809	868470.917	15955037.069	.016	B	GPS - STATIC	1997	GPS805-B
2116140.548	656158.809	868470.917	15955037.069	.033	C	GPS - STATIC	1997	GPS805-C
2116140.543	656158.811	868470.913	15955037.071	.016	B	ADJUSTMENT	1996	GPS1121

NAD83(1986)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2116141.697	656158.492	868472.063	15955036.738	.066	2	GPS - STATIC	1993	HMARS
2116141.697	656158.492	868472.063	15955036.738	.033	C	GPS - STATIC	1988	HSLAY
2116141.697	656158.492	868472.063	15955036.738	.033	1	ADJUSTMENT	1986	17289

NAD27

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1491537.855	328082.838			.100	3	CLASSICAL SURVEY	1968	USGS-HORZ
1491537.790	328082.880			.100	1	CLASSICAL SURVEY	1963	13262

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/CHANDLER-OP0609-3W-08OCT2008.jpg	W	Oct 8, 2008
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/CHANDLER-OP0609-2-08OCT2008.jpg		Oct 8, 2008
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/CHANDLER-OP0609-1-08OCT2008.jpg		Oct 8, 2008

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



Mn/DOT Name: CHANDLER MERI RADIO MAST

NGS Name: CHANDLER MERI RADIO MAST

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP0894](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	42 W	435303.51	955546.18		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>
1981	1981	GOOD	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BLANK	RADIO/TV MAST	MNDT

Description: (1981)

Stamping:

3.75 MILES SOUTH-SOUTHEAST OF CHANDLER, 3.0 MILES SOUTH ALONG TRUNK HIGHWAY 91 FROM THE JUNCTION OF TRUNK HIGHWAY 91 AND 61ST STREET, 1.0 MILE EAST ON 31ST STREET, THEN 0.6 MILE SOUTH ON 70TH AVENUE, 0.2 MILE WEST OF A GRAVEL ROAD.

* No Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -86.266 12B = -86.227 09 = -86.148 03 = -86.053

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 53 03.50864	95 55 46.18311	457066.325	113258.602	.328	4	ADJUSTMENT	1999	17648
43 53 03.50861	95 55 46.18297	457066.335	113258.599	.328	4	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 53 03.50515	95 55 46.16682	457067.517	113258.247	.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>
43 53 03.63180	95 55 45.10292			.100	4	CLASSICAL SURVEY	1982	16710

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2116005.220	656454.237	868339.062	15955334.170	.328	4	ADJUSTMENT	1999	17648
2116005.231	656454.234	868339.072	15955334.166	.328	4	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2116006.405	656453.856	868340.242	15955333.774	.328	4	ADJUSTMENT	1986	17289

<u>NAD27</u>						<u>Project Info</u>		
<u>MN State Plane - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1491403.294	328378.098			.100	4	CLASSICAL SURVEY	1982	16710



Mn/DOT Name: CHANDLER RM 1

NGS Name: CHANDLER RM 1

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP0607](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	42 W	435300.11	955543.59	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>
1963	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: (1987) **Stamping:** CHANDLER NO 1 1963

3.0 MILES SOUTH OF CHANDLER, NEAR A TRANSMITTING FACILITY STATION, 2.6 MILES SOUTH ON TRUNK HIGHWAY 91 FROM THE JUNCTION OF TRUNK HIGHWAY 91 AND COUNTY ROAD 4 AT CHANDLER, THEN 1.0 MILE EAST ON A GRAVEL ROAD, THEN 0.6 MILE SOUTH ON A GRAVEL ROAD TO AN ENTRANCE, THEN WEST 0.2 MILE ON A DRIVE TO THE TOP OF A HILL, 79.0 FEET SOUTHWEST OF A GATE, 70.2 FEET SOUTHEAST OF STATION CHANDLER, 108.70 FEET SOUTHEAST OF STATION CAMERA, 76.2 FEET WEST OF A FENCE CORNER, 94.8 FEET SOUTHWEST OF A POLE, 250.0 FEET SOUTH OF A BLOCK BUILDING, 1.0 FOOT NORTHEAST OF A WITNESS POST, 96.4 FEET EAST OF CHANDLER 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>	
1833.845	.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>	
1833.162	.007	1/2					UNKNOWN/APPROXIMATE	1992	UNCHECKD	
1833.162	.007	1					VERTICAL CONTROL SURVEY	1965	L92 MINN	

Geoid Separations(ft): GEOID18 = -86.270 12B = -86.230 09 = -86.155 03 = -86.056

* No Horizontal Positions in the Database *



Mn/DOT Name: CHANDLER RM 2

NGS Name: CHANDLER RM 2

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP0608](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	42 W	435300.09	955544.91	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>
1963	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: (1987) **Stamping:** CHANDLER NO 2 1963

3.0 MILES SOUTH OF CHANDLER, NEAR A TRANSMITTING FACILITY STATION, 2.6 MILES SOUTH ON TRUNK HIGHWAY 91 FROM THE JUNCTION OF TRUNK HIGHWAY 91 AND COUNTY ROAD 4 AT CHANDLER, THEN 1.0 MILE EAST ON A GRAVEL ROAD, THEN 0.6 MILE SOUTH ON A GRAVEL ROAD TO AN ENTRANCE, THEN 0.2 MILE WEST TO THE TOP OF A HILL, 250.0 FEET SOUTH OF A BLOCK BUILDING, 172.3 FEET WEST OF A FENCE CORNER, 72.6 FEET SOUTHWEST OF STATION CHANDLER, 75.57 FEET SOUTH OF STATION CAMERA, 96.4 FEET WEST OF CHANDLER RM 1, 95.1 FEET WEST OF A WITNESS POST, 70.4 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>	
1830.971	.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>	
1830.285	.007	1/2					UNKNOWN/APPROXIMATE	1992	UNCHECKD	
1830.285	.007	1					VERTICAL CONTROL SURVEY	1965	L92 MINN	

Geoid Separations(ft): GEOID18 = -86.270 12B = -86.230 09 = -86.155 03 = -86.056

* No Horizontal Positions in the Database *



Mn/DOT Name: CHANDLER WATER TANK

NGS Name: CHANDLER WATER TANK

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP0896](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

<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	105 N	43 W	435554.66	955650.75		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>
1981	1981	GOOD	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BLANK	ELEVATED TANK	MNDT

Description: (1981)

Stamping:

IN THE NORTHERN PART OF CHANDLER, EAST OF THE CHANDLER SCHOOL.

* No Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -86.060 12B = -86.060 09 = -85.948 03 = -85.843

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

<u>Geodetic Position</u>		<u>Murray County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 55 54.66305	95 56 50.74688	452375.516	130600.770	.328	4	ADJUSTMENT	1999	17648
43 55 54.66303	95 56 50.74686	452375.518	130600.768	.328	4	ADJUSTMENT	1998	17655

NAD83(1986)

<u>Geodetic Position</u>		<u>Murray County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 55 54.65989	95 56 50.73036	452376.725	130600.447	.328	4	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>
43 55 54.78440	95 56 49.67097			.100	4	CLASSICAL SURVEY	1982	16710

State Plane and UTM Coordinates (Feet)

NAD83(1996)

<u>MN State Plane - South 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>
2111691.019	673892.052	864230.860	15972827.374	.328	4	ADJUSTMENT	1999	17648
2111691.021	673892.050	864230.861	15972827.371	.328	4	ADJUSTMENT	1998	17655

NAD83(1986)

<u>MN State Plane - South 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>
2111692.220	673891.703	864232.057	15972827.010	.328	4	ADJUSTMENT	1986	17289

NAD27

<u>MN State Plane - South 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>
1487088.574	345815.549			.100	4	CLASSICAL SURVEY	1982	16710



Mn/DOT Name: CLIFFORD

NGS Name: CLIFFORD

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DR2705](#) [Get Map](#)
 NGS Quad / Sta Num : 44095322/
 USGS Quad: DOVRAY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	21	107 N	39 W	440304.37	953149.82	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2019	2019	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 28 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2019) **Stamping:** CLIFFORD 2019

1.0 MILE EAST OF DOVRAY, 0.6 MILE EAST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND COUNTY ROAD 42 IN DOVRAY, AT TRUNK HIGHWAY 30 MILEPOINT 52.6, 72.8 FEET NORTH OF TRUNK HIGHWAY 30, 62.8 FEET WEST OF A FIELD ENTRANCE, 1.5 FEET EAST OF A WITNESS POST.

Station Pair: MCCLELLAN - MURRAY, MN

Leveling-Derived Orthometric Heights (Feet)

NAVD88 Orthometric Height			Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1488.672	.016	2/1				VERTICAL ADJUSTMENT	2020	00000949
1488.678	.016	2/1				VERTICAL CONTROL SURVEY	2019	VDRAY

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
1488.685	.131		1400.995	.066	1996	GPS - STATIC	2019	HDRAY
1488.678			1400.719	.023	2011	GPS - STATIC	2019	HDRAY
1488.678			1400.719	.023	2011	HORIZONTAL ADJUSTMENT	2019	GPS3311
1488.731	.262		1400.742	.197	2011	GPS - RTRN	2019	RTRN2019

Geoid Separations(ft): GEOID18 = -87.995 12B = -87.989 09 = -87.894 03 = -87.749

Lat/Lon and County Coordinates (Feet)

NAD83(2011) Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 03 04.37061	95 31 49.82216	562094.983	174153.393	.013	C	GPS - STATIC	2019	HDRAY
44 03 04.37061	95 31 49.82216	562094.983	174153.393	.013		ADJUSTMENT	2019	GPS3311
44 03 04.36984	95 31 49.82187	562095.004	174153.315	.131	3	GPS - RTRN	2019	RTRN2019

NAD83(1996) Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 03 04.37004	95 31 49.82227	562094.975	174153.335	.033	C	GPS - STATIC	2019	HDRAY

State Plane and UTM Coordinates (Feet)

NAD83(2011) MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2222313.577	715059.074	975362.993	16012679.814	.013	C	GPS - STATIC	2019	HDRAY
2222313.577	715059.074	975362.993	16012679.814	.013		ADJUSTMENT	2019	GPS3311
2222313.597	715058.996	975363.012	16012679.735	.131	3	GPS - RTRN	2019	RTRN2019

NAD83(1996) MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2222313.568	715059.016	975362.983	16012679.756	.033	C	GPS - STATIC	2019	HDRAY

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/CLIFFORD-DR2705-3N-22APR2019.jpg	N	Apr 22, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/CLIFFORD-DR2705-2-22APR2019.jpg		Apr 22, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/CLIFFORD-DR2705-1-22APR2019.jpg		Apr 22, 2019

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



Mn/DOT Name: CORA

NGS Name: CORA

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DQ3104](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	42 W	435319.80	955637.10	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>
2016	2018	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 27 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2016) Stamping: CORA 2016

2.8 MILES SOUTH OF CHANDLER, 2.75 MILES SOUTH ALONG TRUNK HIGHWAY 91 FROM THE JUNCTION OF TRUNK HIGHWAY 91 AND COUNTY ROAD 4 IN CHANDLER, AT TRUNK HIGHWAY 91 MILEPOINT 31.1, 54.6 FEET EAST OF TRUNK HIGHWAY 91, 49.0 FEET NORTH OF A FIELD ENTRANCE, 1.5 FEET WEST OF A WITNESS POST.

Station Pair: BELLE - MURRAY, 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>
1812.175	.016	2/1				VERTICAL ADJUSTMENT	2020	00000949
1812.116	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903
1812.119	.016	2/1				VERTICAL CONTROL SURVEY	2016	VRUSS

Geoid Separations(ft): GEOID18 = -86.230 12B = -86.191 09 = -86.115 03 = -86.017

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/CORA-DQ3104-3E-30MAR2016.jpg	E	Mar 30, 2016
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/CORA-DQ3104-2-30MAR2016.jpg		Mar 30, 2016
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/CORA-DQ3104-1-30MAR2016.jpg		Mar 30, 2016

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



Mn/DOT Name: CURRIE MNDT

NGS Name: CURRIE

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DK2722](#) [Get Map](#)
 NGS Quad / Sta Num : 44095332/
 USGS Quad: HADLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	107 N	41 W	440425.30	954547.91	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>
1987	2019	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) (<10 FT) (DEPTH 10 FT)	HORIZONTAL CONTROL DISK	MNDT

Description: (1987) Stamping: CURRIE 1987

5.5 MILES NORTH OF SLAYTON, 5.65 MILES NORTH ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 30 IN SLAYTON TO TRUNK HIGHWAY 59 MILEPOINT 46.65, THEN 0.7 MILE NORTHWEST AND WEST ON COUNTY ROAD 12 (156TH STREET), THEN 0.05 MILE NORTH ON 150TH AVENUE, 63.08 FEET EAST-NORTHEAST OF CURRIE MNDT RM 2, 31.63 FEET NORTH OF CURRIE MNDT RM 1 RESET, 30.5 FEET EAST OF 150TH AVENUE, 2.8 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>
1641.772	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903
1641.772	.016	2/1				VERTICAL CONTROL SURVEY	2015	VGARV
1641.772	.016	2/1				VERTICAL ADJUSTMENT	2010	00000628
1641.772	.016	2/1				VERTICAL CONTROL SURVEY	2007	VSLAT

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>
1641.772	.131		1554.787	.066	1996	GPS - STATIC	2019	HDRAY
1641.772			1554.524	.012	2011	GPS - STATIC	2019	HDRAY
1641.772			1554.524	.012	2011	HORIZONTAL ADJUSTMENT	2019	GPS3311
1641.768	.262		1554.501	.197	2011	GPS - RTRN	2019	RTRN2019
1641.742	.262		1554.479	.197	2011	GPS - RTRN	2015	RTRN2015
			1554.524	.014	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1641.663	.262		1554.475	.197	2007	GPS - RTRN	2012	RTRN2012
			1554.629	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2386-B
1641.762	.131		1554.787	.066	1996	HORIZONTAL ADJUSTMENT	2007	GPS2386
1641.762	.131		1554.787	.066	1996	GPS - STATIC	2007	HSLAT

<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>
1640.909						RECIPROCAL VERTICAL ANGLE	1987	HORZ

Geoid Separations(ft): GEOID18 = -87.270 12B = -87.267 09 = -87.185 03 = -87.004

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 04 25.29956	95 45 47.91088	500882.628	182260.108	.007	C	GPS - STATIC	2019	HDRAY
44 04 25.29956	95 45 47.91088	500882.628	182260.108	.007		ADJUSTMENT	2019	GPS3311
44 04 25.29914	95 45 47.91001	500882.691	182260.065	.131	3	GPS - RTRN	2019	RTRN2019
44 04 25.29984	95 45 47.90999	500882.693	182260.136	.131	3	GPS - RTRN	2015	RTRN2015
44 04 25.29956	95 45 47.91088	500882.628	182260.108	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 04 25.29970	95 45 47.91057	500882.651	182260.122	.131	3	GPS - RTRN	2012	RTRN2012
44 04 25.29953	95 45 47.91169	500882.569	182260.105	.033	C	ADJUSTMENT	2011	GPS2386-B

NAD83(1996)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 04 25.29903	95 45 47.91104	500882.616	182260.054	.033	C	GPS - STATIC	2019	HDRAY
44 04 25.29903	95 45 47.91104	500882.616	182260.054	.033	C	ADJUSTMENT	2007	GPS2386
44 04 25.29903	95 45 47.91104	500882.616	182260.054	.033	C	GPS - STATIC	2007	HSLAT

NAD83(1986)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 04 25.29627	95 45 47.89730	500883.618	182259.773	3.281		CLASSICAL SURVEY	1988	HSLAY

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2161298.026	724484.865	914452.567	16022838.667	.007	C	GPS - STATIC	2019	HDRAY
2161298.026	724484.865	914452.567	16022838.667	.007		ADJUSTMENT	2019	GPS3311
2161298.089	724484.821	914452.629	16022838.623	.131	3	GPS - RTRN	2019	RTRN2019
2161298.092	724484.892	914452.633	16022838.693	.131	3	GPS - RTRN	2015	RTRN2015
2161298.026	724484.865	914452.567	16022838.667	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2161298.049	724484.879	914452.590	16022838.681	.131	3	GPS - RTRN	2012	RTRN2012
2161297.967	724484.863	914452.508	16022838.666	.033	C	ADJUSTMENT	2011	GPS2386-B

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2161298.014	724484.812	914452.553	16022838.614	.033	C	GPS - STATIC	2019	HDRAY
2161298.014	724484.812	914452.553	16022838.614	.033	C	ADJUSTMENT	2007	GPS2386
2161298.014	724484.812	914452.553	16022838.614	.033	C	GPS - STATIC	2007	HSLAT

NAD83(1986)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2161299.010	724484.510	914453.547	16022838.301	3.281		CLASSICAL SURVEY	1988	HSLAY

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/CURRIE-DK2722-3E-01APR2019.jpg	E	Apr 1, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/CURRIE-DK2722-2-01APR2019.jpg		Apr 1, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/CURRIE-DK2722-1-01APR2019.jpg		Apr 1, 2019

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



Mn/DOT Name: CURRIE MNDT RM 1

NGS Name: CURRIE RM 1

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DL5424](#) [Get Map](#)
 NGS Quad / Sta Num : 44095332/
 USGS Quad: HADLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	107 N	41 W	440425.00	954547.90	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>
1987	2015	DESTROYED	Horz=NO Vert=NO	YES		RECESSED 2 IN.	MARKER W/BAR MAGNET

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

Description: (1987) **Stamping:** CURRIE NO 1 1987

4.5 MILES WEST OF CURRIE, 0.85 MILE WEST ALONG COUNTY ROAD 12 FROM THE JUNCTION OF COUNTY ROAD 12 AND TRUNK HIGHWAY 59/30 (THE JUNCTION IS 4.0 MILES WEST OF CURRIE), THEN 0.05 MILE NORTH ON 150TH AVENUE, 32.0 FEET EAST OF 150TH AVENUE, 31.63 FEET SOUTH OF STATION CURRIE MNDT, 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>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1641.089	.016	2/1					VERTICAL ADJUSTMENT	2010	00000628	
1641.089	.016	2/1					VERTICAL CONTROL SURVEY	2007	VSLAT	

Geoid Separations(ft): GEOID18 = -87.270 12B = -87.267 09 = -87.185 03 = -87.001

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/CURRIE_RM_1-DL5424-3E-18OCT2006.jpg	E	Oct 18, 200
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/CURRIE_RM_1-DL5424-2-18OCT2006.jpg		Oct 18, 200
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/CURRIE_RM_1-DL5424-1-18OCT2006.jpg		Oct 18, 200

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



Mn/DOT Name: CURRIE MNDT RM 1 RESET

NGS Name: CURRIE RM 1 RESET

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DQ2418](#) [Get Map](#)
 NGS Quad / Sta Num : 44095332/
 USGS Quad: HADLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	107 N	41 W	440424.99	954547.90	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>
2015	2019	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: (2015) Stamping: CURRIE NO 1 1987 2015

5.5 MILES NORTH OF SLAYTON, 5.65 MILES NORTH ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 30 IN SLAYTON TO TRUNK HIGHWAY 59 MILEPOINT 46.65, THEN 0.7 MILE NORTHWEST AND WEST ON COUNTY ROAD 12 (156TH STREET), THEN 0.05 MILE NORTH ON 150TH AVENUE, 32.0 FEET EAST OF 150TH AVENUE, 31.63 FEET SOUTH OF STATION CURRIE MNDT, 66.0 FEET EAST-SOUTHEAST OF CURRIE MNDT RM 2, 1.1 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>
1640.935	.016	2/1					VERTICAL ADJUSTMENT	2017	00000903
1640.935	.016	2/1					VERTICAL CONTROL SURVEY	2015	VGARV

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>
1640.968	.262			1553.704	.197	2011	GPS - RTRN	2019	RTRN2019
1640.958	.262			1553.691	.197	2011	GPS - RTRN	2015	RTRN2015

Geoid Separations(ft): GEOID18 = -87.270 12B = -87.267 09 = -87.185 03 = -87.001

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 04 24.98814	95 45 47.89666	500883.668	182228.570	.131	3	GPS - RTRN	2019	RTRN2019
44 04 24.98783	95 45 47.89642	500883.685	182228.539	.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 - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2161298.384	724453.317	914452.546	16022807.109	.131	3	GPS - RTRN	2019	RTRN2019
2161298.401	724453.285	914452.563	16022807.077	.131	3	GPS - RTRN	2015	RTRN2015

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/CURRIE_RM_1_RESET-DQ2418-3E-01APR2019.jpg	E	Apr 1, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/CURRIE_RM_1_RESET-DQ2418-2-01APR2019.jpg		Apr 1, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/CURRIE_RM_1_RESET-DQ2418-1-01APR2019.jpg		Apr 1, 2019

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



Mn/DOT Name: CURRIE MNDT RM 2

NGS Name: CURRIE RM 2

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DQ2419](#) [Get Map](#)
 NGS Quad / Sta Num : 44095332/
 USGS Quad: HADLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	107 N	41 W	440425.18	954548.78	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>
1987	2019	GOOD	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)	SURVEY DISK	MNDT

Description: (2015) **Stamping:** CURRIE NO 2 1987

5.5 MILES NORTH OF SLAYTON, 5.65 MILES NORTH ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 30 IN SLAYTON TO TRUNK HIGHWAY 59 MILEPOINT 46.65, THEN 0.7 MILE NORTHWEST AND WEST ON COUNTY ROAD 12 (156TH STREET), THEN 0.05 MILE NORTH ON 150TH AVENUE, 30.6 FEET WEST OF 150TH AVENUE, 66.0 FEET WEST-NORTHWEST OF CURRIE MNDT RM 1 RESET, 63.8 FEET WEST-SOUTHWEST OF STATION CURRIE MNDT. NO WITNESS POST.

Station Notes

THE SURVEY MARK IS ON PRIVATE PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE. THE ROD DEPTH IS UNKNOWN.

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>	
1642.037	.016	2/1					VERTICAL ADJUSTMENT	2017	00000903	
1642.037	.016	2/1					VERTICAL CONTROL SURVEY	2015	VGARV	

Geoid Separations(ft): GEOID18 = -87.270 12B = -87.264 09 = -87.185 03 = -87.001

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/CURRIE_RM_2-DQ2419-3W-01APR2019.jpg	W	Apr 1, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/CURRIE_RM_2-DQ2419-2-01APR2019.jpg		Apr 1, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/CURRIE_RM_2-DQ2419-1-01APR2019.jpg		Apr 1, 2019

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



Mn/DOT Name: CURRIE WATER TANK

NGS Name: CURRIE WATER TANK

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 44095323/
 USGS Quad: CURRIE

<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	17	107 N	40 W	440408.14	953953.03		

<u>Year Set</u>	<u>Last Recovery</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	1988	GOOD	Horz=? Vert=?	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	SURVEY DISK	MNDT

Description: (1988) Stamping:
 IN CURRIE, AT THE SOUTHWEST CORNER OF THIRD STREET AND CHURCH STREET.

* No Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -87.592 12B = -87.595 09 = -87.497 03 = -87.323

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1986)</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 04 08.14767	95 39 53.03257	526794.478	180539.688	3.281		CLASSICAL SURVEY	1991	H1991

State Plane and UTM Coordinates (Feet)

<u>NAD83(1986)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>			
<u>MN State Plane - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
		2187163.475	722205.287	940294.788	16020248.490	3.281	CLASSICAL SURVEY	1991	H1991



Mn/DOT Name: D 12

NGS Name: D 12

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OQ0022](#) [Get Map](#)
 NGS Quad / Sta Num : 43096111/
 USGS Quad: EDGERTON NE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	43 W	435403.00	960341.00	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	2005	NOT FOUND	Horz=NO Vert=YES	NO		FLUSH	STEEL SPIKE ADJ TO MON

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

Description: (1931) **Stamping:** D-12-1931

4.4 MILES NORTHEAST ON A RAILROAD FROM THE RAILROAD STATION AT EDGERTON, 3.5 MILES EAST ALONG COUNTY ROAD 1 FROM THE JUNCTION OF COUNTY ROAD 1 AND 4TH AVENUE IN EDGERTON, THEN 2.0 MILES NORTH ON COUNTY LINE AVENUE, 220.0 FEET NORTHEAST OF A RAILROAD BRIDGE OVER A SMALL CREEK, 61.4 FEET SOUTHEAST OF RAILROAD MILEPOST 271, 45.5 FEET SOUTHEAST OF THE SOUTHEAST RAIL OF THE RAILROAD TRACKS, 1.6 FEET NORTHWEST OF A RIGHT-OF-WAY FENCE.

Station Notes

THE MILEPOSTS ALONG THE RAILROAD ARE GONE, A SEARCH WAS MADE ALONG THE RAILROAD RIGHT WAY FENCE FOR 0.5 MILE.

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>
1592.346	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025

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>
1591.647	.007	1/2				UNKNOWN/APPROXIMATE	1992	UNCHECKD
1591.647	.007	1				VERTICAL CONTROL SURVEY	1935	CUTLER-VERT
1591.647	.007	1				VERTICAL CONTROL SURVEY	1932	L92 MINN
1591.647	.007	1				VERTICAL CONTROL SURVEY	1931	Q430961

Geoid Separations(ft): GEOID18 = -86.119 12B = -86.092 09 = -85.974 03 = -85.876

* No Horizontal Positions in the Database *



Mn/DOT Name: D 230

NGS Name: D 230

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP0604](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

<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	105 N	42 W	435418.34	955636.70	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>
1963	2021	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER IS STEEL ROD

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
COPPER CLAD ROD (NO SLEEVE) (DEPTH 24 FT)	BENCH MARK DISK	NGS

Description: (1999) Stamping: D 230 1963

1.6 MILES SOUTH OF CHANDLER, 1.6 MILES SOUTH ALONG TRUNK HIGHWAY 91 FROM THE JUNCTION OF TRUNK HIGHWAY 91 AND COUNTY ROAD 4 IN CHANDLER, AT TRUNK HIGHWAY 91 MILEPOINT 32.3, 60.5 FEET EAST OF TRUNK HIGHWAY 91, 4.5 FEET SOUTH OF A TELEPHONE CABLE 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>	
1794.688	.016	2/1				VERTICAL ADJUSTMENT	2020	00000949	
1794.626	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903	
1794.645	.016	2/1				VERTICAL CONTROL SURVEY	2016	VRUSS	
1794.626	.016	2/1				VERTICAL ADJUSTMENT	2001	00000380	
1794.626	.016	2/1				VERTICAL CONTROL SURVEY	2000	VLISM	
1794.626	.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>	
1793.956	.007	1/2				UNKNOWN/APPROXIMATE	1992	UNCHECKD	
1793.956	.007	1				VERTICAL CONTROL SURVEY	1965	L92 MINN	

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>	
1794.639	.262		1708.468	.197	2011	GPS - OPUS	2021	GPSBM	
			1708.520	.008	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
			1708.615	.008	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300	
1794.616	.131		1708.710	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1792	
1794.616	.131		1708.710	.066	1996	HORIZONTAL ADJUSTMENT	2002	GPS1767	
1794.616	.131		1708.710	.066	1996	GPS - STATIC	2002	HWILS	
1794.616	.131		1708.710	.066	1996	GPS - STATIC	2002	HLISM	

Geoid Separations(ft): GEOID18 = -86.171 12B = -86.145 09 = -86.063 03 = -85.961

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Murray 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>	
43 54 18.34153	95 56 36.70332	453382.352	120844.324	.131	3	GPS - OPUS	2021	GPSBM	
43 54 18.34167	95 56 36.70301	453382.374	120844.338	.007		ADJUSTMENT	2012	GPS2800	

<u>NAD83(2007)</u>		<u>Murray 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>	
43 54 18.34166	95 56 36.70392	453382.308	120844.338	.007		ADJUSTMENT	2007	GPS2300	

<u>NAD83(1996)</u>		<u>Murray 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>	
43 54 18.34131	95 56 36.70284	453382.387	120844.302	.033	C	ADJUSTMENT	2003	GPS1792	
43 54 18.34131	95 56 36.70283	453382.388	120844.302	.033	C	ADJUSTMENT	2002	GPS1767	
43 54 18.34131	95 56 36.70283	453382.388	120844.302	.033	C	GPS - STATIC	2002	HWILS	
43 54 18.34131	95 56 36.70283	453382.388	120844.302	.033	C	GPS - STATIC	2002	HLISM	

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2112486.519	664117.107	864910.442	15963040.595	.131	3	GPS - OPUS	2021	GPSBM
2112486.542	664117.121	864910.465	15963040.609	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2112486.475	664117.121	864910.398	15963040.610	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2112486.553	664117.084	864910.476	15963040.572	.033	C	ADJUSTMENT	2003	GPS1792
2112486.554	664117.084	864910.477	15963040.572	.033	C	ADJUSTMENT	2002	GPS1767
2112486.554	664117.084	864910.477	15963040.572	.033	C	GPS - STATIC	2002	HWILS
2112486.554	664117.084	864910.477	15963040.572	.033	C	GPS - STATIC	2002	HLISM

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/D_230-OP0604-3E-28APR2021.jpg	E	Apr 28, 2021
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/D_230-OP0604-2-28APR2021.jpg		Apr 28, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/D_230-OP0604-1-28APR2021.jpg		Apr 28, 2021

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



Mn/DOT Name: DOVR

NGS Name: DOVR

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DK2716](#) [Get Map](#)
NGS Quad / Sta Num : 44095323/
USGS Quad: CURRIE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	107 N	41 W	440422.83	954359.89	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>
2006	2019	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: (2006) Stamping: DOVR 2006

3.5 MILES WEST OF CURRIE, 3.6 MILES NORTHWEST AND WEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND COUNTY ROAD 38 NORTH IN CURRIE, AT TRUNK HIGHWAY 30 MILEPOINT 42.10, 59.4 FEET NORTH OF TRUNK HIGHWAY 30, 36.0 FEET EAST OF DRIVEWAY NUMBERS 1650/1649, 22.0 FEET SOUTHEAST OF A POWER POLE, 21.7 FEET SOUTHEAST OF A WITNESS POST.

Station Pair: SWEETMAN - MURRAY, 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>			
1554.702	.016	2/1				VERTICAL ADJUSTMENT		2020	00000949			
1554.702	.016	2/1				VERTICAL CONTROL SURVEY		2019	VDRAY			
1554.702	.016	2/1				VERTICAL ADJUSTMENT		2017	00000903			
1554.702	.016	2/1				VERTICAL CONTROL SURVEY		2015	VGARV			
1554.702	.016	2/1				VERTICAL ADJUSTMENT		2010	00000628			
1554.702	.016	2/1				VERTICAL CONTROL SURVEY		2007	VSLAT			

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>			
1554.702	.131		1467.589	.066	1996	GPS - STATIC		2019	HDRAY			
1554.702			1467.326	.014	2011	GPS - STATIC		2019	HDRAY			
1554.702			1467.326	.014	2011	HORIZONTAL ADJUSTMENT		2019	GPS3311			
1554.682	.262		1467.303	.197	2011	GPS - RTRN		2019	RTRN2019			
1554.597	.262		1467.218	.197	2011	GPS - RTRN		2015	RTRN2015			
			1467.326	.015	2011	HORIZONTAL ADJUSTMENT		2012	GPS2800			
			1467.431	.066	2007	HORIZONTAL ADJUSTMENT		2011	GPS2386-B			
1554.688	.131		1467.589	.066	1996	HORIZONTAL ADJUSTMENT		2007	GPS2386			
1554.688	.131		1467.589	.066	1996	GPS - STATIC		2007	HSLAT			

Geoid Separations(ft): GEOID18 = -87.375 12B = -87.375 09 = -87.290 03 = -87.106

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Murray County</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>
44 04 22.82889	95 43 59.88833	508769.468	182011.660	.010	C	GPS - STATIC	2019
44 04 22.82889	95 43 59.88833	508769.468	182011.660	.010		ADJUSTMENT	2019
44 04 22.82893	95 43 59.88789	508769.500	182011.664	.131	3	GPS - RTRN	2019
44 04 22.82840	95 43 59.88824	508769.475	182011.610	.131	3	GPS - RTRN	2015
44 04 22.82889	95 43 59.88833	508769.468	182011.660	.010		ADJUSTMENT	2012

<u>NAD83(2007)</u>		<u>Geodetic Position</u>		<u>Murray County</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>
44 04 22.82885	95 43 59.88915	508769.408	182011.656	.033	C	ADJUSTMENT	2011

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Murray County</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>
44 04 22.82836	95 43 59.88850	508769.456	182011.606	.033	C	GPS - STATIC	2019
44 04 22.82836	95 43 59.88850	508769.456	182011.606	.033	C	ADJUSTMENT	2007
44 04 22.82836	95 43 59.88850	508769.456	182011.606	.033	C	GPS - STATIC	2007

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2169176.685	724066.100	922327.575	16022325.341	.010	C	GPS - STATIC	2019	HDRAY
2169176.685	724066.100	922327.575	16022325.341	.010		ADJUSTMENT	2019	GPS3311
2169176.717	724066.104	922327.607	16022325.344	.131	3	GPS - RTRN	2019	RTRN2019
2169176.691	724066.051	922327.580	16022325.292	.131	3	GPS - RTRN	2015	RTRN2015
2169176.685	724066.100	922327.575	16022325.341	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2169176.625	724066.097	922327.515	16022325.339	.033	C	ADJUSTMENT	2011	GPS2386-B

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2169176.671	724066.047	922327.560	16022325.288	.033	C	GPS - STATIC	2019	HDRAY
2169176.671	724066.047	922327.560	16022325.288	.033	C	ADJUSTMENT	2007	GPS2386
2169176.671	724066.047	922327.560	16022325.288	.033	C	GPS - STATIC	2007	HSLAT

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/DOVR-DK2716-3N-01APR2019.jpg	N	Apr 1, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/DOVR-DK2716-2-01APR2019.jpg		Apr 1, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/DOVR-DK2716-1-01APR2019.jpg		Apr 1, 2019

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



Mn/DOT Name: DOVRAY MNDT

NGS Name: DOVRAY

County: MURRAY, MN (Sheet 1)

NGS ACRN: [PQ1063](#) [Get Map](#)
 NGS Quad / Sta Num : 44095322/
 USGS Quad: DOVRAY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	107 N	39 W	440304.78	953218.17	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>
1980	2019	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 MONUMENT (CAST-IN-PLACE)	HORIZONTAL CONTROL DISK	MNDT

Description: (1997) **Stamping:** DOVRAY 1980

0.5 MILE EAST OF DOVRAY, 0.2 MILE EAST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND COUNTY ROAD 42 IN DOVRAY, AT TRUNK HIGHWAY 30 MILEPOINT 52.20, 138.0 FEET NORTH OF TRUNK HIGHWAY 30, 85.0 FEET NORTHWEST OF A POWER POLE, 77.07 FEET NORTHEAST OF DOVRAY MNDT RM 2, 75.87 FEET NORTHWEST OF DOVRAY MNDT RM 1, 8.2 FEET NORTH OF A WITNESS POST. ON THE TOP OF A HILL, AT THE TOP OF THE BACK SLOPE.

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>		
1534.511	.016	2/1				VERTICAL ADJUSTMENT	2020	00000949		
1534.518	.016	2/1				VERTICAL CONTROL SURVEY	2019	VDRAY		
1534.482	.016	2/2				VERTICAL ADJUSTMENT	2010	00000628		
1534.482	.016	2/2				VERTICAL CONTROL SURVEY	2007	VDOVR		

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>		
1534.482	.131		1446.815	.066	1996	GPS - STATIC	2019	HDRAY		
1534.482			1446.559	.008	2011	GPS - STATIC	2019	HDRAY		
1534.482			1446.559	.008	2011	HORIZONTAL ADJUSTMENT	2019	GPS3311		
1534.528	.262		1446.565	.197	2011	GPS - RTRN	2019	RTRN2019		
			1446.559	.008	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800		
			1446.674	.009	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300		
1534.544	.131		1446.815	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1919		
1534.479	.131		1446.785	.066	1996	GPS - STATIC	2003	HMURR		
1532.477	.197		1444.794	.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>		
1531.985						RECIPROCAL VERTICAL ANGLE	1981	HORZ		

Geoid Separations(ft): GEOID18 = -87.972 12B = -87.966 09 = -87.871 03 = -87.723



Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 03 04.77711	95 32 18.16792	560024.567	174188.725	.007	C	GPS - STATIC	2019	HDRAY
44 03 04.77711	95 32 18.16792	560024.567	174188.725	.007		ADJUSTMENT	2019	GPS3311
44 03 04.77713	95 32 18.16809	560024.554	174188.727	.131	3	GPS - RTRN	2019	RTRN2019
44 03 04.77711	95 32 18.16792	560024.567	174188.725	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 03 04.77709	95 32 18.16875	560024.506	174188.723	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 03 04.77657	95 32 18.16799	560024.562	174188.671	.033	C	GPS - STATIC	2019	HDRAY
44 03 04.77657	95 32 18.16799	560024.562	174188.671	.033	C	ADJUSTMENT	2003	GPS1919
44 03 04.77663	95 32 18.16799	560024.562	174188.677	.033	C	GPS - STATIC	2003	HMURR
44 03 04.77872	95 32 18.17012	560024.406	174188.888	.066	2	ADJUSTMENT	1999	17648
44 03 04.77641	95 32 18.15865	560025.244	174188.656	.066	2	ADJUSTMENT	1998	17655

NAD83(1986)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 03 04.77568	95 32 18.15608	560025.432	174188.583	.066	2	ADJUSTMENT	1986	17289

NAD27

Geodetic Position						Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 03 04.91010	95 32 17.14230			.100	2	CLASSICAL SURVEY	1982	16710

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2220244.655	715139.084	973294.860	16012784.651	.007	C	GPS - STATIC	2019	HDRAY
2220244.655	715139.084	973294.860	16012784.651	.007		ADJUSTMENT	2019	GPS3311
2220244.643	715139.086	973294.848	16012784.653	.131	3	GPS - RTRN	2019	RTRN2019
2220244.655	715139.084	973294.860	16012784.651	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2220244.595	715139.083	973294.799	16012784.650	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2220244.649	715139.029	973294.853	16012784.596	.033	C	GPS - STATIC	2019	HDRAY
2220244.649	715139.029	973294.853	16012784.596	.033	C	ADJUSTMENT	2003	GPS1919
2220244.649	715139.036	973294.854	16012784.602	.033	C	GPS - STATIC	2003	HMURR
2220244.497	715139.250	973294.704	16012784.819	.066	2	ADJUSTMENT	1999	17648
2220245.331	715139.000	973295.535	16012784.559	.066	2	ADJUSTMENT	1998	17655

NAD83(1986)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2220245.517	715138.923	973295.720	16012784.479	.066	2	ADJUSTMENT	1986	17289

NAD27

MN State Plane - South Zone						Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1595641.444	387063.725			.100	2	CLASSICAL SURVEY	1982	16710



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/DOVRAY-PQ1063-3N-02APR2019.jpg	N	Apr 2, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/DOVRAY-PQ1063-2-02APR2019.jpg		Apr 2, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/DOVRAY-PQ1063-1-02APR2019.jpg		Apr 2, 2019

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



Mn/DOT Name: DOVRAY MNDT RM 1

NGS Name: DOVRAY RM 1

County: MURRAY, MN (Sheet 1)

NGS ACRN: [CO8433](#) [Get Map](#)
 NGS Quad / Sta Num : 44095322/
 USGS Quad: DOVRAY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	107 N	39 W	440304.17	953217.56	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	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>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	MNDT

Description: (1980) **Stamping:** DOVRAY NO 1 1980

0.5 MILE EAST OF DOVRAY, 0.2 MILE EAST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND COUNTY ROAD 42 IN DOVRAY, AT TRUNK HIGHWAY 30 MILEPOINT 52.20, 75.0 FEET NORTH OF TRUNK HIGHWAY 30, 88.4 FEET EAST OF DOVRAY MNDT RM 2, 75.87 FEET SOUTHEAST OF STATION DOVRAY MNDT, 43.0 FEET EAST OF A POWER POLE, 1.2 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>
1517.323	.016	2/1					VERTICAL ADJUSTMENT	2020	00000949
1517.330	.016	2/1					VERTICAL CONTROL SURVEY	2019	VDRAY
1517.241	.016	2/2					VERTICAL ADJUSTMENT	2010	00000628
1517.238	.016	2/2					VERTICAL CONTROL SURVEY	2007	VDOVR

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>
1517.395	.262			1429.430	.197	2011	GPS - RTRN	2019	RTRN2019

Geoid Separations(ft): GEOID18 = -87.972 12B = -87.966 09 = -87.871 03 = -87.723

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>									
44 03 04.16731	95 32 17.56423			560068.830	174127.093	.131	3	GPS - RTRN	2019	RTRN2019

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South 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>									
2220287.572	715076.519			973337.030	16012721.565	.131	3	GPS - RTRN	2019	RTRN2019

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/DOVRAY_RM_1-CO8433-3N-15APR2019.jpg	N	Apr 15, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/DOVRAY_RM_1-CO8433-2-15APR2019.jpg		Apr 15, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/DOVRAY_RM_1-CO8433-1-15APR2019.jpg		Apr 15, 2019

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



Mn/DOT Name: DOVRAY MNDT RM 2

NGS Name: DOVRAY RM 2

County: MURRAY, MN (Sheet 1)

NGS ACRN: [CO8434](#) [Get Map](#)
 NGS Quad / Sta Num : 44095322/
 USGS Quad: DOVRAY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	107 N	39 W	440304.16	953218.79	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	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>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	MNDT

Description: (1980) **Stamping:** DOVRAY NO 2 1980

0.5 MILE EAST OF DOVRAY, 0.2 MILE EAST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND COUNTY ROAD 42 IN DOVRAY, AT TRUNK HIGHWAY 30 MILEPOINT 52.20, 88.4 FEET SOUTHWEST OF STATION DOVRAY MNDT RM 1, 77.07 FEET SOUTHWEST OF STATION DOVRAY MNDT, 74.5 FEET NORTH OF TRUNK HIGHWAY 30, 47.0 FEET WEST OF A POWER POLE, 1.2 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>
1516.746	.016	2/1					VERTICAL ADJUSTMENT	2020	00000949
1516.752	.016	2/1					VERTICAL CONTROL SURVEY	2019	VDRAY
1516.693	.016	2/2					VERTICAL ADJUSTMENT	2010	00000628
1516.693	.016	2/2					VERTICAL CONTROL SURVEY	2007	VDOVR

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>
1516.723	.262			1428.760	.197	2011	GPS - RTRN	2019	RTRN2019

Geoid Separations(ft): GEOID18 = -87.972 12B = -87.966 09 = -87.871 03 = -87.723

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>									
44 03 04.16300	95 32 18.78868			559979.400	174126.409	.131	3	GPS - RTRN	2019	RTRN2019

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South 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>									
2220198.159	715077.765			973247.625	16012723.884	.131	3	GPS - RTRN	2019	RTRN2019

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/DOVRAY_RM_2-CO8434-3N-15APR2019.jpg	N	Apr 15, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/DOVRAY_RM_2-CO8434-2-15APR2019.jpg		Apr 15, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/DOVRAY_RM_2-CO8434-1-15APR2019.jpg		Apr 15, 2019

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



Mn/DOT Name: DUNDEE MNDT

NGS Name: DUNDEE

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP0778](#) [Get Map](#)
 NGS Quad / Sta Num : 43095143/
 USGS Quad: DUNDEE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	39 W	435052.69	952858.17		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>
1980	2018	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	STEEL ROD IMBED IN MON

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

Description: (1980) **Stamping:** DUNDEE 1980

6.1 MILES EAST-SOUTHEAST OF FULDA, 5.65 MILES EAST ALONG TRUNK HIGHWAY 62 FROM THE JUNCTION OF TRUNK HIGHWAY 62 AND TRUNK HIGHWAY 59 IN FULDA TO THE TRUNK HIGHWAY 62 MILEPOINT 5.65, THEN 1.0 MILE SOUTH ON 290TH AVENUE, 12.0 FEET NORTH OF 1ST AVENUE WEST, 49.55 FEET SOUTHWEST OF DUNDEE MNDT RM 1, 17.7 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>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1473.527	.262		1385.122	.197	2011	GPS - RTRN	2018	RTRN2018
1473.514			1385.158	.019	2011	HORIZONTAL ADJUSTMENT	2014	GPS2962
1473.514			1385.105	.019	2011	GPS - STATIC	2014	HFULD
1473.537	.131		1385.407	.066	1996	GPS - STATIC	2013	HFULD
			1385.158	.020	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1473.432	.262		1385.145	.197	2007	GPS - RTRN	2011	RTRN2011
			1385.250	.021	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
1473.521	.131		1385.368	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1919
1473.521	.131		1385.368	.066	1996	GPS - STATIC	2003	HMURR
1475.391	.197		1387.340	.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>
1475.292						RECIPROCAL VERTICAL ANGLE	1981	HORZ

Geoid Separations(ft): GEOID18 = -88.425 12B = -88.405 09 = -88.287 03 = -88.130



Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 50 52.69212	95 28 58.16836	574887.305	100097.775	.131	3	GPS - RTRN	2018	RTRN2018
43 50 52.69025	95 28 58.16821	574887.316	100097.586	.010		ADJUSTMENT	2014	GPS2962
43 50 52.69058	95 28 58.16839	574887.303	100097.619	.010	C	GPS - STATIC	2014	HFULD
43 50 52.69025	95 28 58.16821	574887.316	100097.586	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 50 52.69105	95 28 58.16941	574887.228	100097.667	.131	3	GPS - RTRN	2011	RTRN2011
43 50 52.69017	95 28 58.16902	574887.257	100097.577	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 50 52.69049	95 28 58.16870	574887.280	100097.610	.033	C	GPS - STATIC	2013	HFULD
43 50 52.68985	95 28 58.16814	574887.321	100097.545	.033	C	ADJUSTMENT	2003	GPS1919
43 50 52.68985	95 28 58.16815	574887.321	100097.545	.033	C	GPS - STATIC	2003	HMURR
43 50 52.68849	95 28 58.16721	574887.390	100097.408	.066	2	ADJUSTMENT	1999	17648

NAD83(1986)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 50 52.68568	95 28 58.15045	574888.619	100097.128	.066	2	ADJUSTMENT	1986	17289

NAD27

Geodetic Position						Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 50 52.82739	95 28 57.14366			.100	2	CLASSICAL SURVEY	1982	16710

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2233503.259	640752.472	985665.870	15938235.287	.131	3	GPS - RTRN	2018	RTRN2018
2233503.267	640752.282	985665.875	15938235.097	.010		ADJUSTMENT	2014	GPS2962
2233503.254	640752.316	985665.863	15938235.131	.010	C	GPS - STATIC	2014	HFULD
2233503.267	640752.282	985665.875	15938235.097	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2233503.180	640752.365	985665.789	15938235.181	.131	3	GPS - RTRN	2011	RTRN2011
2233503.207	640752.276	985665.815	15938235.091	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2233503.231	640752.307	985665.840	15938235.122	.033	C	GPS - STATIC	2013	HFULD
2233503.271	640752.242	985665.879	15938235.057	.033	C	ADJUSTMENT	2003	GPS1919
2233503.270	640752.242	985665.878	15938235.057	.033	C	GPS - STATIC	2003	HMURR
2233503.337	640752.103	985665.943	15938234.917	.066	2	ADJUSTMENT	1999	17648

NAD83(1986)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2233504.560	640751.796	985667.162	15938234.596	.066	2	ADJUSTMENT	1986	17289

NAD27

MN State Plane - South Zone						Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1608900.670	312678.130			.100	2	CLASSICAL SURVEY	1982	16710



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/DUNDEE-OP0778-3N-24APR2018.jpg	N	Apr 24, 2018
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/DUNDEE-OP0778-2-24APR2018.jpg		Apr 24, 2018
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/DUNDEE-OP0778-1-24APR2018.jpg		Apr 24, 2018

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



Mn/DOT Name: DUNDEE MNDT RM 1

NGS Name: DUNDEE RM 1

County: MURRAY, MN (Sheet 1)

NGS ACRN: [CO3029](#) [Get Map](#)
 NGS Quad / Sta Num : 43095143/
 USGS Quad: DUNDEE

<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	105 N	39 W	435052.90	952857.56		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>
1980	2018	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 MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	MNDT

Description: **Stamping:** DUNDEE NO 1 1980

6.1 MILES EAST-SOUTHEAST OF FULDA, 5.65 MILES EAST ALONG TRUNK HIGHWAY 62 FROM THE JUNCTION OF TRUNK HIGHWAY 62 AND TRUNK HIGHWAY 59 IN FULDA TO TRUNK HIGHWAY 62 MILEPOINT 5.65, THEN 1.0 MILE SOUTH ON 290TH AVENUE, 46.0 FEET WEST OF 290TH AVENUE, 32.0 FEET NORTH OF 1ST STREET, 49.55 FEET NORTHEAST OF DUNDEE MNDT.

* 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>		
1472.664	.262		1384.259	.197	2011	GPS - RTRN		2018	RTRN2018		
1472.641	.262		1384.357	.197	2007	GPS - RTRN		2011	RTRN2011		

Geoid Separations(ft): GEOID18 = -88.425 12B = -88.409 09 = -88.287 03 = -88.130

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>			<u>Murray 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>								
43 50 52.89600	95 28 57.55588		574932.120	100118.576	.131	3	GPS - RTRN	2018	RTRN2018

<u>NAD83(2007)</u>			<u>Murray 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>								
43 50 52.89628	95 28 57.55671		574932.059	100118.604	.131	3	GPS - RTRN	2011	RTRN2011

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>			<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South 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>								
2233548.509	640772.299		985711.357	15938254.576	.131	3	GPS - RTRN	2018	RTRN2018

<u>NAD83(2007)</u>			<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South 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>								
2233548.449	640772.328		985711.297	15938254.606	.131	3	GPS - RTRN	2011	RTRN2011

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/DUNDEE_RM_1-CO3029-3N-24APR2018.jpg	N	Apr 24, 2018
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/DUNDEE_RM_1-CO3029-2-24APR2018.jpg		Apr 24, 2018
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/DUNDEE_RM_1-CO3029-1-24APR2018.jpg		Apr 24, 2018

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



Mn/DOT Name: DUNDEE MNDT RM 2

NGS Name: DUNDEE RM 2

County: MURRAY, MN (Sheet 1)

NGS ACRN: [CO3030](#) [Get Map](#)
 NGS Quad / Sta Num : 43095143/
 USGS Quad: DUNDEE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	39 W	435052.86	952858.41		

<u>Year Set</u>	<u>Last Recovery</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	2018	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	MNDT

Description: **Stamping:** DUNDEE NO 2 1980

1.07 MILES NORTHWEST OF DUNDEE, 0.3 MILE NORTH ALONG COUNTY ROAD 1 FROM THE JUNCTION OF COUNTY ROAD 1 AND 3RD STREET EAST, THEN 1.1 MILES WEST ON COUNTY ROAD 55 (1ST STREET), 28.0 FEET NORTH OF THE CENTER OF THE GRAVEL ROAD, 109.5 FEET WEST OF THE CENTER OF A GRAVEL ROAD, 63.0 FEET WEST OF A POWER POLE NUMBER 214, 62.5 FEET NORTHEAST OF AN UNDERGROUND CABLE MARKER, 18.5 FEET WEST OF A STEEL WITNESS POST.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -88.425 12B = -88.405 09 = -88.287 03 = -88.130



Mn/DOT Name: E 12

NGS Name: E 12

County: MURRAY, MN (Sheet 1)

NGS ACRN: [QQ0579](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	43 W	435458.53	960020.03	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	2021	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)	BENCH MARK DISK	NGS

Description: (2021) Stamping: E 12 1931

2.5 MILES WEST OF CHANDLER, 3.4 MILES WEST ALONG COUNTY ROAD 4 FROM THE JUNCTION OF COUNTY ROAD 4 AND TRUNK HIGHWAY 91 IN CHANDLER, 57.5 FEET SOUTH OF COUNTY ROAD 4, 0.6 FOOT SOUTH 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>
			<u>Height</u>	<u>Acc</u>	<u>Adj</u>			
1626.056	.007	1/2				VERTICAL ADJUSTMENT	1991	00000025

<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>			
1625.367	.007	1/2				UNKNOWN/APPROXIMATE	1992	UNCHECKED
1625.367	.033	3				VERTICAL CONTROL SURVEY	1967	USGS-VERT
1625.367	.007	1				VERTICAL CONTROL SURVEY	1942	L92 MINN
1625.367	.007	1				VERTICAL CONTROL SURVEY	1935	CUTLER-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>			
1626.047	.262		1539.971	.197	2011	GPS - OPUS	2021	GPSBM
1626.043	.262		1539.967	.197	2011	GPS - OPUS	2021	GPSBM

Geoid Separations(ft): GEOID18 = -86.076 12B = -86.040 09 = -85.935 03 = -85.856

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>									
43 54 58.53398	96 00 20.02964			437042.857	124955.733	.131	3	GPS - OPUS	2021	GPSBM
43 54 58.53398	96 00 20.02964			437042.857	124955.733	.131	3	GPS - OPUS	2021	GPSBM

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>			
<u>MN State Plane - South 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>									
2096241.419	668580.555			848714.159	15967698.023	.131	3	GPS - OPUS	2021	GPSBM
2096241.419	668580.555			848714.159	15967698.023	.131	3	GPS - OPUS	2021	GPSBM

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
<u>Location:</u>	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/E_12-OQ0579-3S-28APR2021.jpg	S	Apr 28, 2021
<u>Monument:</u>	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/E_12-OQ0579-2-28APR2021.jpg		Apr 28, 2021
<u>Disk:</u>	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/E_12-OQ0579-1-28APR2021.jpg		Apr 28, 2021

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



Mn/DOT Name: E 230

NGS Name: E 230

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP0605](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	42 W	435334.27	955637.12	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>
1963	2016	DESTROYED	Horz=NO Vert=NO	NO		RECESSED 2 IN.	SEE DESCRIPTION

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

Description: (2001)

Stamping: E 230 1963

2.5 MILES SOUTH ON TRUNK HIGHWAY 91 FROM THE JUNCTION OF TRUNK HIGHWAY 91 AND COUNTY ROAD 4 AT CHANDLER, 60.0 FEET EAST OF TRUNK HIGHWAY 91, AT TRUNK HIGHWAY 91 MILEPOINT 31.45, 250.0 FEET NORTH OF A GRAVEL ROAD, 13.0 FEET NORTH OF A FIELD ENTRANCE, 1.3 FEET NORTH OF A NORTH GATE POST, 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>	
1808.415	.016	2/1					VERTICAL ADJUSTMENT	2001	00000380	
1808.415	.016	2/1					VERTICAL CONTROL SURVEY	2000	VLISM	
1808.415	.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>	
1807.736	.007	1					VERTICAL CONTROL SURVEY	1965	L92 MINN	

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>	
				1722.228	.008	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
				1722.323	.008	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300	
1808.428	.131			1722.411	.066	1996	HORIZONTAL ADJUSTMENT	2002	GPS1767	
1808.428	.131			1722.411	.066	1996	GPS - STATIC	2002	HLISM	

Geoid Separations(ft): GEOID18 = -86.220 12B = -86.178 09 = -86.102 03 = -86.007

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>			<u>Murray 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>								
43 53 34.26965	95 56 37.12243		453342.082	116381.364	.007		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>			<u>Murray 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>								
43 53 34.26964	95 56 37.12332		453342.017	116381.363	.007		ADJUSTMENT	2007	GPS2300

<u>NAD83(1996)</u>			<u>Murray 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>								
43 53 34.26924	95 56 37.12234		453342.089	116381.322	.033	C	ADJUSTMENT	2002	GPS1767
43 53 34.26924	95 56 37.12234		453342.089	116381.322	.033	C	GPS - STATIC	2002	HLISM



State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South 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>
2112349.744	659656.504	864720.705	15958580.543	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South 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>
2112349.679	659656.504	864720.640	15958580.545	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South 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>
2112349.750	659656.462	864720.710	15958580.502	.033	C	ADJUSTMENT	2002	GPS1767
2112349.750	659656.462	864720.710	15958580.502	.033	C	GPS - STATIC	2002	HLISM



Mn/DOT Name: ED MNDT TEMP

NGS Name: ED TEMP

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP0882](#) [Get Map](#)
 NGS Quad / Sta Num : 43095441/
 USGS Quad: SLAYTON

<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	106 N	42 W	435738.25	955112.17		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>
1980	1980	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BLANK	UNMONUMENTED	MNDT

Description: (1980)

Stamping:

2.5 MILES SOUTH ON COUNTY ROAD 29 FROM THE JUNCTION OF COUNTY ROAD 29 AND TRUNK HIGHWAY 30 AT HADLEY, 14.0 FEET WEST OF COUNTY ROAD 29, 38.0 FEET EAST OF A FENCE LINE, OPPOSITE A FARM DRIVE EAST, 38.58 FEET EAST-NORTHEAST OF A MINNESOTA DEPARTMENT OF TRANSPORTATION NAIL AND DISK IN A POWER POLE, STATION ED MNDT TEMP IS A PK NAIL IN THE EDGE OF THE ROAD.

* 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>		
1813.317	.197		1726.991	.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>		
1812.890						RECIPROCAL VERTICAL ANGLE	1981	HORZ		

Geoid Separations(ft): GEOID18 = -86.529 12B = -86.509 09 = -86.427 03 = -86.315

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Geodetic Position</u>				<u>Murray County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
43 57 38.24864	95 51 12.16760	477165.241	141050.450	.066	2	ADJUSTMENT	1999	17648		
43 57 38.24865	95 51 12.16750	477165.249	141050.451	.066	2	ADJUSTMENT	1998	17655		

<u>NAD83(1986)</u>		<u>Geodetic Position</u>				<u>Murray County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
43 57 38.24531	95 51 12.15173	477166.402	141050.111	.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>
43 57 38.37226	95 51 11.09491			.100	2	CLASSICAL SURVEY	1982	16710

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>		<u>MN State Plane - South 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>		
2136698.274	683802.183	889361.728	15982442.145	.066	2	ADJUSTMENT	1999	17648		
2136698.281	683802.184	889361.735	15982442.146	.066	2	ADJUSTMENT	1998	17655		

<u>NAD83(1986)</u>		<u>MN State Plane - South 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>		
2136699.426	683801.820	889362.877	15982441.768	.066	2	ADJUSTMENT	1986	17289		

<u>NAD27</u>		<u>MN State Plane - South 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>
1512096.259	355725.884			.100	2	CLASSICAL SURVEY	1982	16710



Mn/DOT Name: ELLS

NGS Name: ELLS

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DQ3101](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	43 W	435713.20	955637.20	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>
2016	2016	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 69 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2016) Stamping: ELLS 2016

1.7 MILES NORTH OF CHANDLER, 1.75 MILES NORTH ALONG TRUNK HIGHWAY 91 FROM THE JUNCTION OF TRUNK HIGHWAY 91 AND COUNTY ROAD 4 IN CHANDLER, AT TRUNK HIGHWAY 91 MILEPOINT 35.6, 28.8 FEET WEST OF TRUNK HIGHWAY 91, 21.3 FEET NORTH OF A FIELD ENTRANCE, 1.5 FEET EAST OF A WITNESS POST.

Station Pair: 5107 K - MURRAY, 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>
1646.010	.016	2/1					VERTICAL ADJUSTMENT	2020	00000949
1645.978	.016	2/1					VERTICAL ADJUSTMENT	2017	00000903
1645.978	.016	2/1					VERTICAL CONTROL SURVEY	2016	VRUSS

Geoid Separations(ft): GEOID18 = -86.046 12B = -86.043 09 = -85.928 03 = -85.830

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/ELLS-DQ3101-3W-05APR2016.jpg	W	Apr 5, 2016
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/ELLS-DQ3101-2-05APR2016.jpg		Apr 5, 2016
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/ELLS-DQ3101-1-05APR2016.jpg		Apr 5, 2016

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



Mn/DOT Name: ET 1 JKP
 County: MURRAY, MN (Sheet 1)

NGS Name: ET 1 JKP

NGS ACRN: [PQ1065](#) [Get Map](#)
 NGS Quad / Sta Num : 44095323/
 USGS Quad: CURRIE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	108 N	40 W	440723.87	953759.05		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>
1966	1995	GOOD	Horz=? Vert=?	NO		PROJECTS 5 IN.	SEE DESCRIPTION

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

Description: (1966) **Stamping:** ET 1 JKP 1966

7.95 MILES SOUTH AND 0.8 MILE WEST OF TRACY, 5.5 MILES NORTH AND 9.5 MILES WEST OF WESTBROOK, 3.1 MILES
 SOUTHWEST ALONG COUNTY ROAD 11 FROM THE JUNCTION OF COUNTY ROAD 11 AND TRUNK HIGHWAY 14, THEN 5.4
 MILES SOUTHWEST ON COUNTY ROAD 38, 48.0 FEET SOUTH OF COUNTY ROAD 38, 519.0 FEET WEST OF A SOUTH FIELD
 ENTRANCE, 50.5 FEET EAST OF A SOUTH FENCE, 8.0 FEET WEST OF A FENCE 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>		
1552.162	.262		1464.682	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648		

Geoid Separations(ft): GEOID18 = -87.769 12B = -87.766 09 = -87.674 03 = -87.513

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Murray County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
44 07 23.87499	95 37 59.05469	535084.544	200372.949	.131	3	ADJUSTMENT	1999	17648		
44 07 23.87419	95 37 59.04529	535085.230	200372.869	.131	3	ADJUSTMENT	1998	17655		

<u>NAD83(1986)</u>		<u>Geodetic Position</u>		<u>Murray County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
44 07 23.87276	95 37 59.03948	535085.654	200372.725	.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>
44 07 24.00333	95 37 58.00411			.100	3	CLASSICAL SURVEY	1977	15976

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>		<u>MN State Plane - South 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>		
2195878.886	741852.380	949247.396	16039793.511	.131	3	ADJUSTMENT	1999	17648		
2195879.570	741852.286	949248.079	16039793.408	.131	3	ADJUSTMENT	1998	17655		

<u>NAD83(1986)</u>		<u>MN State Plane - South 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>		
2195879.990	741852.132	949248.498	16039793.249	.131	3	ADJUSTMENT	1986	17289		

<u>NAD27</u>		<u>MN State Plane - South 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>
1571276.684	413776.187			.100	3	CLASSICAL SURVEY	1977	15976



Mn/DOT Name: ET 2 JKP USGS

NGS Name: ET 2 JKP

County: MURRAY, MN (Sheet 1)

NGS ACRN: [PQ1066](#) [Get Map](#)
 NGS Quad / Sta Num : 44095323/
 USGS Quad: CURRIE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	40 W	440009.22	953835.07		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>
1966	1995	GOOD	Horz=? Vert=?	NO		PROJECTS 3 IN.	MARKER IS STEEL ROD

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

Description: (2002) **Stamping:** ET 2 JKP 1966

3.74 MILES NORTH OF AVOCA, 312.0 FEET NORTHEAST ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND NORTHEAST 1ST STREET, 0.5 MILE WEST-NORTHEAST ON GRAND AVENUE, THEN 3.2 MILES NORTH ON 210TH AVENUE, 70.0 FEET SOUTH OF A FIELD ENTRANCE WEST, 48.0 FEET WEST OF COUNTY ROAD 38, 5.7 FEET NORTH OF A POWER POLE, 2.6 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>		
1566.270	.197		1478.888	.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>		
1565.614						RECIPROCAL VERTICAL ANGLE	1981	HORZ		

Geoid Separations(ft): GEOID18 = -87.703 12B = -87.703 09 = -87.608 03 = -87.411

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Geodetic Position</u>				<u>Murray County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
44 00 09.21560	95 38 35.07034	532523.243	156351.010	.066	2	ADJUSTMENT	1999	17648		
44 00 09.21518	95 38 35.06437	532523.680	156350.968	.066	2	ADJUSTMENT	1998	17655		

<u>NAD83(1986)</u>		<u>Geodetic Position</u>				<u>Murray County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
44 00 09.21348	95 38 35.05617	532524.280	156350.797	.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>
44 00 09.34011	95 38 34.02149			.100	2	CLASSICAL SURVEY	1977	15976

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>		<u>MN State Plane - South 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>		
2192367.827	697901.382	945208.701	15995879.098	.066	2	ADJUSTMENT	1999	17648		
2192368.263	697901.331	945209.136	15995879.042	.066	2	ADJUSTMENT	1998	17655		

<u>NAD83(1986)</u>		<u>MN State Plane - South 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>		
2192368.858	697901.147	945209.729	15995878.851	.066	2	ADJUSTMENT	1986	17289		

<u>NAD27</u>		<u>MN State Plane - South 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>
1567765.582	369825.225			.100	2	CLASSICAL SURVEY	1977	15976



Mn/DOT Name: ET 2 RLM

NGS Name: ET 2 RLM

County: MURRAY, MN (Sheet 1)

NGS ACRN: [PQ1077](#) [Get Map](#)
 NGS Quad / Sta Num : 44095334/
 USGS Quad: CURRENT 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>
NW	26	108 N	43 W	440818.69	955838.34		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	1995	GOOD	Horz=? Vert=?	NO			SEE DESCRIPTION

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

Description: (1965) **Stamping:** ET 2 RLM 1965

6.54 MILES SOUTHEAST OF RUTHTON, 2.3 MILES SOUTH ALONG TRUNK HIGHWAY 23 FROM THE JUNCTION OF TRUNK HIGHWAY 23 AND GILBERTSON AVENUE, 0.3 MILE SOUTHEAST ON 180TH AVENUE, THEN 6.3 MILES ON 201ST STREET, 1.7 MILES WEST OF CURRANT LAKE, 34.0 FEET SOUTH OF AN EAST-WEST ROAD, 11.0 FEET EAST OF A SOUTH FIELD ENTRANCE, 4.0 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>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>	
1740.154	.262		1653.891	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648	

Geoid Separations(ft): GEOID18 = -86.440 12B = -86.437 09 = -86.352 03 = -86.217

Lat/Lon and County Coordinates (Feet)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 08 18.68669	95 58 38.34041	444693.946	205966.035	.131	3	ADJUSTMENT	1999	17648
44 08 18.68691	95 58 38.33754	444694.156	205966.057	.131	3	ADJUSTMENT	1998	17655

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 08 18.68566	95 58 38.32289	444695.223	205965.928	.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>
44 08 18.80428	95 58 37.22943			.100	3	CLASSICAL SURVEY	1977	15976

State Plane and UTM Coordinates (Feet)

<u>MN State Plane - South 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>
2105642.145	749396.934	859082.867	16048424.651	.131	3	ADJUSTMENT	1999	17648
2105642.354	749396.952	859083.077	16048424.666	.131	3	ADJUSTMENT	1998	17655

<u>MN State Plane - South 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>
2105643.419	749396.799	859084.140	16048424.500	.131	3	ADJUSTMENT	1986	17289

<u>MN State Plane - South 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>
1481041.730	421319.227			.100	3	CLASSICAL SURVEY	1977	15976



Mn/DOT Name: ET 27 JS

NGS Name: ET 27 JS

County: MURRAY, MN (Sheet 1)

NGS ACRN: [PQ1060](#) [Get Map](#)
 NGS Quad / Sta Num : 44095322/
 USGS Quad: DOVRAY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	108 N	39 W	440724.40	953045.41		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>
1966	1995	GOOD	Horz=? Vert=?	NO		FLUSH	SEE DESCRIPTION

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

Description: (1966) **Stamping:** ET 27 JS 1966

8.0 MILES SOUTH AND 5.5 MILES EAST OF TRACY, 5.5 MILES NORTH AND 3.5 MILES WEST OF WESTBROOK, 3.2 MILES EAST ALONG TRUNK HIGHWAY 14 FROM THE JUNCTION OF TRUNK HIGHWAY 14 AND 4TH STREET, 3.0 MILES SOUTH ON BALS A AVENUE/BUNKER AVENUE, 0.5 MILE EAST ON 241ST STREET, 5.0 MILES SOUTH ON 260TH AVENUE/COUNTY ROAD 90, THEN 1.5 MILES EAST ON 191ST STREET, 32.0 FEET NORTH OF AN EAST-WEST GRAVEL ROAD, 69.0 FEET EAST OF A FIELD NORTH ROAD, 15.0 FEET WEST OF A PRIVATE SOUTH FIELD ROAD, 4.0 FEET WEST OF A POWER POLE, 2.0 FEET SOUTH OF A FENCE, 1.0 FOOT EAST 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>
1450.784	.262		1362.868	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -88.205 12B = -88.208 09 = -88.100 03 = -87.972

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 07 24.40413	95 30 45.41131	566718.212	200500.929	.131	3	ADJUSTMENT	1999	17648
44 07 24.40167	95 30 45.39932	566719.088	200500.683	.131	3	ADJUSTMENT	1998	17655

NAD83(1986)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 07 24.40136	95 30 45.39708	566719.251	200500.651	.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>
44 07 24.53698	95 30 44.37925			.100	3	CLASSICAL SURVEY	1977	15976

State Plane and UTM Coordinates (Feet)

NAD83(1996)

<u>MN State Plane - South 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>
2227503.824	741297.388	980868.982	16038857.877	.131	3	ADJUSTMENT	1999	17648
2227504.694	741297.122	980869.849	16038857.601	.131	3	ADJUSTMENT	1998	17655

NAD83(1986)

<u>MN State Plane - South 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>
2227504.857	741297.088	980870.011	16038857.565	.131	3	ADJUSTMENT	1986	17289

NAD27

<u>MN State Plane - South 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>
1602901.178	413221.771			.100	3	CLASSICAL SURVEY	1977	15976



Mn/DOT Name: ET 3 JKP USGS

NGS Name: ET 3 JKP

County: MURRAY, MN (Sheet 1)

NGS ACRN: [PQ1057](#) [Get Map](#)
 NGS Quad / Sta Num : 44095322/
 USGS Quad: DOVRAY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	39 W	440028.82	953056.98		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>
1966	1995	GOOD	Horz=? Vert=YES	NO		PROJECTS 4 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: (1966) Stamping: ET 3 JKP 1966

3.41 MILES SOUTH-SOUTHEAST OF DOVRAY, 1.4 MILES EAST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND WOODMAN AVENUE, 2.9 MILES SOUTH ON 270TH AVENUE, THEN 0.4 MILE EAST ON 111TH STREET, 31.0 FEET NORTH OF A GRAVEL ROAD, 11.5 FEET WEST OF A FIELD ENTRANCE, 3.2 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>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>		
1557.412	.197		1469.662	.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>		
1557.116						RECIPROCAL VERTICAL ANGLE	1981	HORZ		

Geoid Separations(ft): GEOID18 = -88.035 12B = -88.035 09 = -87.933 03 = -87.789

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Geodetic Position</u>				<u>Murray County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
44 00 28.82129	95 30 56.97642	566002.642	158412.509	.066	2	ADJUSTMENT	1999	17648		
44 00 28.81827	95 30 56.96929	566003.164	158412.205	.066	2	ADJUSTMENT	1998	17655		

<u>NAD83(1986)</u>		<u>Geodetic Position</u>				<u>Murray County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
44 00 28.81836	95 30 56.96298	566003.625	158412.215	.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>		
44 00 28.95070	95 30 55.94705			.100	2	CLASSICAL SURVEY	1977	15976		

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>		<u>MN State Plane - South 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>		
2225880.118	699239.359	978740.193	15996816.161	.066	2	ADJUSTMENT	1999	17648		
2225880.634	699239.044	978740.705	15996815.840	.066	2	ADJUSTMENT	1998	17655		

<u>NAD83(1986)</u>		<u>MN State Plane - South 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>		
2225881.095	699239.044	978741.166	15996815.835	.066	2	ADJUSTMENT	1986	17289		

<u>NAD27</u>		<u>MN State Plane - South 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>		
1601277.400	371163.806			.100	2	CLASSICAL SURVEY	1977	15976		



Mn/DOT Name: ET 3 RLM

NGS Name: ET 3 RLM

County: MURRAY, MN (Sheet 1)

NGS ACRN: [PQ1071](#) [Get Map](#)
 NGS Quad / Sta Num : 44095331/
 USGS Quad: BALATON

<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	23	108 N	42 W	440818.39	955052.66		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	1995	NOT FOUND	Horz=? Vert=?	NO			SEE DESCRIPTION

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

Description: (1965) **Stamping:** ET 3 RLM 1965

9.61 MILES NORTH OF HADLEY, 2.0 MILES NORTH ALONG MAIN STREET SOUTH FROM THE JUNCTION OF MAIN STREET SOUTH AND 4TH AVENUE, 8.0 MILES NORTHEAST ON 110TH AVENUE/COUNTY ROAD 29, THEN 0.2 MILE WEST ON 201ST STREET, 8.0 FEET WEST OF A NORTH FIELD ENTRANCE, 4.0 FEET EAST OF A WITNESS MARKER.

* 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>
1693.566	.262		1606.752	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -87.054 12B = -87.047 09 = -86.972 03 = -86.817

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 08 18.38798	95 50 52.65540	478656.481	205875.633	.131	3	ADJUSTMENT	1999	17648
44 08 18.38828	95 50 52.65094	478656.806	205875.663	.131	3	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 08 18.38653	95 50 52.63827	478657.730	205875.485	.131	3	ADJUSTMENT	1986	17289

<u>NAD27</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 08 18.51016	95 50 51.56380			.100	3	CLASSICAL SURVEY	1977	15976

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2139590.290	748572.207	893029.702	16047191.570	.131	3	ADJUSTMENT	1999	17648
2139590.616	748572.230	893030.028	16047191.589	.131	3	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2139591.535	748572.032	893030.946	16047191.380	.131	3	ADJUSTMENT	1986	17289

<u>NAD27</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>MN State Plane - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1514989.440	420495.102			.100	3	CLASSICAL SURVEY	1977	15976



Mn/DOT Name: ET 4 RLM

NGS Name: ET 4 RLM

County: MURRAY, MN (Sheet 1)

NGS ACRN: [PQ1068](#) [Get Map](#)
 NGS Quad / Sta Num : 44095323/
 USGS Quad: CURRIE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	108 N	41 W	440633.60	954433.82	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>
1965	2015	GOOD	Horz=NO Vert=YES	YES		PROJECTS 3 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: (2007) Stamping: ET 4 RLM 1965

8.0 MILES NORTH OF SLAYTON, 8.3 MILES NORTH ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 30 IN SLAYTON, 220.0 FEET EAST OF TRUNK HIGHWAY 59, AT MILEPOINT 49.4, 46.0 FEET NORTH OF COUNTY ROAD 13/VALHALLORA, 26.0 FEET WEST OF CABLE MARKER NUMBER 9F10, 1.0 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>	
1574.702	.016	2/1					VERTICAL ADJUSTMENT	2017	00000903	
1574.702	.016	2/1					VERTICAL CONTROL SURVEY	2015	VGARV	
1574.702	.016	2/1					VERTICAL ADJUSTMENT	2010	00000628	
1574.702	.016	2/1					VERTICAL CONTROL SURVEY	2007	VSLAT	
1574.702	.016	2/1					VERTICAL ADJUSTMENT	1995	00000135	

<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>	
1574.019	.016	2/1					VERTICAL CONTROL SURVEY	1987	VSLAY	
1574.003	.033	3					VERTICAL CONTROL SURVEY	1967	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>	
1574.587	.262			1487.231	.197	2011	GPS - RTRN	2015	RTRN2015	
				1487.376	.016	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
				1487.477	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2386-B	
1574.702	.131			1487.645	.066	1996	HORIZONTAL ADJUSTMENT	2007	GPS2386	
1574.702	.131			1487.645	.066	1996	GPS - STATIC	2007	HSLAT	
				1487.477	.023	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300	
1574.702	.131			1487.628	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1919	
1574.702	.131			1487.645	.066	1996	GPS - STATIC	2003	HMURR	
1574.702	.262			1487.602	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648	

Geoid Separations(ft): GEOID18 = -87.362 12B = -87.355 09 = -87.273 03 = -87.106

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 06 33.59594	95 44 33.82201	506288.091	195253.625	.131	3	GPS - RTRN	2015	RTRN2015
44 06 33.59581	95 44 33.82274	506288.038	195253.611	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 06 33.59580	95 44 33.82369	506287.969	195253.610	.033	C	ADJUSTMENT	2011	GPS2386-B
44 06 33.59580	95 44 33.82369	506287.969	195253.610	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 06 33.59532	95 44 33.82300	506288.019	195253.562	.033	C	ADJUSTMENT	2007	GPS2386
44 06 33.59532	95 44 33.82300	506288.019	195253.562	.033	C	GPS - STATIC	2007	HSLAT
44 06 33.59531	95 44 33.82299	506288.020	195253.561	.033	C	ADJUSTMENT	2003	GPS1919
44 06 33.59532	95 44 33.82300	506288.019	195253.562	.033	C	GPS - STATIC	2003	HMURR
44 06 33.58882	95 44 33.82616	506287.789	195252.903	.131	3	ADJUSTMENT	1999	17648
44 06 33.58927	95 44 33.82010	506288.231	195252.949	.131	3	ADJUSTMENT	1998	17655

NAD83(1986)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 06 33.58638	95 44 33.81025	506288.950	195252.657	.131	3	ADJUSTMENT	1986	17289

NAD27

Geodetic Position						Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 06 33.71460	95 44 32.75989			.100	3	CLASSICAL SURVEY	1977	15976

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2166982.295	737356.919	920292.357	16035644.780	.131	3	GPS - RTRN	2015	RTRN2015
2166982.242	737356.908	920292.303	16035644.769	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2166982.173	737356.908	920292.234	16035644.770	.033	C	ADJUSTMENT	2011	GPS2386-B
2166982.173	737356.908	920292.234	16035644.770	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2166982.222	737356.858	920292.283	16035644.720	.033	C	ADJUSTMENT	2007	GPS2386
2166982.222	737356.858	920292.283	16035644.720	.033	C	GPS - STATIC	2007	HSLAT
2166982.222	737356.857	920292.283	16035644.718	.033	C	ADJUSTMENT	2003	GPS1919
2166982.222	737356.858	920292.283	16035644.720	.033	C	GPS - STATIC	2003	HMURR
2166981.977	737356.205	920292.030	16035644.069	.131	3	ADJUSTMENT	1999	17648
2166982.420	737356.241	920292.474	16035644.100	.131	3	ADJUSTMENT	1998	17655

NAD83(1986)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2166983.133	737355.933	920293.182	16035643.784	.131	3	ADJUSTMENT	1986	17289

NAD27

MN State Plane - South Zone						Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1542380.115	409279.691			.100	3	CLASSICAL SURVEY	1977	15976



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/ET_4_RLM-PQ1068-3N-16JUN2015.jpg	N	Jun 16, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/ET_4_RLM-PQ1068-2-16JUN2015.jpg		Jun 16, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/ET_4_RLM-PQ1068-1-16JUN2015.jpg		Jun 16, 2015

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



Mn/DOT Name: ET 5 FMT

NGS Name: ET 5 FMT

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP0877](#) [Get Map](#)
 NGS Quad / Sta Num : 43095441/
 USGS Quad: SLAYTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	42 W	435304.61	954925.48		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	2008	DESTROYED	Horz=NO Vert=NO	NO			NO MAG MATERIAL

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

Description: (1965) **Stamping:** ET 5 FMT 1965

15.53 MILES EAST AND 0.49 MILE NORTH OF EDGERTON, 0.7 MILE EAST ALONG TRUNK HIGHWAY 268 FROM THE JUNCTION OF TRUNK HIGHWAY 268 AND MAIN STREET, 0.5 MILE SOUTH ON 175TH AVENUE, 4.5 MILES EAST ON COUNTY ROAD 1, 0.5 MILE NORTH ON 20TH AVENUE, 9.8 MILES EAST ON 21ST STREET (COUNTY ROAD 1), THEN 0.6 MILE NORTH ON COUNTY ROAD 87, 31.0 FEET WEST OF A NORTH-SOUTH ROAD, 21.0 FEET NORTH OF AN EAST-WEST FIELD ENTRANCE, 4.0 FEET SOUTH AND 2.0 FEET EAST OF A SURVEY MARKER.

* 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>
1713.579	.262		1627.215	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -86.657 12B = -86.640 09 = -86.542 03 = -86.414

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 53 04.61291	95 49 25.47990	484950.151	113333.229	.131	3	ADJUSTMENT	1999	17648
43 53 04.61259	95 49 25.47952	484950.179	113333.197	.131	3	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 53 04.60937	95 49 25.46398	484951.317	113332.870	.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>
43 53 04.73610	95 49 24.41968			.100	3	CLASSICAL SURVEY	1977	15976

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2143881.438	655925.998	896214.780	15954475.092	.131	3	ADJUSTMENT	1999	17648
2143881.465	655925.965	896214.807	15954475.059	.131	3	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2143882.595	655925.614	896215.933	15954474.694	.131	3	ADJUSTMENT	1986	17289

<u>NAD27</u>						<u>Project Info</u>		
<u>MN State Plane - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1519278.837	327849.977			.100	3	CLASSICAL SURVEY	1977	15976



Mn/DOT Name: ET 5 RLM

NGS Name: ET 5 RLM

County: MURRAY, MN (Sheet 1)

NGS ACRN: [PQ1074](#) [Get Map](#)
 NGS Quad / Sta Num : 44095332/
 USGS Quad: HADLEY

<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	106 N	41 W	440009.06	954548.76		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	2012	DESTROYED	Horz=NO Vert=NO	NO		PROJECTS 4 IN.	SEE DESCRIPTION

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

Description: (1965) **Stamping:** ET 5 RLM 1965

1.09 MILES NORTHWEST OF SLAYTON, 0.4 MILE WEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND BROADWAY AVENUE, THEN 0.7 MILE NORTH ALONG MURRAY AVENUE/ 150TH AVENUE, 0.3 MILE SOUTH OF A TEE-ROAD SOUTH, TEE-ROAD APPROXIMATE CORNER OF SECTIONS OF 3, 4, 9 AND 10, 48.0 FEET SOUTH OF A FENCE CORNER AT THE NORTH END OF THE TREES, 28.0 FEET WEST OF A NORTH-SOUTH ROAD, 2.2 FEET EAST OF A NORTH-SOUTH FENCE, 4.0 FEET NORTH OF A WITNESS MARKER.

* 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>
1597.110	.262		1510.168	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -87.228 12B = -87.218 09 = -87.139 03 = -86.952

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 00 09.06465	95 45 48.75947	500821.656	156311.353	.131	3	ADJUSTMENT	1999	17648
44 00 09.06444	95 45 48.75650	500821.873	156311.332	.131	3	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 00 09.06128	95 45 48.74370	500822.808	156311.012	.131	3	ADJUSTMENT	1986	17289

<u>NAD27</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 00 09.19055	95 45 47.69361			.100	3	CLASSICAL SURVEY	1977	15976

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2160676.376	698546.559	913520.313	15996903.217	.131	3	ADJUSTMENT	1999	17648
2160676.592	698546.533	913520.530	15996903.188	.131	3	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2160677.521	698546.192	913521.454	15996902.837	.131	3	ADJUSTMENT	1986	17289

<u>NAD27</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>MN State Plane - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1536074.478	370470.421			.100	3	CLASSICAL SURVEY	1977	15976



Mn/DOT Name: ET 6 RLM USGS
 County: MURRAY, MN (Sheet 1)

NGS Name: ET 6 RLM

NGS ACRN: [OP0874](#) [Get Map](#)
 NGS Quad / Sta Num : 43095441/1031
 USGS Quad: SLAYTON

<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	106 N	42 W	435842.82	955130.80		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>
1976	2005	DESTROYED	Horz=NO Vert=NO	NO		PROJECTS 3 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: (2002) Stamping: ET 6 RLM 1965

1.25 MILES SOUTH OF HADLEY, 1.0 MILE SOUTH ON COUNTY ROAD 29 FROM THE JUNCTION OF COUNTY ROAD 29 AND TRUNK HIGHWAY 30 (TRUNK HIGHWAY 30 MILEPOINT 30.55), THEN 0.25 MILE WEST ON A GRAVEL ROAD, 75.0 FEET SOUTH OF A GRAVEL ROAD, 2.0 FEET EAST OF A FENCE, 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>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>
1800.193	.262		1713.832	.197	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>
1799.701						RECIPROCAL VERTICAL ANGLE	1981	HORZ

Geoid Separations(ft): GEOID18 = -86.578 12B = -86.548 09 = -86.470 03 = -86.355

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 58 42.82317	95 51 30.80178	475809.460	147591.271	.131	3	ADJUSTMENT	1999	17648
43 58 42.82320	95 51 30.80163	475809.471	147591.275	.131	3	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 58 42.81995	95 51 30.78618	475810.601	147590.944	.131	3	ADJUSTMENT	1986	17289

<u>NAD27</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 58 42.94833	95 51 29.72606			.100	3	CLASSICAL SURVEY	1977	15976
43 58 42.94893	95 51 29.74052			.100	3	CLASSICAL SURVEY	1950	UNK

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South 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>							
2135484.353	690370.073	888225.842	15989025.882	.131	3	ADJUSTMENT	1999	17648
2135484.364	690370.076	888225.853	15989025.885	.131	3	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South 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>							
2135485.486	690369.721	888226.971	15989025.516	.131	3	ADJUSTMENT	1986	17289

<u>NAD27</u>		<u>Murray County</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>
1510882.499	362293.856			.100	3	CLASSICAL SURVEY	1977	15976
1510881.440	362293.940			.100	3	CLASSICAL SURVEY	1950	UNK



Mn/DOT Name: ET 7 RLM

NGS Name: ET 7 RLM

County: MURRAY, MN (Sheet 1)

NGS ACRN: [PQ1076](#) [Get Map](#)
 NGS Quad / Sta Num : 44095333/
 USGS Quad: BALATON 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	11	106 N	43 W	440002.74	955901.58		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	1981	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	SURVEY DISK	USGS

Description: (1981)

Stamping: ET 7 RLM 1965

1.66 MILES NORTHWEST OF LAKE WILSON, 1.6 MILES WEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND COLLEGE AVENUE, THEN 0.6 MILE NORTH ON 40TH AVENUE.

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>	
1762.821	.033	3				VERTICAL CONTROL SURVEY	1967	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>	
1764.432	.262		1678.606	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648	

Geoid Separations(ft): GEOID18 = -860000 12B = -85.978 09 = -85.882 03 = -85.781

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

<u>Geodetic Position</u>		<u>Murray 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>	
44 00 02.74109	95 59 01.58444	442866.453	155746.210	.131	3	ADJUSTMENT	1999	17648	
44 00 02.74156	95 59 01.58408	442866.479	155746.257	.131	3	ADJUSTMENT	1998	17655	

NAD83(1986)

<u>Geodetic Position</u>		<u>Murray 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>	
44 00 02.73859	95 59 01.56818	442867.641	155745.953	.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>
44 00 02.86288	95 59 00.48512			.100	3	CLASSICAL SURVEY	1977	15976

State Plane and UTM Coordinates (Feet)

NAD83(1996)

<u>MN State Plane - South 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>	
2102729.068	699234.551	855568.348	15998283.173	.131	3	ADJUSTMENT	1999	17648	
2102729.095	699234.598	855568.375	15998283.219	.131	3	ADJUSTMENT	1998	17655	

NAD83(1986)

<u>MN State Plane - South 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>	
2102730.250	699234.269	855569.526	15998282.877	.131	3	ADJUSTMENT	1986	17289	

NAD27

<u>MN State Plane - South 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>
1478127.965	371157.772			.100	3	CLASSICAL SURVEY	1977	15976



Mn/DOT Name: F 12

NGS Name: F 12

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP0594](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	43 W	435541.00	955655.00	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	1987	NOT FOUND	Horz=? 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)	BENCH MARK DISK	NGS

Description: (1987) **Stamping:** F 12 1931 1650.367

IN CHANDLER, 58.0 FEET SOUTHWEST OF THE SOUTHWEST CORNER OF THE RAILROAD STATION, 28.0 FEET SOUTH OF THE SOUTH RAIL OF A RAILROAD, 15.0 FEET EAST OF A GRAVEL ROAD, 0.5 FOOT SOUTH OF A WITNESS POST-THE RAILROAD AND THE REFERENCE TIES HAVE BEEN REMOVED.

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>	
1651.637	.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>	
1650.974	.007	1/2					UNKNOWN/APPROXIMATE	1992	UNCHECKD	
1650.974	.033	3					VERTICAL CONTROL SURVEY	1983	USGS-VERT	
1650.974	.007	1					VERTICAL CONTROL SURVEY	1965	L92 MINN	
1650.974	.007	1					VERTICAL CONTROL SURVEY	1935	CUTLER-VERT	

Geoid Separations(ft): GEOID18 = -86.069 12B = -86.066 09 = -85.958 03 = -85.853

* No Horizontal Positions in the Database *



Mn/DOT Name: F 230

NGS Name: F 230

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP0606](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/1031
 USGS Quad: CHANDLER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	42 W	435332.81	955528.08	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	2015	GOOD	Horz=YES Vert=YES	YES		PROJECTS 3 IN.	MARKER IS STEEL ROD

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
COPPER CLAD ROD (NO SLEEVE) (DEPTH 22 FT)	BENCH MARK DISK	NGS

Description: (1988) Stamping: F 230 1963

2.5 MILES SOUTH-SOUTHEAST OF CHANDLER, 2.6 MILES SOUTH ON TRUNK HIGHWAY 91 FROM THE JUNCTION OF TRUNK HIGHWAY 91 AND COUNTY ROAD 4, THEN 1.0 MILE EAST ON A GRAVEL ROAD, 3.0 FEET NORTHWEST OF A POWER POLE, 10.5 FEET SOUTHEAST OF A POWER POLE, 35.0 FEET WEST OF A NORTH-SOUTH ROAD, 25.5 FEET NORTH OF AN EAST-WEST ROAD, 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>	
1774.075	.016	2/1					VERTICAL ADJUSTMENT	2020	00000949	
1774.025	.016	2/1					VERTICAL ADJUSTMENT	2017	00000903	
1774.025	.016	2/1					VERTICAL CONTROL SURVEY	2016	VRUSS	
1774.025	.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>	
1773.340	.007	1/2					UNKNOWN/APPROXIMATE	1992	UNCHECKD	
1773.340	.007	1					VERTICAL CONTROL SURVEY	1965	L92 MINN	

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>	
1774.012	.262			1687.989	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648	

Geoid Separations(ft): GEOID18 = -86.256 12B = -86.224 09 = -86.145 03 = -86.043

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>				<u>Murray 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>									
43 53 32.81253	95 55 28.07701			458398.146	116223.537	.131	3	ADJUSTMENT	1999	17648
43 53 32.81253	95 55 28.07701			458398.146	116223.537	.131	3	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>				<u>Murray 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>									
43 53 32.80964	95 55 28.06113			458399.308	116223.242	.131	3	ADJUSTMENT	1986	17289

<u>NAD27</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>									
43 53 32.93767	95 55 27.00856					.100	3	CLASSICAL SURVEY	1986	10744



State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - South 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>
2117400.716	659389.389	869769.693	15958253.446	.131	3	ADJUSTMENT	1999	17648
2117400.716	659389.389	869769.693	15958253.446	.131	3	ADJUSTMENT	1998	17655

NAD83(1986)

MN State Plane - South 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>
2117401.872	659389.069	869770.845	15958253.113	.131	3	ADJUSTMENT	1986	17289

NAD27

MN State Plane - South 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>
1492797.961	331313.444			.100	3	CLASSICAL SURVEY	1986	10744

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:			
Monument:			
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/F_230-OP0606-1-10MAY2016.jpg		May 10, 2016

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



Mn/DOT Name: FENTON

NGS Name: FENTON

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DR2707](#) [Get Map](#)
 NGS Quad / Sta Num : 44095322/
 USGS Quad: DOVRAY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	24	107 N	40 W	440325.74	953549.54	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2019	2019	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 29 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2019) **Stamping:** FENTON 2019

2.4 MILES WEST-NORTHWEST OF DOVRAY, 2.8 MILES WEST-NORTHWEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND COUNTY ROAD 42 IN DOVRAY, AT TRUNK HIGHWAY 30 MILEPOINT 49.20, 45.7 FEET NORTH OF TRUNK HIGHWAY 30, 26.7 FEET EAST OF A FIELD ENTRANCE, 1.5 FEET WEST OF A WITNESS POST.

Station Pair: WEST - MURRAY, MN

Leveling-Derived Orthometric Heights (Feet)

NAVD88 Orthometric Height			Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1561.549	.016	2/1				VERTICAL ADJUSTMENT	2020	00000949
1561.552	.016	2/1				VERTICAL CONTROL SURVEY	2019	VDRAY

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
1561.513	.131		1474.026	.066	1996	GPS - STATIC	2019	HDRAY
1561.532			1473.773	.020	2011	GPS - STATIC	2019	HDRAY
1561.532			1473.773	.020	2011	HORIZONTAL ADJUSTMENT	2019	GPS3311
1561.555	.262		1473.767	.197	2011	GPS - RTRN	2019	RTRN2019

Geoid Separations(ft): GEOID18 = -87.795 12B = -87.789 09 = -87.703 03 = -87.536

Lat/Lon and County Coordinates (Feet)

NAD83(2011) Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 03 25.73908	95 35 49.54032	544582.112	176274.270	.013	C	GPS - STATIC	2019	HDRAY
44 03 25.73908	95 35 49.54032	544582.112	176274.270	.013		ADJUSTMENT	2019	GPS3311
44 03 25.73902	95 35 49.54052	544582.097	176274.264	.131	3	GPS - RTRN	2019	RTRN2019

NAD83(1996) Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 03 25.73851	95 35 49.54045	544582.102	176274.212	.033	C	GPS - STATIC	2019	HDRAY

State Plane and UTM Coordinates (Feet)

NAD83(2011) MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2204852.685	717557.268	957930.418	16015387.703	.013	C	GPS - STATIC	2019	HDRAY
2204852.685	717557.268	957930.418	16015387.703	.013		ADJUSTMENT	2019	GPS3311
2204852.670	717557.262	957930.403	16015387.698	.131	3	GPS - RTRN	2019	RTRN2019

NAD83(1996) MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2204852.674	717557.210	957930.407	16015387.646	.033	C	GPS - STATIC	2019	HDRAY

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/FENTON-DR2707-3N-22APR2019.jpg	N	Apr 22, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/FENTON-DR2707-2-22APR2019.jpg		Apr 22, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/FENTON-DR2707-1-22APR2019.jpg		Apr 22, 2019

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



Mn/DOT Name: FLAGS

NGS Name: FLAGS

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DK2717](#) [Get Map](#)
 NGS Quad / Sta Num : 44095332/
 USGS Quad: HADLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	107 N	41 W	440146.19	954625.16	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>
2006	2019	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 20 FT)	SURVEY DISK	MNDT

Description: (2006) **Stamping:** FLAGS 2006

2.5 MILES NORTH OF SLAYTON, 2.55 MILES NORTH ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 30 IN SLAYTON TO TRUNK HIGHWAY 59 MILEPOINT 43.60, THEN 1.0 MILE WEST ALONG 126TH STREET, 33.7 FEET NORTH OF 126TH STREET, 31.9 FEET EAST OF 145TH AVENUE, 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>	
1600.633	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903	
1600.660	.016	2/1				VERTICAL CONTROL SURVEY	2015	VGARV	
1600.633	.016	2/1				VERTICAL ADJUSTMENT	2010	00000628	
1600.633	.016	2/1				VERTICAL CONTROL SURVEY	2007	VSLAT	

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>	
1600.643	.262		1513.425	.197	2011	GPS - OPUS	2019	GPSBM	
1600.689	.262		1513.471	.197	2011	GPS - RTRN	2019	RTRN2019	
1600.686	.262		1513.475	.197	2011	GPS - RTRN	2015	RTRN2015	
			1513.412	.011	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
1600.548	.262		1513.422	.197	2007	GPS - RTRN	2012	RTRN2012	
			1513.511	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2386-B	
1600.620	.131		1513.662	.066	1996	HORIZONTAL ADJUSTMENT	2007	GPS2386	
1600.620	.131		1513.662	.066	1996	GPS - STATIC	2007	HSLAT	

Geoid Separations(ft): GEOID18 = -87.218 12B = -87.211 09 = -87.126 03 = -86.932

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>			<u>Murray 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>								
44 01 46.19060	95 46 25.15573		498162.011	166147.263	.131	3	GPS - OPUS	2019	GPSBM
44 01 46.19080	95 46 25.15571		498162.013	166147.284	.131	3	GPS - RTRN	2019	RTRN2019
44 01 46.19028	95 46 25.15493		498162.070	166147.231	.131	3	GPS - RTRN	2015	RTRN2015
44 01 46.19063	95 46 25.15623		498161.974	166147.266	.007		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>			<u>Murray 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>								
44 01 46.19101	95 46 25.15672		498161.939	166147.305	.131	3	GPS - RTRN	2012	RTRN2012
44 01 46.19056	95 46 25.15702		498161.917	166147.259	.033	C	ADJUSTMENT	2011	GPS2386-B

<u>NAD83(1996)</u>			<u>Murray 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>								
44 01 46.19009	95 46 25.15636		498161.965	166147.212	.033	C	ADJUSTMENT	2007	GPS2386
44 01 46.19009	95 46 25.15636		498161.965	166147.212	.033	C	GPS - STATIC	2007	HSLAT

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15						Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
2158230.199	708436.509	911191.955	16006824.161	.131	3	GPS - OPUS	2019	GPSBM	
2158230.201	708436.529	911191.957	16006824.181	.131	3	GPS - RTRN	2019	RTRN2019	
2158230.256	708436.475	911192.012	16006824.126	.131	3	GPS - RTRN	2015	RTRN2015	
2158230.162	708436.513	911191.918	16006824.165	.007		ADJUSTMENT	2012	GPS2800	

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15						Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
2158230.127	708436.552	911191.884	16006824.205	.131	3	GPS - RTRN	2012	RTRN2012	
2158230.104	708436.507	911191.860	16006824.160	.033	C	ADJUSTMENT	2011	GPS2386-B	

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15						Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
2158230.152	708436.458	911191.907	16006824.111	.033	C	ADJUSTMENT	2007	GPS2386	
2158230.152	708436.458	911191.907	16006824.111	.033	C	GPS - STATIC	2007	HSLAT	

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/FLAGS-DK2717-3N-22OCT2019.jpg	N	Oct 22, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/FLAGS-DK2717-2-22OCT2019.jpg		Oct 22, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/FLAGS-DK2717-1-22OCT2019.jpg		Oct 22, 2019

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



Mn/DOT Name: FOW MNDT TEMP

NGS Name: FOW TEMP

County: MURRAY, MN (Sheet 1)

NGS ACRN: [PQ1064](#) [Get Map](#)
 NGS Quad / Sta Num : 44095322/
 USGS Quad: DOVRAY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	107 N	40 W	440210.63	953457.94		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>
1980	1980	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
PIPE (<10 FT)	UNMONUMENTED	MNDT

Description: (1980) **Stamping:** FOW 1980

2.0 MILES SOUTHWEST OF DOVRAY, 56.5 FEET SOUTH OF A GRAVEL ROAD (COUNTY ROAD 9), 11.0 FEET WEST OF A GRAVEL ROAD, 50.30 FEET SOUTHWEST OF A MINNESOTA DEPARTMENT OF TRANSPORTATION NAIL AND DISK IN A POWER POLE.

* 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>
1565.942	.197		1478.403	.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>
1565.614						RECIPROCAL VERTICAL ANGLE	1981	HORZ

Geoid Separations(ft): GEOID18 = -87.841 12B = -87.838 09 = -87.739 03 = -87.572

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 02 10.63451	95 34 57.94267	548367.274	168676.565	.066	2	ADJUSTMENT	1999	17648
44 02 10.63402	95 34 57.93288	548367.989	168676.517	.066	2	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 02 10.63219	95 34 57.92837	548368.319	168676.333	.066	2	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>
44 02 10.76456	95 34 56.90857			.100	2	CLASSICAL SURVEY	1982	16710

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2208472.473	709880.518	961458.543	16007666.753	.066	2	ADJUSTMENT	1999	17648
2208473.187	709880.455	961459.256	16007666.681	.066	2	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2208473.513	709880.263	961459.580	16007666.486	.066	2	ADJUSTMENT	1986	17289

<u>NAD27</u>						<u>Project Info</u>		
<u>MN State Plane - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1583869.565	381804.869			.100	2	CLASSICAL SURVEY	1982	16710



Mn/DOT Name: FUL MNDT TEMP

NGS Name: FUL TEMP

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP0837](#) [Get Map](#)
 NGS Quad / Sta Num : 43095411/
 USGS Quad: LIME CREEK

<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	105 N	40 W	435329.63	953655.27		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>
1980	1980	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
PIPE (<10 FT)	UNMONUMENTED	MNDT

Description: (1980) **Stamping:** FUL 1980

1.5 MILES NORTH-NORTHWEST OF FULDA, 0.65 MILE WEST ON COUNTY ROAD 72 FROM THE JUNCTION OF COUNTY ROAD 72 AND COUNTY ROAD 39, 19.5 FEET SOUTH OF COUNTY ROAD 72, 13.0 FEET EAST OF A FIELD ENTRANCE, 60.55 FEET SOUTH-SOUTHEAST OF A MINNESOTA DEPARTMENT OF TRANSPORTATION NAIL AND DISK IN A POWER POLE, 18.94 FEET NORTHWEST OF A MINNESOTA DEPARTMENT OF TRANSPORTATION NAIL AND DISK IN A FENCE 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>		
1541.335	.197		1453.839	.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>		
1540.811						RECIPROCAL VERTICAL ANGLE	1981	HORZ	

Geoid Separations(ft): GEOID18 = -87.894 12B = -87.880 09 = -87.752 03 = -87.562

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Murray 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>		
43 53 29.63215	95 36 55.26533	539893.024	115898.264	.066	2	ADJUSTMENT	1999	17648	
43 53 29.63214	95 36 55.26530	539893.026	115898.263	.066	2	ADJUSTMENT	1998	17655	

<u>NAD83(1986)</u>		<u>Murray 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>		
43 53 29.63070	95 36 55.24718	539894.353	115898.119	.066	2	ADJUSTMENT	1986	17289	

<u>NAD27</u>		<u>Murray 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>		
43 53 29.76092	95 36 54.22695			.100	2	CLASSICAL SURVEY	1982	16710	

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 - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
2198861.542	657303.198	951218.823	15955199.079	.066	2	ADJUSTMENT	1999	17648	
2198861.544	657303.197	951218.825	15955199.078	.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 - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
2198862.868	657303.025	951220.147	15955198.890	.066	2	ADJUSTMENT	1986	17289	

<u>NAD27</u>		<u>Murray County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
1574258.897	329227.913			.100	2	CLASSICAL SURVEY	1982	16710	



Mn/DOT Name: FULDA CABLE TV MAST

NGS Name: FULDA CABLE TV MAST

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP0835](#) [Get Map](#)
 NGS Quad / Sta Num : 43095411/
 USGS Quad: LIME CREEK

<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	23	105 N	40 W	435242.17	953610.57		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>
1981	2015	DESTROYED	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	MNDT

Description: (1981) Stamping:
 0.6 MILE NORTHWEST OF FULDA.

Station Notes
 THE TV MAST HAS BEEN REMOVED.

* No Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -87.933 12B = -87.916 09 = -87.789 03 = -87.598

Lat/Lon and County Coordinates (Feet)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 52 42.17081	95 36 10.56990	543175.786	111098.260	.328	4	ADJUSTMENT	1999	17648
43 52 42.17096	95 36 10.57016	543175.767	111098.275	.328	4	ADJUSTMENT	1998	17655

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 52 42.16972	95 36 10.55113	543177.161	111098.152	.328	4	ADJUSTMENT	1986	17289

<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>
43 52 42.30027	95 36 09.53250			.100	4	CLASSICAL SURVEY	1982	16710

State Plane and UTM Coordinates (Feet)

<u>MN State Plane - South 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>
2202039.574	652433.895	954339.220	15950291.534	.328	4	ADJUSTMENT	1999	17648
2202039.556	652433.911	954339.201	15950291.549	.328	4	ADJUSTMENT	1998	17655

<u>MN State Plane - South 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>
2202040.947	652433.758	954340.591	15950291.380	.328	4	ADJUSTMENT	1986	17289

<u>MN State Plane - South 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>
1577436.970	324358.740			.100	4	CLASSICAL SURVEY	1982	16710



Mn/DOT Name: FULDA INTERSTATE POWER CO MAST

NGS Name: FULDA INTERSTATE POWER CO MAST

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP0836](#) [Get Map](#)
 NGS Quad / Sta Num : 43095411/
 USGS Quad: LIME CREEK

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	23	105 N	40 W	435238.48	953624.98		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>
1981	2015	GOOD	Horz=NO Vert=NO	YES			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	MICROWAVE MAST	MNDT

Description: (1981)

Stamping:

0.56 MILE NORTHWEST OF FULDA, 0.55 MILE NORTH ALONG COUNTY ROAD 39 FROM THE JUNCTION OF COUNTY ROAD 39 AND COUNTY ROAD 2 IN FULDA, THEN 0.20 MILE WEST ON 21ST STREET, THEN 0.05 MILE NORTH ON DRIVEWAY NUMBER 2250.

* No Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -87.910 12B = -87.894 09 = -87.766 03 = -87.579

Lat/Lon and County Coordinates (Feet)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 52 38.47767	95 36 24.98217	542120.813	110722.196	.328	4	ADJUSTMENT	1999	17648
43 52 38.47815	95 36 24.98180	542120.840	110722.245	.328	4	ADJUSTMENT	1998	17655

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 52 38.47673	95 36 24.96328	542122.197	110722.104	.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>
43 52 38.60928	95 36 23.94823			.100	4	CLASSICAL SURVEY	1982	16710

State Plane and UTM Coordinates (Feet)

<u>MN State Plane - South 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>
2200976.828	652080.735	953272.181	15949950.980	.328	4	ADJUSTMENT	1999	17648
2200976.856	652080.782	953272.210	15949951.028	.328	4	ADJUSTMENT	1998	17655

<u>MN State Plane - South 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>
2200978.209	652080.612	953273.562	15949950.842	.328	4	ADJUSTMENT	1986	17289

<u>MN State Plane - South 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>
1576373.946	324005.803			.100	4	CLASSICAL SURVEY	1982	16710

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/FULDA_INTERSTATE_POWER_CO_MAST-OP0836-3N-10JUN2015.jpg	N	Jun 10, 2015
Monument:			
Disk:			

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



Mn/DOT Name: FULDA MNDT

NGS Name: FULDA

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP0832](#) [Get Map](#)
 NGS Quad / Sta Num : 43095411/
 USGS Quad: LIME CREEK

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	40 W	435329.54	953607.15	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>
1980	2016	GOOD	Horz=YES Vert=YES	YES		RECESSED 4 IN.	STEEL ROD IMBED IN MON

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

Description: (2011) **Stamping:** FULDA 1980

1.0 MILE NORTH OF FULDA, 1.1 MILES NORTH ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59, TRUNK HIGHWAY 62 AND COUNTY ROAD 2, TO HIGHWAY 59 MILEPOINT 29.75, THEN 0.15 MILE WEST ON COUNTY ROAD 3, 20.0 FEET NORTH OF COUNTY ROAD 3 (31ST STREET), 57.5 FEET EAST OF COUNTY ROAD 39 (230TH AVENUE), 74.0 FEET NORTH-NORTHWEST OF A POWER POLE, 37.6 FEET SOUTH-SOUTHWEST OF A WITNESS POST, 37.22 FEET SOUTH-SOUTHWEST OF FULDA MNDT RM 1.

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>
1524.607	.016	2/1				VERTICAL ADJUSTMENT		2017	00000903
1524.597	.016	2/1				VERTICAL CONTROL SURVEY		2015	VGARV
1524.623	.016	2/1				VERTICAL ADJUSTMENT		2013	00000792
1524.623	.016	2/1				VERTICAL CONTROL SURVEY		2012	VFULD
1524.623	.016	2/1				VERTICAL ADJUSTMENT		2010	00000628
1524.623	.016	2/1				VERTICAL CONTROL SURVEY		2007	VSLAT

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>
1524.607			1436.664	.019	2011	HORIZONTAL ADJUSTMENT		2018	GPS3119
1524.607	.131		1436.870	.066	1996	GPS - STATIC		2017	HMNCORS07
1524.607			1436.664	.019	2011	GPS - STATIC		2017	HMNPH
1524.623			1436.654	.012	2011	HORIZONTAL ADJUSTMENT		2016	GPS3142
1524.623	.131		1436.769	.066	1996	GPS - STATIC		2016	HGARV
1524.623			1436.654	.012	2011	GPS - STATIC		2016	HGARV
1524.492	.262		1436.549	.197	2011	GPS - RTRN		2015	RTRN2015
1524.541	.262		1436.595	.197	2011	GPS - RTRN		2015	RTRN2015
1524.623			1436.654	.011	2011	HORIZONTAL ADJUSTMENT		2014	GPS2962
1524.623			1436.618	.011	2011	GPS - STATIC		2014	HFULD
1524.574	.131		1436.949	.066	1996	GPS - STATIC		2013	HFULD
			1436.654	.008	2011	HORIZONTAL ADJUSTMENT		2012	GPS2800
1524.465	.262		1436.651	.197	2007	GPS - RTRN		2011	RTRN2011
			1436.749	.008	2007	HORIZONTAL ADJUSTMENT		2007	GPS2300
1524.505	.098		1436.893	.049	1996	GPS - STATIC		2005	GPS2036
1524.472	.131		1436.893	.066	1996	HORIZONTAL ADJUSTMENT		2003	GPS1919
1524.505	.131		1436.893	.066	1996	HORIZONTAL ADJUSTMENT		2003	GPS1889
1524.439	.131		1436.893	.066	1996	GPS - STATIC		2003	HMURR
1524.505	.131		1436.893	.066	1996	GPS - STATIC		2003	HJACK
1524.472	.131		1436.893	.066	1996	HORIZONTAL ADJUSTMENT		2003	GPS1780
1524.472	.131		1436.893	.066	1996	GPS - STATIC		2002	HNOBL
1524.570	.098		1437.012	.049	1996	HORIZONTAL ADJUSTMENT		1999	17648
1524.554	.098		1436.893	.049	1996	GPS - STATIC		1997	GPS805-B

<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>
1523.947						LEVELING		1981	HORZ

Geoid Separations(ft): GEOID18 = -87.956 12B = -87.946 09 = -87.815 03 = -87.624

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Murray 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>
43 53 29.54499	95 36 07.14716	543416.916	115896.192	.010		ADJUSTMENT	2018	GPS3119
43 53 29.54499	95 36 07.14716	543416.916	115896.192	.010	C	GPS - STATIC	2017	HMNPH
43 53 29.54428	95 36 07.14713	543416.918	115896.121	.007		ADJUSTMENT	2016	GPS3142
43 53 29.54428	95 36 07.14713	543416.918	115896.121	.007	C	GPS - STATIC	2016	HGARV
43 53 29.54508	95 36 07.14751	543416.890	115896.202	.131	3	GPS - RTRN	2015	RTRN2015
43 53 29.54536	95 36 07.14687	543416.937	115896.230	.131	3	GPS - RTRN	2015	RTRN2015
43 53 29.54428	95 36 07.14713	543416.918	115896.121	.007		ADJUSTMENT	2014	GPS2962
43 53 29.54442	95 36 07.14717	543416.915	115896.135	.007	C	GPS - STATIC	2014	HFULD
43 53 29.54428	95 36 07.14713	543416.918	115896.121	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Murray 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>
43 53 29.54511	95 36 07.14787	543416.864	115896.205	.131	3	GPS - RTRN	2011	RTRN2011
43 53 29.54421	95 36 07.14795	543416.858	115896.113	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Murray 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>
43 53 29.54470	95 36 07.14738	543416.900	115896.163	.033	C	GPS - STATIC	2017	HMNCORS07
43 53 29.54466	95 36 07.14776	543416.872	115896.159	.033	C	GPS - STATIC	2016	HGARV
43 53 29.54374	95 36 07.14748	543416.893	115896.066	.033	C	GPS - STATIC	2013	HFULD
43 53 29.54374	95 36 07.14748	543416.893	115896.066	.016	B	GPS - STATIC	2005	GPS2036
43 53 29.54374	95 36 07.14747	543416.893	115896.066	.033	C	ADJUSTMENT	2003	GPS1919
43 53 29.54374	95 36 07.14748	543416.893	115896.066	.033	C	ADJUSTMENT	2003	GPS1889
43 53 29.54374	95 36 07.14748	543416.893	115896.066	.033	C	GPS - STATIC	2003	HMURR
43 53 29.54374	95 36 07.14748	543416.893	115896.066	.033	C	GPS - STATIC	2003	HJACK
43 53 29.54374	95 36 07.14748	543416.893	115896.066	.033	C	ADJUSTMENT	2003	GPS1780
43 53 29.54374	95 36 07.14748	543416.893	115896.066	.033	C	GPS - STATIC	2002	HNOBL
43 53 29.54374	95 36 07.14748	543416.893	115896.066	.016	B	ADJUSTMENT	1999	17648
43 53 29.54374	95 36 07.14748	543416.893	115896.066	.016	B	GPS - STATIC	1997	GPS805-B

NAD83(1986)

Geodetic Position		Murray 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>
43 53 29.54232	95 36 07.12904	543418.244	115895.925	.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>
43 53 29.67335	95 36 06.11174			.100	2	CLASSICAL SURVEY	1982	16710

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2202384.223	657225.036	954740.894	15955078.994	.010		ADJUSTMENT	2018	GPS3119
2202384.223	657225.036	954740.894	15955078.994	.010	C	GPS - STATIC	2017	HMNPH
2202384.223	657224.964	954740.894	15955078.921	.007		ADJUSTMENT	2016	GPS3142
2202384.223	657224.964	954740.894	15955078.921	.007	C	GPS - STATIC	2016	HGARV
2202384.197	657225.046	954740.869	15955079.003	.131	3	GPS - RTRN	2015	RTRN2015
2202384.245	657225.073	954740.916	15955079.030	.131	3	GPS - RTRN	2015	RTRN2015
2202384.223	657224.964	954740.894	15955078.921	.007		ADJUSTMENT	2014	GPS2962
2202384.221	657224.979	954740.891	15955078.936	.007	C	GPS - STATIC	2014	HFULD
2202384.223	657224.964	954740.894	15955078.921	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2202384.171	657225.050	954740.842	15955079.007	.131	3	GPS - RTRN	2011	RTRN2011
2202384.163	657224.959	954740.834	15955078.917	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2202384.206	657225.007	954740.877	15955078.965	.033	C	GPS - STATIC	2017	HMNCORS07
2202384.178	657225.004	954740.849	15955078.961	.033	C	GPS - STATIC	2016	HGARV
2202384.197	657224.910	954740.866	15955078.868	.033	C	GPS - STATIC	2013	HFULD
2202384.197	657224.910	954740.866	15955078.868	.016	B	GPS - STATIC	2005	GPS2036
2202384.197	657224.910	954740.867	15955078.868	.033	C	ADJUSTMENT	2003	GPS1919
2202384.197	657224.910	954740.866	15955078.868	.033	C	ADJUSTMENT	2003	GPS1889
2202384.197	657224.910	954740.866	15955078.868	.033	C	GPS - STATIC	2003	HMURR
2202384.197	657224.910	954740.866	15955078.868	.033	C	GPS - STATIC	2003	HJACK
2202384.197	657224.910	954740.866	15955078.868	.033	C	ADJUSTMENT	2003	GPS1780
2202384.197	657224.910	954740.866	15955078.868	.033	C	GPS - STATIC	2002	HNOBL
2202384.197	657224.910	954740.866	15955078.868	.016	B	ADJUSTMENT	1999	17648
2202384.197	657224.910	954740.866	15955078.868	.016	B	GPS - STATIC	1997	GPS805-B

NAD83(1986)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2202385.544	657224.740	954742.212	15955078.681	.066	2	ADJUSTMENT	1986	17289

NAD27

MN State Plane - South 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>
1577781.460	329149.725			.100	2	CLASSICAL SURVEY	1982	16710

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/FULDA-OP0832-3N-10JUN2015.jpg	N	Jun 10, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/FULDA-OP0832-2-10JUN2015.jpg		Jun 10, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/FULDA-OP0832-1-10JUN2015.jpg		Jun 10, 2015

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



Mn/DOT Name: FULDA MNDT AZ MK

NGS Name: FULDA AZ MK

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP0834](#) [Get Map](#)
 NGS Quad / Sta Num : 43095411/
 USGS Quad: LIME CREEK

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	40 W	435515.56	953608.40	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>
1980	2025	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	MNDT

Description: (2015) Stamping: FULDA 1980

3.5 MILES NORTH OF FULDA, 3.55 MILES NORTH ON TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 62 AT FULDA TO TRUNK HIGHWAY 59 MILEPOINT 31.85, THEN 0.05 MILE EAST ON 51ST STREET, 90.0 FEET NORTH OF 51ST STREET, 12.0 FEET WEST OF 230TH AVENUE, 21.0 FEET NORTH-NORTHEAST OF A YIELD SIGNPOST, 7.5 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>		
1517.251	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903		
1517.251	.016	2/1				VERTICAL CONTROL SURVEY	2015	VGARV		
1517.320	.016	2/1				VERTICAL ADJUSTMENT	2010	00000628		
1517.323	.016	2/1				VERTICAL CONTROL SURVEY	2007	VSLAT		

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>		
1517.202	.262		1429.239	.197	2011	GPS - RTRN	2025	RTRN2025		
1517.320			1429.305	.019	2011	HORIZONTAL ADJUSTMENT	2016	GPS3142		
1517.251	.131		1429.439	.066	1996	GPS - STATIC	2016	HGARV		
1517.320			1429.305	.019	2011	GPS - STATIC	2016	HGARV		
1517.152	.262		1429.203	.197	2011	GPS - RTRN	2015	RTRN2015		
			1429.344	.019	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800		
			1429.436	.020	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300		
1517.189	.131		1429.564	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1919		
1517.156	.131		1429.561	.066	1996	GPS - STATIC	2003	HMURR		
1518.370	.197		1430.788	.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>		
1517.812						RECIPROCAL VERTICAL ANGLE	1981	HORZ		

Geoid Separations(ft): GEOID18 = -87.959 12B = -87.949 09 = -87.831 03 = -87.638



Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 55 15.56288	95 36 08.40194	543303.617	126632.135	.131	3	GPS - RTRN	2025	RTRN2025
43 55 15.56296	95 36 08.40105	543303.682	126632.143	.010		ADJUSTMENT	2016	GPS3142
43 55 15.56296	95 36 08.40105	543303.682	126632.143	.010	C	GPS - STATIC	2016	HGARV
43 55 15.56270	95 36 08.40150	543303.649	126632.117	.131	3	GPS - RTRN	2015	RTRN2015
43 55 15.56288	95 36 08.39951	543303.795	126632.135	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 55 15.56282	95 36 08.40029	543303.738	126632.129	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 55 15.56274	95 36 08.40177	543303.630	126632.121	.033	C	GPS - STATIC	2016	HGARV
43 55 15.56234	95 36 08.39956	543303.791	126632.080	.033	C	ADJUSTMENT	2003	GPS1919
43 55 15.56235	95 36 08.39956	543303.791	126632.081	.033	C	GPS - STATIC	2003	HMURR
43 55 15.56252	95 36 08.39646	543304.018	126632.099	.066	2	ADJUSTMENT	1999	17648
43 55 15.56254	95 36 08.39593	543304.057	126632.101	.066	2	ADJUSTMENT	1998	17655

NAD83(1986)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 55 15.56092	95 36 08.37850	543305.333	126631.940	.066	2	ADJUSTMENT	1986	17289

NAD27

Geodetic Position						Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 55 15.69258	95 36 07.36239			.100	2	CLASSICAL SURVEY	1982	16710

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2202502.774	667959.848	954987.289	15965813.365	.131	3	GPS - RTRN	2025	RTRN2025
2202502.839	667959.855	954987.354	15965813.371	.010		ADJUSTMENT	2016	GPS3142
2202502.839	667959.855	954987.354	15965813.371	.010	C	GPS - STATIC	2016	HGARV
2202502.806	667959.829	954987.321	15965813.346	.131	3	GPS - RTRN	2015	RTRN2015
2202502.952	667959.845	954987.467	15965813.359	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2202502.894	667959.840	954987.410	15965813.355	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2202502.786	667959.833	954987.301	15965813.350	.033	C	GPS - STATIC	2016	HGARV
2202502.947	667959.790	954987.461	15965813.305	.033	C	ADJUSTMENT	2003	GPS1919
2202502.947	667959.791	954987.461	15965813.306	.033	C	GPS - STATIC	2003	HMURR
2202503.174	667959.804	954987.689	15965813.316	.066	2	ADJUSTMENT	1999	17648
2202503.213	667959.805	954987.727	15965813.317	.066	2	ADJUSTMENT	1998	17655

NAD83(1986)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2202504.485	667959.616	954988.998	15965813.113	.066	2	ADJUSTMENT	1986	17289

NAD27

MN State Plane - South Zone						Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1577900.274	339884.558			.100	2	CLASSICAL SURVEY	1982	16710



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/FULDA_AZ_MK-OP0834-3W-05AUG2025.jpg	W	Aug 5, 2025
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/FULDA_AZ_MK-OP0834-2-05AUG2025.jpg		Aug 5, 2025
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/FULDA_AZ_MK-OP0834-1-05AUG2025.jpg		Aug 5, 2025

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



Mn/DOT Name: FULDA MNDT RM 1

NGS Name: FULDA RM 1

County: MURRAY, MN (Sheet 1)

NGS ACRN: [CO3128](#) [Get Map](#)
 NGS Quad / Sta Num : 43095411/
 USGS Quad: LIME CREEK

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	13	105 N	40 W	435329.91	953607.08	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1980	2015	GOOD	Horz=YES Vert=YES	YES		FLUSH	STEEL ROD IMBED IN MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	MNDT

Description: (1980) **Stamping:** FULDA NO 1 1980

1.0 MILE NORTH OF FULDA, 1.1 MILES NORTH ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59, TRUNK HIGHWAY 62 AND COUNTY ROAD 2, TO HIGHWAY 59 MILEPOINT 29.75, THEN 0.15 MILE WEST ON COUNTY ROAD 3, 37.22 FEET NORTH-NORTHEAST OF STATION FULDA, 58.0 FEET NORTH OF COUNTY ROAD 3 (31ST STREET), 63.5 FEET EAST OF COUNTY ROAD 39 (230TH AVENUE), 21.5 FEET WEST OF A POWER POLE, 2.0 FEET WEST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

NAVD88				Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Determination Method	Year	Reference				
1521.454	.016	2/1	VERTICAL ADJUSTMENT	2017	00000903				
1521.447	.016	2/1	VERTICAL CONTROL SURVEY	2015	VGARV				
1521.454	.016	2/1	VERTICAL ADJUSTMENT	2013	00000792				
1521.454	.016	2/1	VERTICAL CONTROL SURVEY	2012	VFULD				
1521.454	.016	2/1	VERTICAL ADJUSTMENT	2010	00000628				
1521.454	.016	2/1	VERTICAL CONTROL SURVEY	2007	VSLAT				

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88				Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Determination Method	Year	Reference				
1521.421	.262		GPS - RTRN	2015	RTRN2015				
1521.290	.262		GPS - RTRN	2011	RTRN2011				

Geoid Separations(ft): GEOID18 = -87.956 12B = -87.946 09 = -87.815 03 = -87.624

Lat/Lon and County Coordinates (Feet)

NAD83(2011)		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 53 29.90947	95 36 07.08398	543421.469	115933.112	.131	3	GPS - RTRN	2015	RTRN2015

NAD83(2007)		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 53 29.90938	95 36 07.08500	543421.394	115933.102	.131	3	GPS - RTRN	2011	RTRN2011

State Plane and UTM Coordinates (Feet)

NAD83(2011)		UTM - Zone 15				Project Info		
MN State Plane - South Zone		X	Y	Acc	Order	Determination Method	Year	Reference
2202389.571	657261.845	954746.681	15955115.742	.131	3	GPS - RTRN	2015	RTRN2015

NAD83(2007)		UTM - Zone 15				Project Info		
MN State Plane - South Zone		X	Y	Acc	Order	Determination Method	Year	Reference
2202389.496	657261.837	954746.606	15955115.735	.131	3	GPS - RTRN	2011	RTRN2011

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/FULDA_RM_1-CO3128-3N-17MAY2011.jpg	N	May 17, 2011
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/FULDA_RM_1-CO3128-2-17MAY2011.jpg		May 17, 2011
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/FULDA_RM_1-CO3128-1-17MAY2011.jpg		May 17, 2011

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



Mn/DOT Name: FULDA MNDT RM 2

NGS Name: FULDA RM 2

County: MURRAY, MN (Sheet 1)

NGS ACRN: [CO3129](#) [Get Map](#)
 NGS Quad / Sta Num : 43095411/
 USGS Quad: LIME CREEK

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	40 W	435329.79	953606.36		

<u>Year Set</u>	<u>Last Recovery</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	2011	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	STEEL ROD IMBED IN MON

Monument Type
 UNKNOWN

Disk Type
 REFERENCE MARK DISK

Mon. Agency
 MNDT

Description: (1980)

Stamping: FULDA NO 2 1980

1.50 MILES NORTH OF FULDA, 0.4 MILE NORTH ALONG NORTH LAFAYETTE AVENUE FROM THE JUNCTION OF NORTH LAFAYETTE AVENUE AND WEST FRONT STREET, 305.0 FEET NORTHWEST ON COLUMBIA AVENUE, 102.0 FEET NORTH-NORTHWEST ON IRELAND AVENUE, THEN 1.0 MILE NORTH ON 230TH AVENUE, 46.2 FEET NORTH OF THE CENTERLINE OF COUNTY ROAD 3, 116.0 FEET EAST OF THE CENTERLINE OF COUNTY ROAD 39, 103.0 FEET NORTH-NORTHEAST OF A POWER POLE, 52.0 FEET EAST-SOUTHEAST OF A STEEL WITNESS POST.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -87.956 12B = -87.946 09 = -87.815 03 = -87.624



Mn/DOT Name: FULDA MUNICIPAL TANK

NGS Name: FULDA MUNICIPAL TANK

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP0838](#) [Get Map](#)
 NGS Quad / Sta Num : 43095412/1021
 USGS Quad: FULDA

<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	105 N	40 W	435215.32	953604.58		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>
1934	2015	DESTROYED	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: (1934)

Stamping:

453.8 FEET NORTHWEST OF FULDA, 377.0 FEET NORTH ALONG NORTH LAFAYETTE AVENUE AND WEST FRONT STREET, THEN 112.0 FEET EAST ON 2ND STREET NORTHWEST.

Station Notes

NEW TANK IN PLACE.

* No Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -87.926 12B = -87.903 09 = -87.775 03 = -87.595

Lat/Lon and County Coordinates (Feet)

<u>Geodetic Position</u>		<u>Murray County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 52 15.32385	95 36 04.58379	543619.724	108380.433	.328	4	ADJUSTMENT	1999	17648
43 52 15.32330	95 36 04.58392	543619.715	108380.377	.328	4	ADJUSTMENT	1998	17655

<u>Geodetic Position</u>		<u>Murray County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 52 15.32291	95 36 04.56499	543621.102	108380.340	.328	4	ADJUSTMENT	1986	17289

<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>
43 52 15.46000	95 36 03.55000			.100	4	CLASSICAL SURVEY	1941	04905

State Plane and UTM Coordinates (Feet)

<u>MN State Plane - South 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>
2202424.682	649707.376	954691.942	15947560.203	.328	4	ADJUSTMENT	1999	17648
2202424.672	649707.320	954691.931	15947560.147	.328	4	ADJUSTMENT	1998	17655

<u>MN State Plane - South 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>
2202426.057	649707.253	954693.316	15947560.064	.328	4	ADJUSTMENT	1986	17289

<u>MN State Plane - South 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>
1577821.849	321632.932			.100	4	CLASSICAL SURVEY	1941	04905



Mn/DOT Name: FULDA WATER TANK

NGS Name: FULDA WATER TANK

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 43095412/
 USGS Quad: FULDA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	25	105 N	40 W	435216.00	953605.00		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1981	2015	GOOD	Horz=NO Vert=NO	YES			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	SURVEY DISK	MNDT

Description: (1981)

Stamping:

IN THE CENTER OF FULDA, 0.45 MILE WEST ALONG COUNTY ROAD 2 FROM THE JUNCTION OF COUNTY ROAD 2 AND TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 62 IN FULDA. STATION FULDA WATER TANK IS THE FINIAL AT THE TOP OF THE TANK.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -87.926 12B = -87.903 09 = -87.775 03 = -87.592

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/FULDA_WATER_TANK-3SW-10JUN2015.jpg	SW	Jun 10, 2015
Monument:			
Disk:			

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



Mn/DOT Name: G 12

NGS Name: G 12

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP0595](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	42 W	435520.00	955412.00	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	2021	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: (1931) **Stamping:** 1714.859 G 12 1931

2.7 MILES EAST ON A RAILROAD FROM THE RAILROAD STATION AT CHANDLER, 56.0 FEET SOUTHEAST OF THE JUNCTION OF THE SOUTH RAIL OF A RAILROAD AND A GRAVEL ROAD, 46.4 FEET SOUTH OF THE SOUTH RAIL OF THE RAILROAD TRACKS, 2.6 FEET NORTHEAST OF A RIGHT-OF-WAY FENCE CORNER.

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>	
1715.525	.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>	
1714.859	.007	1/2					UNKNOWN/APPROXIMATE	1992	UNCHECKD	
1714.859	.007	1					VERTICAL CONTROL SURVEY	1942	L92 MINN	
1714.859	.007	1					VERTICAL CONTROL SURVEY	1935	CUTLER-VERT	

Geoid Separations(ft): GEOID18 = -86.227 12B = -86.230 09 = -86.122 03 = -86.004

* No Horizontal Positions in the Database *



Mn/DOT Name: GERT

NGS Name: GERT

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DO7212](#) [Get Map](#)
 NGS Quad / Sta Num : 43095143/
 USGS Quad: DUNDEE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	39 W	435145.14	952745.66	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>
2011	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 20 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2013) Stamping: GERT 2011

6.5 MILES EAST OF FULDA, 1.07 MILE NORTH-NORTHEAST OF DUNDEE, 6.6 MILES EAST ALONG TRUNK HIGHWAY 62 FROM THE JUNCTION OF TRUNK HIGHWAY 62 AND TRUNK HIGHWAY 59 IN FULDA, AT TRUNK HIGHWAY 62 MILEPOINT 6.6, 60.3 FEET NORTH OF TRUNK HIGHWAY 62, 45.4 FEET WEST OF EXTENDED COUNTY HIGHWAY TO THE SOUTH (300TH AVENUE), 59.8 FEET WEST OF A FIELD ENTRANCE, 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>	
1446.368	.016	2/1				VERTICAL ADJUSTMENT	2013	00000792	
1446.372	.016	2/1				VERTICAL CONTROL SURVEY	2012	VFULD	

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>	
1446.460	.262		1357.953	.197	2011	GPS - RTRN	2023	RTRN2023	
1446.372			1357.881	.014	2011	HORIZONTAL ADJUSTMENT	2014	GPS2962	
1446.372			1357.881	.014	2011	GPS - STATIC	2014	HFULD	
1446.372	.131		1358.153	.066	1996	GPS - STATIC	2013	HFULD	
1446.529	.262		1358.163	.197	2007	GPS - RTRN	2011	RTRN2011	

Geoid Separations(ft): GEOID18 = -88.507 12B = -88.487 09 = -88.366 03 = -88.218

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Murray 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>	
43 51 45.14127	95 27 45.66466	580181.293	105428.038	.131	3	GPS - RTRN	2023	RTRN2023	
43 51 45.14050	95 27 45.66401	580181.341	105427.960	.013		ADJUSTMENT	2014	GPS2962	
43 51 45.14050	95 27 45.66401	580181.341	105427.960	.013	C	GPS - STATIC	2014	HFULD	

<u>NAD83(2007)</u>		<u>Murray 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>	
43 51 45.14075	95 27 45.66423	580181.325	105427.985	.131	3	GPS - RTRN	2011	RTRN2011	

<u>NAD83(1996)</u>		<u>Murray 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>	
43 51 45.14010	95 27 45.66407	580181.337	105427.920	.033	C	GPS - STATIC	2013	HFULD	

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2238910.547	645966.757	991135.343	15943385.407	.131	3	GPS - RTRN	2023	RTRN2023
2238910.593	645966.679	991135.388	15943385.328	.013		ADJUSTMENT	2014	GPS2962
2238910.593	645966.679	991135.388	15943385.328	.013	C	GPS - STATIC	2014	HFULD

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2238910.577	645966.704	991135.373	15943385.354	.131	3	GPS - RTRN	2011	RTRN2011

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2238910.588	645966.638	991135.383	15943385.288	.033	C	GPS - STATIC	2013	HFULD

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/GERT-DO7212-3N-06SEP2023.jpg	N	Sep 6, 2023
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/GERT-DO7212-2-06SEP2023.jpg		Sep 6, 2023
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/GERT-DO7212-1-06SEP2023.jpg		Sep 6, 2023

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



Mn/DOT Name: GIESE

NGS Name: GIESE

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DK2718](#) [Get Map](#)
 NGS Quad / Sta Num : 43095414/
 USGS Quad: AVOCA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	41 W	435911.30	954445.88	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>
2006	2021	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: (2006) **Stamping:** GIESE 2006

IN SLAYTON, 0.5 MILE SOUTHEAST ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 30 IN SLAYTON, AT TRUNK HIGHWAY 59 MILEPOINT 40.6, 72.8 FEET SOUTHWEST OF TRUNK HIGHWAY 59, 12.4 FEET NORTHWEST OF AN ENTRANCE, 4.2 FEET SOUTHEAST OF A WITNESS POST.

Station Pair: MURRAY - MURRAY, 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>		
1571.332	.016	2/1							VERTICAL ADJUSTMENT	2017	00000903	
1571.339	.016	2/1							VERTICAL CONTROL SURVEY	2015	VGARV	
1571.319	.016	2/1							VERTICAL ADJUSTMENT	2010	00000628	
1571.319	.016	2/1							VERTICAL CONTROL SURVEY	2007	VSLAT	

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>		
1571.345	.262					1484.049	.197	2011	GPS - OPUS	2021	GPSBM	
1571.293	.262					1484.016	.197	2011	GPS - RTRN	2015	RTRN2015	
						1484.052	.012	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
1571.201	.262					1484.000	.197	2007	GPS - RTRN	2012	RTRN2012	
						1484.144	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2386-B	
1571.322	.131					1484.292	.066	1996	HORIZONTAL ADJUSTMENT	2007	GPS2386	
1571.322	.131					1484.292	.066	1996	GPS - STATIC	2007	HSLAT	

Geoid Separations(ft): GEOID18 = -87.296 12B = -87.280 09 = -87.201 03 = -87.021

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
43 59 11.30053	95 44 45.88253	505419.268	150462.321	.131	3	GPS - OPUS	2021	GPSBM	
43 59 11.30071	95 44 45.88133	505419.356	150462.339	.131	3	GPS - RTRN	2015	RTRN2015	
43 59 11.30082	95 44 45.88187	505419.317	150462.351	.007		ADJUSTMENT	2012	GPS2800	

<u>NAD83(2007)</u>		<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
43 59 11.30028	95 44 45.88253	505419.268	150462.296	.131	3	GPS - RTRN	2012	RTRN2012	
43 59 11.30075	95 44 45.88271	505419.255	150462.343	.033	C	ADJUSTMENT	2011	GPS2386-B	

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
43 59 11.30028	95 44 45.88205	505419.303	150462.296	.033	C	ADJUSTMENT	2007	GPS2386	
43 59 11.30028	95 44 45.88205	505419.303	150462.296	.033	C	GPS - STATIC	2007	HSLAT	

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2165146.018	692600.207	917919.678	15990902.478	.131	3	GPS - OPUS	2021	GPSBM
2165146.106	692600.223	917919.766	15990902.494	.131	3	GPS - RTRN	2015	RTRN2015
2165146.067	692600.235	917919.727	15990902.506	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2165146.017	692600.182	917919.677	15990902.453	.131	3	GPS - RTRN	2012	RTRN2012
2165146.005	692600.230	917919.665	15990902.501	.033	C	ADJUSTMENT	2011	GPS2386-B

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2165146.052	692600.181	917919.712	15990902.452	.033	C	ADJUSTMENT	2007	GPS2386
2165146.052	692600.181	917919.712	15990902.452	.033	C	GPS - STATIC	2007	HSLAT

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/GIESE-DK2718-3SW-28APR2021.jpg	SW	Apr 28, 2021
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/GIESE-DK2718-2-28APR2021.jpg		Apr 28, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/GIESE-DK2718-1-28APR2021.jpg		Apr 28, 2021

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



Mn/DOT Name: GRACE

NGS Name: GRACE

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DQ7175](#) [Get Map](#)
 NGS Quad / Sta Num : 43095441/
 USGS Quad: SLAYTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	41 W	435934.53	954734.13	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	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 15 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2011) Stamping: GRACE 2011

2.0 MILES WEST OF SLAYTON, 2.1 MILES WEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND TRUNK HIGHWAY 59 IN SLAYTON, AT TRUNK HIGHWAY 30 MILEPOINT 33.65, 46.6 FEET SOUTH OF TRUNK HIGHWAY 30, 17.2 FEET EAST OF A FIELD ENTRANCE, 2.8 FEET WEST OF A WITNESS POST.

Station Pair: MILDRED - MURRAY, 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>	
1617.930	.016	2/1				2017	00000903	VERTICAL ADJUSTMENT		2017	00000903	
1617.930	.016	2/1				2015	VWLSN	VERTICAL CONTROL SURVEY		2015	VWLSN	
1617.930	.016	2/1				2013	00000792	VERTICAL ADJUSTMENT		2013	00000792	
1617.930	.016	2/1				2012	VIONA	VERTICAL CONTROL SURVEY		2012	VIONA	

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>	
1617.881	.262		1530.834	.197	2011	2021	GPSBM	GPS - OPUS		2021	GPSBM	
1617.864	.262		1530.837	.197	2011	2015	RTRN2015	GPS - RTRN		2015	RTRN2015	
1617.930			1530.853	.010	2011	2014	GPS2998	HORIZONTAL ADJUSTMENT		2014	GPS2998	
1617.930			1530.853	.010	2011	2014	HIONA	GPS - STATIC		2014	HIONA	
1617.890	.262		1530.942	.197	2007	2012	RTRN2012	GPS - RTRN		2012	RTRN2012	
1617.943	.131		1531.145	.066	1996	2012	HIONA	GPS - STATIC		2012	HIONA	

Geoid Separations(ft): GEOID18 = -87.047 12B = -87.027 09 = -86.949 03 = -86.785

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
43 59 34.52640	95 47 34.13166	493118.094	152814.786	.131	3	GPS - OPUS	2021	GPSBM	
43 59 34.52719	95 47 34.13098	493118.144	152814.866	.131	3	GPS - RTRN	2015	RTRN2015	
43 59 34.52671	95 47 34.13124	493118.125	152814.818	.010		ADJUSTMENT	2014	GPS2998	
43 59 34.52671	95 47 34.13124	493118.125	152814.818	.010	C	GPS - STATIC	2014	HIONA	
<u>NAD83(2007)</u>		<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
43 59 34.52732	95 47 34.13097	493118.145	152814.879	.131	3	GPS - RTRN	2012	RTRN2012	
<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
43 59 34.52616	95 47 34.13152	493118.105	152814.762	.033	C	GPS - STATIC	2012	HIONA	

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2152899.923	695217.673	905702.710	15993666.623	.131	3	GPS - OPUS	2021	GPSBM
2152899.975	695217.751	905702.762	15993666.702	.131	3	GPS - RTRN	2015	RTRN2015
2152899.955	695217.703	905702.742	15993666.654	.010		ADJUSTMENT	2014	GPS2998
2152899.955	695217.703	905702.742	15993666.654	.010	C	GPS - STATIC	2014	HIONA

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2152899.976	695217.764	905702.764	15993666.715	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2152899.933	695217.648	905702.719	15993666.599	.033	C	GPS - STATIC	2012	HIONA

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/GRACE-DO7175-3S-28APR2021.jpg	S	Apr 28, 2021
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/GRACE-DO7175-2-28APR2021.jpg		Apr 28, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/GRACE-DO7175-1-28APR2021.jpg		Apr 28, 2021

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



Mn/DOT Name: H 12

NGS Name: H 12

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP0596](#) [Get Map](#)
 NGS Quad / Sta Num : 43095441/
 USGS Quad: SLAYTON

<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	105 N	42 W	435519.86	955037.27	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	2021	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>
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	NGS

Description: (1931) **Stamping:** 1709.721 H 12 1931

3.0 MILES WEST-NORTHWEST OF IONA, 3.25 MILES WEST AND NORTH ALONG COUNTY ROAD 4 FROM THE JUNCTION OF COUNTY ROAD 4 AND TRUNK HIGHWAY 267 IN IONA, THEN 0.10 MILE NORTH ON 110TH AVENUE, 30.9 FEET EAST OF 110TH AVENUE, 2.8 FEET SOUTH-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>		
1710.367	.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>		
1709.721	.007	1/2				UNKNOWN/APPROXIMATE	1992	UNCHECKD		
1709.721	.033	3				VERTICAL CONTROL SURVEY	1983	USGS-VERT		
1709.721	.007	1				VERTICAL CONTROL SURVEY	1942	L92 MINN		
1709.721	.007	1				VERTICAL CONTROL SURVEY	1935	CUTLER-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>		
1710.459	.262		1623.934	.197	2011	GPS - OPUS	2021	GPSBM		
1710.436	.262		1623.911	.197	2011	GPS - OPUS	2021	GPSBM		

Geoid Separations(ft): GEOID18 = -86.529 12B = -86.529 09 = -86.427 03 = -86.296

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Murray 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>	
43 55 19.86712	95 50 37.27493	479704.510	127034.327	.131	3	GPS - OPUS	2021	GPSBM	
43 55 19.86686	95 50 37.27500	479704.504	127034.300	.131	3	GPS - OPUS	2021	GPSBM	

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 - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
		891430.174	15968346.420	.131	3	GPS - OPUS	2021	GPSBM	
		891430.168	15968346.394	.131	3	GPS - OPUS	2021	GPSBM	

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/H_12-OP0596-3E-28APR2021.jpg	E	Apr 28, 2021
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/H_12-OP0596-2-28APR2021.jpg		Apr 28, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/H_12-OP0596-1-28APR2021.jpg		Apr 28, 2021

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



Mn/DOT Name: HA MNDT TEMP
County: MURRAY, MN (Sheet 1)

NGS Name: HA TEMP

NGS ACRN: [OP0884](#) [Get Map](#)
NGS Quad / Sta Num : 43095441/
USGS Quad: SLAYTON

<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	106 N	42 W	435817.36	955118.13		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>
1980	1980	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
BLANK	UNMONUMENTED	MNDT

Description: (1980)

Stamping:

2.0 MILES SOUTH OF HADLEY, 1.5 MILES SOUTH ON COUNTY ROAD 29 FROM THE JUNCTION OF COUNTY ROAD 29 AND TRUNK HIGHWAY 30, THEN 0.1 MILE WEST ON A FIELD ROAD, 8.0 FEET SOUTH OF A FIELD ROAD, 2.3 FEET NORTH OF A FENCE, 10.0 FEET EAST-SOUTHEAST OF A STEEL FENCE POST, 14.02 FEET WEST-SOUTHWEST OF A STEEL FENCE POST, STATION HA MNDT TEMP IS A SPIKE.

* 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>
1818.238	.197		1731.883	.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>
1817.614						RECIPROCAL VERTICAL ANGLE	1981	HORZ

Geoid Separations(ft): GEOID18 = -86.565 12B = -86.539 09 = -86.460 03 = -86.345

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 58 17.35973	95 51 18.12546	476733.676	145011.619	.066	2	ADJUSTMENT	1999	17648
43 58 17.35976	95 51 18.12533	476733.686	145011.622	.066	2	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 58 17.35648	95 51 18.10978	476734.823	145011.289	.066	2	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>
43 58 17.48451	95 51 17.05084			.100	2	CLASSICAL SURVEY	1982	16710

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2136352.486	687771.328	889063.173	15986416.237	.066	2	ADJUSTMENT	1999	17648
2136352.495	687771.330	889063.182	15986416.240	.066	2	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2136353.625	687770.972	889064.307	15986415.869	.066	2	ADJUSTMENT	1986	17289

<u>NAD27</u>						<u>Project Info</u>		
<u>MN State Plane - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1511750.587	359695.102			.100	2	CLASSICAL SURVEY	1982	16710



Mn/DOT Name: HADLEY
 County: MURRAY, MN (Sheet 1)

NGS Name: HADLEY

NGS ACRN: [DP9040](#) [Get Map](#)
 NGS Quad / Sta Num : 43095441/
 USGS Quad: SLAYTON

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	14	106 N	42 W	435935.07	955114.54	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2015	2015	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: (2015) **Stamping:** HADLEY 2015

0.5 MILE SOUTH OF HADLEY, AT THE JUNCTION OF TRUNK HIGHWAY 30 AND COUNTY ROAD 29(105TH AVENUE) (THE JUNCTIONS IS 0.5 MILE SOUTH OF HADLEY), AT TRUNK HIGHWAY 30 MILEPOINT 30.55, 53.7 FEET SOUTH OF TRUNK HIGHWAY 30, 92.6 FEET WEST OF COUNTY ROAD 29, 18.0 FEET EAST OF A CABLE BOX, 1.5 FEET NORTH OF A WITNESS POST.

Station Pair: 5102 F - MURRAY, 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	
1696.204	.016	2/1				2017	00000903	VERTICAL ADJUSTMENT				
1696.204	.016	2/1				2015	VWLSN	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			Year	Reference	
1696.204			1609.498	.023	2011	2015	GPS3109	HORIZONTAL ADJUSTMENT				
1696.204	.131		1609.705	.066	1996	2015	HWLSN	GPS - STATIC				
1696.204			1609.498	.023	2011	2015	HWLSN	GPS - STATIC				

Geoid Separations(ft): GEOID18 = -86.676 12B = -86.647 09 = -86.568 03 = -86.443

Lat/Lon and County Coordinates (Feet)

NAD83(2011)		Geodetic Position		Murray County		Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 59 35.07007	95 51 14.53953	477004.278	152880.940	.010		ADJUSTMENT	2015	GPS3109
43 59 35.07007	95 51 14.53953	477004.278	152880.940	.010	C	GPS - STATIC	2015	HWLSN

NAD83(1996)		Geodetic Position		Murray County		Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 59 35.06979	95 51 14.54008	477004.238	152880.912	.033	C	GPS - STATIC	2015	HWLSN

State Plane and UTM Coordinates (Feet)

NAD83(2011)		MN State Plane - South Zone		UTM - Zone 15		Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2136793.108	695632.089	889597.651	15994273.400	.010		ADJUSTMENT	2015	GPS3109
2136793.108	695632.089	889597.651	15994273.400	.010	C	GPS - STATIC	2015	HWLSN

NAD83(1996)		MN State Plane - South Zone		UTM - Zone 15		Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2136793.067	695632.062	889597.610	15994273.373	.033	C	GPS - STATIC	2015	HWLSN

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/HADLEY-DP9040-3S-11MAY2015.jpg	S	May 11, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/HADLEY-DP9040-2-11MAY2015.jpg		May 11, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/HADLEY-DP9040-1-11MAY2015.jpg		May 11, 2015

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



Mn/DOT Name: HANNAH
County: MURRAY, MN (Sheet 1)

NGS Name: HANNAH

NGS ACRN: [DQ2424](#) [Get Map](#)
NGS Quad / Sta Num : 43095414/
USGS Quad: AVOCA

				Reference	Reference	Vert	Horz
1/4	Sec	Twp	Rng	Latitude	Longitude	Order	Order
SE	28	106 N	40 W	435723.70	953911.71	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2015	2025	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 23 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2015) Stamping: HANNAH 2015

0.65 MILE NORTHWEST ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND COUNTY ROAD 6 (2ND STREET) IN AVOCA, AT TRUNK HIGHWAY 59 MILEPOINT 35.4, 66.6 FEET NORTHEAST OF TRUNK HIGHWAY 59, 168.8 FEET NORTHWEST OF A FIBER OPTIC MARKER, 0.05 MILES NORTHWEST OF LIME LAKE DRIVE, 1.5 FEET SOUTHEAST OF A WITNESS POST.

Station Pair: LOREN - MURRAY, MN

Leveling-Derived Orthometric Heights (Feet)

NAVD88				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1534.213	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903
1534.213	.016	2/1				VERTICAL CONTROL SURVEY	2015	VGARV

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1534.219	.262		1446.487	.197	2011	GPS - RTRN	2025	RTRN2025
1534.213			1446.467	.017	2011	HORIZONTAL ADJUSTMENT	2016	GPS3142
1534.213	.131		1446.605	.066	1996	GPS - STATIC	2016	HGARV
1534.213			1446.467	.017	2011	GPS - STATIC	2016	HGARV
1534.223	.262		1446.506	.197	2011	GPS - RTRN	2015	RTRN2015

Geoid Separations(ft): GEOID18 = -87.733 12B = -87.716 09 = -87.621 03 = -87.428

Lat/Lon and County Coordinates (Feet)

NAD83(2011)				Murray County			Project Info			
Geodetic Position				X	Y	Acc	Order	Determination Method	Year	Reference
Latitude	Longitude									
43 57 23.69729	95 39 11.71263			529867.851	139585.400	.131	3	GPS - RTRN	2025	RTRN2025
43 57 23.69736	95 39 11.71267			529867.848	139585.408	.007		ADJUSTMENT	2016	GPS3142
43 57 23.69736	95 39 11.71267			529867.848	139585.408	.007	C	GPS - STATIC	2016	HGARV
43 57 23.69702	95 39 11.71224			529867.880	139585.373	.131	3	GPS - RTRN	2015	RTRN2015

NAD83(1996)				Murray County			Project Info			
Geodetic Position				X	Y	Acc	Order	Determination Method	Year	Reference
Latitude	Longitude									
43 57 23.69713	95 39 11.71332			529867.800	139585.384	.033	C	GPS - STATIC	2016	HGARV

State Plane and UTM Coordinates (Feet)

NAD83(2011)				Murray County			Project Info			
MN State Plane - South Zone				X	Y	Acc	Order	Determination Method	Year	Reference
X	Y									
2189351.267	681198.879			941992.253	15979210.622	.131	3	GPS - RTRN	2025	RTRN2025
2189351.264	681198.886			941992.250	15979210.629	.007		ADJUSTMENT	2016	GPS3142
2189351.264	681198.886			941992.250	15979210.629	.007	C	GPS - STATIC	2016	HGARV
2189351.295	681198.851			941992.280	15979210.594	.131	3	GPS - RTRN	2015	RTRN2015

NAD83(1996)				Murray County			Project Info			
MN State Plane - South Zone				X	Y	Acc	Order	Determination Method	Year	Reference
X	Y									
2189351.216	681198.864			941992.202	15979210.607	.033	C	GPS - STATIC	2016	HGARV



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/HANNAH-DQ2424-3NE-05AUG2025.jpg	NE	Aug 5, 2025
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/HANNAH-DQ2424-2-05AUG2025.jpg		Aug 5, 2025
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/HANNAH-DQ2424-1-05AUG2025.jpg		Aug 5, 2025

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



Mn/DOT Name: HENJUM

NGS Name: HENJUM

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DO7179](#) [Get Map](#)
 NGS Quad / Sta Num : 43095441/
 USGS Quad: SLAYTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	41 W	435717.96	954701.00	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>
2011	2015	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: (2011) Stamping: HENJUM 2011

2.7 MILES NORTH OF IONA, 2.7 MILES NORTH ALONG TRUNK HIGHWAY 267 FROM THE JUNCTION OF TRUNK HIGHWAY 267 AND COUNTY ROAD 4 WEST IN IONA, AT TRUNK HIGHWAY 267 MILEPOINT 2.7, 30.0 FEET WEST OF TRUNK HIGHWAY 267, 21.4 FEET SOUTH OF A FIELD ENTRANCE, 2.1 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>	
1619.049	.016	2/1						VERTICAL ADJUSTMENT	2013	00000792	
1619.049	.016	2/1						VERTICAL CONTROL SURVEY	2012	VIONA	

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>	
1618.993	.262			1532.005	.197	2011		GPS - RTRN	2015	RTRN2015	
1619.049				1532.038	.011	2011		HORIZONTAL ADJUSTMENT	2014	GPS2998	
1619.049				1532.038	.011	2011		GPS - STATIC	2014	HIONA	
1619.058	.131			1532.303	.066	1996		GPS - STATIC	2012	HIONA	

Geoid Separations(ft): GEOID18 = -87.008 12B = -86.988 09 = -86.906 03 = -86.745

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Murray County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 57 17.95985	95 47 00.99993	495537.491	138984.290	.131	3	GPS - RTRN	2015	RTRN2015
43 57 17.95980	95 47 01.00047	495537.451	138984.285	.010		ADJUSTMENT	2014	GPS2998
43 57 17.95980	95 47 01.00047	495537.451	138984.285	.010	C	GPS - STATIC	2014	HIONA

<u>NAD83(1996)</u>		<u>Murray County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 57 17.95923	95 47 01.00070	495537.434	138984.227	.033	C	GPS - STATIC	2012	HIONA

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
		907657.218	15979760.803	.131	3	GPS - RTRN	2015	RTRN2015
2155019.604	681339.635	907657.179	15979760.799	.010		ADJUSTMENT	2014	GPS2998
2155019.564	681339.631	907657.179	15979760.799	.010	C	GPS - STATIC	2014	HIONA

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2155019.546	681339.574	907657.160	15979760.742	.033	C	GPS - STATIC	2012	HIONA

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/HENJUM-DO7179-3W-24MAY2011.jpg	W	May 24, 2011
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/HENJUM-DO7179-2-24MAY2011.jpg		May 24, 2011
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/HENJUM-DO7179-1-24MAY2011.jpg		May 24, 2011

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



Mn/DOT Name: HURD MNDT

NGS Name: HURD

County: MURRAY, MN (Sheet 1)

NGS ACRN: [AH3656](#) [Get Map](#)
 NGS Quad / Sta Num : 44095333/
 USGS Quad: BALATON 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	31	107 N	42 W	440121.22	955624.30		C

<u>Year Set</u>	<u>Last Recovery</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	2015	DESTROYED	Horz=NO Vert=NO	NO		RECESSED 2 IN.	SEE DESCRIPTION

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

Description: (2002) Stamping: HURD 1993

2.3 MILES NORTH ON TRUNK HIGHWAY 91 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND TRUNK HIGHWAY 91 IN LAKE WILSON, AT TRUNK HIGHWAY 91 MILEPOINT 41.05, 0.15 MILE EAST OF TRUNK HIGHWAY 91, 34.0 FEET NORTH OF A ROAD, 4.1 FEET SOUTHWEST OF A WITNESS POST, FOUND THE ROD AND THE DISK TIPPED OVER.

* 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>
			1587.100	.010	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			1587.192	.010	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
1673.422	.131		1587.287	.066	1996	HORIZONTAL ADJUSTMENT	1999	17648
1673.389	.131		1587.287	.066	1996	HORIZONTAL ADJUSTMENT	1998	GPS937

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>
1672.700						GPS - STATIC	1993	HORZ

Geoid Separations(ft): GEOID18 = -86.325 12B = -86.289 09 = -86.194 03 = -86.092

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 01 21.22399	95 56 24.30085	454380.532	163666.832	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 01 21.22400	95 56 24.30177	454380.465	163666.833	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 01 21.22335	95 56 24.29952	454380.629	163666.766	.033	C	ADJUSTMENT	1999	17648
44 01 21.22335	95 56 24.29952	454380.629	163666.766	.033	C	ADJUSTMENT	1998	GPS937

NAD83(1986)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 01 21.22053	95 56 24.28358	454381.793	163666.479	.066	2	GPS - STATIC	1993	HMARS



State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South 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>
2114410.439	706903.386	867344.347	16005814.586	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South 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>
2114410.372	706903.388	867344.280	16005814.589	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South 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>
2114410.535	706903.318	867344.442	16005814.518	.033	C	ADJUSTMENT	1999	17648
2114410.535	706903.318	867344.442	16005814.518	.033	C	ADJUSTMENT	1998	GPS937

NAD83(1986)

MN State Plane - South 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>
2114411.693	706903.005	867345.596	16005814.191	.066	2	GPS - STATIC	1993	HMARS



Mn/DOT Name: HURD MNDT RESET

NGS Name: HURD RESET

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DP9042](#) [Get Map](#)
 NGS Quad / Sta Num : 44095333/
 USGS Quad: BALATON 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	31	107 N	42 W	440121.22	955624.30	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>
2012	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 20 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) Stamping: HURD 1993 2012

2.5 MILES NORTH OF LAKE WILSON, 2.3 MILES NORTH ALONG TRUNK HIGHWAY 91 FROM THE JUNCTION OF TRUNK HIGHWAY 91 AND TRUNK HIGHWAY 30 IN LAKE WILSON TO TRUNK HIGHWAY 91 MILEPOINT 41.05, THEN 0.15 MILE EAST ALONG 121ST STREET, 34.0 FEET NORTH OF 121ST STREET, 4.1 FEET WEST-SOUTHWEST OF A WITNESS POST.

Station Pair: AMBIE MNDT - MURRAY, 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>					
1673.199	.016	2/1				2020	00000949					
1673.199	.016	2/1				2017	00000903					
1673.195	.016	2/1				2016	VRUSS					

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>					
1673.202	.262		1586.880	.197	2011	2024	RTRN2024					
1673.176			1586.867	.023	2011	2015	GPS3109					
1673.186	.131		1587.080	.066	1996	2015	HWLSN					
1673.176			1586.867	.023	2011	2015	HWLSN					
1673.120	.262		1586.831	.197	2011	2015	RTRN2015					

Geoid Separations(ft): GEOID18 = -86.325 12B = -86.289 09 = -86.194 03 = -86.092

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>			<u>Geodetic Position</u>			<u>Murray County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>				
44 01 21.22364	95 56 24.30243		454380.416	163666.796	.131	3	2024	RTRN2024				
44 01 21.22383	95 56 24.30267		454380.399	163666.816	.010		2015	GPS3109				
44 01 21.22383	95 56 24.30267		454380.399	163666.816	.010	C	2015	HWLSN				
44 01 21.22451	95 56 24.30248		454380.413	163666.885	.131	3	2015	RTRN2015				

<u>NAD83(1996)</u>			<u>Geodetic Position</u>			<u>Murray County</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>Order</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>				
44 01 21.22354	95 56 24.30322		454380.359	163666.787	.033	C	2015	HWLSN				

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>			<u>MN State Plane - South Zone</u>			<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>Order</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>				
2114410.323	706903.353		867344.230	16005814.555	.131	3	2024	RTRN2024				
2114410.306	706903.373		867344.213	16005814.575	.010		2015	GPS3109				
2114410.306	706903.373		867344.213	16005814.575	.010	C	2015	HWLSN				
2114410.322	706903.441		867344.230	16005814.643	.131	3	2015	RTRN2015				

<u>NAD83(1996)</u>			<u>MN State Plane - South Zone</u>			<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>Order</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>				
2114410.265	706903.344		867344.172	16005814.547	.033	C	2015	HWLSN				



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/HURD_RESET-DP9042-3N-13MAY2024.jpg	N	May 13, 2024
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/HURD_RESET-DP9042-2-13MAY2024.jpg		May 13, 2024
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/HURD_RESET-DP9042-1-13MAY2024.jpg		May 13, 2024

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



Mn/DOT Name: IONA
 County: MURRAY, MN (Sheet 1)

NGS Name: IONA

NGS ACRN: [DO7183](#) [Get Map](#)
 NGS Quad / Sta Num : 43095441/
 USGS Quad: SLAYTON

<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	4	105 N	41 W	435516.16	954631.71	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>
2011	2011	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

Monument Type
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 20 FT)

Disk Type
METAL ROD (WITH REMOVABLE ID DISK)

Mon. Agency
MNDDT

Description: (2011) **Stamping:** IONA 2011

0.5 MILE NORTHEAST OF IONA, 0.4 MILE NORTH ALONG TRUNK HIGHWAY 267 FROM THE JUNCTION OF TRUNK HIGHWAY 267 AND COUNTY ROAD 4 WEST IN IONA, TO TRUNK HIGHWAY 267 MILEPOINT 0.4, THEN 0.45 MILE EAST ON 51ST STREET, 31.6 FEET NORTH OF 51ST STREET, 11.6 FEET WEST OF A FIELD ENTRANCE, 3.6 FEET SOUTH OF AN EAST/WEST FENCE LINE, 2.2 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>					
1619.006	.016	2/1				2013	00000792					
1618.999	.016	2/1				2012	VIONA					

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>					
1619.006			1532.024	.016	2011	2014	GPS2998					
1619.006			1532.024	.016	2011	2014	HIONA					
1618.993	.131		1532.274	.066	1996	2012	HIONA					

Geoid Separations(ft): GEOID18 = -87.001 12B = -86.981 09 = -86.883 03 = -86.726

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Murray 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>			
43 55 16.15532	95 46 31.71154	497678.793	126649.083	.013		2014	GPS2998			
43 55 16.15532	95 46 31.71154	497678.793	126649.083	.013	C	2014	HIONA			

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Murray 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>			
43 55 16.15484	95 46 31.71174	497678.779	126649.034	.033	C	2012	HIONA			

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>		<u>MN State Plane - South 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>	
2156893.621	668962.324	909384.166	15967359.057	909384.166	15967359.057	.013		2014	GPS2998	
2156893.621	668962.324	909384.166	15967359.057	909384.166	15967359.057	.013	C	2014	HIONA	

<u>NAD83(1996)</u>		<u>MN State Plane - South 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>	
2156893.605	668962.276	909384.150	15967359.009	909384.150	15967359.009	.033	C	2012	HIONA	

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/IONA-DO7183-3N-24MAY2011.jpg	N	May 24, 2011
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/IONA-DO7183-2-24MAY2011.jpg		May 24, 2011
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/IONA-DO7183-1-24MAY2011.jpg		May 24, 2011

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



Mn/DOT Name: IONA MNDT
County: MURRAY, MN (Sheet 1)

NGS Name: IONA

NGS ACRN: [OP0881](#) [Get Map](#)
NGS Quad / Sta Num : 43095441/
USGS Quad: SLAYTON

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	18	105 N	41 W	435331.79	954822.89		2

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1980	1995	NOT FOUND	Horz=? Vert=YES	NO			STEEL ROD IMBED IN MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	HORIZONTAL CONTROL DISK	MNDT

Description: (1980) **Stamping:** IONA 1980

2.0 MILES SOUTHWEST OF IONA, 0.6 MILE SOUTH ON COUNTY ROAD 4 FROM THE JUNCTION OF COUNTY ROAD 4 AND TRUNK HIGHWAY 267, THEN SOUTH 1.0 MILE ON COUNTY ROAD 31, THEN 1.1 MILES WEST ON A GRAVEL ROAD, 12.0 FEET NORTH OF A GRAVEL ROAD, 48.6 FEET WEST-SOUTHWEST OF A UNDERGROUND CABLE MARKER, 51.0 FEET NORTHWEST OF A POWER POLE, 40.3 FEET NORTH OF A WITNESS POST, 49.03 FEET NORTHWEST OF IONA MNDT RM 1, 49.41 FEET NORTHEAST OF IONA MNDT RM 2, IN 1996 THE DEPARTMENT OF NATURAL RESOURCES (DNR) FOUND THE SURFACE MARK WITH THE TOP SHEARED OFF-THEY RECOVERED THE UNDERGROUND MARK AND SET A 0.75 INCH DIAMETER BY 24.0 INCH DIAMETER REBAR WITH AN ALUMINUM CAP STAMPED DEPARTMENT OF NATURAL RESOURCES SURVEY MARKER OVER THE UNDERGROUND.

* 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
1692.254	.197		1605.794	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648

NGVD29			Ellipsoid (NAD83)			Project Info		
Height	Acc	Order/(Class)	Height	Acc	Adj	Determination Method	Year	Reference
1687.300						RECIPROCAL VERTICAL ANGLE	1981	HORZ

Geoid Separations(ft): GEOID18 = -86.762 12B = -86.749 09 = -86.644 03 = -86.502

Lat/Lon and County Coordinates (Feet)

NAD83(1996)		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 53 31.79482	95 48 22.88613	489535.997	116083.170	.066	2	ADJUSTMENT	1999	17648
43 53 31.79490	95 48 22.88597	489536.009	116083.178	.066	2	ADJUSTMENT	1998	17655

NAD83(1986)		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 53 31.79235	95 48 22.86825	489537.306	116082.919	.066	2	ADJUSTMENT	1986	17289

NAD27		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 53 31.91521	95 48 21.82284			.100	2	CLASSICAL SURVEY	1982	16710

State Plane and UTM Coordinates (Feet)

NAD83(1996)		Murray County				Project Info		
MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Year	Reference
X	Y	X	Y					
2148525.200	658575.912	900890.840	15957070.343	.066	2	ADJUSTMENT	1999	17648
2148525.212	658575.919	900890.852	15957070.351	.066	2	ADJUSTMENT	1998	17655

NAD83(1986)		Murray County				Project Info		
MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Year	Reference
X	Y	X	Y					
2148526.504	658575.633	900892.141	15957070.048	.066	2	ADJUSTMENT	1986	17289

NAD27		Murray County				Project Info		
MN State Plane - South Zone		X	Y	Acc	Order	Determination Method	Year	Reference
X	Y	X	Y					
1523922.937	330499.588			.100	2	CLASSICAL SURVEY	1982	16710



Mn/DOT Name: IONA MNDT RM 1

NGS Name: IONA RM 1

County: MURRAY, MN (Sheet 1)

NGS ACRN: [CO3785](#) [Get Map](#)
 NGS Quad / Sta Num : 43095441/
 USGS Quad: SLAYTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	41 W	435331.39	954822.52		

<u>Year Set</u>	<u>Last Recovery</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	1995	SEE DESCRIPTION	Horz=? Vert=YES	NO			SEE DESCRIPTION

Monument Type

CONCRETE MONUMENT (CAST-IN-PLACE)

Disk Type

UNKNOWN

Mon. Agency

MNDT

Description:

Stamping: IONA NO 1 1980

1.95 MILES SOUTHWEST OF IONA, 0.6 MILE SOUTH ALONG PARNELL STREET FROM THE JUNCTION OF PARNELL STREET AND GRACE AVENUE, THEN 1.0 MILE SOUTH ON 140TH AVENUE, THEN 1.1 MILES WEST ON 31ST STREET, STATION IONA MNDT RM 1 IS 29.0 FEET SOUTH OF THE CENTER OF THE GRAVEL ROAD, 63.5 FEET SOUTH-SOUTHEAST OF AN UNDERGROUND CABLE MARKER POST, 2.2 FEET NORTHWEST OF A POWER POLE, 26.0 FEET EAST OF A STEEL WITNESS POST.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -86.762 12B = -86.749 09 = -86.644 03 = -86.502



Mn/DOT Name: IONA MNDT RM 2

NGS Name: IONA RM 2

County: MURRAY, MN (Sheet 1)

NGS ACRN: [CO3786](#) [Get Map](#)
 NGS Quad / Sta Num : 43095441/
 USGS Quad: SLAYTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	41 W	435331.39	954823.26		

<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>
1980	1995	SEE DESCRIPTION	Horz=? Vert=YES	NO			SEE DESCRIPTION

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

Description: **Stamping:** IONA NO 2 1980

1.96 MILES SOUTHWEST OF IONA, 0.6 MILE SOUTH ALONG PARNELL STREET FROM THE JUNCTION OF PARNELL STREET AND GRACE AVENUE, THEN 1.0 MILE SOUTH ON 140TH AVENUE, THEN 1.1 MILES WEST ON 31ST STREET, 28.0 FEET SOUTH OF THE CENTER OF A GRAVEL ROAD, 94.0 FEET SOUTHWEST OF AN UNDERGROUND CABLE MARKER POST, 55.5 FEET WEST OF A POWER POLE, AND 27.8 FEET WEST OF A STEEL WITNESS POST.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -86.762 12B = -86.752 09 = -86.644 03 = -86.502



Mn/DOT Name: IONA WATER TANK

NGS Name: IONA WATER TANK

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP0880](#) [Get Map](#)
 NGS Quad / Sta Num : 43095441/
 USGS Quad: SLAYTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	41 W	435457.18	954706.44		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>
1981	1995	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	MNDT

Description: (1981)

Stamping:

IN THE CENTER OF IONA, 300.0 FEET WEST OF TRUNK HIGHWAY 267, 75.0 FEET WEST OF THE POST OFFICE, IN 1996 THE DEPARTMENT OF NATURAL RESOURCES (DNR) REPORTED THAT DUE TO FOLIAGE STATION IONA WATER TANK CANNOT BE SEEN FROM STATION IONA MNDT.

* No Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -86.926 12B = -86.909 09 = -86.808 03 = -86.653

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 54 57.18211	95 47 06.44414	495136.022	124728.134	.328	4	ADJUSTMENT	1999	17648
43 54 57.18238	95 47 06.44380	495136.047	124728.161	.328	4	ADJUSTMENT	1998	17655

NAD83(1986)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 54 57.17957	95 47 06.42664	495137.303	124727.877	.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>
43 54 57.30272	95 47 05.38448			.100	4	CLASSICAL SURVEY	1982	16710

State Plane and UTM Coordinates (Feet)

NAD83(1996)

<u>MN State Plane - South 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>
2154310.190	667096.969	906778.109	15965524.120	.328	4	ADJUSTMENT	1999	17648
2154310.215	667096.996	906778.135	15965524.146	.328	4	ADJUSTMENT	1998	17655

NAD83(1986)

<u>MN State Plane - South 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>
2154311.465	667096.684	906779.381	15965523.820	.328	4	ADJUSTMENT	1986	17289

NAD27

<u>MN State Plane - South 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>
1529707.787	339020.603			.100	4	CLASSICAL SURVEY	1982	16710



Mn/DOT Name: IVAD MNDT

NGS Name: IVAD

County: MURRAY, MN (Sheet 1)

NGS ACRN: [AH3657](#) [Get Map](#)
 NGS Quad / Sta Num : 44095334/
 USGS Quad: CURRENT 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>
NW	25	108 N	43 W	440818.48	955720.10	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>
1993	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 20 FT)	SURVEY DISK	MNDT

Description: (1993) **Stamping:** IVAD 1993

10.15 MILES NORTH OF LAKE WILSON, 10.25 MILES NORTH ALONG TRUNK HIGHWAY 91 FROM THE JUNCTION OF TRUNK HIGHWAY 91 AND TRUNK HIGHWAY 30 IN LAKE WILSON TO TRUNK HIGHWAY 91 MILEPOINT 49.05, THEN 0.6 MILE WEST ALONG 201ST STREET, 30.0 FEET SOUTH OF 201ST STREET, 14.9 FEET EAST OF A POWER POLE, 3.0 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>		
1680.856	.016	2/1				VERTICAL ADJUSTMENT	2020	00000949		
1680.856	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903		
1680.853	.016	2/1				VERTICAL CONTROL SURVEY	2016	VRUSS		

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>		
1680.846	.262		1594.288	.197	2011	GPS - RTRN	2024	RTRN2024		
1680.869	.262		1594.308	.197	2011	GPS - OPUS	2019	GPSBM		
1680.856	.262		1594.295	.197	2011	GPS - RTRN	2019	RTRN2019		
1680.791	.262		1594.229	.197	2011	GPS - RTRN	2016	RTRN2016		
			1594.314	.023	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800		
			1594.403	.019	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300		
1680.837	.131		1594.452	.066	1996	HORIZONTAL ADJUSTMENT	1999	17648		
1680.738	.131		1594.452	.066	1996	HORIZONTAL ADJUSTMENT	1998	GPS937		

<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>		
1680.016						GPS - STATIC	1993	HORZ		

Geoid Separations(ft): GEOID18 = -86.562 12B = -86.558 09 = -86.473 03 = -86.325

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 08 18.48373	95 57 20.10268	450399.796	205931.650	.131	3	GPS - RTRN	2024	RTRN2024
44 08 18.48372	95 57 20.10316	450399.761	205931.649	.131	3	GPS - OPUS	2019	GPSBM
44 08 18.48362	95 57 20.10243	450399.814	205931.639	.131	3	GPS - RTRN	2019	RTRN2019
44 08 18.48399	95 57 20.10238	450399.818	205931.676	.131	3	GPS - RTRN	2016	RTRN2016
44 08 18.48328	95 57 20.10260	450399.802	205931.605	.020		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 08 18.48327	95 57 20.10358	450399.730	205931.604	.016		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 08 18.48388	95 57 20.09705	450400.206	205931.664	.033	C	ADJUSTMENT	1999	17648
44 08 18.48388	95 57 20.09705	450400.206	205931.664	.033	C	ADJUSTMENT	1998	GPS937

NAD83(1986)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 08 18.48138	95 57 20.07980	450401.464	205931.408	.066	2	GPS - STATIC	1993	HMARS

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2111345.161	749239.156	864785.574	16048198.281	.131	3	GPS - RTRN	2024	RTRN2024
2111345.126	749239.155	864785.539	16048198.281	.131	3	GPS - OPUS	2019	GPSBM
2111345.179	749239.144	864785.592	16048198.269	.131	3	GPS - RTRN	2019	RTRN2019
2111345.183	749239.181	864785.597	16048198.306	.131	3	GPS - RTRN	2016	RTRN2016
2111345.166	749239.110	864785.578	16048198.235	.020		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2111345.094	749239.110	864785.507	16048198.237	.016		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2111345.572	749239.161	864785.985	16048198.281	.033	C	ADJUSTMENT	1999	17648
2111345.572	749239.161	864785.985	16048198.281	.033	C	ADJUSTMENT	1998	GPS937

NAD83(1986)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2111346.823	749238.878	864787.233	16048197.983	.066	2	GPS - STATIC	1993	HMARS

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/IVAD-AH3657-3S-13MAY2024.jpg	S	May 13, 2024
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/IVAD-AH3657-2-13MAY2024.jpg		May 13, 2024
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/IVAD-AH3657-1-13MAY2024.jpg		May 13, 2024

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



Mn/DOT Name: J 12

NGS Name: J 12

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP0597](#) [Get Map](#)
 NGS Quad / Sta Num : 43095441/
 USGS Quad: SLAYTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	41 W	435458.00	954651.00	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	1971	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: (1971) **Stamping:** 1625.341 J 12 1931

0.18 MILE EAST OF IONA, 0.2 MILE EAST ALONG GRACE AVENUE FROM THE JUNCTION OF GRACE AVENUE AND PARNELL STREET, 84.0 FEET SOUTHWEST OF MILEPOST 256, 19.0 FEET SOUTHWEST OF THE SOUTHWEST CORNER OF THE SECTION HOUSE, 40.2 FEET SOUTH OF THE SOUTH RAIL AND ABOUT LEVEL WITH THE 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>		
1625.971	.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>		
1625.341	.007	1				VERTICAL CONTROL SURVEY	1935	CUTLER-VERT		
1625.341	.007	1				VERTICAL CONTROL SURVEY	1931	L92 MINN		

Geoid Separations(ft): GEOID18 = -86.955 12B = -86.939 09 = -86.837 03 = -86.683

* No Horizontal Positions in the Database *



Mn/DOT Name: JESSE

NGS Name: JESSE

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DO7219](#) [Get Map](#)
 NGS Quad / Sta Num : 43095412/
 USGS Quad: FULDA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	39 W	435118.69	953233.24	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>
2011	2011	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: (2011) Stamping: JESSE 2011

2.5 MILES EAST OF FULDA, 2.65 MILES EAST ALONG TRUNK HIGHWAY 62 FROM THE JUNCTION OF TRUNK HIGHWAY 62 AND TRUNK HIGHWAY 59 IN FULDA TO TRUNK HIGHWAY 62 MILEPOINT 2.65, THEN 0.5 MILE SOUTH ON 260TH AVENUE, 29.4 FEET WEST OF 260TH AVENUE, 13.5 FEET SOUTH OF A FIELD ENTRANCE, 2.0 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>
1478.773	.016	2/1					VERTICAL ADJUSTMENT	2013	00000792
1478.770	.016	2/1					VERTICAL CONTROL SURVEY	2012	VFULD

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>
1478.770				1390.568	.018	2011	HORIZONTAL ADJUSTMENT	2014	GPS2962
1478.770				1390.568	.018	2011	GPS - STATIC	2014	HFULD
1478.770	.131			1390.919	.066	1996	GPS - STATIC	2013	HFULD
1478.819	.262			1390.788	.197	2007	GPS - RTRN	2011	RTRN2011

Geoid Separations(ft): GEOID18 = -88.172 12B = -88.146 09 = -88.031 03 = -87.851

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>									
43 51 18.69431	95 32 33.23605			559118.454	102682.349	.013		ADJUSTMENT	2014	GPS2962
43 51 18.69431	95 32 33.23605			559118.454	102682.349	.013	C	GPS - STATIC	2014	HFULD

<u>NAD83(2007)</u>				<u>Murray 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>									
43 51 18.69422	95 32 33.23681			559118.398	102682.340	.131	3	GPS - RTRN	2011	RTRN2011

<u>NAD83(1996)</u>				<u>Murray 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>									
43 51 18.69395	95 32 33.23615			559118.446	102682.313	.033	C	GPS - STATIC	2013	HFULD

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>			
<u>MN State Plane - South 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>									
2217795.324	643676.550			969991.987	15941346.234	.013		ADJUSTMENT	2014	GPS2962
2217795.324	643676.550			969991.987	15941346.234	.013	C	GPS - STATIC	2014	HFULD

<u>NAD83(2007)</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>			
<u>MN State Plane - South 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>									
2217795.268	643676.542			969991.931	15941346.227	.131	3	GPS - RTRN	2011	RTRN2011

<u>NAD83(1996)</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>			
<u>MN State Plane - South 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>									
2217795.316	643676.514			969991.979	15941346.198	.033	C	GPS - STATIC	2013	HFULD



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/JESSE-DO7219-3W-08JUN2011.jpg	W	Jun 8, 2011
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/JESSE-DO7219-2-08JUN2011.jpg		Jun 8, 2011
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/JESSE-DO7219-1-08JUN2011.jpg		Jun 8, 2011

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



Mn/DOT Name: JOE

NGS Name: JOE

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DO7182](#) [Get Map](#)
 NGS Quad / Sta Num : 43095441/
 USGS Quad: SLAYTON

				Reference	Reference	Vert	Horz
1/4	Sec	Twp	Rng	Latitude	Longitude	Order	Order
SW	4	105 N	41 W	435516.43	954702.25	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2011	2011	GOOD	Horz=YES Vert=YES	YES		FLUSH	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: (2011) Stamping: JOE 2011

0.35 MILE NORTH OF IONA, 0.4 MILE NORTH ALONG TRUNK HIGHWAY 267 FROM THE JUNCTION OF TRUNK HIGHWAY 267 AND COUNTY ROAD 4 WEST IN IONA, AT TRUNK HIGHWAY 267 MILEPOINT 0.4, 35.4 FEET EAST OF TRUNK HIGHWAY 267, 51.6 FEET NORTH OF 51ST STREET, 26.8 FEET SOUTH OF A POWER POLE WITH A GUY WIRE, 15.2 FEET NORTHEAST OF CABLE BOX NUMBER 8B1, 3.2 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
1628.845	.016	2/1				VERTICAL ADJUSTMENT	2013	00000792
1628.842	.016	2/1				VERTICAL CONTROL SURVEY	2012	VIONA

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88			Ellipsoid (NAD83)			Project Info		
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1628.845			1541.929	.015	2011	HORIZONTAL ADJUSTMENT	2014	GPS2998
1628.845			1541.929	.015	2011	GPS - STATIC	2014	HIONA
1628.835	.131		1542.172	.066	1996	GPS - STATIC	2012	HIONA

Geoid Separations(ft): GEOID18 = -86.942 12B = -86.922 09 = -86.824 03 = -86.670

Lat/Lon and County Coordinates (Feet)

NAD83(2011)		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 55 16.42688	95 47 02.25254	495443.273	126676.937	.010		ADJUSTMENT	2014	GPS2998
43 55 16.42688	95 47 02.25254	495443.273	126676.937	.010	C	GPS - STATIC	2014	HIONA

NAD83(1996)		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 55 16.42643	95 47 02.25275	495443.257	126676.891	.033	C	GPS - STATIC	2012	HIONA

State Plane and UTM Coordinates (Feet)

NAD83(2011)		Murray County				Project Info		
MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Year	Reference
X	Y	X	Y					
2154659.452	669038.478	907150.527	15967461.806	.010		ADJUSTMENT	2014	GPS2998
2154659.452	669038.478	907150.527	15967461.806	.010	C	GPS - STATIC	2014	HIONA

NAD83(1996)		Murray County				Project Info		
MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Year	Reference
X	Y	X	Y					
2154659.436	669038.433	907150.510	15967461.761	.033	C	GPS - STATIC	2012	HIONA

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/JOE-DO7182-3E-24MAY2011.jpg	E	May 24, 2011
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/JOE-DO7182-2-24MAY2011.jpg		May 24, 2011
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/JOE-DO7182-1-24MAY2011.jpg		May 24, 2011

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



Mn/DOT Name: K 12

NGS Name: K 12

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP0598](#) [Get Map](#)
 NGS Quad / Sta Num : 43095414/
 USGS Quad: AVOCA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	41 W	435316.00	954224.00	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	1934	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)	BENCH MARK DISK	NGS

Description: (1931) **Stamping:** 1572.369 K 12 1931

IN WIROCK, 864.0 FEET WEST ON A RAILROAD FROM THE RAILROAD STATION, 43.0 FEET NORTH OF THE NORTH RAIL OF THE RAILROAD TRACKS.

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>
1572.976	.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>
1572.369	.007	1/2				UNKNOWN/APPROXIMATE	1992	UNCHECKD
1572.369	.033	3				VERTICAL CONTROL SURVEY	1968	USGS-VERT
1572.369	.007	1				VERTICAL CONTROL SURVEY	1942	L92 MINN
1572.369	.007	1				VERTICAL CONTROL SURVEY	1935	CUTLER-VERT

Geoid Separations(ft): GEOID18 = -87.395 12B = -87.375 09 = -87.264 03 = -87.080

* No Horizontal Positions in the Database *



Mn/DOT Name: KELLY

NGS Name: KELLY

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DO7222](#) [Get Map](#)
 NGS Quad / Sta Num : 43095412/
 USGS Quad: FULDA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	40 W	435154.05	953532.48	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>
2011	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: (2011) Stamping: KELLY 2011

IN FULDA, 0.3 MILE SOUTH ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 62 IN FULDA, AT TRUNK HIGHWAY 59 MILEPOINT 27.85, 46.7 FEET EAST OF TRUNK HIGHWAY 59, 21.4 FEET SOUTH OF ENTRANCE NUMBERS 118 AND 116, 8.2 FEET NORTH OF A WITNESS POST. STATION KELLY IS ACCESSED BY WAY OF AN ACCESS COVER TO A WATER GATE VALVE.

Station Pair: 5104 P - MURRAY, 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>					
1516.621	.016	2/1				2020	00000949					
1516.621	.016	2/1				2013	00000792					
1516.621	.016	2/1				2012	VFULD					

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>					
1516.611	.262		1428.682	.197	2011	2015	RTRN2015					
1516.621			1428.586	.016	2011	2014	GPS2962					
1516.621			1428.586	.016	2011	2014	HFULD					
1516.621	.131		1428.996	.066	1996	2013	HFULD					

Geoid Separations(ft): GEOID18 = -87.956 12B = -87.933 09 = -87.805 03 = -87.624

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray County</u>				<u>Project Info</u>				
<u>Geodetic Position</u>		<u>Latitude</u>		<u>Longitude</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 51	54.04708	95 35	32.47979	545976.192	106230.654	.131	3	GPS - RTRN	2015	RTRN2015		
43 51	54.04747	95 35	32.47933	545976.225	106230.693	.013		ADJUSTMENT	2014	GPS2962		
43 51	54.04747	95 35	32.47933	545976.225	106230.693	.013	C	GPS - STATIC	2014	HFULD		

<u>NAD83(1996)</u>				<u>Murray County</u>				<u>Project Info</u>				
<u>Geodetic Position</u>		<u>Latitude</u>		<u>Longitude</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 51	54.04679	95 35	32.47944	545976.217	106230.624	.033	C	GPS - STATIC	2013	HFULD		

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>				<u>MN State Plane - South Zone</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>							
2204733.959	647507.421	.131	3	GPS - RTRN	2015	RTRN2015							
2204733.994	647507.460	.013		ADJUSTMENT	2014	GPS2962							
2204733.994	647507.460	.013	C	GPS - STATIC	2014	HFULD							

<u>NAD83(1996)</u>				<u>MN State Plane - South Zone</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>	
<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>							
2204733.985	647507.391	.033	C	GPS - STATIC	2013	HFULD							



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/KELLY-DO7222-3E-10JUN2015.jpg	E	Jun 10, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/KELLY-DO7222-2-10JUN2015.jpg		Jun 10, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/KELLY-DO7222-1-10JUN2015.jpg		Jun 10, 2015

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



Mn/DOT Name: KLINKER MNDT

NGS Name: KLINKER

County: MURRAY, MN (Sheet 1)

NGS ACRN: [AB9862](#) [Get Map](#)
 NGS Quad / Sta Num : 44096222/
 USGS Quad: WOODSTOCK

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	107 N	43 W	440213.47	960139.39	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	2024	GOOD	Horz=YES Vert=YES	YES		FLUSH	STEEL SPIKE ADJ TO MON

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
STEEL ROD (NO SLEEVE) (DEPTH 10 FT)	FLANGE-ENCASED ROD	MNDT

Description: (2005) **Stamping:** KLINKER 1994

4.0 MILES NORTHWEST OF LAKE WILSON, 3.6 MILES WEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND TRUNK HIGHWAY 91 IN LAKE WILSON, TO TRUNK HIGHWAY 30 MILEPOINT 22.05, THEN 3.0 MILES NORTH ALONG COUNTY ROAD 25, THEN 0.15 MILE WEST ALONG A GRAVEL ROAD TO THE TOP OF A HILL, 26.0 FEET SOUTH OF A GRAVEL ROAD, 10.0 FEET WEST OF A FIELD ENTRANCE, 13.6 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>	
1811.702	.016	2/1				VERTICAL ADJUSTMENT	2011	0000425-40	
1811.709	.016	2/1				VERTICAL CONTROL SURVEY	2008	VKLIN	

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>	
1811.794	.262		1725.859	.197	2011	GPS - RTRN	2024	RTRN2024	
1811.702			1725.761	.008	2011	HORIZONTAL ADJUSTMENT	2018	GPS3119	
1811.702	.131		1725.961	.066	1996	GPS - STATIC	2017	HMNCORS07	
1811.702			1725.761	.008	2011	GPS - STATIC	2017	HMNPH	
1811.702			1725.761	.007	2011	HORIZONTAL ADJUSTMENT	2015	GPS3109	
1811.702	.131		1725.961	.066	1996	GPS - STATIC	2015	HWLSN	
1811.702			1725.761	.007	2011	GPS - STATIC	2015	HWLSN	
1811.581	.262		1725.666	.197	2011	GPS - RTRN	2015	RTRN2015	
			1725.761	.007	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
			1725.856	.007	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300	
1811.676	.098		1725.961	.049	1996	GPS - STATIC	2005	GPS2036	
1811.676	.131		1725.961	.066	1996	HORIZONTAL ADJUSTMENT	2005	GPS2097	
1811.676	.131		1725.961	.066	1996	GPS - STATIC	2005	HPSTO	
1811.742	.131		1725.961	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1919	
1811.709	.131		1725.961	.066	1996	GPS - STATIC	2003	HMURR	
1811.676	.131		1725.961	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1792	
1811.742	.131		1725.961	.066	1996	HORIZONTAL ADJUSTMENT	2002	GPS1767	
1811.676	.131		1725.961	.066	1996	GPS - STATIC	2002	HWILS	
1811.676	.131		1725.961	.066	1996	HORIZONTAL ADJUSTMENT	2002	GPS1720	
1811.742	.131		1725.961	.066	1996	GPS - STATIC	2002	HLISM	
1811.676	.131		1725.961	.066	1996	GPS - STATIC	2002	HPIPE	
1811.722	.098		1725.961	.049	1996	GPS - STATIC	1997	GPS805-B	

Geoid Separations(ft): GEOID18 = -85.935 12B = -85.915 09 = -85.830 03 = -85.708



Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Murray County		Acc	Order	Determination Method	Project Info	
Latitude	Longitude	X	Y				Year	Reference
44 02 13.46603	96 01 39.38722	431373.074	169017.987	.131	3	GPS - RTRN	2024	RTRN2024
44 02 13.46581	96 01 39.38708	431373.084	169017.965	.003		ADJUSTMENT	2018	GPS3119
44 02 13.46581	96 01 39.38708	431373.084	169017.965	.003	C	GPS - STATIC	2017	HMNPH
44 02 13.46581	96 01 39.38708	431373.084	169017.965	.003		ADJUSTMENT	2015	GPS3109
44 02 13.46585	96 01 39.38704	431373.087	169017.969	.003	C	GPS - STATIC	2015	HWLSN
44 02 13.46627	96 01 39.38636	431373.137	169018.011	.131	3	GPS - RTRN	2015	RTRN2015
44 02 13.46581	96 01 39.38708	431373.084	169017.965	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Murray County		Acc	Order	Determination Method	Project Info	
Latitude	Longitude	X	Y				Year	Reference
44 02 13.46578	96 01 39.38802	431373.016	169017.962	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Murray County		Acc	Order	Determination Method	Project Info	
Latitude	Longitude	X	Y				Year	Reference
44 02 13.46569	96 01 39.38743	431373.059	169017.953	.033	C	GPS - STATIC	2017	HMNCORS07
44 02 13.46569	96 01 39.38743	431373.059	169017.953	.033	C	GPS - STATIC	2015	HWLSN
44 02 13.46569	96 01 39.38743	431373.059	169017.953	.016	B	GPS - STATIC	2005	GPS2036
44 02 13.46569	96 01 39.38743	431373.059	169017.953	.033	C	ADJUSTMENT	2005	GPS2097
44 02 13.46569	96 01 39.38743	431373.059	169017.953	.033	C	GPS - STATIC	2005	HPSTO
44 02 13.46569	96 01 39.38743	431373.059	169017.953	.033	C	ADJUSTMENT	2003	GPS1919
44 02 13.46569	96 01 39.38743	431373.059	169017.953	.033	C	GPS - STATIC	2003	HMURR
44 02 13.46569	96 01 39.38743	431373.059	169017.953	.033	C	ADJUSTMENT	2003	GPS1792
44 02 13.46569	96 01 39.38743	431373.059	169017.953	.033	C	ADJUSTMENT	2002	GPS1767
44 02 13.46569	96 01 39.38743	431373.059	169017.953	.033	C	GPS - STATIC	2002	HWILS
44 02 13.46569	96 01 39.38743	431373.059	169017.953	.033	C	ADJUSTMENT	2002	GPS1720
44 02 13.46569	96 01 39.38743	431373.059	169017.953	.033	C	GPS - STATIC	2002	HLISM
44 02 13.46569	96 01 39.38743	431373.059	169017.953	.033	C	GPS - STATIC	2002	HPIPE
44 02 13.46569	96 01 39.38743	431373.059	169017.953	.016	B	GPS - STATIC	1997	GPS805-B

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2091526.807	712750.315	844524.249	16011936.532	.131	3	GPS - RTRN	2024	RTRN2024
2091526.817	712750.292	844524.259	16011936.510	.003		ADJUSTMENT	2018	GPS3119
2091526.817	712750.292	844524.259	16011936.510	.003	C	GPS - STATIC	2017	HMNPH
2091526.817	712750.292	844524.259	16011936.510	.003		ADJUSTMENT	2015	GPS3109
2091526.820	712750.296	844524.262	16011936.513	.003	C	GPS - STATIC	2015	HWLSN
2091526.870	712750.338	844524.313	16011936.554	.131	3	GPS - RTRN	2015	RTRN2015
2091526.817	712750.292	844524.259	16011936.510	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2091526.748	712750.291	844524.190	16011936.509	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2091526.791	712750.281	844524.233	16011936.498	.033	C	GPS - STATIC	2017	HMNCORS07
2091526.791	712750.281	844524.233	16011936.498	.033	C	GPS - STATIC	2015	HWLSN
2091526.791	712750.281	844524.233	16011936.498	.016	B	GPS - STATIC	2005	GPS2036
2091526.791	712750.281	844524.233	16011936.498	.033	C	ADJUSTMENT	2005	GPS2097
2091526.791	712750.281	844524.233	16011936.498	.033	C	GPS - STATIC	2005	HPSTO
2091526.791	712750.281	844524.233	16011936.498	.033	C	ADJUSTMENT	2003	GPS1919
2091526.791	712750.281	844524.233	16011936.498	.033	C	GPS - STATIC	2003	HMURR
2091526.791	712750.281	844524.233	16011936.498	.033	C	ADJUSTMENT	2003	GPS1792
2091526.791	712750.281	844524.233	16011936.498	.033	C	ADJUSTMENT	2002	GPS1767
2091526.791	712750.281	844524.233	16011936.498	.033	C	GPS - STATIC	2002	HWILS
2091526.791	712750.281	844524.233	16011936.498	.033	C	ADJUSTMENT	2002	GPS1720
2091526.791	712750.281	844524.233	16011936.498	.033	C	GPS - STATIC	2002	HLISM
2091526.791	712750.281	844524.233	16011936.498	.033	C	GPS - STATIC	2002	HPIPE
2091526.791	712750.281	844524.233	16011936.498	.016	B	GPS - STATIC	1997	GPS805-B

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/KLINKER-AB9862-3S-14MAY2024.jpg	S	May 14, 2024
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/KLINKER-AB9862-2-14MAY2024.jpg		May 14, 2024
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/KLINKER-AB9862-1-14MAY2024.jpg		May 14, 2024

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



Mn/DOT Name: KRIS
County: MURRAY, MN (Sheet 1)

NGS Name: KRIS

NGS ACRN: [DQ2427](#) [Get Map](#)
NGS Quad / Sta Num : 43095411/
USGS Quad: LIME CREEK

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	40 W	435426.49	953607.65	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>
2015	2025	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: (2015) Stamping: KRIS 2015

2.6 MILES NORTH OF FULDA, 2.75 MILES NORTH ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 62 IN FULDA, AT TRUNK HIGHWAY 59 MILEPOINT 30.95, 56.2 FEET EAST OF TRUNK HIGHWAY 59, 25.6 FEET SOUTH-SOUTHWEST OF A FENCE CORNER, 0.1 MILE NORTH OF 41ST STREET, 1.5 FEET WEST OF A WITNESS POST.

Station Pair: 5104 S - MURRAY, 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>	
1515.591	.016	2/1							VERTICAL ADJUSTMENT	2017	00000903	
1515.588	.016	2/1							VERTICAL CONTROL SURVEY	2015	VGARV	

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>	
1515.617	.262					1427.651	.197	2011	GPS - RTRN	2025	RTRN2025	
1515.588						1427.635	.019	2011	HORIZONTAL ADJUSTMENT	2016	GPS3142	
1515.588	.131					1427.773	.066	1996	GPS - STATIC	2016	HGARV	
1515.588						1427.635	.019	2011	GPS - STATIC	2016	HGARV	
1515.558	.262					1427.602	.197	2011	GPS - RTRN	2015	RTRN2015	

Geoid Separations(ft): GEOID18 = -87.966 12B = -87.956 09 = -87.828 03 = -87.634

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>			<u>Geodetic Position</u>			<u>Murray 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>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
43 54 26.49098	95 36 07.65495		543368.216	121662.869	.131	3		GPS - RTRN	2025	RTRN2025		
43 54 26.49050	95 36 07.65506		543368.208	121662.820	.010			ADJUSTMENT	2016	GPS3142		
43 54 26.49050	95 36 07.65506		543368.208	121662.820	.010	C		GPS - STATIC	2016	HGARV		
43 54 26.49016	95 36 07.65532		543368.189	121662.786	.131	3		GPS - RTRN	2015	RTRN2015		

<u>NAD83(1996)</u>			<u>Geodetic Position</u>			<u>Murray 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>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
43 54 26.49028	95 36 07.65578		543368.155	121662.798	.033	C		GPS - STATIC	2016	HGARV		

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>			<u>MN State Plane - South 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>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
2202460.054	662990.849		954885.370	15960844.418	.131	3		GPS - RTRN	2025	RTRN2025		
2202460.045	662990.800		954885.361	15960844.370	.010			ADJUSTMENT	2016	GPS3142		
2202460.045	662990.800		954885.361	15960844.370	.010	C		GPS - STATIC	2016	HGARV		
2202460.025	662990.766		954885.341	15960844.336	.131	3		GPS - RTRN	2015	RTRN2015		

<u>NAD83(1996)</u>			<u>MN State Plane - South 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>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
2202459.991	662990.779		954885.307	15960844.350	.033	C		GPS - STATIC	2016	HGARV		



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/KRIS-DQ2427-3E-05AUG2025.jpg	E	Aug 5, 2025
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/KRIS-DQ2427-2-05AUG2025.jpg		Aug 5, 2025
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/KRIS-DQ2427-1-05AUG2025.jpg		Aug 5, 2025

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



Mn/DOT Name: KYLE

NGS Name: KYLE

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DO7218](#) [Get Map](#)
 NGS Quad / Sta Num : 43095412/
 USGS Quad: FULDA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	39 W	435145.26	953236.48	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>
2011	2011	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: (2011) Stamping: KYLE 2011

2.5 MILES EAST OF FULDA, 2.6 MILES EAST ALONG TRUNK HIGHWAY 62 FROM THE JUNCTION OF TRUNK HIGHWAY 62 AND TRUNK HIGHWAY 59 IN FULDA, AT TRUNK HIGHWAY 62 MILEPOINT 2.6, 67.3 FEET NORTH OF TRUNK HIGHWAY 62, 16.8 FEET EAST OF A FIELD ENTRANCE, 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>
1471.034	.016	2/1					VERTICAL ADJUSTMENT	2013	00000792
1471.034	.016	2/1					VERTICAL CONTROL SURVEY	2012	VFULD

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>
1471.034				1382.806	.016	2011	HORIZONTAL ADJUSTMENT	2014	GPS2962
1471.034				1382.806	.016	2011	GPS - STATIC	2014	HFULD
1471.034	.131			1383.176	.066	1996	GPS - STATIC	2013	HFULD
1471.017	.262			1382.976	.197	2007	GPS - RTRN	2011	RTRN2011

Geoid Separations(ft): GEOID18 = -88.186 12B = -88.163 09 = -88.041 03 = -87.857

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>									
43 51 45.25746	95 32 36.47838			558873.576	105371.657	.013		ADJUSTMENT	2014	GPS2962
43 51 45.25746	95 32 36.47838			558873.576	105371.657	.013	C	GPS - STATIC	2014	HFULD

<u>NAD83(2007)</u>				<u>Murray 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>									
43 51 45.25752	95 32 36.48019			558873.444	105371.663	.131	3	GPS - RTRN	2011	RTRN2011

<u>NAD83(1996)</u>				<u>Murray 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>									
43 51 45.25708	95 32 36.47853			558873.566	105371.619	.033	C	GPS - STATIC	2013	HFULD

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>			
<u>MN State Plane - South 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>									
2217608.579	646370.266			969837.255	15944042.328	.013		ADJUSTMENT	2014	GPS2962
2217608.579	646370.266			969837.255	15944042.328	.013	C	GPS - STATIC	2014	HFULD

<u>NAD83(2007)</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>			
<u>MN State Plane - South 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>									
2217608.446	646370.275			969837.123	15944042.338	.131	3	GPS - RTRN	2011	RTRN2011

<u>NAD83(1996)</u>				<u>UTM - Zone 15</u>			<u>Project Info</u>			
<u>MN State Plane - South 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>									
2217608.567	646370.228			969837.243	15944042.290	.033	C	GPS - STATIC	2013	HFULD



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/KYLE-DO7218-3N-08JUN2011.jpg	N	Jun 8, 2011
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/KYLE-DO7218-2-08JUN2011.jpg		Jun 8, 2011
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/KYLE-DO7218-1-08JUN2011.jpg		Jun 8, 2011

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



Mn/DOT Name: L 12

NGS Name: L 12

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP0599](#) [Get Map](#)
 NGS Quad / Sta Num : 43095414/
 USGS Quad: AVOCA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	40 W	435237.00	953948.00	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	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)	BENCH MARK DISK	NGS

Description: (2008) **Stamping:** 1567.110 L 12 1931

3.10 MILES NORTHWEST OF FULDA, 0.5 MILE WEST ALONG WEST FRONT STREET FROM THE JUNCTION OF WEST FRONT STREET AND NORTH LAFAYETTE AVENUE, THEN 2.6 MILES WEST ON 16TH AVENUE, THEN 0.4 MILE NORTH ON 200TH AVENUE, THEN 69.0 FEET EAST ON 21ST STREET, 65.0 FEET NORTH OF THE NORTH RAIL OF THE RAILROAD TRACKS, 78.0 FEET WEST OF COUNTY ROAD 36, 2.0 FEET SOUTH OF A RIGHT-OF-WAY FENCE, 1.1 FEET SOUTHEAST OF A WITNESS POST, 38.5 FEET NORTHWEST OF A TELEPHONE PEDESTAL 160, IN 1994 THE GEODETIC UNIT COULD NOT FIND THE STATION-THE STATION SITE FALLS IN A FIELD-THE RAILROAD AND THE LOCAL REFERENCE TIES ARE GONE.

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>	
1567.704	.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>	
1567.110	.007	1					VERTICAL CONTROL SURVEY	1942	L92 MINN	
1567.110	.007	1					VERTICAL CONTROL SURVEY	1935	CUTLER-VERT	

Geoid Separations(ft): GEOID18 = -87.615 12B = -87.592 09 = -87.477 03 = -87.290

* No Horizontal Positions in the Database *



Mn/DOT Name: LAKE WILSON IBP CO MAST

NGS Name: LAKE WILSON IBP CO MAST

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OQ0644](#) [Get Map](#)
 NGS Quad / Sta Num : 43096111/
 USGS Quad: EDGERTON NE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	43 W	435922.92	960128.30		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>
1981	2015	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	MNDT

Description: (1981)

Stamping:

3.61 MILES SOUTHWEST OF LAKE WILSON, 3.6 MILES WEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND COLLEGE AVENUE, THEN 0.3 MILE SOUTH ON 20TH AVENUE, 100.0 FEET WEST OF COUNTY ROAD 84, 0.25 MILE SOUTH OF TRUNK HIGHWAY 30.

* No Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -85.840 12B = -85.820 09 = -85.722 03 = -85.623

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 59 22.92011	96 01 28.30443	432128.689	151744.517	.328	4	ADJUSTMENT	1999	17648
43 59 22.91995	96 01 28.30450	432128.684	151744.500	.328	4	ADJUSTMENT	1998	17655

NAD83(1986)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 59 22.91764	96 01 28.28714	432129.952	151744.262	.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>
43 59 23.04093	96 01 27.21992			.100	4	CLASSICAL SURVEY	1982	16710

State Plane and UTM Coordinates (Feet)

NAD83(1996)

<u>MN State Plane - South 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>
2091908.458	695466.525	844699.762	15994643.100	.328	4	ADJUSTMENT	1999	17648
2091908.452	695466.509	844699.756	15994643.084	.328	4	ADJUSTMENT	1998	17655

NAD83(1986)

<u>MN State Plane - South 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>
2091909.715	695466.244	844701.016	15994642.803	.328	4	ADJUSTMENT	1986	17289

NAD27

<u>MN State Plane - South 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>
1467305.982	367389.682			.100	4	CLASSICAL SURVEY	1982	16710



Mn/DOT Name: LAKE WILSON WATER TANK

NGS Name: LAKE WILSON WATER TANK

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP0897](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

<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	12	106 N	43 W	435944.78	955708.54		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>
1981	2015	GOOD	Horz=NO Vert=NO	YES			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	ELEVATED TANK	MNDT

Description: (1981)

Stamping:

IN THE CENTER OF LAKE WILSON, 50.0 FEET EAST OF TRUNK HIGHWAY 91, 0.15 MILE NORTH ALONG TRUNK HIGHWAY 91 FROM THE WEST JUNCTION OF TRUNK HIGHWAY 91 AND TRUNK HIGHWAY 30 IN LAKE WILSON.

* No Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -86.132 12B = -86.105 09 = -860000 03 = -85.905

Lat/Lon and County Coordinates (Feet)

<u>Geodetic Position</u>		<u>Murray County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 59 44.77638	95 57 08.54477	451125.499	153906.759	.328	4	ADJUSTMENT	1999	17648
43 59 44.77633	95 57 08.54512	451125.473	153906.754	.328	4	ADJUSTMENT	1998	17655

<u>Geodetic Position</u>		<u>Murray County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 59 44.77338	95 57 08.52818	451126.711	153906.452	.328	4	ADJUSTMENT	1986	17289

<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>
43 59 44.90394	95 57 07.46639			.100	4	CLASSICAL SURVEY	1982	16710

State Plane and UTM Coordinates (Feet)

<u>MN State Plane - South 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>
2110945.465	697217.106	863762.858	15996167.187	.328	4	ADJUSTMENT	1999	17648
2110945.439	697217.102	863762.833	15996167.182	.328	4	ADJUSTMENT	1998	17655

<u>MN State Plane - South 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>
2110946.670	697216.773	863764.060	15996166.840	.328	4	ADJUSTMENT	1986	17289

<u>MN State Plane - South 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>
1486343.087	369140.991			.100	4	CLASSICAL SURVEY	1982	16710

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:			
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/LAKE_WILSON_WATER_TANK-OP0897-2-28APR2015.jpg		Apr 28, 2015
Disk:			

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



Mn/DOT Name: LEEDS MNDT

NGS Name: LEEDS

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP0883](#) [Get Map](#)
 NGS Quad / Sta Num : 43095441/
 USGS Quad: SLAYTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	26	106 N	42 W	435710.64	955112.82		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>
1980	1995	GOOD	Horz=? Vert=YES	NO		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)	HORIZONTAL CONTROL DISK	MNMT

Description: (1980) **Stamping:** LEEDS 1980

3.0 MILES SOUTH OF HADLEY, 2.8 MILES SOUTH ON COUNTY ROAD 29 FROM THE JUNCTION OF TRUNK HIGHWAY 30, 14.2 FEET WEST OF COUNTY ROAD 29, 44.0 FEET SOUTH OF A DRIVE, 97.0 FEET SOUTHWEST OF A POWER POLE, 48.0 FEET NORTHEAST OF AN UNDERGROUND CABLE MARKER, 36.8 FEET EAST OF A WITNESS POST, 37.58 FEET EAST OF LEEDS MNMT RM 2, 100.61 FEET SOUTHWEST OF LEEDS MNMT RM 1.

* 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>	
1799.865	.197		1713.566	.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>	
1799.406						RECIPROCAL VERTICAL ANGLE	1981	HORZ	

Geoid Separations(ft): GEOID18 = -86.506 12B = -86.489 09 = -86.401 03 = -86.292

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Murray 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>	
43 57 10.63825	95 51 12.82224	477114.407	138254.452	.066	2	ADJUSTMENT	1999	17648	
43 57 10.63823	95 51 12.82216	477114.413	138254.450	.066	2	ADJUSTMENT	1998	17655	

<u>NAD83(1986)</u>		<u>Murray 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>	
43 57 10.63485	95 51 12.80630	477115.573	138254.106	.066	2	ADJUSTMENT	1986	17289	

<u>NAD27</u>		<u>Murray 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>	
43 57 10.76062	95 51 11.75055			.100	2	CLASSICAL SURVEY	1982	16710	

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 - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
2136587.015	681008.237	889217.164	15979648.946	.066	2	ADJUSTMENT	1999	17648	
2136587.021	681008.235	889217.170	15979648.944	.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 - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
2136588.173	681007.866	889218.318	15979648.561	.066	2	ADJUSTMENT	1986	17289	

<u>NAD27</u>		<u>Murray County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
1511984.934	352931.841			.100	2	CLASSICAL SURVEY	1982	16710	



Mn/DOT Name: LEEDS MNDT AZ MK

NGS Name: LEEDS AZ MK

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP0893](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

<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	4	105 N	42 W	435516.03	955359.07		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	1995	GOOD	Horz=? Vert=YES	NO		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)	AZIMUTH MARK DISK	MNDT

Description: (1980) **Stamping:** LEEDS 1980

2.0 MILES EAST OF CHANDLER, 2.2 MILES SOUTH ON COUNTY ROAD 29 FROM STATION LEEDS MNDT, THEN 2.25 MILES WEST ON COUNTY ROAD 4, 21.3 FEET NORTH OF COUNTY ROAD 4, 31.0 FEET EAST OF A FIELD ENTRANCE, 8.4 FEET SOUTH OF A 45.0 MILES PER HOUR SIGNPOST, 8.3 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>		
1720.469	.262		1634.442	.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>		
1720.010						RECIPROCAL VERTICAL ANGLE	1981	HORZ		

Geoid Separations(ft): GEOID18 = -86.240 12B = -86.247 09 = -86.138 03 = -86.017

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Murray County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 55 16.02742	95 53 59.07304	464933.024	126664.317	.131	3	ADJUSTMENT	1999	17648
43 55 16.02742	95 53 59.07294	464933.031	126664.317	.131	3	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>Geodetic Position</u>		<u>Murray County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 55 16.02403	95 53 59.05664	464934.223	126663.971	.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>
43 55 16.15069	95 53 57.99801			.100	3	CLASSICAL SURVEY	1982	16710

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>		<u>MN State Plane - South 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>
2124159.175	669685.377	876651.944	15968471.514	.131	3	ADJUSTMENT	1999	17648
2124159.183	669685.377	876651.951	15968471.514	.131	3	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>MN State Plane - South 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>
2124160.367	669685.006	876653.131	15968471.129	.131	3	ADJUSTMENT	1986	17289

<u>NAD27</u>		<u>MN State Plane - South 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>
1499557.041	341609.146			.100	3	CLASSICAL SURVEY	1982	16710



Mn/DOT Name: LEEDS MNDT RM 1

NGS Name: LEEDS RM 1

County: MURRAY, MN (Sheet 1)

NGS ACRN: [CO3932](#) [Get Map](#)
 NGS Quad / Sta Num : 43095441/
 USGS Quad: SLAYTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	26	106 N	42 W	435711.41	955111.95		

<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>
1980	1995	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

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

Description: **Stamping:** LEEDS NO 1 1980

3.21 MILES SOUTH OF HADLEY, 0.4 MILE SOUTH ALONG MAIN STREET SOUTH FROM THE JUNCTION OF MAIN STREET SOUTH AND 4TH AVENUE, THEN 2.8 MILES SOUTH ON 105TH AVENUE, 48.0 FEET EAST OF THE CENTERLINE OF COUNTY ROAD 29 AND 4.5 FEET NORTH-NORTHWEST OF A POWER POLE.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -86.506 12B = -86.489 09 = -86.404 03 = -86.292



Mn/DOT Name: LEEDS MNDT RM 2

NGS Name: LEEDS RM 2

County: MURRAY, MN (Sheet 1)

NGS ACRN: [CO3933](#) [Get Map](#)
 NGS Quad / Sta Num : 43095441/
 USGS Quad: SLAYTON

<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	26	106 N	42 W	435710.72	955113.32		

<u>Year Set</u>	<u>Last Recovery</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	1995	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

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

Description: **Stamping:** LEEDS NO 2 1980

3.21 MILES SOUTH OF HADLEY, 0.4 MILE SOUTH ALONG MAIN STREET SOUTH FROM THE JUNCTION OF MAIN STREET SOUTH AND 4TH AVENUE, THEN 2.8 MILES SOUTH ON 105TH AVENUE, 50.5 FEET WEST OF THE CENTERLINE OF TRUNK HIGHWAY 29, 36.5 FEET SOUTH OF THE CENTER OF A DRIVEWAY, 39.4 FEET NORTH OF AN UNDERGROUND CABLE MARKER POST, 2.5 FEET SOUTHEAST OF A CORNER FENCE POST, 1.0 FOOT EAST OF A FENCE, 9.2 FEET NORTH OF A STEEL WITNESS POST.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -86.506 12B = -86.489 09 = -86.404 03 = -86.292



Mn/DOT Name: LIM MNDT TEMP

NGS Name: LIM TEMP

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP0841](#) [Get Map](#)
 NGS Quad / Sta Num : 43095414/
 USGS Quad: AVOCA

<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	10	106 N	40 W	435955.74	953834.17		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>
1981	2008	NOT FOUND	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	MNDT

Description: (1981) **Stamping:** LIM 1981

3.5 MILES NORTH OF AVOCA, 312.0 FEET NORTHEAST ALONG 1ST STREET NORTHEAST FROM THE JUNCTION OF 1ST STREET NORTHEAST AND TRUNK HIGHWAY 59, 0.5 MILE NORTHWEST AND NORTHEAST ON GRAND AVENUE, THEN 2.9 MILES NORTH ON 210TH AVENUE, 12.3 FEET EAST OF COUNTY ROAD 38, 42.45 FEET SOUTHWEST OF A STEEL POST, 41.20 FEET NORTHWEST OF A STEEL 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>		
1568.894	.197		1481.510	.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>		
1568.107						RECIPROCAL VERTICAL ANGLE	1981	HORZ		

Geoid Separations(ft): GEOID18 = -87.707 12B = -87.707 09 = -87.611 03 = -87.415

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Murray County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 59 55.73795	95 38 34.17157	532590.992	154986.245	.066	2	ADJUSTMENT	1999	17648
43 59 55.73742	95 38 34.16589	532591.407	154986.192	.066	2	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>Geodetic Position</u>		<u>Murray County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 59 55.73590	95 38 34.15739	532592.029	154986.039	.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>
43 59 55.86326	95 38 33.12272			.100	2	CLASSICAL SURVEY	1982	16710

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>		<u>MN State Plane - South 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>
2192406.079	696535.628	945230.625	15994512.721	.066	2	ADJUSTMENT	1999	17648
2192406.493	696535.566	945231.038	15994512.654	.066	2	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>MN State Plane - South 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>
2192407.111	696535.399	945231.654	15994512.480	.066	2	ADJUSTMENT	1986	17289

<u>NAD27</u>		<u>MN State Plane - South 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>
1567803.842	368459.565			.100	2	CLASSICAL SURVEY	1982	16710



Mn/DOT Name: LIME

NGS Name: LIME

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DK2719](#) [Get Map](#)
 NGS Quad / Sta Num : 43095414/
 USGS Quad: AVOCA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	40 W	435819.18	954203.97	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>
2006	2016	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: (2006) **Stamping:** LIME 2006

3.0 MILES SOUTHEAST OF SLAYTON, 3.1 MILES SOUTHEAST ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 30 IN SLAYTON, AT TRUNK HIGHWAY 59 MILEPOINT 38.0, 75.7 FEET NORTHEAST OF TRUNK HIGHWAY 59, 10.1 FEET NORTHWEST OF A FIELD ENTRANCE, 3.3 FEET SOUTHEAST OF A WITNESS POST.

Station Pair: 5104 X - MURRAY, 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>	
1537.412	.016	2/1				2017	00000903	VERTICAL ADJUSTMENT		2017	00000903	
1537.408	.016	2/1				2015	VGARV	VERTICAL CONTROL SURVEY		2015	VGARV	
1537.402	.016	2/1				2010	00000628	VERTICAL ADJUSTMENT		2010	00000628	
1537.402	.016	2/1				2007	VSLAT	VERTICAL CONTROL SURVEY		2007	VSLAT	

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>	
1537.402			1449.869	.011	2011	2016	GPS3142	HORIZONTAL ADJUSTMENT		2016	GPS3142	
1537.402	.131		1450.099	.066	1996	2016	HGARV	GPS - STATIC		2016	HGARV	
1537.402			1449.869	.011	2011	2016	HGARV	GPS - STATIC		2016	HGARV	
1537.339	.262		1449.836	.197	2011	2015	RTRN2015	GPS - RTRN		2015	RTRN2015	
			1449.869	.011	2011	2012	GPS2800	HORIZONTAL ADJUSTMENT		2012	GPS2800	
1537.300	.262		1449.882	.197	2007	2012	RTRN2012	GPS - RTRN		2012	RTRN2012	
			1449.961	.066	2007	2011	GPS2386-B	HORIZONTAL ADJUSTMENT		2011	GPS2386-B	
1537.398	.131		1450.099	.066	1996	2007	GPS2386	HORIZONTAL ADJUSTMENT		2007	GPS2386	
1537.398	.131		1450.099	.066	1996	2007	HSLAT	GPS - STATIC		2007	HSLAT	

Geoid Separations(ft): GEOID18 = -87.516 12B = -87.500 09 = -87.418 03 = -87.228

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Murray 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>							
43 58 19.17739	95 42 03.96560	517262.393	145190.084	.007		ADJUSTMENT	2016	GPS3142
43 58 19.17739	95 42 03.96560	517262.393	145190.084	.007	C	GPS - STATIC	2016	HGARV
43 58 19.17761	95 42 03.96506	517262.432	145190.106	.131	3	GPS - RTRN	2015	RTRN2015
43 58 19.17739	95 42 03.96560	517262.393	145190.084	.007		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>		<u>Murray 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>							
43 58 19.17698	95 42 03.96649	517262.328	145190.042	.131	3	GPS - RTRN	2012	RTRN2012
43 58 19.17733	95 42 03.96640	517262.334	145190.078	.033	C	ADJUSTMENT	2011	GPS2386-B

<u>NAD83(1996)</u>		<u>Murray 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>							
43 58 19.17684	95 42 03.96572	517262.384	145190.028	.033	C	GPS - STATIC	2016	HGARV
43 58 19.17684	95 42 03.96572	517262.384	145190.028	.033	C	ADJUSTMENT	2007	GPS2386
43 58 19.17684	95 42 03.96572	517262.384	145190.028	.033	C	GPS - STATIC	2007	HSLAT

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2176871.171	687073.921	929580.642	15985235.369	.007		ADJUSTMENT	2016	GPS3142
2176871.171	687073.921	929580.642	15985235.369	.007	C	GPS - STATIC	2016	HGARV
2176871.211	687073.942	929580.682	15985235.390	.131	3	GPS - RTRN	2015	RTRN2015
2176871.171	687073.921	929580.642	15985235.369	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2176871.105	687073.881	929580.575	15985235.330	.131	3	GPS - RTRN	2012	RTRN2012
2176871.112	687073.916	929580.583	15985235.365	.033	C	ADJUSTMENT	2011	GPS2386-B

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2176871.161	687073.865	929580.631	15985235.314	.033	C	GPS - STATIC	2016	HGARV
2176871.161	687073.865	929580.631	15985235.314	.033	C	ADJUSTMENT	2007	GPS2386
2176871.161	687073.865	929580.631	15985235.314	.033	C	GPS - STATIC	2007	HSLAT

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/LIME-DK2719-3NE-10JUN2015.jpg	NE	Jun 10, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/LIME-DK2719-2-10JUN2015.jpg		Jun 10, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/LIME-DK2719-1-10JUN2015.jpg		Jun 10, 2015

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



Mn/DOT Name: LOREN

NGS Name: LOREN

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DQ2425](#) [Get Map](#)
 NGS Quad / Sta Num : 43095414/
 USGS Quad: AVOCA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	40 W	435713.85	953858.01	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	2025	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: (2015) Stamping: LOREN 2015

IN AVOCA, 0.4 MILE NORTHWEST ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND COUNTY ROAD 6 (2ND STREET) IN AVOCA, AT TRUNK HIGHWAY 59 MILEPOINT 35.1, 53.6 FEET SOUTHWEST OF TRUNK HIGHWAY 59, 14.5 FEET NORTHWEST OF A PUBLIC WATER ACCESS, 0.2 MILE SOUTHEAST OF LIME LAKE DRIVE, 3.8 FEET NORTHEAST OF A WITNESS POST.

Station Pair: HANNAH - MURRAY, 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>	
1521.470	.016	2/1					VERTICAL ADJUSTMENT	2017	00000903	
1521.470	.016	2/1					VERTICAL CONTROL SURVEY	2015	VGARV	

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>	
1521.523	.262			1433.773	.197	2011	GPS - RTRN	2025	RTRN2025	
1521.470				1433.714	.018	2011	HORIZONTAL ADJUSTMENT	2016	GPS3142	
1521.470	.131			1433.852	.066	1996	GPS - STATIC	2016	HGARV	
1521.470				1433.714	.018	2011	GPS - STATIC	2016	HGARV	
1521.427	.262			1433.695	.197	2011	GPS - RTRN	2015	RTRN2015	

Geoid Separations(ft): GEOID18 = -87.749 12B = -87.736 09 = -87.638 03 = -87.444

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>			
43 57 13.84754	95 38 58.01105			530871.594	138589.339	.131	3	GPS - RTRN	2025	RTRN2025
43 57 13.84783	95 38 58.01093			530871.603	138589.368	.007		ADJUSTMENT	2016	GPS3142
43 57 13.84783	95 38 58.01093			530871.603	138589.368	.007	C	GPS - STATIC	2016	HGARV
43 57 13.84751	95 38 58.01211			530871.517	138589.336	.131	3	GPS - RTRN	2015	RTRN2015

<u>NAD83(1996)</u>				<u>Murray 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>			
43 57 13.84760	95 38 58.01158			530871.555	138589.345	.033	C	GPS - STATIC	2016	HGARV

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 - South 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>
2190333.157	680181.479			942962.120	15978181.386	.131	3	GPS - RTRN	2025	RTRN2025
2190333.166	680181.508			942962.130	15978181.415	.007		ADJUSTMENT	2016	GPS3142
2190333.166	680181.508			942962.130	15978181.415	.007	C	GPS - STATIC	2016	HGARV
2190333.079	680181.477			942962.042	15978181.386	.131	3	GPS - RTRN	2015	RTRN2015

<u>NAD83(1996)</u>				<u>UTM - Zone 15</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - South 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>
2190333.118	680181.485			942962.082	15978181.394	.033	C	GPS - STATIC	2016	HGARV



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/LOREN-DQ2425-3SW-05AUG2025.jpg	SW	Aug 5, 2025
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/LOREN-DQ2425-2-05AUG2025.jpg		Aug 5, 2025
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/LOREN-DQ2425-1-05AUG2025.jpg		Aug 5, 2025

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



Mn/DOT Name: LOWVIL MNDT

NGS Name: LOWVIL

County: MURRAY, MN (Sheet 1)

NGS ACRN: [AH3660](#) [Get Map](#)
 NGS Quad / Sta Num : 44095333/
 USGS Quad: BALATON 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	7	107 N	42 W	440449.96	955623.50	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>
1993	2024	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: (1993) Stamping: LOWVIL 1993

6.0 MILES NORTH OF LAKE WILSON, 6.25 MILES NORTH ALONG TRUNK HIGHWAY 91 FROM THE JUNCTION OF TRUNK HIGHWAY 91 AND TRUNK HIGHWAY 30 IN LAKE WILSON TO TRUNK HIGHWAY MILEPOINT 45.05, THEN 0.2 MILE EAST ALONG 161ST STREET, 25.0 FEET NORTH OF 161ST STREET, 2.5 FEET EAST OF A WITNESS POST.

Station Pair: OASIS MNDT - MURRAY, 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>
1698.838	.016	2/1				VERTICAL ADJUSTMENT		2020	00000949
1698.838	.016	2/1				VERTICAL ADJUSTMENT		2017	00000903
1698.835	.016	2/1				VERTICAL CONTROL SURVEY		2016	VRUSS

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>
1698.829	.262		1612.329	.197	2011	GPS - RTRN		2024	RTRN2024
1698.760	.262		1612.261	.197	2011	GPS - OPUS		2019	GPSBM
1698.842	.262		1612.343	.197	2011	GPS - RTRN		2019	RTRN2019
1698.753	.262		1612.254	.197	2011	GPS - RTRN		2016	RTRN2016
			1612.343	.017	2011	HORIZONTAL ADJUSTMENT		2012	GPS2800
			1612.431	.015	2007	HORIZONTAL ADJUSTMENT		2007	GPS2300
1698.717	.131		1612.418	.066	1996	HORIZONTAL ADJUSTMENT		1999	17648
1698.750	.131		1612.418	.066	1996	HORIZONTAL ADJUSTMENT		1998	GPS937

<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>
1698.094						GPS - STATIC		1993	HORZ

Geoid Separations(ft): GEOID18 = -86.499 12B = -86.499 09 = -86.404 03 = -86.250

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 04 49.95793	95 56 23.49509	454483.831	184805.069	.131	3	GPS - RTRN	2024	RTRN2024
44 04 49.95800	95 56 23.49546	454483.804	184805.076	.131	3	GPS - OPUS	2019	GPSBM
44 04 49.95781	95 56 23.49551	454483.800	184805.057	.131	3	GPS - RTRN	2019	RTRN2019
44 04 49.95830	95 56 23.49514	454483.828	184805.106	.131	3	GPS - RTRN	2016	RTRN2016
44 04 49.95838	95 56 23.49545	454483.805	184805.114	.016		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 04 49.95839	95 56 23.49641	454483.735	184805.116	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 04 49.95822	95 56 23.49151	454484.093	184805.098	.033	C	ADJUSTMENT	1999	17648
44 04 49.95822	95 56 23.49151	454484.093	184805.098	.033	C	ADJUSTMENT	1998	GPS937

NAD83(1986)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 04 49.95548	95 56 23.47481	454485.311	184804.817	.066	2	GPS - STATIC	1993	HMARS

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2114970.829	728031.904	868157.684	16026941.849	.131	3	GPS - RTRN	2024	RTRN2024
2114970.802	728031.911	868157.657	16026941.857	.131	3	GPS - OPUS	2019	GPSBM
2114970.798	728031.892	868157.653	16026941.838	.131	3	GPS - RTRN	2019	RTRN2019
2114970.826	728031.941	868157.682	16026941.886	.131	3	GPS - RTRN	2016	RTRN2016
2114970.804	728031.950	868157.659	16026941.895	.016		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2114970.734	728031.952	868157.589	16026941.899	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2114971.091	728031.927	868157.946	16026941.869	.033	C	ADJUSTMENT	1999	17648
2114971.091	728031.927	868157.946	16026941.869	.033	C	ADJUSTMENT	1998	GPS937

NAD83(1986)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2114972.303	728031.621	868159.155	16026941.548	.066	2	GPS - STATIC	1993	HMARS

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/LOWVIL-AH3660-3N-13MAY2024.jpg	N	May 13, 2024
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/LOWVIL-AH3660-2-13MAY2024.jpg		May 13, 2024
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/LOWVIL-AH3660-1-13MAY2024.jpg		May 13, 2024

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



Mn/DOT Name: M 12

NGS Name: M 12

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP0600](#) [Get Map](#)
 NGS Quad / Sta Num : 43095412/
 USGS Quad: FULDA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	25	105 N	40 W	435212.30	953601.10	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>
1931	2015	GOOD	Horz=NO Vert=YES	YES			NO MAG MATERIAL

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
WALL	BENCH MARK DISK	NGS

Description: (2006) **Stamping:** M 12 1931 1532.084

0.35 MILE WEST ALONG COUNTY ROAD 2 FROM THE JUNCTION OF COUNTY ROAD 2 AND TRUNK HIGHWAY 59 IN FULDA, 130.0 FEET NORTH OF COUNTY ROAD 2, 53.0 FEET WEST OF ST. PAUL AVENUE, IN THE EAST WALL OF A BANK BUILDING, 1.0 FOOT FROM THE SOUTHEAST 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>	
1532.658	.016	2/1					VERTICAL ADJUSTMENT	2010	00000628	
1532.658	.016	2/1					VERTICAL CONTROL SURVEY	2007	VSLAT	
1532.658	.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>	
1532.084	.007	1/2					UNKNOWN/APPROXIMATE	1992	UNCHECKD	
1532.084	.033	3					VERTICAL CONTROL SURVEY	1968	USGS-VERT	
1532.084	.007	1					VERTICAL CONTROL SURVEY	1942	L92 MINN	
1532.084	.007	1					VERTICAL CONTROL SURVEY	1935	CUTLER-VERT	

Geoid Separations(ft): GEOID18 = -87.930 12B = -87.907 09 = -87.779 03 = -87.595

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/M_12-OP0600-3W-17MAY2011.jpg	W	May 17, 2011
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/M_12-OP0600-2-17MAY2011.jpg		May 17, 2011
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/M_12-OP0600-1-17MAY2011.jpg		May 17, 2011

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



Mn/DOT Name: MACIE

NGS Name: MACIE

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DQ2416](#) [Get Map](#)
 NGS Quad / Sta Num : 44095323/
 USGS Quad: CURRIE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	108 N	41 W	440633.61	954438.31	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	2016	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: (2015) Stamping: MACIE 2015

4.7 MILES NORTHWEST OF CURRIE, 2.5 MILES NORTH ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 30 EAST (THE JUNCTION IS 4.0 MILES WEST OF CURRIE), AT TRUNK HIGHWAY 59 MILEPOINT 49.4, 116.9 FEET WEST OF TRUNK HIGHWAY 59, 49.0 FEET NORTH OF COUNTY ROAD 48, 32.2 FEET EAST OF A RIGHT-OF-WAY POST, 1.5 FEET EAST OF A WITNESS POST.

Station Pair: BLOODY - MURRAY, 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>	
1570.601	.016	2/1				2017	00000903	VERTICAL ADJUSTMENT				
1570.604	.016	2/1				2015	VGARV	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>	
1570.604			1483.268	.017	2011	2016	GPS3142	HORIZONTAL ADJUSTMENT				
1570.604	.131		1483.435	.066	1996	2016	HGARV	GPS - STATIC				
1570.604			1483.268	.017	2011	2016	HGARV	GPS - STATIC				
1570.502	.262		1483.153	.197	2011	2015	RTRN2015	GPS - RTRN				

Geoid Separations(ft): GEOID18 = -87.355 12B = -87.352 09 = -87.270 03 = -87.103

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Murray County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 06 33.61196	95 44 38.30827	505960.745	195255.154	.007		ADJUSTMENT	2016	GPS3142
44 06 33.61196	95 44 38.30827	505960.745	195255.154	.007	C	GPS - STATIC	2016	HGARV
44 06 33.61165	95 44 38.30783	505960.777	195255.123	.131	3	GPS - RTRN	2015	RTRN2015

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Murray County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 06 33.61159	95 44 38.30882	505960.705	195255.117	.033	C	GPS - STATIC	2016	HGARV

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>		<u>MN State Plane - South 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>
2166655.100	737365.521	919965.208	16035657.314	.007		ADJUSTMENT	2016	GPS3142
2166655.100	737365.521	919965.208	16035657.314	.007	C	GPS - STATIC	2016	HGARV
2166655.132	737365.489	919965.239	16035657.282	.131	3	GPS - RTRN	2015	RTRN2015

<u>NAD83(1996)</u>		<u>MN State Plane - South 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>
2166655.060	737365.485	919965.167	16035657.278	.033	C	GPS - STATIC	2016	HGARV



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/MACIE-DQ2416-3W-14JUL2015.jpg	W	Jul 14, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/MACIE-DQ2416-2-14JUL2015.jpg		Jul 14, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/MACIE-DQ2416-1-14JUL2015.jpg		Jul 14, 2015

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



Mn/DOT Name: MARIS MNDT

NGS Name: MARIS

County: MURRAY, MN (Sheet 1)

NGS ACRN: [AH3665](#) [Get Map](#)
 NGS Quad / Sta Num : 44095334/
 USGS Quad: CURRENT 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>
NW	1	108 N	43 W	441146.68	955742.38	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	2024	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 18 FT)	SURVEY DISK	MNDT

Description: (1993) Stamping: MARIS 1993

9.0 MILES SOUTH OF RUSSELL, 7.95 MILES SOUTH ALONG TRUNK HIGHWAY 91 FROM THE JUNCTION OF TRUNK HIGHWAY 91 AND TRUNK HIGHWAY 23 IN RUSSELL TO TRUNK HIGHWAY 91 MILEPOINT 53.40, THEN 0.02 MILE WEST ON COUNTY ROAD 12 (LYON MURRAY ROAD), 36.0 FEET SOUTH OF COUNTY ROAD 12, 4.0 FEET EAST OF A FIELD ENTRANCE, 13.0 FEET NORTH OF A WITNESS POST.

Station Pair: SEILER MNDT RESET - LYON, 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>
1692.444	.016	2/1				VERTICAL ADJUSTMENT		2020	00000949
1692.444	.016	2/1				VERTICAL ADJUSTMENT		2017	00000903
1692.447	.016	2/1				VERTICAL CONTROL SURVEY		2016	VRUSS

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>
1692.543	.262		1605.886	.197	2011	GPS - RTRN		2024	RTRN2024
1692.438	.262		1605.771	.197	2011	GPS - RTRN		2016	RTRN2016
			1605.781	.034	2011	HORIZONTAL ADJUSTMENT		2012	GPS2800
			1605.833	.010	2007	HORIZONTAL ADJUSTMENT		2007	GPS2300
1692.451	.131		1606.027	.066	1996	HORIZONTAL ADJUSTMENT		2003	GPS1919
1692.451	.131		1606.027	.066	1996	GPS - STATIC		2003	HMURR
1692.385	.197		1605.892	.131	1996	HORIZONTAL ADJUSTMENT		1999	17648
1692.451	.197		1605.892	.131	1996	HORIZONTAL ADJUSTMENT		1998	GPS937

<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>
1691.696						GPS - STATIC		1993	HORZ

Geoid Separations(ft): GEOID18 = -86.657 12B = -86.666 09 = -86.581 03 = -86.443

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 11 46.67847	95 57 42.37550	448825.343	227019.658	.131	3	GPS - RTRN	2024	RTRN2024
44 11 46.67945	95 57 42.37530	448825.358	227019.757	.131	3	GPS - RTRN	2016	RTRN2016
44 11 46.67933	95 57 42.37846	448825.128	227019.745	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 11 46.67943	95 57 42.37933	448825.064	227019.756	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 11 46.67873	95 57 42.37885	448825.099	227019.684	.033	C	ADJUSTMENT	2003	GPS1919
44 11 46.67873	95 57 42.37884	448825.100	227019.684	.033	C	GPS - STATIC	2003	HMURR
44 11 46.67834	95 57 42.38382	448824.737	227019.646	.066	2	ADJUSTMENT	1999	17648
44 11 46.67834	95 57 42.38382	448824.737	227019.646	.066	2	ADJUSTMENT	1998	GPS937

NAD83(1986)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 11 46.67567	95 57 42.36408	448826.175	227019.372	.066	2	GPS - STATIC	1993	HMARS

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2110227.365	770353.406	863921.655	16069331.832	.131	3	GPS - RTRN	2024	RTRN2024
2110227.381	770353.505	863921.674	16069331.931	.131	3	GPS - RTRN	2016	RTRN2016
2110227.151	770353.498	863921.443	16069331.927	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2110227.088	770353.510	863921.380	16069331.939	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2110227.121	770353.438	863921.413	16069331.867	.033	C	ADJUSTMENT	2003	GPS1919
2110227.122	770353.438	863921.413	16069331.867	.033	C	GPS - STATIC	2003	HMURR
2110226.758	770353.407	863921.049	16069331.841	.066	2	ADJUSTMENT	1999	17648
2110226.758	770353.407	863921.049	16069331.841	.066	2	ADJUSTMENT	1998	GPS937

NAD83(1986)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2110228.189	770353.103	863922.477	16069331.519	.066	2	GPS - STATIC	1993	HMARS

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/MARIS-AH3665-3S-13MAY2024.jpg	S	May 13, 2024
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/MARIS-AH3665-2-13MAY2024.jpg		May 13, 2024
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/MARIS-AH3665-1-13MAY2024.jpg		May 13, 2024

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



Mn/DOT Name: MARTY

NGS Name: MARTY

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DO7216](#) [Get Map](#)
 NGS Quad / Sta Num : 43095412/
 USGS Quad: FULDA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	39 W	435145.65	953049.59	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	2011	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: (2012) Stamping: MARTY 2011

4.0 MILES EAST OF FULDA, 4.1 MILES EAST ALONG TRUNK HIGHWAY 62 FROM THE JUNCTION OF TRUNK HIGHWAY 62 AND TRUNK HIGHWAY 59 IN FULDA, AT TRUNK HIGHWAY 62 MILEPOINT 4.1, 70.3 FEET NORTH OF TRUNK HIGHWAY 62, 13.8 FEET WEST OF AN 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>	
1474.160	.016	2/1						VERTICAL ADJUSTMENT	2013	00000792	
1474.164	.016	2/1						VERTICAL CONTROL SURVEY	2012	VFULD	

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>	
1474.164				1385.873	.020	2011		HORIZONTAL ADJUSTMENT	2014	GPS2962	
1474.164				1385.873	.020	2011		GPS - STATIC	2014	HFULD	
1474.164	.131			1386.172	.066	1996		GPS - STATIC	2013	HFULD	
1474.229	.262			1386.057	.197	2007		GPS - RTRN	2011	RTRN2011	

Geoid Separations(ft): GEOID18 = -88.313 12B = -88.294 09 = -88.172 03 = -87.995

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>										
43 51 45.64548	95 30 49.58682			566705.317	105433.571		.013		ADJUSTMENT	2014	GPS2962
43 51 45.64548	95 30 49.58682			566705.317	105433.571		.013	C	GPS - STATIC	2014	HFULD

<u>NAD83(2007)</u>				<u>Murray 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>										
43 51 45.64626	95 30 49.58812			566705.222	105433.650		.131	3	GPS - RTRN	2011	RTRN2011

<u>NAD83(1996)</u>				<u>Murray 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>										
43 51 45.64532	95 30 49.58711			566705.296	105433.555		.033	C	GPS - STATIC	2013	HFULD

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>				<u>MN State Plane - South 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>			
2225439.095	646263.112			977666.915	15943842.046		.013		ADJUSTMENT	2014	GPS2962			
2225439.095	646263.112			977666.915	15943842.046		.013	C	GPS - STATIC	2014	HFULD			

<u>NAD83(2007)</u>				<u>MN State Plane - South 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>			
2225439.001	646263.193			977666.823	15943842.128		.131	3	GPS - RTRN	2011	RTRN2011			

<u>NAD83(1996)</u>				<u>MN State Plane - South 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>			
2225439.073	646263.097			977666.893	15943842.031		.033	C	GPS - STATIC	2013	HFULD			



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/MARTY-DO7216-3N-08JUN2011.jpg	N	Jun 8, 2011
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/MARTY-DO7216-2-08JUN2011.jpg		Jun 8, 2011
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/MARTY-DO7216-1-08JUN2011.jpg		Jun 8, 2011

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



Mn/DOT Name: MASON MNDT

NGS Name: MASON

County: MURRAY, MN (Sheet 1)

NGS ACRN: [PQ1388](#) [Get Map](#)
 NGS Quad / Sta Num : 44095331/
 USGS Quad: BALATON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	27	108 N	41 W	440817.29	954508.31	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>
1987	2015	DESTROYED	Horz=NO Vert=NO	NO		PROJECTS 2 IN.	MARKER W/BAR MAGNET

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

Description: (1987) **Stamping:** MASON 1987

5.5 MILES SOUTH OF GARVIN, 7.2 MILES SOUTH ON TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 14, THEN 0.4 MILE WEST ON COUNTY ROAD 16, 16.5 FEET SOUTH OF COUNTY ROAD 16, 108.0 FEET WEST OF A DRIVEWAY, 147.7 FEET WEST-NORTHWEST OF A TELEPHONE CABLE MARKER, 50.5 FEET NORTHEAST OF A WITNESS POST, 45.7 FEET NORTHWEST OF A WITNESS POST, 44.74 FEET NORTHWEST OF MASON MNDT RM 1, 49.31 FEET NORTHEAST OF MASON MNDT RM 2.

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>					
1543.091	.016	2/1				1995	00000135					

<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>					
1542.408	.016	2/1				1987	VSLAY					

Geoid Separations(ft): GEOID18 = -87.382 12B = -87.375 09 = -87.290 03 = -87.136

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1986)</u>		<u>Geodetic Position</u>				<u>Murray 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>						
44 08 17.29864	95 45 08.31084	503769.740	205755.117	3.281		1988	HSLAY						

State Plane and UTM Coordinates (Feet)

<u>NAD83(1986)</u>		<u>MN State Plane - South 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>						
2164691.755	747909.004	918128.279	16046226.287	3.281		1988	HSLAY						



Mn/DOT Name: MASON MNDT RM 1

NGS Name: MASON RM 1

County: MURRAY, MN (Sheet 1)

NGS ACRN: [PQ1387](#) [Get Map](#)
 NGS Quad / Sta Num : 44095331/
 USGS Quad: BALATON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	27	108 N	41 W	440817.00	954508.00	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>
1987	2015	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	MARKER W/BAR MAGNET

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

Description: (1987) **Stamping:** MASON NO 1 1987

5.5 MILES SOUTH OF GARVIN, 7.2 MILES SOUTH ON TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 14, THEN 0.4 MILE WEST ON COUNTY ROAD 16, 52.5 FEET SOUTH OF COUNTY ROAD 16, 82.0 FEET WEST OF A FARM ENTRANCE, 115.0 FEET WEST OF A TELEPHONE CABLE MARKER POST, 44.74 SOUTHEAST OF STATION MASON MNDT, 59.16 FEET EAST OF MASON MNDT RM 2, 1.6 FEET WEST-NORTHWEST 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>
1540.906	.016	2/1				VERTICAL ADJUSTMENT	1995	00000135

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>
1540.223	.016	2/1				VERTICAL CONTROL SURVEY	1987	VSLAY

Geoid Separations(ft): GEOID18 = -87.382 12B = -87.375 09 = -87.290 03 = -87.136

* No Horizontal Positions in the Database *



Mn/DOT Name: MASON MNDT RM 1 RESET

NGS Name: MASON RM 1 RESET

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DQ2415](#) [Get Map](#)
 NGS Quad / Sta Num : 44095331/
 USGS Quad: BALATON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	27	108 N	41 W	440816.95	954507.96	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>
2015	2015	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 18 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2015) Stamping: MASON NO 1 1987 2015

5.5 MILES SOUTH OF GARVIN, 5.35 MILES SOUTH ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 14 EAST IN GARVIN (THE JUNCTION IS 0.4 MILE WEST OF COUNTY ROAD 16) TO TRUNK HIGHWAY 59 MILEPOINT 51.4, 52.5 FEET SOUTH OF COUNTY ROAD 16, 82.0 FEET WEST OF DRIVEWAY NUMBER 1561, 1.0 FEET WEST OF A WITNESS POST. THE ROD DEPTH IS UNKNOWN.

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>
1540.748	.016	2/1					VERTICAL ADJUSTMENT	2017	00000903
1540.748	.016	2/1					VERTICAL CONTROL SURVEY	2015	VGARV

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>
1540.653	.262			1453.278	.197	2011	GPS - RTRN	2015	RTRN2015

Geoid Separations(ft): GEOID18 = -87.382 12B = -87.375 09 = -87.290 03 = -87.136

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>									
44 08 16.94512	95 45 07.96388			503795.049	205719.320	.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 - South 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>									
2164716.282	747872.673			918152.374	16046189.654	.131	3	GPS - RTRN	2015	RTRN2015

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/MASON_RM_1_RESET-DQ2415-3S-16JUN2015.jpg	S	Jun 16, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/MASON_RM_1_RESET-DQ2415-2-16JUN2015.jpg		Jun 16, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/MASON_RM_1_RESET-DQ2415-1-16JUN2015.jpg		Jun 16, 2015

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



Mn/DOT Name: MASON MNDT RM 2

NGS Name: MASON RM 2

County: MURRAY, MN (Sheet 1)

NGS ACRN: [PQ1389](#) [Get Map](#)
 NGS Quad / Sta Num : 44095331/
 USGS Quad: BALATON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	27	108 N	41 W	440817.00	954508.00	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>
1987	2015	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	MARKER W/BAR MAGNET

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

Description: (1987)

Stamping: MASON NO 2 1987

5.5 MILES SOUTH OF GARVIN, 7.2 MILES SOUTH ON TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY, 14 THEN 0.4 MILE WEST ON COUNTY ROAD 16, 55.0 FEET SOUTH OF COUNTY ROAD 16, 49.31 FEET SOUTHWEST OF STATION MASON MNDT, 59.16 FEET WEST OF MASON MNDT RM 1, 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>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>		<u>Height</u>	<u>Acc</u>	<u>Adj</u>				<u>Year</u>	<u>Reference</u>		
1540.256	.016	2/1						VERTICAL ADJUSTMENT		1995	00000135		

<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>		
1539.574	.016	2/1						VERTICAL CONTROL SURVEY		1987	VSLAY		

Geoid Separations(ft): GEOID18 = -87.382 12B = -87.375 09 = -87.290 03 = -87.136

* No Horizontal Positions in the Database *



Mn/DOT Name: MASON MNDT RM 3

NGS Name: MASON RM 3

County: MURRAY, MN (Sheet 1)

NGS ACRN: [PQ1386](#) [Get Map](#)
 NGS Quad / Sta Num : 44095324/
 USGS Quad: TRACY WEST

				Reference	Reference	Vert	Horz
1/4	Sec	Twp	Rng	Latitude	Longitude	Order	Order
SW	23	108 N	41 W	440817.78	954416.47	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1987	2015	GOOD	Horz=NO Vert=YES	YES		RECESSED 1 IN.	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 23 FT)	REFERENCE MARK DISK	MNDT

Description: (1987) **Stamping:** MASON NO 3 1987

5.5 MILES SOUTH OF GARVIN, 7.2 MILES SOUTH ON TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 14 (THE JUNCTION IS 1.5 MILES NORTH OF GARVIN), THEN 0.3 MILE EAST ON COUNTY ROAD 50 (201ST STREET), 33.0 FEET NORTH OF COUNTY ROAD 89, 6.8 FEET WEST-SOUTHWEST OF A POWER POLE, 3.0 FEET EAST OF A WITNESS POST.

Station Notes

THE MARK IS UNDER A HIGH VOLTAGE LINE - NO GPS.

Leveling-Derived Orthometric Heights (Feet)

NAVD88				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1549.744	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903
1549.741	.016	2/1				VERTICAL CONTROL SURVEY	2015	VGARV
1549.744	.016	2/1				VERTICAL ADJUSTMENT	1995	00000135

NGVD29				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1549.062	.016	2/1				VERTICAL CONTROL SURVEY	1987	VSLAY

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1549.646	.262		1462.225	.197	2011	GPS - RTRN	2015	RTRN2015

Geoid Separations(ft): GEOID18 = -87.428 12B = -87.424 09 = -87.336 03 = -87.185

Lat/Lon and County Coordinates (Feet)

NAD83(2011)				Murray County			Project Info			
Geodetic Position				X	Y	Acc	Order	Determination Method	Year	Reference
Latitude	Longitude									
44 08 17.78192	95 44 16.46693			507550.746	205805.048	.131	3	GPS - RTRN	2015	RTRN2015

NAD83(1986)				Murray County			Project Info			
Geodetic Position				X	Y	Acc	Order	Determination Method	Year	Reference
Latitude	Longitude									
44 08 17.77763	95 44 16.45349			507551.728	205804.615	3.281		CLASSICAL SURVEY	1988	HSLAY

State Plane and UTM Coordinates (Feet)

NAD83(2011)				UTM - Zone 15			Project Info			
MN State Plane - South Zone				X	Y	Acc	Order	Determination Method	Year	Reference
X	Y									
2168472.458	747877.225			921909.275	16046149.012	.131	3	GPS - RTRN	2015	RTRN2015

NAD83(1986)				UTM - Zone 15			Project Info			
MN State Plane - South Zone				X	Y	Acc	Order	Determination Method	Year	Reference
X	Y									
2168473.429	747876.770			921910.241	16046148.546	3.281		CLASSICAL SURVEY	1988	HSLAY

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/MASON_RM_3-PQ1386-3N-15JUN2015.jpg	N	Jun 15, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/MASON_RM_3-PQ1386-2-15JUN2015.jpg		Jun 15, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/MASON_RM_3-PQ1386-1-15JUN2015.jpg		Jun 15, 2015

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



Mn/DOT Name: MCCLELLAN
 County: MURRAY, MN (Sheet 1)

NGS Name: MCCLELLAN

NGS ACRN: [DR2708](#) [Get Map](#)
 NGS Quad / Sta Num : 44095322/
 USGS Quad: DOVRAY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	28	107 N	39 W	440301.16	953121.48	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2019	2019	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 34 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2019) **Stamping:** MCCLELLAN 2019

1.3 MILES EAST OF DOVRAY, 1.0 MILE EAST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND COUNTY ROAD 42 IN DOVRAY, AT TRUNK HIGHWAY 30 MILEPOINT 53.0, 106.9 FEET NORTH-NORTHEAST OF TRUNK HIGHWAY 30, 17.6 FEET WEST OF 270TH AVENUE, 1.5 FEET EAST OF A WITNESS POST.

Station Pair: CLIFFORD - MURRAY, MN

Leveling-Derived Orthometric Heights (Feet)

NAVD88			Orthometric Height			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj				Year	Reference		
1465.601	.016	2/1				VERTICAL ADJUSTMENT			2020	00000949		
1465.607	.016	2/1				VERTICAL CONTROL SURVEY			2019	VDRAY		

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		
1465.607	.131		1377.891	.066	1996	GPS - STATIC			2019	HDRAY		
1465.627			1377.642	.022	2011	GPS - STATIC			2019	HDRAY		
1465.627			1377.642	.022	2011	HORIZONTAL ADJUSTMENT			2019	GPS3311		
1465.637	.262		1377.625	.197	2011	GPS - RTRN			2019	RTRN2019		

Geoid Separations(ft): GEOID18 = -88.018 12B = -88.012 09 = -87.913 03 = -87.775

Lat/Lon and County Coordinates (Feet)

NAD83(2011)		Geodetic Position		Murray County		Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 03 01.15839	95 31 21.48022	564165.968	173834.124	.013	C	GPS - STATIC	2019	HDRAY
44 03 01.15839	95 31 21.48022	564165.968	173834.124	.013		ADJUSTMENT	2019	GPS3311
44 03 01.15813	95 31 21.47983	564165.997	173834.098	.131	3	GPS - RTRN	2019	RTRN2019

NAD83(1996)		Geodetic Position		Murray County		Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 03 01.15781	95 31 21.48034	564165.960	173834.065	.033	C	GPS - STATIC	2019	HDRAY

State Plane and UTM Coordinates (Feet)

NAD83(2011)		MN State Plane - South Zone		UTM - Zone 15		Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2224376.941	714695.218	977422.154	16012291.175	.013	C	GPS - STATIC	2019	HDRAY
2224376.941	714695.218	977422.154	16012291.175	.013		ADJUSTMENT	2019	GPS3311
2224376.969	714695.191	977422.182	16012291.147	.131	3	GPS - RTRN	2019	RTRN2019

NAD83(1996)		MN State Plane - South Zone		UTM - Zone 15		Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2224376.931	714695.159	977422.143	16012291.116	.033	C	GPS - STATIC	2019	HDRAY

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/MCCLELLAN-DR2708-3N-22APR2019.jpg	N	Apr 22, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/MCCLELLAN-DR2708-2-22APR2019.jpg		Apr 22, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/MCCLELLAN-DR2708-1-22APR2019.jpg		Apr 22, 2019

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



Mn/DOT Name: MCCORD MNDT

NGS Name: MCCORD

County: MURRAY, MN (Sheet 1)

NGS ACRN: [AH3667](#) [Get Map](#)
 NGS Quad / Sta Num : 44095333/
 USGS Quad: BALATON 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	1	107 N	43 W	440633.86	955650.84	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	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 15 FT)	SURVEY DISK	MNDT

Description: (2003) Stamping: MCCORD 1993

8.0 MILES NORTH OF LAKE WILSON, 8.25 MILES NORTH ALONG TRUNK HIGHWAY 91 FROM THE JUNCTION OF TRUNK HIGHWAY 91 AND TRUNK HIGHWAY 30 IN LAKE WILSON TO TRUNK HIGHWAY 91 MILEPOINT 47.05, THEN 0.2 MILE WEST ALONG 181ST STREET, 27.0 FEET SOUTH OF 181ST STREET, 14.0 FEET EAST OF AN ENTRANCE, 5.5 FEET WEST OF A WITNESS POST.

Station Pair: TUTT MNDT RESET - MURRAY, 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>					
1721.972	.016	2/1				2020	00000949					
1721.972	.016	2/1				2017	00000903					
1721.968	.016	2/1				2016	VRUSS					

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>					
1721.985	.262		1635.449	.197	2011	2024	RTRN2024					
1721.952	.262		1635.417	.197	2011	2021	GPSBM					
1721.896	.262		1635.367	.197	2011	2016	RTRN2016					
			1635.433	.024	2011	2012	GPS2800					
			1635.512	.017	2007	2007	GPS2300					
1721.978	.131		1635.673	.066	1996	2003	GPS1919					
1721.978	.131		1635.669	.066	1996	2003	HMURR					
1721.913	.131		1635.571	.066	1996	1999	17648					
1721.847	.131		1635.571	.066	1996	1998	GPS937					

<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>					
1721.092						1993	HORZ					

Geoid Separations(ft): GEOID18 = -86.535 12B = -86.529 09 = -86.443 03 = -86.292

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 06 33.85925	95 56 50.83805	452510.834	195331.462	.131	3	GPS - RTRN	2024	RTRN2024
44 06 33.85894	95 56 50.83822	452510.821	195331.431	.131	3	GPS - OPUS	2021	GPSBM
44 06 33.85961	95 56 50.83746	452510.877	195331.498	.131	3	GPS - RTRN	2016	RTRN2016
44 06 33.85929	95 56 50.83806	452510.833	195331.466	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 06 33.85917	95 56 50.83892	452510.771	195331.454	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 06 33.85874	95 56 50.83845	452510.805	195331.410	.033	C	ADJUSTMENT	2003	GPS1919
44 06 33.85875	95 56 50.83845	452510.805	195331.411	.033	C	GPS - STATIC	2003	HMURR
44 06 33.85943	95 56 50.83323	452511.186	195331.479	.033	C	ADJUSTMENT	1999	17648
44 06 33.85943	95 56 50.83323	452511.186	195331.479	.033	C	ADJUSTMENT	1998	GPS937

NAD83(1986)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 06 33.85684	95 56 50.81627	452512.422	195331.214	.066	2	GPS - STATIC	1993	HMARS

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2113226.185	738597.173	866539.286	16037530.830	.131	3	GPS - RTRN	2024	RTRN2024
2113226.172	738597.142	866539.272	16037530.800	.131	3	GPS - OPUS	2021	GPSBM
2113226.229	738597.209	866539.330	16037530.865	.131	3	GPS - RTRN	2016	RTRN2016
2113226.184	738597.178	866539.285	16037530.835	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2113226.121	738597.167	866539.222	16037530.824	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2113226.154	738597.123	866539.254	16037530.780	.033	C	ADJUSTMENT	2003	GPS1919
2113226.154	738597.124	866539.254	16037530.781	.033	C	GPS - STATIC	2003	HMURR
2113226.537	738597.183	866539.638	16037530.836	.033	C	ADJUSTMENT	1999	17648
2113226.537	738597.183	866539.638	16037530.836	.033	C	ADJUSTMENT	1998	GPS937

NAD83(1986)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2113227.767	738596.892	866540.865	16037530.530	.066	2	GPS - STATIC	1993	HMARS

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/MCCORD-AH3667-3S-13MAY2024.jpg	S	May 13, 2024
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/MCCORD-AH3667-2-13MAY2024.jpg		May 13, 2024
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/MCCORD-AH3667-1-13MAY2024.jpg		May 13, 2024

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



Mn/DOT Name: MILDRED

NGS Name: MILDRED

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DQ7176](#) [Get Map](#)
 NGS Quad / Sta Num : 43095441/
 USGS Quad: SLAYTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	41 W	435935.60	954659.82	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>
2011	2015	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 20 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2011) Stamping: MILDRED 2011

1.7 MILES WEST OF SLAYTON, 1.7 MILES WEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND TRUNK HIGHWAY 59 IN SLAYTON, AT TRUNK HIGHWAY 30 MILEPOINT 34.05, 57.4 FEET NORTH OF TRUNK HIGHWAY 30, 64.7 FEET EAST OF 140TH AVENUE, 3.3 FEET SOUTH OF AN EAST-WEST FENCE LINE, 2.3 FEET SOUTH OF A WITNESS POST.

Station Pair: GRACE - MURRAY, 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>	
1606.217	.016	2/1				2017	00000903	VERTICAL ADJUSTMENT		2017	00000903	
1606.217	.016	2/1				2015	VWLSN	VERTICAL CONTROL SURVEY		2015	VWLSN	
1606.217	.016	2/1				2013	00000792	VERTICAL ADJUSTMENT		2013	00000792	
1606.217	.016	2/1				2012	VIONA	VERTICAL CONTROL SURVEY		2012	VIONA	

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>	
1606.181	.262		1519.095	.197	2011	2015	RTRN2015	GPS - RTRN		2015	RTRN2015	
1606.217			1519.098	.010	2011	2014	GPS2998	HORIZONTAL ADJUSTMENT		2014	GPS2998	
1606.217			1519.098	.010	2011	2014	HIONA	GPS - STATIC		2014	HIONA	
1606.135	.262		1519.124	.197	2007	2012	RTRN2012	GPS - RTRN		2012	RTRN2012	
1606.230	.131		1519.380	.066	1996	2012	HIONA	GPS - STATIC		2012	HIONA	

Geoid Separations(ft): GEOID18 = -87.103 12B = -87.086 09 = -87.011 03 = -86.837

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Murray 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>								
43 59 35.60174	95 46 59.81780	495626.781	152923.034	.131	3	GPS - RTRN	2015	RTRN2015	
43 59 35.60180	95 46 59.81739	495626.811	152923.040	.010		ADJUSTMENT	2014	GPS2998	
43 59 35.60180	95 46 59.81739	495626.811	152923.040	.010	C	GPS - STATIC	2014	HIONA	

<u>NAD83(2007)</u>		<u>Murray 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>								
43 59 35.60229	95 46 59.81774	495626.785	152923.089	.131	3	GPS - RTRN	2012	RTRN2012	

<u>NAD83(1996)</u>		<u>Murray 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>								
43 59 35.60122	95 46 59.81775	495626.784	152922.981	.033	C	GPS - STATIC	2012	HIONA	



State Plane and UTM Coordinates (Feet)

NAD83(2011)

<u>MN State Plane - South 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>
2155410.082	695271.669	908213.971	15993690.655	.131	3	GPS - RTRN	2015	RTRN2015
2155410.112	695271.674	908214.001	15993690.661	.010		ADJUSTMENT	2014	GPS2998
2155410.112	695271.674	908214.001	15993690.661	.010	C	GPS - STATIC	2014	HIONA

NAD83(2007)

<u>MN State Plane - South 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>
2155410.087	695271.724	908213.977	15993690.711	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

<u>MN State Plane - South 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>
2155410.084	695271.616	908213.973	15993690.603	.033	C	GPS - STATIC	2012	HIONA

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/MILDRED-DO7176-3N-23MAY2011.jpg	N	May 23, 2011
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/MILDRED-DO7176-2-23MAY2011.jpg		May 23, 2011
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/MILDRED-DO7176-1-23MAY2011.jpg		May 23, 2011

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



Mn/DOT Name: MNCORS DVRY DOVRAY ARP

NGS Name: DOVRAY CORS ARP

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DK6501](#) [Get Map](#)
 NGS Quad / Sta Num : 44095322/
 USGS Quad: DOVRAY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	107 N	40 W	440325.72	953549.68	2	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>
2006	2019	GOOD	Horz=YES Vert=YES	YES		FLUSH	NO MAG MATERIAL

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

Description: (2012)

Stamping:

3.4 MILES EAST OF CURRIE, 3.4 MILES EAST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND COUNTY ROAD 38 SOUTH IN CURRIE, AT TRUNK HIGHWAY 30 MILEPOINT 49.2, 51.0 FEET SOUTHEAST OF A ROAD WEATHER INFORMATION SYSTEM (RWIS), 41.3 FEET NORTHEAST OF TRUNK HIGHWAY 30, 12.0 FEET SOUTHEAST OF AN ENTRANCE, STATION MNCORS DVRY DOVRAY ARP IS A BRASS PLUG SET ON TOP OF A 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>
1567.786	.016	2/1				VERTICAL ADJUSTMENT	2020	00000949
1567.789	.016	2/1				VERTICAL CONTROL SURVEY	2019	VDRAY
1567.753	.016	2/2				VERTICAL ADJUSTMENT	2010	00000628
1567.746	.016	2/2				VERTICAL CONTROL SURVEY	2007	VDOVR



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
1567.786			1480.040	.008	2011	HORIZONTAL ADJUSTMENT	2024	GPS3744
1567.786			1480.040	.008	2011	GPS - STATIC	2024	HMNARP2
1567.786			1480.040	.010	2011	HORIZONTAL ADJUSTMENT	2024	GPS3717
1567.786			1480.040	.010	2011	GPS - STATIC	2024	H23JACK4
1567.786	.131		1480.194	.066	1996	GPS - STATIC	2024	H23JACK4
1567.786			1480.040	.013	2011	HORIZONTAL ADJUSTMENT	2024	GPS3693
1567.786			1480.040	.006	2011	HORIZONTAL ADJUSTMENT	2024	GPS3670
1567.786			1480.040	.013	2011	GPS - STATIC	2024	H23JACK3
1567.786	.131		1480.194	.066	1996	GPS - STATIC	2024	H23JACK3
1567.786	.131		1480.194	.066	1996	GPS - STATIC	2024	H23JACK1
1567.786			1480.040	.006	2011	GPS - STATIC	2024	H23JACK1
1567.786			1480.040	.008	2011	HORIZONTAL ADJUSTMENT	2023	GPS3631
1567.786			1480.040	.008	2011	HORIZONTAL ADJUSTMENT	2023	GPS3652
1567.786	.131		1480.194	.066	1996	GPS - STATIC	2023	H19NOBL2
1567.786			1480.040	.008	2011	GPS - STATIC	2023	H19NOBL2
1567.786	.131		1480.194	.066	1996	GPS - STATIC	2023	H23JACK2
1567.786			1480.040	.008	2011	GPS - STATIC	2023	H23JACK2
1567.786			1480.040	.010	2011	HORIZONTAL ADJUSTMENT	2023	GPS3623
1567.786	.131		1480.194	.066	1996	GPS - STATIC	2023	H19NOBL1
1567.786			1480.040	.010	2011	GPS - STATIC	2023	H19NOBL1
1567.753			1480.040	.007	2011	HORIZONTAL ADJUSTMENT	2020	GPS3358
1567.789	.131		1480.194	.066	1996	GPS - STATIC	2020	HSLEEP
1567.753			1480.040	.007	2011	GPS - STATIC	2020	HSLEEP
			1480.040	.011	2011	HORIZONTAL ADJUSTMENT	2019	CORS-MYCS2
1567.753			1480.023	.005	2011	HORIZONTAL ADJUSTMENT	2018	GPS3119
1567.743	.131		1480.194	.066	1996	GPS - STATIC	2017	HMNCORS07
1567.753			1480.023	.005	2011	GPS - STATIC	2017	HMNPH
1567.753			1480.023	.011	2011	HORIZONTAL ADJUSTMENT	2016	GPS3151
1567.753			1480.023	.007	2011	HORIZONTAL ADJUSTMENT	2016	GPS3142
1567.671	.131		1480.177	.066	1996	GPS - STATIC	2016	HTYLR
1567.753			1480.023	.011	2011	GPS - STATIC	2016	HTYLR
1567.753	.131		1480.122	.066	1996	GPS - STATIC	2016	HGARV
1567.753			1480.023	.007	2011	GPS - STATIC	2016	HGARV
			1480.023	.006	2011	HORIZONTAL ADJUSTMENT	2015	GPS3116
1567.720	.131		1480.109	.066	1996	GPS - STATIC	2015	HSEYE
1567.766			1479.984	.006	2011	GPS - STATIC	2015	HSEYE
			1479.981	.002	2011	GPS - STATIC	2015	HMNCORS15
1567.753			1480.023	.006	2011	HORIZONTAL ADJUSTMENT	2015	GPS3109
1567.753	.131		1480.122	.066	1996	GPS - STATIC	2015	HWLSN
1567.753			1479.958	.006	2011	GPS - STATIC	2015	HWLSN
1567.753			1480.023	.035	2011	HORIZONTAL ADJUSTMENT	2014	GPS2998
1567.753			1479.990	.035	2011	GPS - STATIC	2014	HIONA
1567.753			1480.023	.026	2011	HORIZONTAL ADJUSTMENT	2014	GPS2962
1567.753			1480.030	.026	2011	GPS - STATIC	2014	HFULD
1567.746	.131		1480.210	.066	1996	GPS - STATIC	2013	HFULD
1567.812	.098		1480.023	.049	2011	GPS - STATIC	2012	HMNCORS05
			1480.023	.000	2011	HORIZONTAL ADJUSTMENT	2012	CORS-MYCS
			1480.023	.000	2011	HORIZONTAL ADJUSTMENT	2011	CORS4512
			1480.040	.000	2007	HORIZONTAL ADJUSTMENT	2008	CORS2836
1567.812	.098		1480.122	.049	1996	GPS - STATIC	2006	HMNCORS02

Geoid Separations(ft): GEOID18 = -87.795 12B = -87.789 09 = -87.703 03 = -87.536



Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 03 25.71924	95 35 49.67833	544572.037	176272.240	.003		ADJUSTMENT	2024	GPS3744
44 03 25.71924	95 35 49.67833	544572.037	176272.240	.003	C	GPS - STATIC	2024	HMNARP2
44 03 25.71924	95 35 49.67833	544572.037	176272.240	.007		ADJUSTMENT	2024	GPS3717
44 03 25.71924	95 35 49.67833	544572.037	176272.240	.007	C	GPS - STATIC	2024	H23JACK4
44 03 25.71924	95 35 49.67833	544572.037	176272.240	.007		ADJUSTMENT	2024	GPS3693
44 03 25.71924	95 35 49.67833	544572.037	176272.240	.007		ADJUSTMENT	2024	GPS3670
44 03 25.71924	95 35 49.67833	544572.037	176272.240	.007	C	GPS - STATIC	2024	H23JACK3
44 03 25.71924	95 35 49.67833	544572.037	176272.240	.007	C	GPS - STATIC	2024	H23JACK1
44 03 25.71924	95 35 49.67833	544572.037	176272.240	.003		ADJUSTMENT	2023	GPS3631
44 03 25.71924	95 35 49.67833	544572.037	176272.240	.003		ADJUSTMENT	2023	GPS3652
44 03 25.71924	95 35 49.67833	544572.037	176272.240	.003	C	GPS - STATIC	2023	H19NOBL2
44 03 25.71924	95 35 49.67833	544572.037	176272.240	.003	C	GPS - STATIC	2023	H23JACK2
44 03 25.71924	95 35 49.67833	544572.037	176272.240	.007		ADJUSTMENT	2023	GPS3623
44 03 25.71924	95 35 49.67833	544572.037	176272.240	.007	C	GPS - STATIC	2023	H19NOBL1
44 03 25.71924	95 35 49.67833	544572.037	176272.240	.007		ADJUSTMENT	2020	GPS3358
44 03 25.71924	95 35 49.67833	544572.037	176272.240	.007	C	GPS - STATIC	2020	HSLEEP
44 03 25.71924	95 35 49.67834	544572.036	176272.240	.003		ADJUSTMENT	2019	CORS-MYCS2
44 03 25.71931	95 35 49.67835	544572.035	176272.248	.003		ADJUSTMENT	2018	GPS3119
44 03 25.71931	95 35 49.67835	544572.035	176272.248	.003	C	GPS - STATIC	2017	HMNPH
44 03 25.71931	95 35 49.67835	544572.035	176272.248	.007		ADJUSTMENT	2016	GPS3151
44 03 25.71931	95 35 49.67835	544572.035	176272.248	.003		ADJUSTMENT	2016	GPS3142
44 03 25.71931	95 35 49.67835	544572.035	176272.248	.007	C	GPS - STATIC	2016	HTYLR
44 03 25.71931	95 35 49.67835	544572.035	176272.248	.003	C	GPS - STATIC	2016	HGARV
44 03 25.71931	95 35 49.67835	544572.035	176272.248	.003		ADJUSTMENT	2015	GPS3116
44 03 25.71933	95 35 49.67822	544572.045	176272.249	.003	C	GPS - STATIC	2015	HSEYE
44 03 25.71943	95 35 49.67835	544572.035	176272.260	.003	A	GPS - STATIC	2015	HMNCORS15
44 03 25.71931	95 35 49.67835	544572.035	176272.248	.003		ADJUSTMENT	2015	GPS3109
44 03 25.71930	95 35 49.67816	544572.049	176272.247	.003	C	GPS - STATIC	2015	HWLSN
44 03 25.71931	95 35 49.67835	544572.035	176272.248	.016		ADJUSTMENT	2014	GPS2998
44 03 25.71936	95 35 49.67844	544572.029	176272.252	.016	C	GPS - STATIC	2014	HIONA
44 03 25.71931	95 35 49.67835	544572.035	176272.248	.010		ADJUSTMENT	2014	GPS2962
44 03 25.71926	95 35 49.67821	544572.045	176272.242	.010	C	GPS - STATIC	2014	HFULD
44 03 25.71931	95 35 49.67835	544572.035	176272.248	.016	B	GPS - STATIC	2012	HMNCORS05
44 03 25.71931	95 35 49.67835	544572.035	176272.248	.003		ADJUSTMENT	2012	CORS-MYCS
44 03 25.71931	95 35 49.67835	544572.035	176272.248	.003	A	ADJUSTMENT	2011	CORS4512

NAD83(2007)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 03 25.71923	95 35 49.67908	544571.982	176272.239	.003	A	ADJUSTMENT	2008	CORS2836

NAD83(1996)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 03 25.71916	95 35 49.67852	544572.023	176272.232	.033	C	GPS - STATIC	2024	H23JACK4
44 03 25.71916	95 35 49.67852	544572.023	176272.232	.033	C	GPS - STATIC	2024	H23JACK3
44 03 25.71916	95 35 49.67852	544572.023	176272.232	.033	C	GPS - STATIC	2024	H23JACK1
44 03 25.71916	95 35 49.67852	544572.023	176272.232	.033	C	GPS - STATIC	2023	H19NOBL2
44 03 25.71916	95 35 49.67852	544572.023	176272.232	.033	C	GPS - STATIC	2023	H23JACK2
44 03 25.71916	95 35 49.67852	544572.023	176272.232	.033	C	GPS - STATIC	2023	H19NOBL1
44 03 25.71916	95 35 49.67852	544572.023	176272.232	.033	C	GPS - STATIC	2020	HSLEEP
44 03 25.71916	95 35 49.67852	544572.023	176272.232	.033	C	GPS - STATIC	2017	HMNCORS07
44 03 25.71822	95 35 49.67840	544572.032	176272.137	.033	C	GPS - STATIC	2016	HTYLR
44 03 25.71911	95 35 49.67911	544571.980	176272.227	.033	C	GPS - STATIC	2016	HGARV
44 03 25.71911	95 35 49.67911	544571.980	176272.227	.033	C	GPS - STATIC	2015	HSEYE
44 03 25.71911	95 35 49.67911	544571.980	176272.227	.033	C	GPS - STATIC	2015	HWLSN
44 03 25.71911	95 35 49.67911	544571.980	176272.227	.033	C	GPS - STATIC	2013	HFULD
44 03 25.71911	95 35 49.67911	544571.980	176272.227	.016	B	GPS - STATIC	2006	HMNCORS02



State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2204842.570	717555.456	957920.280	16015386.013	.003		ADJUSTMENT	2024	GPS3744
2204842.570	717555.456	957920.280	16015386.013	.003	C	GPS - STATIC	2024	HMNARP2
2204842.570	717555.456	957920.280	16015386.013	.007		ADJUSTMENT	2024	GPS3717
2204842.570	717555.456	957920.280	16015386.013	.007	C	GPS - STATIC	2024	H23JACK4
2204842.570	717555.456	957920.280	16015386.013	.007		ADJUSTMENT	2024	GPS3693
2204842.570	717555.456	957920.280	16015386.013	.007		ADJUSTMENT	2024	GPS3670
2204842.570	717555.456	957920.280	16015386.013	.007	C	GPS - STATIC	2024	H23JACK3
2204842.570	717555.456	957920.280	16015386.013	.007	C	GPS - STATIC	2024	H23JACK1
2204842.570	717555.456	957920.280	16015386.013	.003		ADJUSTMENT	2023	GPS3631
2204842.570	717555.456	957920.280	16015386.013	.003		ADJUSTMENT	2023	GPS3652
2204842.570	717555.456	957920.280	16015386.013	.003	C	GPS - STATIC	2023	H19NOBL2
2204842.570	717555.456	957920.280	16015386.013	.003	C	GPS - STATIC	2023	H23JACK2
2204842.570	717555.456	957920.280	16015386.013	.007		ADJUSTMENT	2023	GPS3623
2204842.570	717555.456	957920.280	16015386.013	.007	C	GPS - STATIC	2023	H19NOBL1
2204842.570	717555.456	957920.280	16015386.013	.007		ADJUSTMENT	2020	GPS3358
2204842.570	717555.456	957920.280	16015386.013	.007	C	GPS - STATIC	2020	HSLEEP
2204842.569	717555.456	957920.280	16015386.013	.003		ADJUSTMENT	2019	CORS-MYCS2
2204842.568	717555.463	957920.279	16015386.020	.003		ADJUSTMENT	2018	GPS3119
2204842.568	717555.463	957920.279	16015386.020	.003	C	GPS - STATIC	2017	HMNPH
2204842.568	717555.463	957920.279	16015386.020	.007		ADJUSTMENT	2016	GPS3151
2204842.568	717555.463	957920.279	16015386.020	.003		ADJUSTMENT	2016	GPS3142
2204842.568	717555.463	957920.279	16015386.020	.007	C	GPS - STATIC	2016	HTYLR
2204842.568	717555.463	957920.279	16015386.020	.003	C	GPS - STATIC	2016	HGARV
2204842.568	717555.463	957920.279	16015386.020	.003		ADJUSTMENT	2015	GPS3116
2204842.578	717555.465	957920.289	16015386.022	.003	C	GPS - STATIC	2015	HSEYE
2204842.569	717555.475	957920.279	16015386.032	.003	A	GPS - STATIC	2015	HMNCORS15
2204842.568	717555.463	957920.279	16015386.020	.003		ADJUSTMENT	2015	GPS3109
2204842.582	717555.462	957920.293	16015386.018	.003	C	GPS - STATIC	2015	HWLSN
2204842.568	717555.463	957920.279	16015386.020	.016		ADJUSTMENT	2014	GPS2998
2204842.562	717555.468	957920.273	16015386.025	.016	C	GPS - STATIC	2014	HIONA
2204842.568	717555.463	957920.279	16015386.020	.010		ADJUSTMENT	2014	GPS2962
2204842.578	717555.458	957920.289	16015386.014	.010	C	GPS - STATIC	2014	HFULD
2204842.568	717555.463	957920.279	16015386.020	.016	B	GPS - STATIC	2012	HMNCORS05
2204842.568	717555.463	957920.279	16015386.020	.003		ADJUSTMENT	2012	CORS-MYCS
2204842.568	717555.463	957920.279	16015386.020	.003	A	ADJUSTMENT	2011	CORS4512

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2204842.515	717555.456	957920.226	16015386.013	.003	A	ADJUSTMENT	2008	CORS2836

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15					Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2204842.556	717555.448	957920.266	16015386.005	.033	C	GPS - STATIC	2024	H23JACK4
2204842.556	717555.448	957920.266	16015386.005	.033	C	GPS - STATIC	2024	H23JACK3
2204842.556	717555.448	957920.266	16015386.005	.033	C	GPS - STATIC	2024	H23JACK1
2204842.556	717555.448	957920.266	16015386.005	.033	C	GPS - STATIC	2023	H19NOBL2
2204842.556	717555.448	957920.266	16015386.005	.033	C	GPS - STATIC	2023	H23JACK2
2204842.556	717555.448	957920.266	16015386.005	.033	C	GPS - STATIC	2023	H19NOBL1
2204842.556	717555.448	957920.266	16015386.005	.033	C	GPS - STATIC	2020	HSLEEP
2204842.556	717555.448	957920.266	16015386.005	.033	C	GPS - STATIC	2017	HMNCORS07
2204842.562	717555.353	957920.272	16015385.909	.033	C	GPS - STATIC	2016	HTYLR
2204842.513	717555.444	957920.223	16015386.001	.033	C	GPS - STATIC	2016	HGARV
2204842.513	717555.444	957920.223	16015386.001	.033	C	GPS - STATIC	2015	HSEYE
2204842.513	717555.444	957920.223	16015386.001	.033	C	GPS - STATIC	2015	HWLSN
2204842.513	717555.444	957920.223	16015386.001	.033	C	GPS - STATIC	2013	HFULD
2204842.513	717555.444	957920.223	16015386.001	.016	B	GPS - STATIC	2006	HMNCORS02



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/DOVRAY_CORS_ARP-DK6501-3W-16AUG2006.jpg	W	Aug 16, 2006
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/DOVRAY_CORS_ARP-DK6501-2-16AUG2006.jpg		Aug 16, 2006
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/DOVRAY_CORS_ARP-DK6501-1-16AUG2006.jpg		Aug 16, 2006

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



Mn/DOT Name: MNCORS DVRY DOVRAY L1PC1

NGS Name: DOVRAY CORS L1 PHASE CENTER

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DK6502](#) [Get Map](#)
 NGS Quad / Sta Num : 44095322/
 USGS Quad: DOVRAY

<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	107 N	40 W	440325.72	953549.68		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>
2006	2011	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:

3.0 MILES EAST OF CURRIE, 3.40 MILES EAST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND COUNTY ROAD 38 SOUTH IN CURRIE, AT TRUNK HIGHWAY 30 MILEPOINT 49.2, 51.0 FEET SOUTHEAST OF A WEATHER STATION, 41.3 FEET NORTHEAST OF TRUNK HIGHWAY 30, 12.0 FEET SOUTHEAST OF A FIELD ENTRANCE, LOCATED NEAR ROAD WEATHER INFORMATION SYSTEM (RWIS) 38, THE STATION IS A BRASS PLUG SET ON TOP OF A CONCRETE MONUMENT. THE STATION IS IN ZEPHYR GEODETIC ANTENNA SERIAL NUMBER 60115024.

Station Notes

NATIONAL GEODETIC SURVEY (NGS) CORS ID IS MNDV.

* 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>
1480.240	.000	2011	1480.260	.000	2007	2011	CORS4512
						2008	CORS2836

Geoid Separations(ft): GEOID18 = -87.795 12B = -87.789 09 = -87.703 03 = -87.536

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 03 25.71935	95 35 49.67837	544572.034	176272.251	.003	A	ADJUSTMENT	2011	CORS4512

NAD83(2007)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 03 25.71927	95 35 49.67909	544571.981	176272.243	.003	A	ADJUSTMENT	2008	CORS2836

State Plane and UTM Coordinates (Feet)

NAD83(2011)

<u>MN State Plane - South 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>
2204842.567	717555.467	957920.278	16015386.024	.003	A	ADJUSTMENT	2011	CORS4512

NAD83(2007)

<u>MN State Plane - South 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>
2204842.514	717555.460	957920.225	16015386.017	.003	A	ADJUSTMENT	2008	CORS2836

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/DOVRAY_CORS_L1_PHASE_CENTER-DK6502-3SW-16AUG2006.jpg	SW	Aug 16, 2006
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/DOVRAY_CORS_L1_PHASE_CENTER-DK6502-2-16AUG2006.jpg		Aug 16, 2006
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/DOVRAY_CORS_L1_PHASE_CENTER-DK6502-1-13OCT2006.jpg		Oct 13, 2006

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



Mn/DOT Name: MNCORS DVRY DOVRAY L1PC2

NGS Name: DOVRAY CORS L1 PHASE CENTER

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DM9836](#) [Get Map](#)
 NGS Quad / Sta Num : 44095322/
 USGS Quad: DOVRAY

<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	107 N	40 W	440325.72	953549.68		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>
2011	2011	GOOD	Horz=YES Vert=?	YES			SEE DESCRIPTION

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

Description: (2012)

Stamping:

3.0 MILES EAST OF CURRIE, 3.40 MILES EAST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND COUNTY ROAD 38 SOUTH IN CURRIE, AT TRUNK HIGHWAY 30 MILEPOINT 49.2, 51.0 FEET SOUTHEAST OF A WEATHER STATION, 41.3 FEET NORTHEAST OF TRUNK HIGHWAY 30, 12.0 FEET SOUTHEAST OF A FIELD ENTRANCE, LOCATED NEAR ROAD WEATHER INFORMATION SYSTEM (RWIS) 38, STATION MNCORS DVRY DOVRAY L1PC2 IS A BRASS PLUG SET ON TOP OF A CONCRETE MONUMENT. THE STATION IS IN ZEPHYR GEODETIC LF MODEL 2 ANTENNA SERIAL NUMBER 1441109510.

Station Notes

NATIONAL GEODETIC SURVEY (NGS) CORS ID IS MNDV.

* 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>
1480.240	.000	2011	1480.260	.000	2007	HORIZONTAL ADJUSTMENT	2011	CORS4512	
						HORIZONTAL ADJUSTMENT	2008	CORS2836	

Geoid Separations(ft): GEOID18 = -87.795 12B = -87.789 09 = -87.703 03 = -87.536

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

<u>Geodetic Position</u>		<u>Murray 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>
44 03 25.71935	95 35 49.67837	544572.034	176272.251	.003	A	ADJUSTMENT	2011	CORS4512	

NAD83(2007)

<u>Geodetic Position</u>		<u>Murray 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>
44 03 25.71927	95 35 49.67909	544571.981	176272.243	.003	A	ADJUSTMENT	2008	CORS2836	

State Plane and UTM Coordinates (Feet)

NAD83(2011)

<u>MN State Plane - South 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>
2204842.567	717555.467	957920.278	16015386.024	.003	A	ADJUSTMENT	2011	CORS4512	

NAD83(2007)

<u>MN State Plane - South 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>
2204842.514	717555.460	957920.225	16015386.017	.003	A	ADJUSTMENT	2008	CORS2836	

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/DOVRAY_CORS_L1_PHASE_CENTER-DM9836-3W-24MAY2011.jpg	W	May 24, 2011
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/DOVRAY_CORS_L1_PHASE_CENTER-DM9836-2-24MAY2011.jpg		May 24, 2011
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/DOVRAY_CORS_L1_PHASE_CENTER-DM9836-1-24MAY2011.jpg		May 24, 2011

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



Mn/DOT Name: MONA MNDT

NGS Name: MONA

County: MURRAY, MN (Sheet 1)

NGS ACRN: [AH3669](#) [Get Map](#)
 NGS Quad / Sta Num : 44095333/
 USGS Quad: BALATON 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	30	107 N	42 W	440305.03	955635.62	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>
1993	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 20 FT)	SURVEY DISK	MNDT

Description: (1993) Stamping: MONA 1993

4.25 MILES NORTH OF LAKE WILSON, 4.25 MILES NORTH ALONG TRUNK HIGHWAY 91 FROM THE JUNCTION OF TRUNK HIGHWAY 91 AND TRUNK HIGHWAY 30 IN LAKE WILSON, AT TRUNK HIGHWAY 91 MILEPOINT 43.05, 118.0 FEET EAST OF TRUNK HIGHWAY 91, 31.0 FEET SOUTH OF 141ST STREET, 78.4 FEET SOUTH-SOUTHEAST OF A CABLE MARKER, 2.7 FEET NORTH OF A WITNESS POST.

Station Pair: THOM MNDT - MURRAY, 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>	
1696.699	.016	2/1					VERTICAL ADJUSTMENT	2020	00000949	
1696.699	.016	2/1					VERTICAL ADJUSTMENT	2017	00000903	
1696.693	.016	2/1					VERTICAL CONTROL SURVEY	2016	VRUSS	

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>	
1696.745	.262			1610.345	.197	2011	GPS - RTRN	2024	RTRN2024	
1696.591	.262			1610.194	.197	2011	GPS - OPUS	2021	GPSBM	
1696.598	.262			1610.213	.197	2011	GPS - RTRN	2016	RTRN2016	
				1610.279	.014	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
				1610.368	.012	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300	
1696.683	.131			1610.482	.066	1996	HORIZONTAL ADJUSTMENT	1999	17648	
1696.617	.131			1610.482	.066	1996	HORIZONTAL ADJUSTMENT	1998	GPS937	

<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>	
1695.896							GPS - STATIC	1993	HORZ	

Geoid Separations(ft): GEOID18 = -86.401 12B = -86.388 09 = -86.296 03 = -86.158

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 03 05.03431	95 56 35.61744	453576.118	174181.368	.131	3	GPS - RTRN	2024	RTRN2024
44 03 05.03442	95 56 35.61774	453576.096	174181.379	.131	3	GPS - OPUS	2021	GPSBM
44 03 05.03449	95 56 35.61632	453576.200	174181.386	.131	3	GPS - RTRN	2016	RTRN2016
44 03 05.03464	95 56 35.61774	453576.096	174181.401	.016		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 03 05.03466	95 56 35.61869	453576.027	174181.404	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 03 05.03396	95 56 35.61483	453576.309	174181.332	.033	C	ADJUSTMENT	1999	17648
44 03 05.03396	95 56 35.61483	453576.309	174181.332	.033	C	ADJUSTMENT	1998	GPS937

NAD83(1986)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 03 05.03114	95 56 35.59841	453577.508	174181.044	.066	2	GPS - STATIC	1993	HMARS

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2113833.695	717431.616	866893.324	16016352.419	.131	3	GPS - RTRN	2024	RTRN2024
2113833.673	717431.628	866893.302	16016352.431	.131	3	GPS - OPUS	2021	GPSBM
2113833.777	717431.632	866893.406	16016352.435	.131	3	GPS - RTRN	2016	RTRN2016
2113833.673	717431.650	866893.303	16016352.453	.016		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2113833.604	717431.654	866893.233	16016352.458	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2113833.884	717431.576	866893.513	16016352.377	.033	C	ADJUSTMENT	1999	17648
2113833.884	717431.576	866893.513	16016352.377	.033	C	ADJUSTMENT	1998	GPS937

NAD83(1986)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2113835.076	717431.262	866894.701	16016352.049	.066	2	GPS - STATIC	1993	HMARS

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/MONA-AH3669-3S-13MAY2024.jpg	S	May 13, 2024
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/MONA-AH3669-2-28APR2021.jpg		Apr 28, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/MONA-AH3669-1-13MAY2024.jpg		May 13, 2024

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



Mn/DOT Name: MOUL MNDT
 County: MURRAY, MN (Sheet 1)

NGS Name: MOUL

NGS ACRN: [QQ0646](#) [Get Map](#)
 NGS Quad / Sta Num : 43096111/
 USGS Quad: EDGERTON NE

<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	105 N	43 W	435308.47	960351.27		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>
1980	1980	GOOD	Horz=? Vert=YES	NO		RECESSED 2 IN.	STEEL ROD IMBED IN MON

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

Description: (1980) **Stamping:** MOUL 1980

3.0 MILES EAST-NORTHEAST OF EDGERTON, 12.0 FEET EAST OF A GRAVEL ROAD, 178.0 FEET NORTH OF A GRAVEL ROAD, 17.6 FEET WEST OF A FENCE, 16.6 FEET WEST OF A WITNESS POST, 26.06 FEET SOUTHWEST OF MOUL MNDT RM 1, 18.20 FEET NORTHWEST OF MOUL MNDT 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>		
1746.716	.197		1660.778	.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>		
1741.007						RECIPROCAL VERTICAL ANGLE	1981	HORZ		

Geoid Separations(ft): GEOID18 = -86.158 12B = -86.138 09 = -86.017 03 = -85.912

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Geodetic Position</u>				<u>Murray County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
43 53 08.47377	96 03 51.26689	421539.379	113860.638	.066	2	ADJUSTMENT	1999	17648		
43 53 08.47374	96 03 51.26674	421539.390	113860.635	.066	2	ADJUSTMENT	1998	17655		

<u>NAD83(1986)</u>		<u>Geodetic Position</u>				<u>Murray County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>		
43 53 08.47239	96 03 51.25099	421540.543	113860.494	.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>
43 53 08.58711	96 03 50.16417			.100	2	CLASSICAL SURVEY	1982	16710

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>		<u>MN State Plane - South 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>		
2080503.061	657824.586	832843.796	15957125.617	.066	2	ADJUSTMENT	1999	17648		
2080503.072	657824.583	832843.806	15957125.613	.066	2	ADJUSTMENT	1998	17655		

<u>NAD83(1986)</u>		<u>MN State Plane - South 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>		
2080504.222	657824.417	832844.954	15957125.434	.066	2	ADJUSTMENT	1986	17289		

<u>NAD27</u>		<u>MN State Plane - South 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>
1455901.752	329747.300			.100	2	CLASSICAL SURVEY	1982	16710



Mn/DOT Name: MOUL MNDT RM 1

NGS Name: MOUL RM 1

County: MURRAY, MN (Sheet 1)

NGS ACRN: [CO3330](#) [Get Map](#)
 NGS Quad / Sta Num : 43096111/
 USGS Quad: EDGERTON NE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	43 W	435308.68	960351.06		

<u>Year Set</u>	<u>Last Recovery</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	1980	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

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

Description: **Stamping:** MOUL NO 1 1980

3.56 MILES NORTHEAST OF EDGERTON, 1.5 MILES EAST ALONG TRUNK HIGHWAY 268/COUNTY ROAD 18 FROM THE JUNCTION OF TRUNK HIGHWAY 268/COUNTY ROAD 18 AND MAIN STREET, 2.0 MILES EAST ON 26TH STREET, THEN 141.0 FEET NORTH ON COUNTY LINE AVENUE, STATION MOUL MNDT RM 1 IS 26.0 FEET EAST OF THE CENTER OF A GRAVEL ROAD, 2.5 FEET WEST OF A FENCE, AND 21.7 FEET NORTH-NORTHWEST OF A STEEL WITNESS POST.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -86.158 12B = -86.138 09 = -86.020 03 = -85.912



Mn/DOT Name: MOUL MNDT RM 2

NGS Name: MOUL RM 2

County: MURRAY, MN (Sheet 1)

NGS ACRN: [CO3331](#) [Get Map](#)
 NGS Quad / Sta Num : 43096111/
 USGS Quad: EDGERTON NE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	43 W	435308.38	960351.06		

<u>Year Set</u>	<u>Last Recovery</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	1980	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

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

Description: **Stamping:** MOUL NO 2 1980

3.56 MILES NORTHEAST OF EDGERTON, 1.5 MILES EAST ALONG TRUNK HIGHWAY 268/COUNTY ROAD 18 FROM THE JUNCTION OF TRUNK HIGHWAY 268/COUNTY ROAD 18 AND MAIN STREET, 2.0 MILES EAST ON 26TH STREET, THEN 141.0 FEET NORTH ON COUNTY LINE AVENUE, STATION MOUL MNDT RM 2 IS 25.0 FEET EAST OF THE CENTER OF A GRAVEL ROAD, 2.5 FEET WEST OF A FENCE, AND 9.3 FEET SOUTH-SOUTHEAST OF A STEEL WITNESS POST.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -86.158 12B = -86.138 09 = -86.020 03 = -85.912



Mn/DOT Name: MURRAY

NGS Name: MURRAY

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DK2720](#) [Get Map](#)
 NGS Quad / Sta Num : 43095441/
 USGS Quad: SLAYTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	41 W	435934.02	954502.18	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	2015	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 20 FT)	SURVEY DISK	MNDT

Description: (2006) **Stamping:** MURRAY 2006

IN SLAYTON, AT THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 30 IN SLAYTON, AT TRUNK HIGHWAY 59 MILEPOINT 41.10, 117.2 FEET SOUTHWEST OF TRUNK HIGHWAY 59, 60.7 FEET SOUTH OF TRUNK HIGHWAY 30, 3.7 FEET WEST OF A WITNESS POST.

Station Pair: GIESE - MURRAY, 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>					
1564.246	.016	2/1				2017	00000903	VERTICAL ADJUSTMENT				
1564.255	.016	2/1				2015	VGARV	VERTICAL CONTROL SURVEY				
1564.232	.016	2/1				2013	00000792	VERTICAL ADJUSTMENT				
1564.232	.016	2/1				2012	VIONA	VERTICAL CONTROL SURVEY				
1564.232	.016	2/1				2010	00000628	VERTICAL ADJUSTMENT				
1564.232	.016	2/1				2007	VSLAT	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>					
1564.242	.262		1476.972	.197	2011	2015	RTRN2015	GPS - RTRN				
1564.232			1476.936	.010	2011	2014	GPS2998	HORIZONTAL ADJUSTMENT				
1564.232			1476.939	.010	2011	2014	HIONA	GPS - STATIC				
			1476.936	.013	2011	2012	GPS2800	HORIZONTAL ADJUSTMENT				
1564.127	.262		1476.936	.197	2007	2012	RTRN2012	GPS - RTRN				
1564.236	.131		1477.228	.066	1996	2012	HIONA	GPS - STATIC				
			1477.028	.066	2007	2011	GPS2386-B	HORIZONTAL ADJUSTMENT				
1564.203	.262		1477.011	.197	2007	2011	RTRN2011	GPS - RTRN				
1564.236	.131		1477.176	.066	1996	2007	GPS2386	HORIZONTAL ADJUSTMENT				
1564.236	.131		1477.176	.066	1996	2007	HSLAT	GPS - STATIC				

Geoid Separations(ft): GEOID18 = -87.280 12B = -87.267 09 = -87.188 03 = -87.004

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 59 34.01665	95 45 02.17569	504227.509	152762.485	.131	3	GPS - RTRN	2015	RTRN2015
43 59 34.01700	95 45 02.17573	504227.506	152762.520	.007		ADJUSTMENT	2014	GPS2998
43 59 34.01704	95 45 02.17577	504227.503	152762.525	.007	C	GPS - STATIC	2014	HIONA
43 59 34.01700	95 45 02.17573	504227.506	152762.520	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 59 34.01784	95 45 02.17570	504227.508	152762.606	.131	3	GPS - RTRN	2012	RTRN2012
43 59 34.01693	95 45 02.17660	504227.442	152762.513	.033	C	ADJUSTMENT	2011	GPS2386-B
43 59 34.01739	95 45 02.17611	504227.478	152762.560	.131	3	GPS - RTRN	2011	RTRN2011

NAD83(1996)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 59 34.01645	95 45 02.17595	504227.490	152762.464	.033	C	GPS - STATIC	2012	HIONA
43 59 34.01645	95 45 02.17595	504227.490	152762.464	.033	C	ADJUSTMENT	2007	GPS2386
43 59 34.01645	95 45 02.17595	504227.490	152762.464	.033	C	GPS - STATIC	2007	HSLAT

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2164004.368	694925.327	916805.608	15993241.615	.131	3	GPS - RTRN	2015	RTRN2015
2164004.366	694925.362	916805.606	15993241.650	.007		ADJUSTMENT	2014	GPS2998
2164004.363	694925.366	916805.603	15993241.654	.007	C	GPS - STATIC	2014	HIONA
2164004.366	694925.362	916805.606	15993241.650	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2164004.369	694925.447	916805.611	15993241.735	.131	3	GPS - RTRN	2012	RTRN2012
2164004.302	694925.357	916805.542	15993241.645	.033	C	ADJUSTMENT	2011	GPS2386-B
2164004.339	694925.402	916805.579	15993241.690	.131	3	GPS - RTRN	2011	RTRN2011

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2164004.348	694925.307	916805.588	15993241.595	.033	C	GPS - STATIC	2012	HIONA
2164004.348	694925.307	916805.588	15993241.595	.033	C	ADJUSTMENT	2007	GPS2386
2164004.348	694925.307	916805.588	15993241.595	.033	C	GPS - STATIC	2007	HSLAT

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/MURRAY-DK2720-3W-16MAY2011.jpg	W	May 16, 2011
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/MURRAY-DK2720-2-16MAY2011.jpg		May 16, 2011
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/MURRAY-DK2720-1-16MAY2011.jpg		May 16, 2011

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



Mn/DOT Name: N 12

NGS Name: N 12

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP0601](#) [Get Map](#)
 NGS Quad / Sta Num : 43095412/
 USGS Quad: FULDA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	39 W	435111.00	953231.00	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	1976	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: (1976) Stamping: N 12 1931 1479.279

3.17 MILES SOUTHEAST OF FULDA, 2.6 MILES EAST ALONG TRUNK HIGHWAY 62 FROM THE JUNCTION OF TRUNK HIGHWAY 62 AND TRUNK HIGHWAY 59, THEN 0.6 MILE SOUTH ON 260TH AVENUE, 44.0 FEET SOUTH OF THE SOUTH RAIL OF A RAILROAD, 70.0 FEET EAST OF A TOWNSHIP ROAD, 1.0 FOOT NORTH OF A RIGHT-OF-WAY FENCE, 1.0 FOOT NORTH OF A WITNESS POST, 0.6 MILE SOUTH OF TRUNK HIGHWAY 62.

Station Notes

THE TIES FALL IN A FIELD, THE RAILROAD HAS BEEN REMOVED.

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>			
1479.830	.007	1/2				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>			
1479.279	.007	1/2				UNKNOWN/APPROXIMATE	1992	UNCHECKD
1479.279	.007	1				VERTICAL CONTROL SURVEY	1942	L92 MINN
1479.279	.007	1				VERTICAL CONTROL SURVEY	1935	CUTLER-VERT

Geoid Separations(ft): GEOID18 = -88.172 12B = -88.146 09 = -88.028 03 = -87.848

* No Horizontal Positions in the Database *



Mn/DOT Name: NE 01 106 39

NGS Name: NE 01 106 39

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DF8536](#) [Get Map](#)
 NGS Quad / Sta Num : 44095233/
 USGS Quad: WESTBROOK

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	39 W	440118.67	952807.26		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>
2003	2019	GOOD	Horz=YES Vert=YES	YES		PROJECTS 5 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	MN-101

Description: (2004) **Stamping:** NE 01 106 39 2003

2.3 MILES SOUTHWEST OF WESTBROOK, 1.0 MILE WEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND COTTONWOOD COUNTY ROAD 7 IN WESTBROOK, THEN 1.0 MILE SOUTH ON A 300TH AVENUE, THEN 0.31 MILE WEST ON 121ST STREET, 32.3 FEET SOUTH OF 121ST STREET, 19.0 FEET WEST OF A FIELD ENTRANCE, 4.4 FEET EAST OF A WITNESS POST.

Station Notes

THE SURVEY MARK HAS BEEN HIT AND IS LEANING SOUTHWEST. THE CONCRETE MOVES IN THE GROUND AND SHOULD BE GOOD AGAIN AFTER A REPOSITION. REPORTED DISTURBED BY MURRAY COUNTY HIGHWAY DEPARTMENT. DITCH CLEANING APPEARS TO HAVE MOVED THE MONUMENT ABOUT 0.6 FOOT. PUBLISHED POSITIONS ARE NO LONGER VALID. USE WITH CAUTION.

* 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>			
1460.115	.131		1372.241	.066	1996	GPS - STATIC	2019	HDRAY		
1460.141			1372.005	.021	2011	GPS - STATIC	2019	HDRAY		
1460.141			1372.005	.021	2011	HORIZONTAL ADJUSTMENT	2019	GPS3311		
1460.118	.262		1371.956	.197	2011	GPS - RTRN	2019	RTRN2019		
			1371.910	.008	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800		
			1372.022	.008	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300		
1460.069	.131		1372.176	.066	1996	HORIZONTAL ADJUSTMENT	2005	GPS2116		
1460.069	.131		1372.176	.066	1996	GPS - STATIC	2005	HCOTT		
1460.102	.131		1372.166	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1919		
1460.036	.131		1372.149	.066	1996	GPS - STATIC	2003	HMURR		

Geoid Separations(ft): GEOID18 = -88.159 12B = -88.166 09 = -88.051 03 = -87.936

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

<u>Geodetic Position</u>		<u>Murray 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>		
44 01 18.66979	95 28 07.25834	578389.157	163501.884	.013	C	GPS - STATIC	2019	HDRAY	
44 01 18.66979	95 28 07.25834	578389.157	163501.884	.013		ADJUSTMENT	2019	GPS3311	
44 01 18.66987	95 28 07.25773	578389.201	163501.892	.131	3	GPS - RTRN	2019	RTRN2019	
44 01 18.67598	95 28 07.25471	578389.420	163502.512	.007		ADJUSTMENT	2012	GPS2800	

NAD83(2007)

<u>Geodetic Position</u>		<u>Murray 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>		
44 01 18.67595	95 28 07.25551	578389.361	163502.509	.007		ADJUSTMENT	2007	GPS2300	

NAD83(1996)

<u>Geodetic Position</u>		<u>Murray 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>		
44 01 18.66919	95 28 07.25844	578389.150	163501.824	.033	C	GPS - STATIC	2019	HDRAY	
44 01 18.67542	95 28 07.25475	578389.417	163502.455	.033	C	ADJUSTMENT	2005	GPS2116	
44 01 18.67542	95 28 07.25475	578389.417	163502.455	.033	C	GPS - STATIC	2005	HCOTT	
44 01 18.67542	95 28 07.25475	578389.417	163502.455	.033	C	ADJUSTMENT	2003	GPS1919	
44 01 18.67545	95 28 07.25480	578389.413	163502.458	.033	C	GPS - STATIC	2003	HMURR	

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2238372.155	704059.652	991290.743	16001487.092	.013	C	GPS - STATIC	2019	HDRAY
2238372.155	704059.652	991290.743	16001487.092	.013		ADJUSTMENT	2019	GPS3311
2238372.200	704059.659	991290.788	16001487.099	.131	3	GPS - RTRN	2019	RTRN2019
2238372.432	704060.274	991291.027	16001487.711	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2238372.373	704060.272	991290.969	16001487.710	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2238372.147	704059.592	991290.734	16001487.032	.033	C	GPS - STATIC	2019	HDRAY
2238372.428	704060.218	991291.023	16001487.654	.033	C	ADJUSTMENT	2005	GPS2116
2238372.428	704060.218	991291.023	16001487.654	.033	C	GPS - STATIC	2005	HCOTT
2238372.428	704060.218	991291.023	16001487.654	.033	C	ADJUSTMENT	2003	GPS1919
2238372.424	704060.220	991291.019	16001487.657	.033	C	GPS - STATIC	2003	HMURR

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/NE_01_106_39-DF8536-3S-02APR2019.jpg	S	Apr 2, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/NE_01_106_39-DF8536-2-02APR2019.jpg		Apr 2, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/NE_01_106_39-DF8536-1-02APR2019.jpg		Apr 2, 2019

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



Mn/DOT Name: NE 01 106 40

NGS Name: NE 01 106 40

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DF8537](#) [Get Map](#)
 NGS Quad / Sta Num : 44095322/
 USGS Quad: DOVRAY

<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	106 N	40 W	440108.58	953458.15		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>
2003	2019	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MN-101

Description: (2003) Stamping: NE0110640 2003

10.0 MILES EAST OF SLAYTON, 9.25 MILES EAST-NORTHEAST ALONG COUNTY ROAD 8 FROM THE JUNCTION OF COUNTY ROAD 8 AND TRUNK HIGHWAY 30/59 IN SLAYTON, THEN 0.8 MILE NORTH ALONG 240TH AVENUE, 30.0 FEET WEST OF 240TH AVENUE, 315.0 FEET SOUTH OF DRIVEWAY NUMBER 185, 4.6 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>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>
1507.684	.262		1419.823	.197	2011	GPS - OPUS	2019	GPSBM
1507.582	.262		1419.722	.197	2011	GPS - OPUS	2019	GPSBM
1507.730	.262		1419.869	.197	2011	GPS - RTRN	2019	RTRN2019
1507.658	.262		1419.804	.197	2011	GPS - RTRN	2015	RTRN2015
			1419.886	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			1419.997	.010	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
1507.740	.131		1420.138	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1919
1507.674	.131		1420.128	.066	1996	GPS - STATIC	2003	HMURR

Geoid Separations(ft): GEOID18 = -87.861 12B = -87.857 09 = -87.762 03 = -87.585

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 01 08.57770	95 34 58.14703	548366.362	162392.104	.131	3	GPS - OPUS	2019	GPSBM
44 01 08.57845	95 34 58.14725	548366.346	162392.180	.131	3	GPS - OPUS	2019	GPSBM
44 01 08.57786	95 34 58.14714	548366.354	162392.120	.131	3	GPS - RTRN	2019	RTRN2019
44 01 08.57799	95 34 58.14575	548366.456	162392.134	.131	3	GPS - RTRN	2015	RTRN2015
44 01 08.57809	95 34 58.14666	548366.389	162392.144	.007		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 01 08.57806	95 34 58.14745	548366.331	162392.140	.007		ADJUSTMENT	2007	GPS2300

<u>NAD83(1996)</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 01 08.57755	95 34 58.14669	548366.387	162392.089	.033	C	ADJUSTMENT	2003	GPS1919
44 01 08.57758	95 34 58.14673	548366.384	162392.092	.033	C	GPS - STATIC	2003	HMURR

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15						Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
2208335.882	703598.277	961246.681	16001385.525	.131	3	GPS - OPUS	2019	GPSBM	
2208335.867	703598.353	961246.667	16001385.601	.131	3	GPS - OPUS	2019	GPSBM	
2208335.874	703598.293	961246.673	16001385.541	.131	3	GPS - RTRN	2019	RTRN2019	
2208335.976	703598.304	961246.775	16001385.552	.131	3	GPS - RTRN	2015	RTRN2015	
2208335.909	703598.316	961246.709	16001385.564	.007		ADJUSTMENT	2012	GPS2800	

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15						Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
2208335.852	703598.314	961246.651	16001385.562	.007		ADJUSTMENT	2007	GPS2300	

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15						Project Info	
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
2208335.906	703598.261	961246.705	16001385.509	.033	C	ADJUSTMENT	2003	GPS1919	
2208335.904	703598.264	961246.702	16001385.512	.033	C	GPS - STATIC	2003	HMURR	

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/NE_01_106_40-DF8537-3W-22OCT2019.jpg	W	Oct 22, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/NE_01_106_40-DF8537-2-22OCT2019.jpg		Oct 22, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/NE_01_106_40-DF8537-1-22OCT2019.jpg		Oct 22, 2019

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



Mn/DOT Name: NE 22 108 42

NGS Name: NE 22 108 42

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DF8538](#) [Get Map](#)
 NGS Quad / Sta Num : 44095331/
 USGS Quad: BALATON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	108 N	42 W	440910.05	955224.15		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>
2003	2024	GOOD	Horz=YES Vert=YES	YES		PROJECTS 3 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MN-101

Description: (2003) Stamping: NE 22 108 42 2003

13.8 MILES NORTH OF HADLEY, 13.3 MILES NORTH AND WEST ALONG COUNTY ROAD 29 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND COUNTY ROAD 29 IN HADLEY, THEN 0.5 MILE EAST ON COUNTY ROAD 73, 50.5 FEET SOUTH OF COUNTY ROAD 73, 33.5 FEET EAST OF THE SOUTH FIELD ENTRANCE, 5.0 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>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>
1665.272	.262			1578.274	.197	2011	GPS - RTRN	2024	RTRN2024
1665.259	.262			1578.261	.197	2011	GPS - OPUS	2021	GPSBM
1665.210	.262			1578.212	.197	2011	GPS - OPUS	2021	GPSBM
				1578.281	.025	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
				1578.370	.027	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
1665.285	.131			1578.527	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1919
1665.285	.131			1578.520	.066	1996	GPS - STATIC	2003	HMURR

Geoid Separations(ft): GEOID18 = -86.998 12B = -86.985 09 = -86.919 03 = -86.765

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>			<u>Murray 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>								
44 09 10.05007	95 52 24.14523		471990.855	211115.134	.131	3	GPS - RTRN	2024	RTRN2024
44 09 10.04969	95 52 24.14521		471990.856	211115.095	.131	3	GPS - OPUS	2021	GPSBM
44 09 10.04962	95 52 24.14532		471990.848	211115.088	.131	3	GPS - OPUS	2021	GPSBM
44 09 10.05008	95 52 24.14506		471990.867	211115.135	.010		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>			<u>Murray 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>								
44 09 10.05003	95 52 24.14598		471990.800	211115.130	.010		ADJUSTMENT	2007	GPS2300

<u>NAD83(1996)</u>			<u>Murray 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>								
44 09 10.04949	95 52 24.14547		471990.837	211115.075	.033	C	ADJUSTMENT	2003	GPS1919
44 09 10.04950	95 52 24.14547		471990.837	211115.076	.033	C	GPS - STATIC	2003	HMURR

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2133040.374	753953.878	886543.020	16052653.276	.131	3	GPS - RTRN	2024	RTRN2024
2133040.375	753953.840	886543.020	16052653.237	.131	3	GPS - OPUS	2021	GPSBM
2133040.366	753953.833	886543.011	16052653.231	.131	3	GPS - OPUS	2021	GPSBM
2133040.386	753953.879	886543.032	16052653.277	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2133040.319	753953.875	886542.965	16052653.274	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2133040.355	753953.820	886543.000	16052653.218	.033	C	ADJUSTMENT	2003	GPS1919
2133040.355	753953.821	886543.000	16052653.219	.033	C	GPS - STATIC	2003	HMURR

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/NE_22_108_42-DF8538-3S-13MAY2024.jpg	S	May 13, 2024
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/NE_22_108_42-DF8538-2-28APR2021.jpg		Apr 28, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/NE_22_108_42-DF8538-1-13MAY2024.jpg		May 13, 2024

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



Mn/DOT Name: NW 06 105 43

NGS Name: NW 06 105 43

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DF8539](#) [Get Map](#)
 NGS Quad / Sta Num : 43096111/
 USGS Quad: EDGERTON NE

<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	105 N	43 W	435604.65	960313.49		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>
2003	2019	GOOD	Horz=YES Vert=YES	YES		PROJECTS 2 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MN-101

Description: (2003) **Stamping:** NW 06 105 43 2003

7.5 MILES WEST OF CHANDLER, 6.4 MILES WEST-NORTHWEST ALONG COUNTY ROAD 5 FROM THE JUNCTION OF TRUNK HIGHWAY 91 AND COUNTY ROAD 5 IN CHANDLER, THEN 1.06 MILES SOUTH ALONG 5TH AVENUE, 28.0 FEET WEST OF 5TH AVENUE, 315.0 FEET SOUTH OF 61ST STREET EXTENDED, 4.4 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>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1774.563	.262		1688.602	.197	2011	GPS - OPUS	2019	GPSBM
1774.521	.262		1688.560	.197	2011	GPS - RTRN	2019	RTRN2019
1774.534	.262		1688.599	.197	2011	GPS - RTRN	2015	RTRN2015
			1688.612	.012	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			1688.707	.013	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
1774.570	.131		1688.848	.066	1996	HORIZONTAL ADJUSTMENT	2005	GPS2097
1774.570	.131		1688.848	.066	1996	GPS - STATIC	2005	HPSTO
1774.603	.131		1688.848	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1919
1774.603	.131		1688.848	.066	1996	GPS - STATIC	2003	HMURR

Geoid Separations(ft): GEOID18 = -85.961 12B = -85.935 09 = -85.827 03 = -85.735

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 56 04.64816	96 03 13.48520	424368.678	131691.432	.131	3	GPS - OPUS	2019	GPSBM
43 56 04.64761	96 03 13.48491	424368.699	131691.376	.131	3	GPS - RTRN	2019	RTRN2019
43 56 04.64822	96 03 13.48480	424368.707	131691.438	.131	3	GPS - RTRN	2015	RTRN2015
43 56 04.64819	96 03 13.48511	424368.684	131691.435	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 56 04.64818	96 03 13.48606	424368.615	131691.434	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 56 04.64811	96 03 13.48529	424368.671	131691.427	.033	C	ADJUSTMENT	2005	GPS2097
43 56 04.64811	96 03 13.48529	424368.671	131691.427	.033	C	GPS - STATIC	2005	HPSTO
43 56 04.64811	96 03 13.48529	424368.671	131691.427	.033	C	ADJUSTMENT	2003	GPS1919
43 56 04.64810	96 03 13.48529	424368.671	131691.426	.033	C	GPS - STATIC	2003	HMURR

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2083717.235	675588.191	836269.618	15974856.372	.131	3	GPS - OPUS	2019	GPSBM
2083717.255	675588.135	836269.637	15974856.315	.131	3	GPS - RTRN	2019	RTRN2019
2083717.264	675588.197	836269.647	15974856.377	.131	3	GPS - RTRN	2015	RTRN2015
2083717.242	675588.194	836269.625	15974856.374	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2083717.172	675588.195	836269.555	15974856.376	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2083717.228	675588.187	836269.611	15974856.367	.033	C	ADJUSTMENT	2005	GPS2097
2083717.228	675588.187	836269.611	15974856.367	.033	C	GPS - STATIC	2005	HPSTO
2083717.228	675588.187	836269.611	15974856.367	.033	C	ADJUSTMENT	2003	GPS1919
2083717.228	675588.186	836269.611	15974856.366	.033	C	GPS - STATIC	2003	HMURR

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/NW_06_105_43-DF8539-3W-22OCT2019.jpg	W	Oct 22, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/NW_06_105_43-DF8539-2-22OCT2019.jpg		Oct 22, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/NW_06_105_43-DF8539-1-22OCT2019.jpg		Oct 22, 2019

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



Mn/DOT Name: NW 06 106 40

NGS Name: NW 06 106 40

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DF8540](#) [Get Map](#)
 NGS Quad / Sta Num : 44095323/
 USGS Quad: CURRIE

<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	106 N	40 W	440119.10	954210.47		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>
2003	2021	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MN-101

Description: (2003) **Stamping:** NW 06 106 40 2003

3.5 MILES NORTHEAST OF SLAYTON, 3.25 MILES NORTH AND EAST ALONG COUNTY ROAD 8/ 101ST STREET THEN CONTINUE 1.0 MILE NORTH ON COUNTY ROAD 35 (180TH AVENUE) FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND TRUNK HIGHWAY 59 IN SLAYTON, 34.6 FEET SOUTH OF 120TH STREET, 142.0 FEET EAST OF COUNTY ROAD 35, 4.8 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>Orthometric Height</u>				<u>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>						
1585.223	.262		1497.727	.197	2011	2021	GPSBM						
1585.131	.262		1497.635	.197	2011	2021	GPSBM						
1585.167	.262		1497.677	.197	2011	2015	RTRN2015						
			1497.786	.009	2011	2012	GPS2800						
1585.151	.262		1497.743	.197	2007	2012	RTRN2012						
			1497.914	.066	2007	2011	GPS2386-B						
1585.266	.131		1498.045	.066	1996	2007	GPS2386						
1585.266	.131		1498.045	.066	1996	2007	HSLAT						
			1497.914	.013	2007	2007	GPS2300						
1585.299	.131		1498.058	.066	1996	2003	GPS1919						
1585.233	.131		1498.045	.066	1996	2003	HMURR						

Geoid Separations(ft): GEOID18 = -87.497 12B = -87.490 09 = -87.408 03 = -87.214

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Murray County</u>						<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
44 01 19.09650	95 42 10.47110	516772.518	163409.876	.131	3	GPS - OPUS	2021	GPSBM	
44 01 19.09682	95 42 10.47186	516772.462	163409.908	.131	3	GPS - OPUS	2021	GPSBM	
44 01 19.09720	95 42 10.47099	516772.526	163409.947	.131	3	GPS - RTRN	2015	RTRN2015	
44 01 19.09662	95 42 10.47105	516772.521	163409.888	.007		ADJUSTMENT	2012	GPS2800	

<u>NAD83(2007)</u>		<u>Murray County</u>						<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
44 01 19.09686	95 42 10.47131	516772.502	163409.913	.131	3	GPS - RTRN	2012	RTRN2012	
44 01 19.09660	95 42 10.47188	516772.461	163409.886	.033	C	ADJUSTMENT	2011	GPS2386-B	
44 01 19.09660	95 42 10.47188	516772.461	163409.886	.007		ADJUSTMENT	2007	GPS2300	

<u>NAD83(1996)</u>		<u>Murray County</u>						<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
44 01 19.09613	95 42 10.47114	516772.515	163409.839	.033	C	ADJUSTMENT	2007	GPS2386	
44 01 19.09613	95 42 10.47114	516772.515	163409.839	.033	C	GPS - STATIC	2007	HSLAT	
44 01 19.09609	95 42 10.47113	516772.516	163409.835	.033	C	ADJUSTMENT	2003	GPS1919	
44 01 19.09613	95 42 10.47114	516772.515	163409.839	.033	C	GPS - STATIC	2003	HMURR	

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2176775.048	705297.991	929702.302	16003463.236	.131	3	GPS - OPUS	2021	GPSBM
2176774.993	705298.025	929702.247	16003463.271	.131	3	GPS - OPUS	2021	GPSBM
2176775.057	705298.062	929702.312	16003463.307	.131	3	GPS - RTRN	2015	RTRN2015
2176775.052	705298.003	929702.306	16003463.249	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2176775.033	705298.028	929702.288	16003463.274	.131	3	GPS - RTRN	2012	RTRN2012
2176774.991	705298.002	929702.245	16003463.249	.033	C	ADJUSTMENT	2011	GPS2386-B
2176774.991	705298.002	929702.245	16003463.249	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2176775.044	705297.954	929702.297	16003463.199	.033	C	ADJUSTMENT	2007	GPS2386
2176775.044	705297.954	929702.297	16003463.199	.033	C	GPS - STATIC	2007	HSLAT
2176775.045	705297.950	929702.298	16003463.195	.033	C	ADJUSTMENT	2003	GPS1919
2176775.044	705297.954	929702.297	16003463.199	.033	C	GPS - STATIC	2003	HMURR

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/NW_06_106_40-DF8540-3S-28APR2021.jpg	S	Apr 28, 2021
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/NW_06_106_40-DF8540-2-28APR2021.jpg		Apr 28, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/NW_06_106_40-DF8540-1-28APR2021.jpg		Apr 28, 2021

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



Mn/DOT Name: NW 06 106 43

NGS Name: NW 06 106 43

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DF8541](#) [Get Map](#)
 NGS Quad / Sta Num : 44096222/
 USGS Quad: WOODSTOCK

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	43 W	440107.77	960351.85		C

<u>Year Set</u>	<u>Last Recovery</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	2021	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MN-101

Description: (2003) Stamping: NW 06 106 43 2003

7.4 MILES WEST OF LAKE WILSON, 5.65 MILES WEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND TRUNK HIGHWAY 91 IN LAKE WILSON, THEN 1.75 MILES NORTH ALONG A COUNTY LINE AVENUE, 30.7 FEET EAST OF A COUNTY LINE AVENUE, 38.0 FEET SOUTH OF A FIELD ENTRANCE, 4.8 FEET NORTH 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>
1846.302	.262		1760.521	.197	2011	GPS - OPUS	2021	GPSBM
1846.223	.262		1760.443	.197	2011	GPS - OPUS	2021	GPSBM
			1760.479	.010	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			1760.574	.010	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
1846.256	.131		1760.725	.066	1996	HORIZONTAL ADJUSTMENT	2005	GPS2097
1846.256	.131		1760.725	.066	1996	GPS - STATIC	2005	HPSTO
1846.322	.131		1760.725	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1919
1846.322	.131		1760.725	.066	1996	GPS - STATIC	2003	HMURR

Geoid Separations(ft): GEOID18 = -85.781 12B = -85.764 09 = -85.672 03 = -85.561

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 01 07.77403	96 03 51.84994	421672.018	162398.253	.131	3	GPS - OPUS	2021	GPSBM
44 01 07.77418	96 03 51.84961	421672.042	162398.268	.131	3	GPS - OPUS	2021	GPSBM
44 01 07.77411	96 03 51.84936	421672.061	162398.261	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 01 07.77408	96 03 51.85031	421671.991	162398.258	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 01 07.77392	96 03 51.84973	421672.034	162398.241	.033	C	ADJUSTMENT	2005	GPS2097
44 01 07.77392	96 03 51.84973	421672.034	162398.241	.033	C	GPS - STATIC	2005	HPSTO
44 01 07.77392	96 03 51.84973	421672.034	162398.241	.033	C	ADJUSTMENT	2003	GPS1919
44 01 07.77392	96 03 51.84973	421672.034	162398.241	.033	C	GPS - STATIC	2003	HMURR



State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2081685.930	706342.799	834603.851	16005644.570	.131	3	GPS - OPUS	2021	GPSBM
2081685.955	706342.814	834603.875	16005644.584	.131	3	GPS - OPUS	2021	GPSBM
2081685.973	706342.806	834603.893	16005644.577	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2081685.903	706342.805	834603.824	16005644.576	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2081685.945	706342.787	834603.866	16005644.559	.033	C	ADJUSTMENT	2005	GPS2097
2081685.945	706342.787	834603.866	16005644.559	.033	C	GPS - STATIC	2005	HPSTO
2081685.945	706342.787	834603.866	16005644.559	.033	C	ADJUSTMENT	2003	GPS1919
2081685.945	706342.787	834603.866	16005644.559	.033	C	GPS - STATIC	2003	HMURR

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/NW_06_106_43-DF8541-3E-28APR2021.jpg	E	Apr 28, 2021
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/NW_06_106_43-DF8541-2-28APR2021.jpg		Apr 28, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/NW_06_106_43-DF8541-1-28APR2021.jpg		Apr 28, 2021

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



Mn/DOT Name: NW 22 105 39

NGS Name: NW 22 105 39

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DF8542](#) [Get Map](#)
 NGS Quad / Sta Num : 43095411/
 USGS Quad: LIME CREEK

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	39 W	435327.63	953120.75		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>
2003	2021	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MN-101

Description: (2003) **Stamping:** NW 22 105 39 2003

5.3 MILES EAST OF FULDA, 1.5 MILES NORTH ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 62 AND TRUNK HIGHWAY 59 IN FULDA, TO TRUNK HIGHWAY 59 MILEPOINT 29.75, THEN 3.85 MILES EAST ON COUNTY ROAD 3, THEN 150.0 FEET SOUTH ON COUNTY ROAD 91, 30.0 FEET EAST OF COUNTY ROAD 91, 20.0 FEET NORTH OF A FIELD ENTRANCE, 152.0 FEET SOUTH OF COUNTY ROAD 3, 4.5 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>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1484.364	.262		1396.086	.197	2011	GPS - OPUS	2021	GPSBM
1484.361	.262		1396.100	.197	2011	GPS - RTRN	2015	RTRN2015
1484.295			1396.067	.017	2011	HORIZONTAL ADJUSTMENT	2014	GPS2962
1484.295			1396.001	.017	2011	GPS - STATIC	2014	HFULD
1484.288	.131		1396.329	.066	1996	GPS - STATIC	2013	HFULD
			1396.067	.028	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1484.213	.262		1396.067	.197	2007	GPS - RTRN	2011	RTRN2011
			1396.162	.029	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
1484.249	.131		1396.283	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1919
1484.216	.131		1396.280	.066	1996	GPS - STATIC	2003	HMURR

Geoid Separations(ft): GEOID18 = -88.277 12B = -88.261 09 = -88.143 03 = -87.956

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 53 27.62624	95 31 20.75020	564391.402	115753.918	.131	3	GPS - OPUS	2021	GPSBM
43 53 27.62664	95 31 20.74958	564391.447	115753.959	.131	3	GPS - RTRN	2015	RTRN2015
43 53 27.62633	95 31 20.74972	564391.437	115753.927	.010		ADJUSTMENT	2014	GPS2962
43 53 27.62616	95 31 20.74975	564391.435	115753.910	.010	C	GPS - STATIC	2014	HFULD
43 53 27.62633	95 31 20.74972	564391.437	115753.927	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 53 27.62621	95 31 20.75121	564391.328	115753.915	.131	3	GPS - RTRN	2011	RTRN2011
43 53 27.62625	95 31 20.75053	564391.378	115753.919	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 53 27.62591	95 31 20.74971	564391.438	115753.885	.033	C	GPS - STATIC	2013	HFULD
43 53 27.62591	95 31 20.74970	564391.439	115753.885	.033	C	ADJUSTMENT	2003	GPS1919
43 53 27.62591	95 31 20.74971	564391.438	115753.885	.033	C	GPS - STATIC	2003	HMURR

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2223348.694	656630.007	975699.787	15954234.354	.131	3	GPS - OPUS	2021	GPSBM
2223348.740	656630.047	975699.834	15954234.393	.131	3	GPS - RTRN	2015	RTRN2015
2223348.729	656630.016	975699.822	15954234.362	.010		ADJUSTMENT	2014	GPS2962
2223348.727	656629.999	975699.820	15954234.345	.010	C	GPS - STATIC	2014	HFULD
2223348.729	656630.016	975699.822	15954234.362	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2223348.620	656630.006	975699.713	15954234.353	.131	3	GPS - RTRN	2011	RTRN2011
2223348.670	656630.009	975699.763	15954234.356	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2223348.729	656629.973	975699.822	15954234.320	.033	C	GPS - STATIC	2013	HFULD
2223348.730	656629.973	975699.823	15954234.319	.033	C	ADJUSTMENT	2003	GPS1919
2223348.729	656629.973	975699.822	15954234.320	.033	C	GPS - STATIC	2003	HMURR

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/NW_22_105_39-DF8542-3E-28APR2021.jpg	E	Apr 28, 2021
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/NW_22_105_39-DF8542-2-28APR2021.jpg		Apr 28, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/NW_22_105_39-DF8542-1-28APR2021.jpg		Apr 28, 2021

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



Mn/DOT Name: NW 22 105 42

NGS Name: NW 22 105 42

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DF8543](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	22	105 N	42 W	435330.66	955244.58		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2003	2021	GOOD	Horz=YES Vert=YES	YES		PROJECTS 1 IN.	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MN-101

Description: (2003) Stamping: NW 22 105 42 2003

5.75 MILES SOUTHWEST OF CHANDLER, 3.5 MILES SOUTH ALONG TRUNK HIGHWAY 91 FROM THE JUNCTION OF TRUNK HIGHWAY 91 AND COUNTY ROAD 4 IN CHANDLER, THEN 3.0 MILES EAST ALONG COUNTY ROAD 1, THEN 1.0 MILE NORTH ALONG A 90TH AVENUE, THEN 0.24 MILE EAST ALONG A 31ST STREET, 31.7 FEET SOUTH OF A 31ST STREET, 16.3 FEET EAST OF A FIELD ENTRANCE, 4.6 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		
1689.150	.262		1602.749	.197	2011	GPS - OPUS		2021	GPSBM		
1689.075	.262		1602.674	.197	2011	GPS - OPUS		2021	GPSBM		
			1602.687	.021	2011	HORIZONTAL ADJUSTMENT		2012	GPS2800		
			1602.779	.021	2007	HORIZONTAL ADJUSTMENT		2007	GPS2300		
1689.071	.131		1602.881	.066	1996	HORIZONTAL ADJUSTMENT		2003	GPS1919		
1689.071	.131		1602.881	.066	1996	GPS - STATIC		2003	HMURR		

Geoid Separations(ft): GEOID18 = -86.397 12B = -86.378 09 = -86.289 03 = -86.178

Lat/Lon and County Coordinates (Feet)

NAD83(2011)		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 53 30.65741	95 52 44.58018	470371.165	115985.669	.131	3	GPS - OPUS	2021	GPSBM
43 53 30.65766	95 52 44.58004	470371.175	115985.694	.131	3	GPS - OPUS	2021	GPSBM
43 53 30.65768	95 52 44.57987	470371.188	115985.696	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 53 30.65765	95 52 44.58069	470371.128	115985.693	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 53 30.65715	95 52 44.58000	470371.178	115985.642	.033	C	ADJUSTMENT	2003	GPS1919
43 53 30.65715	95 52 44.58000	470371.178	115985.642	.033	C	GPS - STATIC	2003	HMURR

State Plane and UTM Coordinates (Feet)

NAD83(2011)		Murray County				Project Info		
MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Year	Reference
X	Y	X	Y					
2129364.619	658892.716	881730.330	15957614.698	.131	3	GPS - OPUS	2021	GPSBM
2129364.629	658892.741	881730.341	15957614.723	.131	3	GPS - OPUS	2021	GPSBM
2129364.642	658892.743	881730.353	15957614.724	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)		Murray County				Project Info		
MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Year	Reference
X	Y	X	Y					
2129364.582	658892.741	881730.293	15957614.723	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)		Murray County				Project Info		
MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Year	Reference
X	Y	X	Y					
2129364.631	658892.689	881730.342	15957614.671	.033	C	ADJUSTMENT	2003	GPS1919
2129364.631	658892.689	881730.342	15957614.671	.033	C	GPS - STATIC	2003	HMURR



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/NW_22_105_42-DF8543-3S-28APR2021.jpg	S	Apr 28, 2021
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/NW_22_105_42-DF8543-2-28APR2021.jpg		Apr 28, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/NW_22_105_42-DF8543-1-28APR2021.jpg		Apr 28, 2021

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



Mn/DOT Name: NW 22 106 39

NGS Name: NW 22 106 39

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DF8544](#) [Get Map](#)
 NGS Quad / Sta Num : 43095411/
 USGS Quad: LIME CREEK

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	39 W	435842.58	953102.58		C

<u>Year Set</u>	<u>Last Recovery</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	2021	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MN-101

Description: (2003) Stamping: NW2210639 2003

13.3 MILES EAST OF SLAYTON, 2.0 MILES SOUTHEAST ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND TRUNK HIGHWAY 59 IN SLAYTON, THEN 9.0 MILES EAST ON COUNTY ROAD 7, THEN CONTINUE EAST 1.25 MILES ON A TOWNSHIP ROAD (91ST STREET), 40.4 FEET SOUTH OF A TOWNSHIP ROAD (91ST STREET), 26.9 FEET WEST OF A FIELD ENTRANCE, 93.0 FEET SOUTH-SOUTHWEST OF A POWER POLE, 4.7 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>		
1491.500	.262		1403.399	.197	2011	GPS - OPUS		2021	GPSBM		
1491.450	.262		1403.350	.197	2011	GPS - OPUS		2021	GPSBM		
			1403.337	.012	2011	HORIZONTAL ADJUSTMENT		2012	GPS2800		
			1403.439	.013	2007	HORIZONTAL ADJUSTMENT		2007	GPS2300		
1491.434	.131		1403.577	.066	1996	HORIZONTAL ADJUSTMENT		2003	GPS1919		
1491.368	.131		1403.563	.066	1996	GPS - STATIC		2003	HMURR		

Geoid Separations(ft): GEOID18 = -88.100 12B = -88.090 09 = -87.989 03 = -87.841

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>			<u>Murray 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>								
43 58 42.58049	95 31 02.57495		565625.984	147652.458	.131	3	GPS - OPUS	2021	GPSBM
43 58 42.58042	95 31 02.57506		565625.976	147652.450	.131	3	GPS - OPUS	2021	GPSBM
43 58 42.58054	95 31 02.57471		565626.001	147652.463	.007		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>			<u>Murray 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>								
43 58 42.58052	95 31 02.57550		565625.944	147652.461	.007		ADJUSTMENT	2007	GPS2300

<u>NAD83(1996)</u>			<u>Murray 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>								
43 58 42.58001	95 31 02.57474		565625.999	147652.409	.033	C	ADJUSTMENT	2003	GPS1919
43 58 42.58003	95 31 02.57476		565625.998	147652.411	.033	C	GPS - STATIC	2003	HMURR

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>			<u>MN State Plane - South 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>		
2225271.353	688491.151		978002.772	15986074.505	.131	3	GPS - OPUS	2021	GPSBM		
2225271.344	688491.144		978002.764	15986074.498	.131	3	GPS - OPUS	2021	GPSBM		
2225271.370	688491.155		978002.790	15986074.510	.007		ADJUSTMENT	2012	GPS2800		

<u>NAD83(2007)</u>			<u>MN State Plane - South 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>		
2225271.313	688491.155		978002.732	15986074.509	.007		ADJUSTMENT	2007	GPS2300		

<u>NAD83(1996)</u>			<u>MN State Plane - South 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>		
2225271.367	688491.102		978002.786	15986074.456	.033	C	ADJUSTMENT	2003	GPS1919		
2225271.366	688491.104		978002.785	15986074.458	.033	C	GPS - STATIC	2003	HMURR		



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/NW_22_106_39-DF8544-3S-28APR2021.jpg	S	Apr 28, 2021
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/NW_22_106_39-DF8544-2-28APR2021.jpg		Apr 28, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/NW_22_106_39-DF8544-1-28APR2021.jpg		Apr 28, 2021

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



Mn/DOT Name: NW 22 106 41

NGS Name: NW 22 106 41

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DF8545](#) [Get Map](#)
 NGS Quad / Sta Num : 43095441/
 USGS Quad: SLAYTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	41 W	435841.68	954548.08	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>
2003	2015	GOOD	Horz=YES Vert=YES	YES		PROJECTS 2 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MN-101

Description: (2003) **Stamping:** NW2210641 2003

ALONG THE SOUTHWEST EDGE OF SLAYTON, 1.0 MILE SOUTH ALONG TRUNK HIGHWAY 267 FROM THE JUNCTION OF TRUNK HIGHWAY 267 AND TRUNK HIGHWAY 30 (THE JUNCTION IS 1.5 MILES WEST OF SLAYTON), THEN 1.0 MILE EAST ALONG COUNTY ROAD 7, THEN 150.0 FEET SOUTH ALONG COUNTY ROAD 32, 48.8 FEET EAST OF COUNTY ROAD 32, 150.0 FEET SOUTH OF COUNTY ROAD 7, 4.7 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>
1594.223	.016	2/1				VERTICAL ADJUSTMENT		2013	00000792
1594.223	.016	2/1				VERTICAL CONTROL SURVEY		2012	VIONA
1594.223	.016	2/1				VERTICAL ADJUSTMENT		2010	00000628
1594.219	.016	2/1				VERTICAL CONTROL SURVEY		2007	VSLAT

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>
1594.239	.262		1507.074	.197	2011	GPS - RTRN		2015	RTRN2015
1594.223			1506.998	.008	2011	HORIZONTAL ADJUSTMENT		2014	GPS2998
1594.223			1507.011	.008	2011	GPS - STATIC		2014	HIONA
			1506.998	.011	2011	HORIZONTAL ADJUSTMENT		2012	GPS2800
1594.141	.262		1507.048	.197	2007	GPS - RTRN		2012	RTRN2012
1594.223	.131		1507.307	.066	1996	GPS - STATIC		2012	HIONA
			1507.087	.066	2007	HORIZONTAL ADJUSTMENT		2011	GPS2386-B
1594.137	.262		1507.044	.197	2007	GPS - RTRN		2011	RTRN2011
1594.223	.131		1507.235	.066	1996	HORIZONTAL ADJUSTMENT		2007	GPS2386
1594.223	.131		1507.235	.066	1996	GPS - STATIC		2007	HSLAT
			1507.087	.021	2007	HORIZONTAL ADJUSTMENT		2007	GPS2300
1594.157	.131		1507.235	.066	1996	HORIZONTAL ADJUSTMENT		2003	GPS1919
1594.124	.131		1507.235	.066	1996	GPS - STATIC		2003	HMURR

Geoid Separations(ft): GEOID18 = -87.188 12B = -87.165 09 = -87.090 03 = -86.916

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 58 41.67571	95 45 48.08041	500871.649	147461.602	.131	3	GPS - RTRN	2015	RTRN2015
43 58 41.67564	95 45 48.07997	500871.681	147461.595	.003		ADJUSTMENT	2014	GPS2998
43 58 41.67562	95 45 48.07999	500871.679	147461.593	.003	C	GPS - STATIC	2014	HIONA
43 58 41.67564	95 45 48.07997	500871.681	147461.595	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 58 41.67631	95 45 48.08050	500871.642	147461.663	.131	3	GPS - RTRN	2012	RTRN2012
43 58 41.67556	95 45 48.08100	500871.606	147461.587	.033	C	ADJUSTMENT	2011	GPS2386-B
43 58 41.67577	95 45 48.07998	500871.680	147461.609	.131	3	GPS - RTRN	2011	RTRN2011
43 58 41.67556	95 45 48.08101	500871.605	147461.587	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 58 41.67509	95 45 48.08036	500871.652	147461.540	.033	C	GPS - STATIC	2012	HIONA
43 58 41.67509	95 45 48.08036	500871.652	147461.540	.033	C	ADJUSTMENT	2007	GPS2386
43 58 41.67509	95 45 48.08036	500871.652	147461.540	.033	C	GPS - STATIC	2007	HSLAT
43 58 41.67509	95 45 48.08036	500871.652	147461.540	.033	C	ADJUSTMENT	2003	GPS1919
43 58 41.67509	95 45 48.08036	500871.652	147461.540	.033	C	GPS - STATIC	2003	HMURR

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2160535.125	689698.782	913273.383	15988055.613	.131	3	GPS - RTRN	2015	RTRN2015
2160535.158	689698.774	913273.415	15988055.605	.003		ADJUSTMENT	2014	GPS2998
2160535.156	689698.773	913273.414	15988055.603	.003	C	GPS - STATIC	2014	HIONA
2160535.158	689698.774	913273.415	15988055.605	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2160535.120	689698.843	913273.379	15988055.674	.131	3	GPS - RTRN	2012	RTRN2012
2160535.082	689698.768	913273.339	15988055.600	.033	C	ADJUSTMENT	2011	GPS2386-B
2160535.157	689698.788	913273.415	15988055.618	.131	3	GPS - RTRN	2011	RTRN2011
2160535.081	689698.768	913273.339	15988055.600	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2160535.128	689698.719	913273.385	15988055.550	.033	C	GPS - STATIC	2012	HIONA
2160535.128	689698.719	913273.385	15988055.550	.033	C	ADJUSTMENT	2007	GPS2386
2160535.128	689698.719	913273.385	15988055.550	.033	C	GPS - STATIC	2007	HSLAT
2160535.128	689698.719	913273.385	15988055.550	.033	C	ADJUSTMENT	2003	GPS1919
2160535.128	689698.719	913273.385	15988055.550	.033	C	GPS - STATIC	2003	HMURR

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/NW_22_106_41-DF8545-3E-10JUN2015.jpg	E	Jun 10, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/NW_22_106_41-DF8545-2-10JUN2015.jpg		Jun 10, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/NW_22_106_41-DF8545-1-10JUN2015.jpg		Jun 10, 2015

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



Mn/DOT Name: NW 22 108 39

NGS Name: NW 22 108 39

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DF8546](#) [Get Map](#)
 NGS Quad / Sta Num : 44095321/
 USGS Quad: TRACY EAST

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	108 N	39 W	440908.49	953110.34		C

<u>Year Set</u>	<u>Last Recovery</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	2019	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MN-101

Description: (2003) **Stamping:** NW2210839 2003

8.2 MILES NORTH-NORTHEAST OF DOVRAY, 6.0 MILES NORTH ALONG COUNTY ROAD 42 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND COUNTY ROAD 42 IN DOVRAY, THEN 1.0 MILE EAST ON COUNTY ROAD 17, THEN 1.0 MILE NORTH ON 270TH AVENUE, THEN 0.18 MILE EAST ON 211TH STREET, 31.6 FEET SOUTH OF 211TH STREET, 15.2 FEET EAST OF A POWER POLE, 4.7 FEET EAST 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>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>			<u>Year</u>	<u>Reference</u>	
1426.093	.262		1337.779	.197	2011	GPS - OPUS		2019	GPSBM	
1426.132	.262		1337.819	.197	2011	GPS - OPUS		2019	GPSBM	
1426.191	.262		1337.875	.197	2011	GPS - RTRN		2019	RTRN2019	
			1337.783	.013	2011	HORIZONTAL ADJUSTMENT		2012	GPS2800	
			1337.875	.014	2007	HORIZONTAL ADJUSTMENT		2007	GPS2300	
1426.047	.131		1338.022	.066	1996	HORIZONTAL ADJUSTMENT		2003	GPS1919	
1426.080	.131		1338.062	.066	1996	GPS - STATIC		2003	HMURR	

Geoid Separations(ft): GEOID18 = -88.317 12B = -88.310 09 = -88.208 03 = -88.077

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

<u>Geodetic Position</u>		<u>Murray County</u>						<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
44 09 08.48945	95 31 10.34281	564867.887	211036.207	.131	3	GPS - OPUS	2019	GPSBM	
44 09 08.48930	95 31 10.34260	564867.902	211036.192	.131	3	GPS - OPUS	2019	GPSBM	
44 09 08.48950	95 31 10.34168	564867.969	211036.212	.131	3	GPS - RTRN	2019	RTRN2019	
44 09 08.48939	95 31 10.34207	564867.941	211036.201	.010		ADJUSTMENT	2012	GPS2800	

NAD83(2007)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 09 08.48942	95 31 10.34297	564867.875	211036.204	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 09 08.48893	95 31 10.34221	564867.931	211036.155	.033	C	ADJUSTMENT	2003	GPS1919
44 09 08.48887	95 31 10.34220	564867.932	211036.148	.033	C	GPS - STATIC	2003	HMURR

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2225881.556	751868.754	979373.921	16049449.668	.131	3	GPS - OPUS	2019	GPSBM
2225881.571	751868.738	979373.935	16049449.653	.131	3	GPS - OPUS	2019	GPSBM
2225881.638	751868.757	979374.003	16049449.671	.131	3	GPS - RTRN	2019	RTRN2019
2225881.610	751868.747	979373.974	16049449.661	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2225881.544	751868.751	979373.909	16049449.666	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2225881.599	751868.700	979373.963	16049449.614	.033	C	ADJUSTMENT	2003	GPS1919
2225881.599	751868.694	979373.963	16049449.608	.033	C	GPS - STATIC	2003	HMURR

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/NW_22_108_39-DF8546-3S-22OCT2019.jpg	S	Oct 22, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/NW_22_108_39-DF8546-2-22OCT2019.jpg		Oct 22, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/NW_22_108_39-DF8546-1-22OCT2019.jpg		Oct 22, 2019

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



Mn/DOT Name: NW 22 108 43

NGS Name: NW 22 108 43

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DF8547](#) [Get Map](#)
 NGS Quad / Sta Num : 44096221/
 USGS Quad: RUTHTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	108 N	43 W	440911.35	960014.13		C

<u>Year Set</u>	<u>Last Recovery</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	2024	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MN-101

Description: (2003) **Stamping:** NW 22 108 43 2003

13.6 MILES NORTH-NORTHWEST OF LAKE WILSON, 3.65 MILES WEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND TRUNK HIGHWAY 91 IN LAKE WILSON, THEN 11.0 MILES NORTH ALONG COUNTY ROAD 25, THEN 1.0 MILE EAST ALONG COUNTY ROAD 18, 38.8 FEET SOUTH OF COUNTY ROAD 18, 34.3 FEET EAST OF A SOUTH FIELD ENTRANCE AND 30TH AVENUE EXTENDED, 81.0 FEET SOUTH OF A POWER POLE NUMBER 220, 5.2 FEET EAST 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>Determination Method</u>		<u>Project Info</u>	
<u>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>	
1684.108	.262		1597.786	.197	2011	GPS - RTRN		2024	RTRN2024	
1684.085	.262		1597.759	.197	2011	GPS - OPUS		2021	GPSBM	
1684.091	.262		1597.766	.197	2011	GPS - OPUS		2021	GPSBM	
			1597.789	.032	2011	HORIZONTAL ADJUSTMENT		2012	GPS2800	
			1597.881	.033	2007	HORIZONTAL ADJUSTMENT		2007	GPS2300	
1684.150	.131		1598.041	.066	1996	HORIZONTAL ADJUSTMENT		2003	GPS1919	
1684.150	.131		1598.041	.066	1996	GPS - STATIC		2003	HMURR	

Geoid Separations(ft): GEOID18 = -86.322 12B = -86.329 09 = -86.237 03 = -86.115

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

<u>Geodetic Position</u>		<u>Murray 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>
44 09 11.35331	96 00 14.12728	437723.545	211318.621	.131	3	GPS - RTRN		2024	RTRN2024
44 09 11.35328	96 00 14.12773	437723.513	211318.618	.131	3	GPS - OPUS		2021	GPSBM
44 09 11.35314	96 00 14.12762	437723.521	211318.604	.131	3	GPS - OPUS		2021	GPSBM
44 09 11.35353	96 00 14.12754	437723.526	211318.643	.010		ADJUSTMENT		2012	GPS2800

NAD83(2007)

<u>Geodetic Position</u>		<u>Murray 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>
44 09 11.35348	96 00 14.12845	437723.460	211318.638	.010		ADJUSTMENT		2007	GPS2300

NAD83(1996)

<u>Geodetic Position</u>		<u>Murray 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>
44 09 11.35294	96 00 14.12794	437723.497	211318.584	.033	C	ADJUSTMENT		2003	GPS1919
44 09 11.35294	96 00 14.12794	437723.497	211318.584	.033	C	GPS - STATIC		2003	HMURR



State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2098790.083	754898.326	852294.959	16054010.022	.131	3	GPS - RTRN	2024	RTRN2024
2098790.050	754898.324	852294.927	16054010.020	.131	3	GPS - OPUS	2021	GPSBM
2098790.058	754898.310	852294.934	16054010.005	.131	3	GPS - OPUS	2021	GPSBM
2098790.065	754898.349	852294.941	16054010.045	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2098789.998	754898.346	852294.875	16054010.042	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2098790.034	754898.290	852294.910	16054009.986	.033	C	ADJUSTMENT	2003	GPS1919
2098790.034	754898.290	852294.910	16054009.986	.033	C	GPS - STATIC	2003	HMURR

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/NW_22_108_43-DF8547-3S-13MAY2024.jpg	S	May 13, 2024
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/NW_22_108_43-DF8547-2-28APR2021.jpg		Apr 28, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/NW_22_108_43-DF8547-1-13MAY2024.jpg		May 13, 2024

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



Mn/DOT Name: OASIS MNDT

NGS Name: OASIS

County: MURRAY, MN (Sheet 1)

NGS ACRN: [AH3673](#) [Get Map](#)
 NGS Quad / Sta Num : 44095333/
 USGS Quad: BALATON SW

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	7	107 N	42 W	440449.98	955602.51	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1993	2024	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

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

Description: (1993) Stamping: OASIS 1993

5.84 MILES NORTH OF LAKE WILSON, 6.25 MILES NORTH ALONG TRUNK HIGHWAY 91 FROM THE JUNCTION OF TRUNK HIGHWAY 91 AND TRUNK HIGHWAY 30 IN LAKE WILSON TO TRUNK HIGHWAY 91 MILEPOINT 45.05, THEN 0.5 MILE EAST ALONG 161ST STREET, 30.0 FEET NORTH OF 161ST STREET, 20.0 FEET WEST OF AN ENTRANCE, 35.0 FEET WEST-SOUTHWEST OF A FENCE CORNER, 1.5 FEET EAST OF A WITNESS POST.

Station Pair: LOWVIL MNDT - MURRAY, MN

Leveling-Derived Orthometric Heights (Feet)

NAVD88			Orthometric Height			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Year	Reference					
1702.080	.016	2/1				2020	00000949	VERTICAL ADJUSTMENT				
1702.080	.016	2/1				2017	00000903	VERTICAL ADJUSTMENT				
1702.073	.016	2/1				2016	VRUSS	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					
1702.067	.262		1615.535	.197	2011	2024	RTRN2024	GPS - RTRN				
1702.057	.262		1615.528	.197	2011	2016	RTRN2016	GPS - RTRN				
			1615.541	.017	2011	2012	GPS2800	HORIZONTAL ADJUSTMENT				
			1615.633	.015	2007	2007	GPS2300	HORIZONTAL ADJUSTMENT				
1701.932	.131		1615.617	.066	1996	1999	17648	HORIZONTAL ADJUSTMENT				
1701.965	.131		1615.617	.066	1996	1998	GPS937	HORIZONTAL ADJUSTMENT				

NGVD29			Orthometric Height			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Year	Reference					
1701.309						1993	HORZ	GPS - STATIC				

Geoid Separations(ft): GEOID18 = -86.529 12B = -86.529 09 = -86.437 03 = -86.279

Lat/Lon and County Coordinates (Feet)

NAD83(2011)		Geodetic Position		Murray County		Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 04 49.97689	95 56 02.50534	456016.119	184803.823	.131	3	GPS - RTRN	2024	RTRN2024
44 04 49.97689	95 56 02.50490	456016.151	184803.823	.131	3	GPS - RTRN	2016	RTRN2016
44 04 49.97697	95 56 02.50532	456016.121	184803.831	.016		ADJUSTMENT	2012	GPS2800

NAD83(2007)		Geodetic Position		Murray County		Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 04 49.97698	95 56 02.50628	456016.051	184803.832	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)		Geodetic Position		Murray County		Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 04 49.97681	95 56 02.50141	456016.406	184803.814	.033	C	ADJUSTMENT	1999	17648
44 04 49.97681	95 56 02.50141	456016.406	184803.814	.033	C	ADJUSTMENT	1998	GPS937

NAD83(1986)		Geodetic Position		Murray County		Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 04 49.97407	95 56 02.48473	456017.623	184803.534	.066	2	GPS - STATIC	1993	HMARS

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2116502.542	727997.522	869689.382	16026889.103	.131	3	GPS - RTRN	2024	RTRN2024
2116502.574	727997.522	869689.414	16026889.101	.131	3	GPS - RTRN	2016	RTRN2016
2116502.543	727997.531	869689.384	16026889.111	.016		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2116502.473	727997.533	869689.313	16026889.114	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2116502.828	727997.508	869689.668	16026889.084	.033	C	ADJUSTMENT	1999	17648
2116502.828	727997.508	869689.668	16026889.084	.033	C	ADJUSTMENT	1998	GPS937

NAD83(1986)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2116504.039	727997.201	869690.875	16026888.763	.066	2	GPS - STATIC	1993	HMARS

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/OASIS-AH3673-3N-13MAY2024.jpg	N	May 13, 2024
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/OASIS-AH3673-2-13MAY2024.jpg		May 13, 2024
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/OASIS-AH3673-1-13MAY2024.jpg		May 13, 2024

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



Mn/DOT Name: ORCH MNDT

NGS Name: ORCH

County: MURRAY, MN (Sheet 1)

NGS ACRN: [AB9863](#) [Get Map](#)
 NGS Quad / Sta Num : 44095323/
 USGS Quad: CURRIE

<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	2	106 N	41 W	440053.61	954352.88		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>
1987	2015	DESTROYED	Horz=NO Vert=NO	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 18 FT)	HORIZONTAL CONTROL DISK	MNDT

Description: (2008) Stamping: ORCH 1987

1.5 MILES NORTH-NORTHEAST OF SLAYTON, 1.5 MILES NORTH ALONG TRUNK HIGHWAY 30/TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND TRUNK HIGHWAY 59 IN SLAYTON, TO TRUNK HIGHWAY 30/TRUNK HIGHWAY 59 MILEPOINT 42.65, 1.15 MILES EAST ON 116TH STREET, 26.0 FEET NORTH OF 116TH STREET, 19.5 FEET WEST OF A DRIVEWAY, 21.7 FEET EAST-SOUTHEAST OF A POWER POLE, 60.7 FEET NORTH-NORTHWEST OF CABLE POST, 6.8 FEET SOUTH OF A FENCE, 61.4 FEET NORTH-NORTHEAST OF A WITNESS POST, 30.0 FEET EAST-SOUTHEAST OF A WITNESS POST, 5.6 FEET SOUTH-SOUTHEAST OF A WITNESS POST, 60.91 FEET NORTH-NORTHEAST OF ORCH MNDT RM 1, 28.88 FEET EAST-SOUTHEAST OF ORCH MNDT RM 2.

* 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>
			1515.112	.008	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			1515.200	.009	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
1602.457	.098		1515.384	.049	1996	GPS - STATIC	2005	GPS2036
1602.490	.131		1515.384	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1919
1602.457	.131		1515.384	.066	1996	GPS - STATIC	2003	HMURR
1602.326	.131		1515.384	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1792
1602.392	.131		1515.384	.066	1996	HORIZONTAL ADJUSTMENT	2002	GPS1767
1602.326	.131		1515.384	.066	1996	GPS - STATIC	2002	HWILS
1602.392	.131		1515.384	.066	1996	GPS - STATIC	2002	HLISM
1602.494	.098		1515.384	.049	1996	GPS - STATIC	1997	GPS805-B

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>
1602.162						GPS - STATIC	1987	HORZ

Geoid Separations(ft): GEOID18 = -87.388 12B = -87.382 09 = -87.300 03 = -87.106

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 00 53.60522	95 43 52.88354	509289.972	160823.901	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 00 53.60520	95 43 52.88441	509289.909	160823.899	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 00 53.60471	95 43 52.88367	509289.963	160823.850	.016	B	GPS - STATIC	2005	GPS2036
44 00 53.60471	95 43 52.88367	509289.963	160823.850	.033	C	ADJUSTMENT	2003	GPS1919
44 00 53.60471	95 43 52.88367	509289.963	160823.850	.033	C	GPS - STATIC	2003	HMURR
44 00 53.60471	95 43 52.88367	509289.963	160823.850	.033	C	ADJUSTMENT	2003	GPS1792
44 00 53.60471	95 43 52.88367	509289.963	160823.850	.033	C	ADJUSTMENT	2002	GPS1767
44 00 53.60471	95 43 52.88367	509289.963	160823.850	.033	C	GPS - STATIC	2002	HWILS
44 00 53.60471	95 43 52.88367	509289.963	160823.850	.033	C	GPS - STATIC	2002	HLISM
44 00 53.60471	95 43 52.88367	509289.963	160823.850	.016	B	GPS - STATIC	1997	GPS805-B

NAD83(1986)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 00 53.60234	95 43 52.86867	509291.058	160823.609	.033	C	GPS - STATIC	1988	HSLAY

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2169239.248	702874.567	922136.347	16001129.585	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2169239.184	702874.566	922136.284	16001129.585	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2169239.237	702874.516	922136.336	16001129.534	.016	B	GPS - STATIC	2005	GPS2036
2169239.237	702874.516	922136.336	16001129.534	.033	C	ADJUSTMENT	2003	GPS1919
2169239.237	702874.516	922136.336	16001129.534	.033	C	GPS - STATIC	2003	HMURR
2169239.237	702874.516	922136.336	16001129.534	.033	C	ADJUSTMENT	2003	GPS1792
2169239.237	702874.516	922136.336	16001129.534	.033	C	ADJUSTMENT	2002	GPS1767
2169239.237	702874.516	922136.336	16001129.534	.033	C	GPS - STATIC	2002	HWILS
2169239.237	702874.516	922136.336	16001129.534	.033	C	GPS - STATIC	2002	HLISM
2169239.237	702874.516	922136.336	16001129.534	.016	B	GPS - STATIC	1997	GPS805-B

NAD83(1986)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2169240.328	702874.252	922137.424	16001129.258	.033	C	GPS - STATIC	1988	HSLAY

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/ORCH-AB9863-3N-27MAY2015.jpg	N	May 27, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/ORCH-AB9863-2-27MAY2015.jpg		May 27, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/ORCH-AB9863-1-27MAY2015.jpg		May 27, 2015

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



Mn/DOT Name: ORCH MNDT RM 1

NGS Name: ORCH RM 1

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 44095323/
 USGS Quad: CURRIE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	41 W	440053.61	954352.88		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1987	2008	NOT FOUND	Horz=NO Vert=?	NO			SEE DESCRIPTION

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

Description: **Stamping:** ORCH NO 11987

1.5 MILES NORTH-NORTHEAST OF SLAYTON, 1.5 MILES NORTH ALONG TRUNK HIGHWAY 30/TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND TRUNK HIGHWAY 59 IN SLAYTON, TO TRUNK HIGHWAY 30/TRUNK HIGHWAY 59 MILEPOINT 42.65, 1.15 MILES EAST ON 116TH STREET, 26.0 FEET NORTH OF 116TH STREET, 19.5 FEET WEST OF A DRIVEWAY, 21.7 FEET EAST-SOUTHEAST OF A POWER POLE, 60.7 FEET NORTH-NORTHWEST OF CABLE POST, 6.8 FEET SOUTH OF A FENCE, 60.91 FEET SOUTH-SOUTHWEST OF STATION ORCH MNDT.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -87.388 12B = -87.382 09 = -87.300 03 = -87.106



Mn/DOT Name: ORCH MNDT RM 2

NGS Name: ORCH RM 2

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 44095323/
 USGS Quad: CURRIE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	41 W	440053.61	954352.88		

<u>Year Set</u>	<u>Last Recovery</u>	<u>Condition</u>	<u>Geodetic Usability</u>	<u>Photos</u>	<u>Bridge Num</u>	<u>F/P/R</u>	<u>Magnetic Properties</u>
1987	2008	NOT FOUND	Horz=NO Vert=?	YES			SEE DESCRIPTION

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

Description: **Stamping:** ORCH NO 2 1987

1.5 MILES NORTH-NORTHEAST OF SLAYTON, 1.5 MILES NORTH ALONG TRUNK HIGHWAY 30/TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND TRUNK HIGHWAY 59 IN SLAYTON, TO TRUNK HIGHWAY 30/TRUNK HIGHWAY 59 MILEPOINT 42.65, 1.15 MILES EAST ON 116TH STREET, 26.0 FEET NORTH OF 116TH STREET, 19.5 FEET WEST OF A DRIVEWAY, 21.7 FEET EAST-SOUTHEAST OF A POWER POLE, 60.7 FEET NORTH-NORTHWEST OF CABLE POST, 6.8 FEET SOUTH OF A FENCE, 28.88 FEET WEST-NORTHWEST OF STATION ORCH MNDT.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -87.388 12B = -87.382 09 = -87.300 03 = -87.106



Mn/DOT Name: ORCH MNDT RM 3

NGS Name: ORCH RM 3

County: MURRAY, MN (Sheet 1)

NGS ACRN: [PQ1393](#) [Get Map](#)
 NGS Quad / Sta Num : 44095323/
 USGS Quad: CURRIE

				Reference	Reference	Vert	Horz
1/4	Sec	Twp	Rng	Latitude	Longitude	Order	Order
SE	3	106 N	41 W	440053.16	954459.42	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1987	2015	GOOD	Horz=NO Vert=YES	YES		RECESSED 1 IN.	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 23 FT)	REFERENCE MARK DISK	MNDT

Description: (1987) **Stamping:** ORCH NO 3 1987

1.55 MILES NORTH ON TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 30 AT SLAYTON, THEN 0.15 MILE EAST ON 116TH STREET, 29.5 FEET SOUTH OF 116TH STREET, 24.0 FEET WEST OF A DRIVEWAY NUMBER 1571, 56.5 FEET SOUTH-SOUTHEAST OF A POWER POLE, 41.6 FEET WEST OF A TELEPHONE CABLE MARKER POST, 2.8 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		
1588.373	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903		
1588.376	.016	2/1				VERTICAL CONTROL SURVEY	2015	VGARV		
1588.370	.016	2/1				VERTICAL ADJUSTMENT	2010	00000628		
1588.370	.016	2/1				VERTICAL CONTROL SURVEY	2007	VSLAT		
1588.370	.016	2/1				VERTICAL ADJUSTMENT	1995	00000135		

NGVD29				Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj		Year	Reference		
1587.681	.016	2/1				VERTICAL CONTROL SURVEY	1987	VSLAY		

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88				Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj		Year	Reference		
1588.612	.262		1501.313	.197	2011	GPS - RTRN	2015	RTRN2015		
1588.376	.262		1501.155	.197	2007	GPS - RTRN	2012	RTRN2012		

Geoid Separations(ft): GEOID18 = -87.313 12B = -87.300 09 = -87.221 03 = -87.027

Lat/Lon and County Coordinates (Feet)

NAD83(2011)		Murray County		Determination Method			Project Info	
Latitude	Longitude	X	Y	Acc	Order		Year	Reference
44 00 53.15997	95 44 59.41647	504427.597	160777.273	.131	3	GPS - RTRN	2015	RTRN2015

NAD83(2007)		Murray County		Determination Method			Project Info	
Latitude	Longitude	X	Y	Acc	Order		Year	Reference
44 00 53.15937	95 44 59.41747	504427.524	160777.213	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1986)		Murray County		Determination Method			Project Info	
Latitude	Longitude	X	Y	Acc	Order		Year	Reference
44 00 53.15530	95 44 59.40254	504428.614	160776.801	3.281		CLASSICAL SURVEY	1988	HSLAY



State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South 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>
2164377.560	702933.010	917274.561	16001246.176	.131	3	GPS - RTRN	2015	RTRN2015

NAD83(2007)

MN State Plane - South 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>
2164377.486	702932.951	917274.486	16001246.117	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1986)

MN State Plane - South 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>
2164378.568	702932.516	917275.562	16001245.669	3.281		CLASSICAL SURVEY	1988	HSLAY

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/ORCH_RM_3-PQ1393-3S-08MAY2012.jpg	S	May 8, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/ORCH_RM_3-PQ1393-2-08MAY2012.jpg		May 8, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/ORCH_RM_3-PQ1393-1-08MAY2012.jpg		May 8, 2012

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



Mn/DOT Name: PIONEER

NGS Name: PIONEER

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DR2709](#) [Get Map](#)
 NGS Quad / Sta Num : 44095323/
 USGS Quad: CURRIE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	107 N	40 W	440355.75	954015.24	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>
2019	2019	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 25 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2019) Stamping: PIONEER 2019

IN CURRIE, 0.25 MILE WEST ALONG TRUNK HIGHWAY 30 FROM THE WEST JUNCTION OF TRUNK HIGHWAY 30 AND COUNTY ROAD 38 IN CURRIE, AT TRUNK HIGHWAY 30 MILEPOINT 45.4, 141.3 FEET SOUTH-SOUTHWEST OF TRUNK HIGHWAY 30, 69.0 FEET EAST OF COUNTY ROAD 35 (151ST STREET EXTENDED), 21.5 FEET EAST-SOUTHEAST OF A FIELD ENTRANCE, 1.5 FEET NORTH-NORTHEAST OF A WITNESS POST.

Station Pair: SLAY - MURRAY, 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>			
1533.993	.016	2/1					VERTICAL ADJUSTMENT		2020	00000949			
1533.993	.016	2/1					VERTICAL CONTROL SURVEY		2019	VDRAY			

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>			
1533.957	.131			1446.703	.066	1996	GPS - STATIC		2019	HDRAY			
1533.980				1446.434	.022	2011	GPS - STATIC		2019	HDRAY			
1533.980				1446.434	.022	2011	HORIZONTAL ADJUSTMENT		2019	GPS3311			
1533.990	.262			1446.414	.197	2011	GPS - RTRN		2019	RTRN2019			

Geoid Separations(ft): GEOID18 = -87.572 12B = -87.575 09 = -87.480 03 = -87.300

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Geodetic Position</u>				<u>Murray County</u>				<u>Project Info</u>	
<u>Latitude</u>		<u>Longitude</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>		<u>Year</u>	<u>Reference</u>		
44 03 55.74741		95 40 15.23651		525174.695	179281.971	.013	C	GPS - STATIC		2019	HDRAY		
44 03 55.74741		95 40 15.23651		525174.695	179281.971	.013		ADJUSTMENT		2019	GPS3311		
44 03 55.74786		95 40 15.23601		525174.731	179282.017	.131	3	GPS - RTRN		2019	RTRN2019		

<u>NAD83(1996)</u>				<u>Geodetic Position</u>				<u>Murray County</u>				<u>Project Info</u>	
<u>Latitude</u>		<u>Longitude</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>		<u>Year</u>	<u>Reference</u>		
44 03 55.74685		95 40 15.23663		525174.686	179281.914	.033	C	GPS - STATIC		2019	HDRAY		

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>				<u>MN State Plane - South 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>		
2185517.105		720983.002		938633.528	16019045.784	.013	C	GPS - STATIC		2019	HDRAY		
2185517.105		720983.002		938633.528	16019045.784	.013		ADJUSTMENT		2019	GPS3311		
2185517.142		720983.047		938633.566	16019045.828	.131	3	GPS - RTRN		2019	RTRN2019		

<u>NAD83(1996)</u>				<u>MN State Plane - South 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>		
2185517.095		720982.946		938633.517	16019045.727	.033	C	GPS - STATIC		2019	HDRAY		



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/PIONEER-DR2709-3S-22APR2019.jpg	S	Apr 22, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/PIONEER-DR2709-2-22APR2019.jpg		Apr 22, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/PIONEER-DR2709-1-22APR2019.jpg		Apr 22, 2019

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



Mn/DOT Name: RAMBIE 2 MNDT

NGS Name: RAMBIE 2

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DL7782](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	42 W	435937.04	955618.50	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>
2006	2012	DESTROYED	Horz=NO Vert=NO	YES		RECESSED 4 IN.	MARKER W/BAR MAGNET

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

Description: (2006) **Stamping:** RAMBIE 2 2006

0.5 MILE EAST OF LAKE WILSON, 0.35 MILE EAST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND TRUNK HIGHWAY 91 IN LAKE WILSON, AT TRUNK HIGHWAY 30 MILEPOINT 26.35, 71.6 FEET NORTH OF TRUNK HIGHWAY 30, 38.0 FEET NORTH OF THE JUNCTION 91 SIGNPOST, 1.9 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>	
1650.374	.016	2/1					VERTICAL ADJUSTMENT	2011	00000425-40	
1650.374	.016	2/1					VERTICAL CONTROL SURVEY	2008	VKLIN	

Geoid Separations(ft): GEOID18 = -86.194 12B = -86.171 09 = -86.060 03 = -85.971

* No Horizontal Positions in the Database *

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/RAMBIE_2-DL7782-3N-09NOV2006.jpg	N	Nov 9, 2006
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/RAMBIE_2-DL7782-2-09NOV2006.jpg		Nov 9, 2006
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/RAMBIE_2-DL7782-1-09NOV2006.jpg		Nov 9, 2006

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



Mn/DOT Name: RAMBIE 2 MNDT RESET

NGS Name: RAMBIE 2 RESET

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DP9046](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	42 W	435937.05	955618.51	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	2024	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 15 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) Stamping: RAMBIE 2 2006 2012

0.5 MILE EAST OF LAKE WILSON, 0.35 MILE EAST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND TRUNK HIGHWAY 91 SOUTH IN LAKE WILSON, AT TRUNK HIGHWAY 30 MILEPOINT 26.35, 71.6 FEET NORTH OF TRUNK HIGHWAY 30, 38.0 FEET NORTH OF THE JUNCTION 91 SIGNPOST, 1.9 FEET SOUTH OF A WITNESS POST.

Station Pair: 5102 P - MURRAY, 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>					
1650.322	.016	2/1				2020	00000949					
1650.322	.016	2/1				2017	00000903					
1650.318	.016	2/1				2016	VRUSS					
1650.318	.016	2/1				2015	VWLSN					

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>					
1650.394	.262		1564.200	.197	2011	2024	RTRN2024					
1650.318			1564.121	.024	2011	2015	GPS3109					
1650.318	.131		1564.337	.066	1996	2015	HWLSN					
1650.318			1564.121	.024	2011	2015	HWLSN					
1650.190	.262		1564.019	.197	2011	2015	RTRN2015					

Geoid Separations(ft): GEOID18 = -86.194 12B = -86.171 09 = -86.060 03 = -85.971

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
43 59 37.04919	95 56 18.50644	454781.954	153116.304	.131	3	GPS - RTRN	2024	RTRN2024	
43 59 37.04958	95 56 18.50712	454781.904	153116.344	.010		ADJUSTMENT	2015	GPS3109	
43 59 37.04958	95 56 18.50712	454781.904	153116.344	.010	C	GPS - STATIC	2015	HWLSN	
43 59 37.04985	95 56 18.50671	454781.935	153116.371	.131	3	GPS - RTRN	2015	RTRN2015	

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
43 59 37.04930	95 56 18.50766	454781.865	153116.315	.033	C	GPS - STATIC	2015	HWLSN	

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>		<u>MN State Plane - South 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>	
2114583.560	696347.849	867391.509	15995254.315	.131	3	GPS - RTRN	2024	RTRN2024	
2114583.511	696347.890	867391.461	15995254.356	.010		ADJUSTMENT	2015	GPS3109	
2114583.511	696347.890	867391.461	15995254.356	.010	C	GPS - STATIC	2015	HWLSN	
2114583.541	696347.917	867391.492	15995254.382	.131	3	GPS - RTRN	2015	RTRN2015	

<u>NAD83(1996)</u>		<u>MN State Plane - South 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>	
2114583.471	696347.863	867391.420	15995254.329	.033	C	GPS - STATIC	2015	HWLSN	



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/RAMBIE_2_RESET-DP9046-3N-13MAY2024.jpg	N	May 13, 2024
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/RAMBIE_2_RESET-DP9046-2-13MAY2024.jpg		May 13, 2024
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/RAMBIE_2_RESET-DP9046-1-13MAY2024.jpg		May 13, 2024

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



Mn/DOT Name: RAMBIE MNDT
 County: MURRAY, MN (Sheet 1)

NGS Name: RAMBIE

NGS ACRN: [DF3591](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	7	106 N	42 W	435937.05	955618.51		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2001	2006	DESTROYED	Horz=NO Vert=NO	NO		RECESSED 2 IN.	STEEL ROD IMBED IN MON

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 15 FT)	SURVEY DISK	MNDT

Description: (2001) **Stamping:** RAMBIE 2001

0.5 MILE EAST OF LAKE WILSON, 0.35 MILE EAST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND TRUNK HIGHWAY 91 IN LAKE WILSON, AT TRUNK HIGHWAY 30 MILEPOINT 26.35, 71.6 FEET NORTH OF TRUNK HIGHWAY 30, 38.0 FEET NORTH OF THE JUNCTION 91 SIGN.

* 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
			1564.275	.010	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			1564.364	.010	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
1650.456	.131		1564.456	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1792
1650.456	.131		1564.456	.066	1996	GPS - STATIC	2002	HWILS

Geoid Separations(ft): GEOID18 = -86.194 12B = -86.171 09 = -86.060 03 = -85.971

Lat/Lon and County Coordinates (Feet)

NAD83(2011)		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 59 37.04964	95 56 18.50739	454781.885	153116.350	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 59 37.04962	95 56 18.50837	454781.813	153116.348	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 59 37.04934	95 56 18.50754	454781.874	153116.320	.033	C	ADJUSTMENT	2003	GPS1792
43 59 37.04934	95 56 18.50754	454781.873	153116.321	.033	C	GPS - STATIC	2002	HWILS

State Plane and UTM Coordinates (Feet)

NAD83(2011)		Murray County				Project Info		
MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Year	Reference
X	Y	X	Y					
2114583.491	696347.897	867391.441	15995254.363	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)		Murray County				Project Info		
MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Year	Reference
X	Y	X	Y					
2114583.420	696347.896	867391.370	15995254.363	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)		Murray County				Project Info		
MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Year	Reference
X	Y	X	Y					
2114583.479	696347.867	867391.430	15995254.333	.033	C	ADJUSTMENT	2003	GPS1792
2114583.479	696347.867	867391.429	15995254.333	.033	C	GPS - STATIC	2002	HWILS



Mn/DOT Name: RAY MNDT TEMP

NGS Name: RAY TEMP

County: MURRAY, MN (Sheet 1)

NGS ACRN: [PQ1062](#) [Get Map](#)
 NGS Quad / Sta Num : 44095322/
 USGS Quad: DOVRAY

<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	107 N	39 W	440146.66	953134.43		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>
1981	1981	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
IRON ROD	UNMONUMENTED	MNDT

Description: (1981) **Stamping:** RAY 1981

2.0 MILES SOUTH-SOUTHEAST OF DOVRAY, 1.4 MILES EAST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND WOODMAN AVENUE, THEN 1.4 MILES SOUTH ON 270TH AVENUE, 0.2 MILE WEST OF A GRAVEL ROAD, 8.0 FEET SOUTH OF A DRIVEWAY.

* 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>		
1550.522	.197		1462.819	.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>		
1550.194						RECIPROCAL VERTICAL ANGLE	1981	HORZ	

Geoid Separations(ft): GEOID18 = -87.995 12B = -87.995 09 = -87.894 03 = -87.746

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Murray 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>		
44 01 46.66047	95 31 34.42727	563242.344	166287.017	.066	2	ADJUSTMENT	1999	17648	
44 01 46.65772	95 31 34.41814	563243.012	166286.740	.066	2	ADJUSTMENT	1998	17655	

<u>NAD83(1986)</u>		<u>Murray 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>		
44 01 46.65746	95 31 34.41358	563243.345	166286.714	.066	2	ADJUSTMENT	1986	17289	

<u>NAD27</u>		<u>Murray 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>		
44 01 46.79087	95 31 33.39887			.100	2	CLASSICAL SURVEY	1982	16710	

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 - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
2223290.744	707170.699	976245.646	16004779.101	.066	2	ADJUSTMENT	1999	17648	
2223291.406	707170.408	976246.304	16004778.802	.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 - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
2223291.738	707170.376	976246.636	16004778.766	.066	2	ADJUSTMENT	1986	17289	

<u>NAD27</u>		<u>Murray County</u>				<u>Determination Method</u>		<u>Project Info</u>	
<u>MN State Plane - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Year</u>	<u>Reference</u>		
1598687.851	379095.162			.100	2	CLASSICAL SURVEY	1982	16710	



Mn/DOT Name: REESE

NGS Name: REESE

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DQ2412](#) [Get Map](#)
 NGS Quad / Sta Num : 44095324/
 USGS Quad: TRACY WEST

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	108 N	41 W	440927.79	954436.72	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>
2015	2016	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: (2015) Stamping: REESE 2015

4.0 MILES SOUTH OF GARVIN, 3.85 MILES SOUTH ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND COUNTY ROAD 14 EAST IN GARVIN, AT TRUNK HIGHWAY 59 MILEPOINT 52.75, 91.7 FEET EAST OF TRUNK HIGHWAY 59, 93.2 FEET SOUTH OF A FIELD ENTRANCE, 0.35 MILE NORTH OF 211TH STREET, 1.5 FEET WEST OF A WITNESS POST.

Station Pair: BRYAN - MURRAY, 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>	
1540.712	.016	2/1					2017	00000903	VERTICAL ADJUSTMENT		2017	00000903	
1540.712	.016	2/1					2015	VGARV	VERTICAL CONTROL SURVEY		2015	VGARV	

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>	
1540.712				1453.209	.018	2011	2016	GPS3142	HORIZONTAL ADJUSTMENT		2016	GPS3142	
1540.712	.131			1453.367	.066	1996	2016	HGARV	GPS - STATIC		2016	HGARV	
1540.712				1453.209	.018	2011	2016	HGARV	GPS - STATIC		2016	HGARV	
1540.574	.262			1453.114	.197	2011	2015	RTRN2015	GPS - RTRN		2015	RTRN2015	

Geoid Separations(ft): GEOID18 = -87.474 12B = -87.457 09 = -87.385 03 = -87.234

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Geodetic Position</u>				<u>Murray 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>				
44 09 27.79268	95 44 36.71871	506071.778	212894.678	.007		2016	GPS3142	ADJUSTMENT		2016	GPS3142				
44 09 27.79268	95 44 36.71871	506071.778	212894.678	.007	C	2016	HGARV	GPS - STATIC		2016	HGARV				
44 09 27.79226	95 44 36.71871	506071.778	212894.636	.131	3	2015	RTRN2015	GPS - RTRN		2015	RTRN2015				

<u>NAD83(1996)</u>				<u>Geodetic Position</u>				<u>Murray 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>				
44 09 27.79234	95 44 36.71929	506071.736	212894.643	.033	C	2016	HGARV	GPS - STATIC		2016	HGARV				

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>				<u>MN State Plane - South 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>				
2167147.207	754996.206	920669.490	16053285.211	.007		2016	GPS3142	ADJUSTMENT		2016	GPS3142				
2167147.207	754996.206	920669.490	16053285.211	.007	C	2016	HGARV	GPS - STATIC		2016	HGARV				
2167147.206	754996.164	920669.488	16053285.169	.131	3	2015	RTRN2015	GPS - RTRN		2015	RTRN2015				

<u>NAD83(1996)</u>				<u>MN State Plane - South 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>				
2167147.164	754996.173	920669.446	16053285.178	.033	C	2016	HGARV	GPS - STATIC		2016	HGARV				



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/REESE-DQ2412-3E-07JUL2015.jpg	E	Jul 7, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/REESE-DQ2412-2-07JUL2015.jpg		Jul 7, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/REESE-DQ2412-1-07JUL2015.jpg		Jul 7, 2015

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



Mn/DOT Name: RIDGE

NGS Name: RIDGE

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DP9047](#) [Get Map](#)
 NGS Quad / Sta Num : 43096111/
 USGS Quad: EDGERTON NE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	43 W	435935.81	960103.99	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>
2015	2015	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 14 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2015) **Stamping:** RIDGE 2015

3.35 MILES WEST OF LAKE WILSON, 3.35 MILES WEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND TRUNK HIGHWAY 91 NORTH IN LAKE WILSON, AT TRUNK HIGHWAY 30 MILEPOINT 22.35, 60.4 FEET SOUTH OF TRUNK HIGHWAY 30, 1.5 FEET NORTH OF A WITNESS POST.

Station Pair: 5101 K - MURRAY, 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>					
1839.964	.016	2/1				2017	00000903	VERTICAL ADJUSTMENT				
1839.967	.016	2/1				2015	VWLSN	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>					
1839.967			1754.107	.020	2011	2015	GPS3109	HORIZONTAL ADJUSTMENT				
1839.967	.131		1754.314	.066	1996	2015	HWLSN	GPS - STATIC				
1839.967			1754.107	.020	2011	2015	HWLSN	GPS - STATIC				

Geoid Separations(ft): GEOID18 = -85.859 12B = -85.843 09 = -85.745 03 = -85.646

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Murray County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 59 35.80914	96 01 03.98790	433910.519	153044.275	.007		ADJUSTMENT	2015	GPS3109
43 59 35.80914	96 01 03.98790	433910.519	153044.275	.007	C	GPS - STATIC	2015	HWLSN

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Murray County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 59 35.80887	96 01 03.98843	433910.481	153044.248	.033	C	GPS - STATIC	2015	HWLSN

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>		<u>MN State Plane - South 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>
2093717.791	696727.286	846524.646	15995882.660	.007		ADJUSTMENT	2015	GPS3109
2093717.791	696727.286	846524.646	15995882.660	.007	C	GPS - STATIC	2015	HWLSN

<u>NAD83(1996)</u>		<u>MN State Plane - South 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>
2093717.752	696727.259	846524.606	15995882.634	.033	C	GPS - STATIC	2015	HWLSN

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/RIDGE-DP9047-3S-13MAY2015.jpg	S	May 13, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/RIDGE-DP9047-2-13MAY2015.jpg		May 13, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/RIDGE-DP9047-1-13MAY2015.jpg		May 13, 2015

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



Mn/DOT Name: RIEN MNDT

NGS Name: RIEN

County: MURRAY, MN (Sheet 1)

NGS ACRN: [AH3676](#) [Get Map](#)
 NGS Quad / Sta Num : 44095334/
 USGS Quad: CURRENT 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>
NE	25	108 N	43 W	440818.20	955640.05	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>
1993	2016	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:** RIEN 1993

10.15 MILES NORTH OF LAKE WILSON, 10.25 MILES NORTH ALONG TRUNK HIGHWAY 91 FROM THE JUNCTION OF TRUNK HIGHWAY 91 AND TRUNK HIGHWAY 30 IN LAKE WILSON TO TRUNK HIGHWAY 91 MILEPOINT 49.05, THEN 0.10 MILE WEST ALONG 201ST STREET, 29.0 FEET SOUTH OF 201ST STREET, 2.8 FEET NORTH OF A FENCE LINE, 21.1 FEET EAST OF A POWER POLE, 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>	
1658.369	.016	2/1						VERTICAL ADJUSTMENT	2020	00000949	
1658.369	.016	2/1						VERTICAL ADJUSTMENT	2017	00000903	
1658.366	.016	2/1						VERTICAL CONTROL SURVEY	2016	VRUSS	

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>	
1658.258	.262			1571.641	.197	2011		GPS - RTRN	2016	RTRN2016	
				1571.752	.023	2011		HORIZONTAL ADJUSTMENT	2012	GPS2800	
				1571.841	.019	2007		HORIZONTAL ADJUSTMENT	2007	GPS2300	
1658.297	.131			1571.877	.066	1996		HORIZONTAL ADJUSTMENT	1999	17648	
1658.232	.131			1571.877	.066	1996		HORIZONTAL ADJUSTMENT	1998	GPS937	

<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>	
1657.510								GPS - STATIC	1993	HORZ	

Geoid Separations(ft): GEOID18 = -86.624 12B = -86.621 09 = -86.535 03 = -86.384

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>											
44 08 18.20347	95 56 40.04675			453321.027	205896.769	.131	3	GPS - RTRN		2016	RTRN2016	
44 08 18.20343	95 56 40.04701			453321.008	205896.765	.020		ADJUSTMENT		2012	GPS2800	

<u>NAD83(2007)</u>				<u>Murray 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>											
44 08 18.20342	95 56 40.04799			453320.937	205896.764	.016		ADJUSTMENT		2007	GPS2300	

<u>NAD83(1996)</u>				<u>Murray 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>											
44 08 18.20406	95 56 40.04143			453321.416	205896.828	.033	C	ADJUSTMENT		1999	17648	
44 08 18.20406	95 56 40.04143			453321.416	205896.828	.033	C	ADJUSTMENT		1998	GPS937	

<u>NAD83(1986)</u>				<u>Murray 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>											
44 08 18.20156	95 56 40.02418			453322.673	205896.572	.066	2	GPS - STATIC		1993	HMARS	

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2114264.568	749141.112	867704.593	16048065.118	.131	3	GPS - RTRN	2016	RTRN2016
2114264.549	749141.108	867704.574	16048065.114	.020		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2114264.478	749141.109	867704.502	16048065.116	.016		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2114264.957	749141.162	867704.983	16048065.163	.033	C	ADJUSTMENT	1999	17648
2114264.957	749141.162	867704.983	16048065.163	.033	C	ADJUSTMENT	1998	GPS937

NAD83(1986)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2114266.209	749140.879	867706.231	16048064.865	.066	2	GPS - STATIC	1993	HMARS

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/RIEN-AH3676-3S-22MAR2016.jpg	S	Mar 22, 2016
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/RIEN-AH3676-2-22MAR2016.jpg		Mar 22, 2016
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/RIEN-AH3676-1-22MAR2016.jpg		Mar 22, 2016

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



Mn/DOT Name: RUTH

NGS Name: RUTH

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DQ2421](#) [Get Map](#)
 NGS Quad / Sta Num : 44095332/
 USGS Quad: HADLEY

				Reference	Reference	Vert	Horz
1/4	Sec	Twp	Rng	Latitude	Longitude	Order	Order
SE	27	107 N	41 W	440228.41	954512.15	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2015	2016	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 29 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2015) Stamping: RUTH 2015

3.7 MILES NORTH OF SLAYTON, 3.4 MILES NORTH ALONG TRUNK HIGHWAY 59/TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 30 WEST IN SLAYTON, AT TRUNK HIGHWAY 59 MILEPOINT 44.5, 51.4 FEET EAST OF TRUNK HIGHWAY 59, 19.0 FEET SOUTH OF A FIELD ENTRANCE, 0.3 MILE NORTH OF 131ST STREET, 1.5 FEET NORTH OF A WITNESS POST.

Station Pair: 5105 T - MURRAY, MN

Leveling-Derived Orthometric Heights (Feet)

NAVD88				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1592.848	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903
1592.848	.016	2/1				VERTICAL CONTROL SURVEY	2015	VGARV

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88				Ellipsoid (NAD83)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1592.848			1505.515	.016	2011	HORIZONTAL ADJUSTMENT	2016	GPS3142
1592.848	.131		1505.683	.066	1996	GPS - STATIC	2016	HGARV
1592.848			1505.515	.016	2011	GPS - STATIC	2016	HGARV
1592.835	.262		1505.528	.197	2011	GPS - RTRN	2015	RTRN2015

Geoid Separations(ft): GEOID18 = -87.310 12B = -87.306 09 = -87.221 03 = -87.027

Lat/Lon and County Coordinates (Feet)

NAD83(2011)		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 02 28.40628	95 45 12.14869	503495.539	170422.621	.007		ADJUSTMENT	2016	GPS3142
44 02 28.40628	95 45 12.14869	503495.539	170422.621	.007	C	GPS - STATIC	2016	HGARV
44 02 28.40592	95 45 12.14847	503495.555	170422.584	.131	3	GPS - RTRN	2015	RTRN2015

NAD83(1996)		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 02 28.40593	95 45 12.14914	503495.506	170422.585	.033	C	GPS - STATIC	2016	HGARV

State Plane and UTM Coordinates (Feet)

NAD83(2011)		Murray County				Project Info		
MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Year	Reference
X	Y	X	Y					
2163654.234	712595.117	916666.721	16010918.584	.007		ADJUSTMENT	2016	GPS3142
2163654.234	712595.117	916666.721	16010918.584	.007	C	GPS - STATIC	2016	HGARV
2163654.249	712595.080	916666.736	16010918.547	.131	3	GPS - RTRN	2015	RTRN2015

NAD83(1996)		Murray County				Project Info		
MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Year	Reference
X	Y	X	Y					
2163654.200	712595.082	916666.687	16010918.550	.033	C	GPS - STATIC	2016	HGARV



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/RUTH-DQ2421-3E-07JUL2015.jpg	E	Jul 7, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/RUTH-DQ2421-2-07JUL2015.jpg		Jul 7, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/RUTH-DQ2421-1-07JUL2015.jpg		Jul 7, 2015

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



Mn/DOT Name: SE 09 107 40

NGS Name: SE 09 107 40

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DF8548](#) [Get Map](#)
 NGS Quad / Sta Num : 44095323/
 USGS Quad: CURRIE

<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	107 N	40 W	440507.50	953835.54		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>
2003	2019	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MN-101

Description: (2003) **Stamping:** SE0910740 2003

2.4 MILES NORTHEAST OF CURRIE, 1.0 MILE NORTH ALONG COUNTY ROAD 38 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND COUNTY ROAD 38 IN CURRIE, THEN 1.0 MILE EAST ON 161ST STREET, THEN 0.36 MILE NORTH ON 210TH AVENUE, 30.3 FEET WEST OF 210TH AVENUE, 59.0 FEET NORTH OF A FIELD ENTRANCE, 24.5 FEET SOUTH OF A POWER POLE, 4.9 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>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1573.963	.131		1486.706	.066	1996	GPS - STATIC	2019	HDRAY
1573.986			1486.441	.011	2011	GPS - STATIC	2019	HDRAY
1573.986			1486.441	.011	2011	HORIZONTAL ADJUSTMENT	2019	GPS3311
1574.042	.262		1486.382	.197	2011	GPS - RTRN	2019	RTRN2019
			1486.441	.012	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			1486.565	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2386-B
1574.045	.131		1486.706	.066	1996	HORIZONTAL ADJUSTMENT	2007	GPS2386
1574.045	.131		1486.706	.066	1996	GPS - STATIC	2007	HSLAT
			1486.565	.015	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
1574.111	.131		1486.713	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1919
1574.078	.131		1486.706	.066	1996	GPS - STATIC	2003	HMURR

Geoid Separations(ft): GEOID18 = -87.667 12B = -87.661 09 = -87.575 03 = -87.411

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 05 07.49669	95 38 35.54090	532443.598	186557.699	.007	C	GPS - STATIC	2019	HDRAY
44 05 07.49669	95 38 35.54090	532443.598	186557.699	.007		ADJUSTMENT	2019	GPS3311
44 05 07.49709	95 38 35.54041	532443.633	186557.739	.131	3	GPS - RTRN	2019	RTRN2019
44 05 07.49669	95 38 35.54090	532443.598	186557.699	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 05 07.49669	95 38 35.54172	532443.538	186557.699	.033	C	ADJUSTMENT	2011	GPS2386-B
44 05 07.49669	95 38 35.54172	532443.538	186557.699	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 05 07.49620	95 38 35.54099	532443.591	186557.649	.033	C	GPS - STATIC	2019	HDRAY
44 05 07.49620	95 38 35.54099	532443.591	186557.649	.033	C	ADJUSTMENT	2007	GPS2386
44 05 07.49620	95 38 35.54099	532443.591	186557.649	.033	C	GPS - STATIC	2007	HSLAT
44 05 07.49617	95 38 35.54097	532443.593	186557.646	.033	C	ADJUSTMENT	2003	GPS1919
44 05 07.49620	95 38 35.54099	532443.591	186557.649	.033	C	GPS - STATIC	2003	HMURR

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2192940.549	728099.146	946143.376	16026073.802	.007	C	GPS - STATIC	2019	HDRAY
2192940.549	728099.146	946143.376	16026073.802	.007		ADJUSTMENT	2019	GPS3311
2192940.586	728099.186	946143.413	16026073.841	.131	3	GPS - RTRN	2019	RTRN2019
2192940.549	728099.146	946143.376	16026073.802	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2192940.489	728099.147	946143.316	16026073.804	.033	C	ADJUSTMENT	2011	GPS2386-B
2192940.489	728099.147	946143.316	16026073.804	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2192940.542	728099.097	946143.368	16026073.753	.033	C	GPS - STATIC	2019	HDRAY
2192940.542	728099.097	946143.368	16026073.753	.033	C	ADJUSTMENT	2007	GPS2386
2192940.542	728099.097	946143.368	16026073.753	.033	C	GPS - STATIC	2007	HSLAT
2192940.543	728099.094	946143.370	16026073.750	.033	C	ADJUSTMENT	2003	GPS1919
2192940.542	728099.097	946143.368	16026073.753	.033	C	GPS - STATIC	2003	HMURR

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SE_09_107_40-DF8548-3W-01APR2019.jpg	W	Apr 1, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SE_09_107_40-DF8548-2-01APR2019.jpg		Apr 1, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SE_09_107_40-DF8548-1-01APR2019.jpg		Apr 1, 2019

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



Mn/DOT Name: SE 16 105 43

NGS Name: SE 16 105 43

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DF8549](#) [Get Map](#)
 NGS Quad / Sta Num : 43096111/
 USGS Quad: EDGERTON NE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	43 W	435332.88	960015.83		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>
2003	2021	GOOD	Horz=YES Vert=YES	YES		PROJECTS 3 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MN-101

Description: (2003) Stamping: SE 16 105 43 2003

7.5 MILES SOUTHWEST OF CHANDLER, 3.5 MILES SOUTH ALONG TRUNK HIGHWAY 91 FROM THE JUNCTION OF TRUNK HIGHWAY 91 AND COUNTY ROAD 4 IN CHANDLER, THEN 3.0 MILES WEST ALONG COUNTY ROAD 1, THEN 1.0 MILE NORTH ALONG A TOWNSHIP ROAD/ 30TH AVENUE, 29.5 FEET NORTH OF A TOWNSHIP ROAD/ 31ST STREET, 70.0 FEET WEST OF A TOWNSHIP ROAD/ 30TH AVENUE, 76.6 FEET NORTHEAST OF A POWER POLE, 4.7 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>		
1762.710	.262		1676.548	.197	2011	GPS - OPUS		2021	GPSBM		
1762.716	.262		1676.555	.197	2011	GPS - OPUS		2021	GPSBM		
			1676.578	.021	2011	HORIZONTAL ADJUSTMENT		2012	GPS2800		
			1676.673	.022	2007	HORIZONTAL ADJUSTMENT		2007	GPS2300		
1762.726	.131		1676.781	.066	1996	HORIZONTAL ADJUSTMENT		2003	GPS1919		
1762.726	.131		1676.781	.066	1996	GPS - STATIC		2003	HMURR		

Geoid Separations(ft): GEOID18 = -86.161 12B = -86.128 09 = -86.033 03 = -85.945

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>			<u>Murray County</u>				<u>Project Info</u>					
<u>Geodetic Position</u>		<u>Latitude</u>		<u>Longitude</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 53	32.87656	96 00	15.82934	437325.312	116280.586	.131	3	GPS - OPUS			2021	GPSBM
43 53	32.87656	96 00	15.82931	437325.314	116280.586	.131	3	GPS - OPUS			2021	GPSBM
43 53	32.87652	96 00	15.82937	437325.310	116280.581	.013		ADJUSTMENT			2012	GPS2800

<u>NAD83(2007)</u>			<u>Murray County</u>				<u>Project Info</u>					
<u>Geodetic Position</u>		<u>Latitude</u>		<u>Longitude</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 53	32.87651	96 00	15.83028	437325.243	116280.581	.013		ADJUSTMENT			2007	GPS2300

<u>NAD83(1996)</u>			<u>Murray County</u>				<u>Project Info</u>					
<u>Geodetic Position</u>		<u>Latitude</u>		<u>Longitude</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 53	32.87628	96 00	15.82954	437325.297	116280.557	.033	C	ADJUSTMENT			2003	GPS1919
43 53	32.87628	96 00	15.82954	437325.297	116280.557	.033	C	GPS - STATIC			2003	HMURR

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>			<u>MN State Plane - South 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>		
2096336.114	659902.193		848705.929	15959016.195	.131	3	GPS - OPUS	2021	GPSBM		
2096336.116	659902.193		848705.931	15959016.194	.131	3	GPS - OPUS	2021	GPSBM		
2096336.112	659902.189		848705.926	15959016.190	.013		ADJUSTMENT	2012	GPS2800		

<u>NAD83(2007)</u>			<u>MN State Plane - South 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>		
2096336.045	659902.190		848705.860	15959016.192	.013		ADJUSTMENT	2007	GPS2300		

<u>NAD83(1996)</u>			<u>MN State Plane - South 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>		
2096336.099	659902.165		848705.913	15959016.167	.033	C	ADJUSTMENT	2003	GPS1919		
2096336.099	659902.165		848705.913	15959016.167	.033	C	GPS - STATIC	2003	HMURR		



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SE_16_105_43-DF8549-3N-28APR2021.jpg	N	Apr 28, 2021
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SE_16_105_43-DF8549-2-28APR2021.jpg		Apr 28, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SE_16_105_43-DF8549-1-28APR2021.jpg		Apr 28, 2021

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



Mn/DOT Name: SE 16 106 43

NGS Name: SE 16 106 43

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DF8550](#) [Get Map](#)
NGS Quad / Sta Num : 43096111/
USGS Quad: EDGERTON NE

<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	16	106 N	43 W	435844.46	960033.84		C

<u>Year Set</u>	<u>Last Recovery</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=NO Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MN-101

Description: (2010) Stamping: SE 16 106 43 2003

4.0 MILES WEST-SOUTHWEST OF LAKE WILSON, 3.63 MILES WEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND TRUNK HIGHWAY 91, THEN 1.0 MILE SOUTH ALONG COUNTY ROAD 84, THEN 0.73 MILE EAST ALONG 91ST STREET, 27.1 FEET NORTH OF 91ST STREET, 5.2 FEET WEST OF A WITNESS POST.

Station Notes

THIS MARK IS UNDER A HIGH VOLTAGE POWER LINE, DON'T USE FOR GPS.

* 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>		
1908.917	.262		1823.071	.197	2011	GPS - RTRN	2015	RTRN2015	
			1823.110	.024	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
			1823.205	.025	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300	
1909.018	.131		1823.340	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1919	
1909.018	.131		1823.340	.066	1996	GPS - STATIC	2003	HMURR	

Geoid Separations(ft): GEOID18 = -85.859 12B = -85.846 09 = -85.748 03 = -85.649

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 58 44.46313	96 00 33.83651	436099.531	147837.960	.131	3	GPS - RTRN	2015	RTRN2015
43 58 44.46235	96 00 33.83668	436099.519	147837.881	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 58 44.46230	96 00 33.83751	436099.458	147837.876	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 58 44.46191	96 00 33.83685	436099.506	147837.837	.033	C	ADJUSTMENT	2003	GPS1919
43 58 44.46191	96 00 33.83685	436099.506	147837.837	.033	C	GPS - STATIC	2003	HMURR

State Plane and UTM Coordinates (Feet)

NAD83(2011)

<u>MN State Plane - South 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>
2095793.418	691475.413	848538.283	15990604.555	.131	3	GPS - RTRN	2015	RTRN2015
2095793.404	691475.334	848538.267	15990604.477	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

<u>MN State Plane - South 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>
2095793.343	691475.331	848538.206	15990604.474	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

<u>MN State Plane - South 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>
2095793.390	691475.290	848538.253	15990604.433	.033	C	ADJUSTMENT	2003	GPS1919
2095793.390	691475.290	848538.253	15990604.433	.033	C	GPS - STATIC	2003	HMURR



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SE_16_106_43-DF8550-3N-28APR2015.jpg	N	Apr 28, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SE_16_106_43-DF8550-2-28APR2015.jpg		Apr 28, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SE_16_106_43-DF8550-1-28APR2015.jpg		Apr 28, 2015

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



Mn/DOT Name: SE 21 106 42

NGS Name: SE 21 106 42

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DF8551](#) [Get Map](#)
NGS Quad / Sta Num : 43095444/
USGS Quad: CHANDLER

<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	106 N	42 W	435808.15	955301.52		C

<u>Year Set</u>	<u>Last Recovery</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	2021	GOOD	Horz=YES Vert=NO	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MN-101

Description: (2003) Stamping: SE 21 106 42 2003

3.2 MILES SOUTHWEST OF HADLEY, 1.5 MILES WEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND COUNTY ROAD 29 IN HADLEY, THEN 1.68 MILES SOUTH ALONG A TOWNSHIP ROAD/ 90TH AVENUE, 28.2 FEET WEST OF A TOWNSHIP ROAD/ 90TH AVENUE, 32.0 FEET SOUTH OF A FIELD ENTRANCE, 27.5 FEET NORTH OF A FIELD ENTRANCE, 5.2 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>		
			1613.812	.026	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800		
			1613.901	.028	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300		
1700.226	.131		1614.032	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1919		
1700.193	.131		1614.029	.066	1996	GPS - STATIC	2003	HMURR		

Geoid Separations(ft): GEOID18 = -86.384 12B = -86.365 09 = -86.270 03 = -86.168

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Murray County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 58 08.14608	95 53 01.52108	469170.446	144087.996	.010		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>		<u>Geodetic Position</u>		<u>Murray County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 58 08.14601	95 53 01.52192	469170.384	144087.988	.010		ADJUSTMENT	2007	GPS2300

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Murray County</u>		<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 58 08.14554	95 53 01.52124	469170.434	144087.941	.033	C	ADJUSTMENT	2003	GPS1919
43 58 08.14554	95 53 01.52124	469170.434	144087.941	.033	C	GPS - STATIC	2003	HMURR

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>		<u>MN State Plane - South 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>
2128771.879	687011.528	881471.873	15985746.628	.010		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>		<u>MN State Plane - South 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>
2128771.818	687011.522	881471.812	15985746.623	.010		ADJUSTMENT	2007	GPS2300

<u>NAD83(1996)</u>		<u>MN State Plane - South 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>
2128771.866	687011.473	881471.859	15985746.574	.033	C	ADJUSTMENT	2003	GPS1919
2128771.866	687011.473	881471.859	15985746.574	.033	C	GPS - STATIC	2003	HMURR



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SE_21_106_42-DF8551-3W-28APR2021.jpg	W	Apr 28, 2021
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SE_21_106_42-DF8551-2-28APR2021.jpg		Apr 28, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SE_21_106_42-DF8551-1-28APR2021.jpg		Apr 28, 2021

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



Mn/DOT Name: SE 25 106 39

NGS Name: SE 25 106 39

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DF8552](#) [Get Map](#)
 NGS Quad / Sta Num : 43095144/
 USGS Quad: HERON LAKE 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	25	106 N	39 W	435658.57	952744.66		C

<u>Year Set</u>	<u>Last Recovery</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	2019	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MN-101

Description: (2004) **Stamping:** SE2510639 2003

9.0 MILES EAST OF AVOCA, 9.0 MILES EAST ALONG COUNTY ROAD 6 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND COUNTY ROAD 6 IN AVOCA, 30.8 FEET WEST OF 300TH AVENUE, 16.0 FEET NORTH OF A FIELD ENTRANCE, 74.0 FEET NORTH OF COUNTY ROAD 6(71ST STREET), 68.5 FEET WEST-NORTHWEST OF A POWER POLE, 4.8 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>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Order (/Class)</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>	
1494.521	.262			1406.214	.197	2011		2019	GPSBM	2019	GPSBM	2019	GPSBM	
1494.462	.262			1406.155	.197	2011		2019	GPSBM	2019	GPSBM	2019	RTRN2019	
1494.580	.262			1406.273	.197	2011		2019	GPS - RTRN	2019	RTRN2019	2019	RTRN2019	
				1406.224	.010	2011		2012	HORIZONTAL ADJUSTMENT	2012	GPS2800	2012	GPS2800	
				1406.332	.011	2007		2007	HORIZONTAL ADJUSTMENT	2007	GPS2300	2007	GPS2300	
1494.518	.131			1406.428	.066	1996		2005	HORIZONTAL ADJUSTMENT	2005	GPS2116	2005	GPS2116	
1494.518	.131			1406.428	.066	1996		2005	GPS - STATIC	2005	HCOTT	2005	HCOTT	
1494.518	.131			1406.437	.066	1996		2003	HORIZONTAL ADJUSTMENT	2003	GPS1919	2003	GPS1919	
1494.452	.131			1406.428	.066	1996		2003	GPS - STATIC	2003	HMURR	2003	HMURR	

Geoid Separations(ft): GEOID18 = -88.304 12B = -88.294 09 = -88.186 03 = -88.061

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray County</u>				<u>Project Info</u>				
<u>Geodetic Position</u>		<u>Latitude</u>		<u>Longitude</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 56 58.56479	95 27 44.66048	580137.697	137167.653	.131	3	GPS - OPUS	2019	GPSBM				
43 56 58.56522	95 27 44.66084	580137.671	137167.697	.131	3	GPS - OPUS	2019	GPSBM				
43 56 58.56493	95 27 44.66032	580137.709	137167.668	.131	3	GPS - RTRN	2019	RTRN2019				
43 56 58.56531	95 27 44.65973	580137.752	137167.706	.007		ADJUSTMENT	2012	GPS2800				

<u>NAD83(2007)</u>				<u>Murray County</u>				<u>Project Info</u>				
<u>Geodetic Position</u>		<u>Latitude</u>		<u>Longitude</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 56 58.56525	95 27 44.66054	580137.693	137167.700	.007		ADJUSTMENT	2007	GPS2300				

<u>NAD83(1996)</u>				<u>Murray County</u>				<u>Project Info</u>				
<u>Geodetic Position</u>		<u>Latitude</u>		<u>Longitude</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 56 58.56480	95 27 44.65974	580137.751	137167.655	.033	C	ADJUSTMENT	2005	GPS2116				
43 56 58.56480	95 27 44.65974	580137.751	137167.655	.033	C	GPS - STATIC	2005	HCOTT				
43 56 58.56480	95 27 44.65974	580137.751	137167.655	.033	C	ADJUSTMENT	2003	GPS1919				
43 56 58.56481	95 27 44.65975	580137.751	137167.656	.033	C	GPS - STATIC	2003	HMURR				

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2239551.848	677696.748	992155.012	15975108.834	.131	3	GPS - OPUS	2019	GPSBM
2239551.823	677696.792	992154.987	15975108.879	.131	3	GPS - OPUS	2019	GPSBM
2239551.860	677696.762	992155.024	15975108.849	.131	3	GPS - RTRN	2019	RTRN2019
2239551.904	677696.800	992155.069	15975108.886	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2239551.845	677696.795	992155.009	15975108.881	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2239551.902	677696.748	992155.066	15975108.834	.033	C	ADJUSTMENT	2005	GPS2116
2239551.902	677696.748	992155.066	15975108.834	.033	C	GPS - STATIC	2005	HCOTT
2239551.902	677696.748	992155.066	15975108.834	.033	C	ADJUSTMENT	2003	GPS1919
2239551.901	677696.749	992155.066	15975108.835	.033	C	GPS - STATIC	2003	HMURR

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SE_25_106_39-DF8552-3W-22OCT2019.jpg	W	Oct 22, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SE_25_106_39-DF8552-2-22OCT2019.jpg		Oct 22, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SE_25_106_39-DF8552-1-22OCT2019.jpg		Oct 22, 2019

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



Mn/DOT Name: SE 31 105 43

NGS Name: SE 31 105 43

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DF8553](#) [Get Map](#)
 NGS Quad / Sta Num : 43096112/
 USGS Quad: KENNETH

<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	105 N	43 W	435056.88	960247.64		C

<u>Year Set</u>	<u>Last Recovery</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	2019	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MN-101

Description: (2003) Stamping: SE 31 105 43 2003

7.0 MILES SOUTHWEST OF CHANDLER, 3.5 MILES SOUTH ALONG TRUNK HIGHWAY 91 FROM THE JUNCTION OF TRUNK HIGHWAY 91 AND COUNTY ROAD 4 IN CHANDLER, THEN 4.0 MILES WEST ALONG COUNTY ROAD 1, THEN 2.0 MILES SOUTH ON COUNTY ROAD 24, THEN 1.15 MILES WEST ON 1ST STREET, 27.2 FEET NORTH OF 1ST STREET, 24.0 FEET WEST OF A TELEPHONE PEDESTAL, 6.0 FEET WEST OF DRIVEWAY NUMBER 10283/10287, 4.5 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>	<u>Year</u>	<u>Reference</u>	<u>Year</u>	<u>Reference</u>		
1689.039	.262		1602.808	.197	2011	2019	GPSBM	2019	GPSBM	2019	GPSBM		
1688.960	.262		1602.730	.197	2011	2019	GPSBM	2019	GPSBM	2019	RTRN2019		
1688.999	.262		1602.766	.197	2011	2019	RTRN	2019	RTRN2019	2012	GPS2800		
			1602.763	.011	2011	2012	HORIZONTAL ADJUSTMENT	2012	GPS2800	2010	GPS2245-B		
			1602.858	.066	2007	2010	HORIZONTAL ADJUSTMENT	2010	GPS2245-B	2007	GPS2300		
			1602.858	.013	2007	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300	2006	GPS2245		
1689.071	.131		1602.989	.066	1996	2006	HORIZONTAL ADJUSTMENT	2006	GPS2245	2006	HROCK		
1689.071	.131		1602.989	.066	1996	2006	GPS - STATIC	2006	HROCK	2005	GPS2097		
1689.006	.131		1602.989	.066	1996	2005	HORIZONTAL ADJUSTMENT	2005	GPS2097	2005	HPSTO		
1689.006	.131		1602.989	.066	1996	2005	GPS - STATIC	2005	HPSTO	2003	GPS1919		
1688.973	.131		1602.989	.066	1996	2003	HORIZONTAL ADJUSTMENT	2003	GPS1919	2003	HMURR		
1688.973	.131		1602.989	.066	1996	2003	GPS - STATIC	2003	HMURR				

Geoid Separations(ft): GEOID18 = -86.233 12B = -86.220 09 = -86.096 03 = -85.997

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 50 56.87689	96 02 47.63710	426154.410	100517.992	.131	3	GPS - OPUS	2019	GPSBM
43 50 56.87722	96 02 47.63728	426154.397	100518.026	.131	3	GPS - OPUS	2019	GPSBM
43 50 56.87732	96 02 47.63759	426154.375	100518.036	.131	3	GPS - RTRN	2019	RTRN2019
43 50 56.87726	96 02 47.63712	426154.409	100518.030	.010		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 50 56.87725	96 02 47.63805	426154.341	100518.029	.033	C	ADJUSTMENT	2010	GPS2245-B
43 50 56.87725	96 02 47.63805	426154.341	100518.029	.010		ADJUSTMENT	2007	GPS2300

<u>NAD83(1996)</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 50 56.87716	96 02 47.63760	426154.374	100518.020	.033	C	ADJUSTMENT	2006	GPS2245
43 50 56.87716	96 02 47.63760	426154.374	100518.020	.033	C	GPS - STATIC	2006	HROCK
43 50 56.87716	96 02 47.63759	426154.375	100518.020	.033	C	ADJUSTMENT	2005	GPS2097
43 50 56.87716	96 02 47.63759	426154.375	100518.020	.033	C	GPS - STATIC	2005	HPSTO
43 50 56.87716	96 02 47.63760	426154.374	100518.020	.033	C	ADJUSTMENT	2003	GPS1919
43 50 56.87716	96 02 47.63760	426154.374	100518.020	.033	C	GPS - STATIC	2003	HMURR

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2084827.871	644386.468	837010.844	15943632.447	.131	3	GPS - OPUS	2019	GPSBM
2084827.859	644386.502	837010.832	15943632.480	.131	3	GPS - OPUS	2019	GPSBM
2084827.836	644386.513	837010.810	15943632.491	.131	3	GPS - RTRN	2019	RTRN2019
2084827.870	644386.506	837010.844	15943632.484	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2084827.802	644386.506	837010.776	15943632.486	.033	C	ADJUSTMENT	2010	GPS2245-B
2084827.802	644386.506	837010.776	15943632.486	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2084827.835	644386.497	837010.809	15943632.475	.033	C	ADJUSTMENT	2006	GPS2245
2084827.835	644386.497	837010.809	15943632.475	.033	C	GPS - STATIC	2006	HROCK
2084827.836	644386.497	837010.809	15943632.475	.033	C	ADJUSTMENT	2005	GPS2097
2084827.836	644386.497	837010.809	15943632.475	.033	C	GPS - STATIC	2005	HPSTO
2084827.835	644386.497	837010.809	15943632.475	.033	C	ADJUSTMENT	2003	GPS1919
2084827.835	644386.497	837010.809	15943632.475	.033	C	GPS - STATIC	2003	HMURR

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SE_31_105_43-DF8553-3N-22OCT2019.jpg	N	Oct 22, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SE_31_105_43-DF8553-2-22OCT2019.jpg		Oct 22, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SE_31_105_43-DF8553-1-22OCT2019.jpg		Oct 22, 2019

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

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 56 06.37044	95 42 19.69517	516121.996	131740.110	.131	3	GPS - OPUS	2019	GPSBM
43 56 06.37037	95 42 19.69549	516121.972	131740.102	.131	3	GPS - OPUS	2019	GPSBM
43 56 06.37014	95 42 19.69561	516121.963	131740.079	.131	3	GPS - RTRN	2019	RTRN2019
43 56 06.37076	95 42 19.69541	516121.978	131740.142	.131	3	GPS - RTRN	2015	RTRN2015
43 56 06.37065	95 42 19.69513	516121.999	131740.131	.007		ADJUSTMENT	2014	GPS2998
43 56 06.37059	95 42 19.69514	516121.998	131740.125	.007	C	GPS - STATIC	2014	HIONA
43 56 06.37065	95 42 19.69513	516121.999	131740.131	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 56 06.37046	95 42 19.69581	516121.949	131740.112	.033	C	ADJUSTMENT	2011	GPS2386-B
43 56 06.37037	95 42 19.69622	516121.919	131740.102	.131	3	GPS - RTRN	2011	RTRN2011
43 56 06.37046	95 42 19.69580	516121.950	131740.112	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 56 06.36995	95 42 19.69512	516121.999	131740.060	.033	C	GPS - STATIC	2012	HIONA
43 56 06.36995	95 42 19.69512	516121.999	131740.060	.033	C	ADJUSTMENT	2007	GPS2386
43 56 06.36995	95 42 19.69512	516121.999	131740.060	.033	C	GPS - STATIC	2007	HSLAT
43 56 06.36995	95 42 19.69510	516122.001	131740.060	.033	C	ADJUSTMENT	2003	GPS1919
43 56 06.36995	95 42 19.69512	516121.999	131740.060	.033	C	GPS - STATIC	2003	HMURR

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2175440.613	673653.154	927989.839	15971829.782	.131	3	GPS - OPUS	2019	GPSBM
2175440.589	673653.147	927989.815	15971829.775	.131	3	GPS - OPUS	2019	GPSBM
2175440.580	673653.124	927989.806	15971829.752	.131	3	GPS - RTRN	2019	RTRN2019
2175440.596	673653.187	927989.822	15971829.815	.131	3	GPS - RTRN	2015	RTRN2015
2175440.616	673653.175	927989.843	15971829.803	.007		ADJUSTMENT	2014	GPS2998
2175440.615	673653.169	927989.842	15971829.797	.007	C	GPS - STATIC	2014	HIONA
2175440.616	673653.175	927989.843	15971829.803	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2175440.566	673653.157	927989.792	15971829.785	.033	C	ADJUSTMENT	2011	GPS2386-B
2175440.536	673653.149	927989.762	15971829.777	.131	3	GPS - RTRN	2011	RTRN2011
2175440.567	673653.157	927989.793	15971829.785	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2175440.616	673653.104	927989.841	15971829.732	.033	C	GPS - STATIC	2012	HIONA
2175440.616	673653.104	927989.841	15971829.732	.033	C	ADJUSTMENT	2007	GPS2386
2175440.616	673653.104	927989.841	15971829.732	.033	C	GPS - STATIC	2007	HSLAT
2175440.617	673653.104	927989.843	15971829.732	.033	C	ADJUSTMENT	2003	GPS1919
2175440.616	673653.104	927989.841	15971829.732	.033	C	GPS - STATIC	2003	HMURR

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SE_36_106_41-DF8554-3N-22OCT2019.jpg	N	Oct 22, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SE_36_106_41-DF8554-2-22OCT2019.jpg		Oct 22, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SE_36_106_41-DF8554-1-22OCT2019.jpg		Oct 22, 2019

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



Mn/DOT Name: SE 36 106 42

NGS Name: SE 36 106 42

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DF8555](#) [Get Map](#)
 NGS Quad / Sta Num : 43095441/
 USGS Quad: SLAYTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	42 W	435614.16	954925.28		C

<u>Year Set</u>	<u>Last Recovery</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	2021	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MN-101

Description: (2003) **Stamping:** SE 36 106 42 2003

3.14 MILES NORTHWEST OF IONA, 2.0 MILES WEST ALONG COUNTY ROAD 4 FROM THE JUNCTION OF COUNTY ROAD 4 AND TRUNK HIGHWAY 267 IN IONA, THEN 1.14 MILES NORTH ALONG A TOWNSHIP ROAD/ 120TH AVENUE, 23.2 FEET WEST OF A TOWNSHIP ROAD/ 120TH AVENUE, 30.0 FEET NORTH OF A FIELD ENTRANCE, 85.8 FEET NORTHWEST OF A POWER POLE, 5.4 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>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>	
1679.692	.262		1593.015	.197	2011	2021	GPSBM	1593.015	.197	2011	2021	GPSBM	
1679.721	.262		1593.045	.197	2011	2021	GPSBM	1593.045	.197	2011	2021	GPSBM	
1679.747			1593.035	.018	2011	2014	GPS2998	1593.035	.018	2011	2014	GPS2998	
1679.747			1593.035	.018	2011	2014	HIONA	1593.035	.018	2011	2014	HIONA	
			1593.035	.021	2011	2012	GPS2800	1593.035	.021	2011	2012	GPS2800	
1679.754	.131		1593.310	.066	1996	2012	HIONA	1593.310	.066	1996	2012	HIONA	
1679.698	.262		1593.130	.197	2007	2011	RTRN2011	1593.130	.197	2007	2011	RTRN2011	
			1593.123	.024	2007	2007	GPS2300	1593.123	.024	2007	2007	GPS2300	
1679.721	.131		1593.265	.066	1996	2003	GPS1919	1593.265	.066	1996	2003	GPS1919	
1679.688	.131		1593.265	.066	1996	2003	HMURR	1593.265	.066	1996	2003	HMURR	

Geoid Separations(ft): GEOID18 = -86.676 12B = -86.666 09 = -86.568 03 = -86.434

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>			<u>Murray 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>								
43 56 14.16350	95 49 25.28173		484977.947	132528.506	.131	3	GPS - OPUS	2021	GPSBM
43 56 14.16325	95 49 25.28224		484977.909	132528.481	.131	3	GPS - OPUS	2021	GPSBM
43 56 14.16359	95 49 25.28171		484977.948	132528.515	.010		ADJUSTMENT	2014	GPS2998
43 56 14.16356	95 49 25.28167		484977.951	132528.513	.010	C	GPS - STATIC	2014	HIONA
43 56 14.16359	95 49 25.28171		484977.948	132528.515	.013		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>			<u>Murray 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>								
43 56 14.16347	95 49 25.28239		484977.898	132528.503	.131	3	GPS - RTRN	2011	RTRN2011
43 56 14.16349	95 49 25.28260		484977.883	132528.505	.013		ADJUSTMENT	2007	GPS2300

<u>NAD83(1996)</u>			<u>Murray 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>								
43 56 14.16300	95 49 25.28193		484977.932	132528.456	.033	C	GPS - STATIC	2012	HIONA
43 56 14.16300	95 49 25.28193		484977.932	132528.456	.033	C	ADJUSTMENT	2003	GPS1919
43 56 14.16300	95 49 25.28193		484977.932	132528.456	.033	C	GPS - STATIC	2003	HMURR

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2144324.117	675114.257	896885.627	15973661.674	.131	3	GPS - OPUS	2021	GPSBM
2144324.079	675114.232	896885.588	15973661.650	.131	3	GPS - OPUS	2021	GPSBM
2144324.119	675114.266	896885.628	15973661.684	.010		ADJUSTMENT	2014	GPS2998
2144324.122	675114.263	896885.631	15973661.680	.010	C	GPS - STATIC	2014	HIONA
2144324.119	675114.266	896885.628	15973661.684	.013		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2144324.069	675114.255	896885.578	15973661.673	.131	3	GPS - RTRN	2011	RTRN2011
2144324.054	675114.257	896885.563	15973661.676	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2144324.101	675114.207	896885.610	15973661.624	.033	C	GPS - STATIC	2012	HIONA
2144324.101	675114.207	896885.610	15973661.624	.033	C	ADJUSTMENT	2003	GPS1919
2144324.101	675114.207	896885.610	15973661.624	.033	C	GPS - STATIC	2003	HMURR

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SE_36_106_42-DF8555-3W-28APR2021.jpg	W	Apr 28, 2021
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SE_36_106_42-DF8555-2-28APR2021.jpg		Apr 28, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SE_36_106_42-DF8555-1-28APR2021.jpg		Apr 28, 2021

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



Mn/DOT Name: SE 36 107 42

NGS Name: SE 36 107 42

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DF8556](#) [Get Map](#)
 NGS Quad / Sta Num : 44095332/
 USGS Quad: HADLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	107 N	42 W	440146.20	954925.29		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>
2003	2021	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MN-101

Description: (2003) **Stamping:** SE 36 107 42 2003

6.0 MILES NORTHWEST OF SLAYTON, 3.5 MILES WEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND TRUNK HIGHWAY 59 IN SLAYTON, THEN 2.5 MILES NORTH ALONG 120TH AVENUE, 30.6 FEET WEST OF 120TH AVENUE, 6.0 FEET SOUTHEAST OF A CONCRETE FENCE POST, 20.6 FEET SOUTH OF A FIELD ENTRANCE, 24.0 FEET NORTH OF A POWER POLE, 4.7 FEET NORTH 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>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1643.314	.262		1556.335	.197	2011	GPS - OPUS	2021	GPSBM
1643.241	.262		1556.263	.197	2011	GPS - OPUS	2021	GPSBM
1643.307	.262		1556.335	.197	2011	GPS - RTRN	2015	RTRN2015
1643.274	.262		1556.303	.197	2011	GPS - RTRN	2015	RTRN2015
1643.297			1556.299	.015	2011	HORIZONTAL ADJUSTMENT	2014	GPS2998
1643.297			1556.296	.015	2011	GPS - STATIC	2014	HIONA
			1556.299	.016	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1643.304	.131		1556.582	.066	1996	GPS - STATIC	2012	HIONA
			1556.395	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2386-B
1643.228	.262		1556.342	.197	2007	GPS - RTRN	2011	RTRN2011
1643.271	.131		1556.542	.066	1996	HORIZONTAL ADJUSTMENT	2007	GPS2386
1643.271	.131		1556.542	.066	1996	GPS - STATIC	2007	HSLAT
			1556.395	.035	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
1643.271	.131		1556.549	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1919
1643.238	.131		1556.542	.066	1996	GPS - STATIC	2003	HMURR

Geoid Separations(ft): GEOID18 = -86.978 12B = -86.968 09 = -86.883 03 = -86.706

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 01 46.20122	95 49 25.29127	485000.514	166153.450	.131	3	GPS - OPUS	2021	GPSBM
44 01 46.20126	95 49 25.29127	485000.514	166153.454	.131	3	GPS - OPUS	2021	GPSBM
44 01 46.20195	95 49 25.28972	485000.627	166153.524	.131	3	GPS - RTRN	2015	RTRN2015
44 01 46.20102	95 49 25.29083	485000.546	166153.430	.131	3	GPS - RTRN	2015	RTRN2015
44 01 46.20142	95 49 25.29078	485000.549	166153.470	.007		ADJUSTMENT	2014	GPS2998
44 01 46.20139	95 49 25.29080	485000.548	166153.467	.007	C	GPS - STATIC	2014	HIONA
44 01 46.20142	95 49 25.29078	485000.549	166153.470	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 01 46.20128	95 49 25.29166	485000.485	166153.456	.033	C	ADJUSTMENT	2011	GPS2386-B
44 01 46.20068	95 49 25.29172	485000.481	166153.395	.131	3	GPS - RTRN	2011	RTRN2011
44 01 46.20128	95 49 25.29166	485000.485	166153.456	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 01 46.20084	95 49 25.29111	485000.525	166153.411	.033	C	GPS - STATIC	2012	HIONA
44 01 46.20084	95 49 25.29111	485000.525	166153.411	.033	C	ADJUSTMENT	2007	GPS2386
44 01 46.20084	95 49 25.29111	485000.525	166153.411	.033	C	GPS - STATIC	2007	HSLAT
44 01 46.20083	95 49 25.29112	485000.524	166153.410	.033	C	ADJUSTMENT	2003	GPS1919
44 01 46.20084	95 49 25.29111	485000.525	166153.411	.033	C	GPS - STATIC	2003	HMURR

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2145073.451	708727.133	898036.165	16007272.226	.131	3	GPS - OPUS	2021	GPSBM
2145073.451	708727.137	898036.166	16007272.230	.131	3	GPS - OPUS	2021	GPSBM
2145073.566	708727.204	898036.281	16007272.296	.131	3	GPS - RTRN	2015	RTRN2015
2145073.483	708727.112	898036.197	16007272.205	.131	3	GPS - RTRN	2015	RTRN2015
2145073.487	708727.152	898036.202	16007272.245	.007		ADJUSTMENT	2014	GPS2998
2145073.486	708727.149	898036.200	16007272.242	.007	C	GPS - STATIC	2014	HIONA
2145073.487	708727.152	898036.202	16007272.245	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2145073.423	708727.140	898036.137	16007272.233	.033	C	ADJUSTMENT	2011	GPS2386-B
2145073.417	708727.079	898036.130	16007272.172	.131	3	GPS - RTRN	2011	RTRN2011
2145073.423	708727.140	898036.137	16007272.233	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2145073.462	708727.094	898036.176	16007272.187	.033	C	GPS - STATIC	2012	HIONA
2145073.462	708727.094	898036.176	16007272.187	.033	C	ADJUSTMENT	2007	GPS2386
2145073.462	708727.094	898036.176	16007272.187	.033	C	GPS - STATIC	2007	HSLAT
2145073.461	708727.093	898036.175	16007272.186	.033	C	ADJUSTMENT	2003	GPS1919
2145073.462	708727.094	898036.176	16007272.187	.033	C	GPS - STATIC	2003	HMURR

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SE_36_107_42-DF8556-3W-28APR2021.jpg	W	Apr 28, 2021
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SE_36_107_42-DF8556-2-28APR2021.jpg		Apr 28, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SE_36_107_42-DF8556-1-28APR2021.jpg		Apr 28, 2021

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



Mn/DOT Name: SE 36 108 39

NGS Name: SE 36 108 39

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DF8557](#) [Get Map](#)
 NGS Quad / Sta Num : 44095233/
 USGS Quad: WESTBROOK

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	108 N	39 W	440632.05	952745.36		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>
2003	2021	GOOD	Horz=YES Vert=YES	YES		PROJECTS 3 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MN-101

Description: (2004) Stamping: SE 36 108 39 2003

8.0 MILES NORTHEAST OF DOVRAY, 4.0 MILES NORTH ALONG COUNTY ROAD 42 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND COUNTY ROAD 42 IN DOVRAY, THEN 4.0 MILES EAST ON COUNTY ROAD 14, 33.3 FEET NORTH OF COUNTY ROAD 14, 75.0 FEET WEST OF 300TH AVENUE, 38.7 FEET WEST OF A FIELD ENTRANCE, 4.8 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>						
1415.102	.262		1326.795	.197	2011	GPS - RTRN	2023 RTRN2023						
1414.915	.262		1326.608	.197	2011	GPS - OPUS	2021 GPSBM						
1414.941	.262		1326.634	.197	2011	GPS - OPUS	2021 GPSBM						
			1326.766	.008	2011	HORIZONTAL ADJUSTMENT	2012 GPS2800						
			1326.841	.009	2007	HORIZONTAL ADJUSTMENT	2007 GPS2300						
1415.023	.131		1326.999	.066	1996	HORIZONTAL ADJUSTMENT	2005 GPS2116						
1415.023	.131		1326.999	.066	1996	GPS - STATIC	2005 HCOTT						
1415.056	.131		1326.992	.066	1996	HORIZONTAL ADJUSTMENT	2003 GPS1919						
1415.089	.131		1327.048	.066	1996	GPS - STATIC	2003 HMURR						

Geoid Separations(ft): GEOID18 = -88.307 12B = -88.310 09 = -88.195 03 = -88.087

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Murray 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>								
44 06 32.04834	95 27 45.36468	579871.917	195243.320	.131	3	GPS - RTRN	2023	RTRN2023	
44 06 32.04810	95 27 45.36522	579871.878	195243.296	.131	3	GPS - OPUS	2021	GPSBM	
44 06 32.04814	95 27 45.36529	579871.872	195243.300	.131	3	GPS - OPUS	2021	GPSBM	
44 06 32.04792	95 27 45.36453	579871.928	195243.278	.007		ADJUSTMENT	2012	GPS2800	

<u>NAD83(2007)</u>		<u>Murray 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>								
44 06 32.04798	95 27 45.36548	579871.859	195243.284	.007		ADJUSTMENT	2007	GPS2300	

<u>NAD83(1996)</u>		<u>Murray 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>								
44 06 32.04749	95 27 45.36472	579871.914	195243.234	.033	C	ADJUSTMENT	2005	GPS2116	
44 06 32.04749	95 27 45.36472	579871.914	195243.234	.033	C	GPS - STATIC	2005	HCOTT	
44 06 32.04749	95 27 45.36472	579871.914	195243.234	.033	C	ADJUSTMENT	2003	GPS1919	
44 06 32.04736	95 27 45.36463	579871.921	195243.221	.033	C	GPS - STATIC	2003	HMURR	

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2240539.306	735757.825	993838.709	16033161.031	.131	3	GPS - RTRN	2023	RTRN2023
2240539.267	735757.801	993838.668	16033161.007	.131	3	GPS - OPUS	2021	GPSBM
2240539.261	735757.806	993838.663	16033161.012	.131	3	GPS - OPUS	2021	GPSBM
2240539.316	735757.782	993838.718	16033160.988	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2240539.247	735757.790	993838.649	16033160.996	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2240539.302	735757.739	993838.703	16033160.945	.033	C	ADJUSTMENT	2005	GPS2116
2240539.302	735757.739	993838.703	16033160.945	.033	C	GPS - STATIC	2005	HCOTT
2240539.302	735757.739	993838.703	16033160.945	.033	C	ADJUSTMENT	2003	GPS1919
2240539.308	735757.726	993838.709	16033160.931	.033	C	GPS - STATIC	2003	HMURR

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SE_36_108_39-DF8557-3N-28APR2021.jpg	N	Apr 28, 2021
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SE_36_108_39-DF8557-2-28APR2021.jpg		Apr 28, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SE_36_108_39-DF8557-1-28APR2021.jpg		Apr 28, 2021

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



Mn/DOT Name: SE 36 108 40

NGS Name: SE 36 108 40

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DF8558](#) [Get Map](#)
NGS Quad / Sta Num : 44095322/
USGS Quad: DOVRAY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	36	108 N	40 W	440650.34	953457.46		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2003	2021	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MN-101

Description: (2003) Stamping: SE 36 108 40 2003

7.4 MILES NORTHEAST OF CURRIE, 4.0 MILES NORTH ALONG COUNTY ROAD 38 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND COUNTY ROAD 38 IN CURRIE, THEN 3.0 MILES EAST ON COUNTY ROAD 14, 0.35 MILE NORTH ON A TOWNSHIP ROAD (240TH AVENUE), 31.5 FEET WEST OF A TOWNSHIP ROAD (240TH AVENUE), 13.6 FEET SOUTH OF A FIELD ENTRANCE, 5.0 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)			Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method		Year	Reference		
1545.463	.262		1457.536	.197	2011	GPS - OPUS		2021	GPSBM		
1545.433	.262		1457.507	.197	2011	GPS - OPUS		2021	GPSBM		
			1457.576	.010	2011	HORIZONTAL ADJUSTMENT		2012	GPS2800		
			1457.687	.011	2007	HORIZONTAL ADJUSTMENT		2007	GPS2300		
1545.502	.131		1457.832	.066	1996	HORIZONTAL ADJUSTMENT		2003	GPS1919		
1545.469	.131		1457.832	.066	1996	GPS - STATIC		2003	HMURR		

Geoid Separations(ft): GEOID18 = -87.923 12B = -87.923 09 = -87.831 03 = -87.674

Lat/Lon and County Coordinates (Feet)

NAD83(2011)		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 06 50.34218	95 34 57.45943	548339.326	197002.586	.131	3	GPS - OPUS	2021	GPSBM
44 06 50.34226	95 34 57.45986	548339.294	197002.595	.131	3	GPS - OPUS	2021	GPSBM
44 06 50.34231	95 34 57.45914	548339.347	197002.599	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 06 50.34231	95 34 57.45998	548339.286	197002.599	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 06 50.34180	95 34 57.45922	548339.341	197002.548	.033	C	ADJUSTMENT	2003	GPS1919
44 06 50.34180	95 34 57.45924	548339.339	197002.548	.033	C	GPS - STATIC	2003	HMURR

State Plane and UTM Coordinates (Feet)

NAD83(2011)		Murray County				Project Info		
MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Year	Reference
X	Y	X	Y					
2209056.086	738197.042	962382.193	16035979.225	.131	3	GPS - OPUS	2021	GPSBM
2209056.055	738197.050	962382.162	16035979.233	.131	3	GPS - OPUS	2021	GPSBM
2209056.107	738197.054	962382.215	16035979.237	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)		Murray County				Project Info		
MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Year	Reference
X	Y	X	Y					
2209056.046	738197.055	962382.154	16035979.239	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)		Murray County				Project Info		
MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Year	Reference
X	Y	X	Y					
2209056.101	738197.003	962382.207	16035979.186	.033	C	ADJUSTMENT	2003	GPS1919
2209056.099	738197.003	962382.206	16035979.186	.033	C	GPS - STATIC	2003	HMURR



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SE_36_108_40-DF8558-3W-28APR2021.jpg	W	Apr 28, 2021
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SE_36_108_40-DF8558-2-28APR2021.jpg		Apr 28, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SE_36_108_40-DF8558-1-28APR2021.jpg		Apr 28, 2021

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



Mn/DOT Name: SE 36 108 42

NGS Name: SE 36 108 42

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DF8559](#) [Get Map](#)
 NGS Quad / Sta Num : 44095332/
 USGS Quad: HADLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	108 N	42 W	440634.07	954934.97		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>
2003	2021	GOOD	Horz=YES Vert=YES	YES		PROJECTS 3 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MN-101

Description: (2003) **Stamping:** SE 36 108 42 2003

11.8 MILES NORTH-NORTHWEST OF SLAYTON, 2.7 MILES WEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND TRUNK HIGHWAY 59 IN SLAYTON, THEN 8.0 MILES NORTH ALONG COUNTY ROAD 30, THEN 1.1 MILES WEST ALONG COUNTY ROAD 48, 49.1 FEET NORTH OF COUNTY ROAD 48 (181ST STREET), 35.2 FEET WEST OF A FIELD ENTRANCE, 4.5 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>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1670.797	.262		1583.734	.197	2011	GPS - OPUS	2021	GPSBM
1670.699	.262		1583.635	.197	2011	GPS - OPUS	2021	GPSBM
1670.768	.262		1583.701	.197	2011	GPS - RTRN	2015	RTRN2015
			1583.799	.016	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			1583.891	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2386-B
1670.863	.131		1584.039	.066	1996	HORIZONTAL ADJUSTMENT	2007	GPS2386
1670.863	.131		1584.039	.066	1996	GPS - STATIC	2007	HSLAT
			1583.891	.020	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
1670.863	.131		1584.042	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1919
1670.863	.131		1584.039	.066	1996	GPS - STATIC	2003	HMURR

Geoid Separations(ft): GEOID18 = -87.063 12B = -87.063 09 = -86.985 03 = -86.811

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 06 34.06982	95 49 34.96850	484314.574	195306.384	.131	3	GPS - OPUS	2021	GPSBM
44 06 34.06982	95 49 34.96879	484314.553	195306.384	.131	3	GPS - OPUS	2021	GPSBM
44 06 34.06940	95 49 34.96757	484314.642	195306.341	.131	3	GPS - RTRN	2015	RTRN2015
44 06 34.06948	95 49 34.96800	484314.610	195306.349	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 06 34.06949	95 49 34.96913	484314.528	195306.350	.033	C	ADJUSTMENT	2011	GPS2386-B
44 06 34.06949	95 49 34.96914	484314.527	195306.350	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 06 34.06904	95 49 34.96861	484314.566	195306.305	.033	C	ADJUSTMENT	2007	GPS2386
44 06 34.06904	95 49 34.96861	484314.566	195306.305	.033	C	GPS - STATIC	2007	HSLAT
44 06 34.06903	95 49 34.96861	484314.566	195306.304	.033	C	ADJUSTMENT	2003	GPS1919
44 06 34.06904	95 49 34.96861	484314.566	195306.305	.033	C	GPS - STATIC	2003	HMURR

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2145017.868	737884.504	898330.020	16036436.309	.131	3	GPS - OPUS	2021	GPSBM
2145017.847	737884.505	898329.999	16036436.310	.131	3	GPS - OPUS	2021	GPSBM
2145017.935	737884.460	898330.086	16036436.264	.131	3	GPS - RTRN	2015	RTRN2015
2145017.904	737884.469	898330.055	16036436.274	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2145017.822	737884.472	898329.973	16036436.277	.033	C	ADJUSTMENT	2011	GPS2386-B
2145017.821	737884.472	898329.972	16036436.277	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2145017.859	737884.425	898330.009	16036436.231	.033	C	ADJUSTMENT	2007	GPS2386
2145017.859	737884.425	898330.009	16036436.231	.033	C	GPS - STATIC	2007	HSLAT
2145017.859	737884.424	898330.009	16036436.230	.033	C	ADJUSTMENT	2003	GPS1919
2145017.859	737884.425	898330.009	16036436.231	.033	C	GPS - STATIC	2003	HMURR

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SE_36_108_42-DF8559-3N-28APR2021.jpg	N	Apr 28, 2021
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SE_36_108_42-DF8559-2-28APR2021.jpg		Apr 28, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SE_36_108_42-DF8559-1-28APR2021.jpg		Apr 28, 2021

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



Mn/DOT Name: SHETEK MNDT

NGS Name: SHETEK

County: MURRAY, MN (Sheet 1)

NGS ACRN: [PQ1384](#) [Get Map](#)
 NGS Quad / Sta Num : 44095324/
 USGS Quad: TRACY WEST

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	108 N	41 W	441001.21	954450.93	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>
1987	2015	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)	HORIZONTAL CONTROL DISK	MNDT

Description: (1987) Stamping: SHETEK 1987

3.5 MILES SOUTH OF GARVIN, 5.3 MILES SOUTH ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 14 (THE JUNCTION IS 1.5 MILES NORTH OF GARVIN), TO TRUNK HIGHWAY 59 MILEPOINT 53.35, THEN 0.2 MILE WEST ON 221ST STREET, 29.0 FEET SOUTH OF 221ST STREET, 7.0 FEET EAST OF AN ENTRANCE, 97.1 FEET SOUTHWEST OF A POWER POLE, 8.2 FEET WEST-NORTHWEST OF A WITNESS POST, 63.67 FEET SOUTH OF SHETEK MNDT RM 1, 36.05 FEET WEST OF SHETEK 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>	
1563.288	.016	2/1					VERTICAL ADJUSTMENT	2017	00000903	
1563.288	.016	2/1					VERTICAL CONTROL SURVEY	2015	VGARV	
1563.288	.016	2/1					VERTICAL ADJUSTMENT	1995	00000135	

<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>	
1562.608	.016	2/1					VERTICAL CONTROL SURVEY	1987	VSLAY	

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>	
1563.199	.262			1475.725	.197	2011	GPS - RTRN	2015	RTRN2015	
				1475.784	.018	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
				1475.876	.019	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300	
1563.284	.131			1476.024	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1919	
1563.284	.131			1476.027	.066	1996	GPS - STATIC	2003	HMURR	

Geoid Separations(ft): GEOID18 = -87.490 12B = -87.477 09 = -87.405 03 = -87.250

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>									
44 10 01.20880	95 44 50.92915			505034.952	216278.523	.131	3	GPS - RTRN	2015	RTRN2015
44 10 01.20873	95 44 50.92962			505034.917	216278.516	.013		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>				<u>Murray 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>									
44 10 01.20873	95 44 50.93058			505034.848	216278.516	.013		ADJUSTMENT	2007	GPS2300

<u>NAD83(1996)</u>				<u>Murray 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>									
44 10 01.20829	95 44 50.93005			505034.886	216278.471	.033	C	ADJUSTMENT	2003	GPS1919
44 10 01.20829	95 44 50.93005			505034.886	216278.471	.033	C	GPS - STATIC	2003	HMURR

<u>NAD83(1986)</u>				<u>Murray 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>									
44 10 01.20360	95 44 50.91699			505035.837	216277.996	3.281		CLASSICAL SURVEY	1991	H1991

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2166183.874	758401.204	919747.001	16056702.429	.131	3	GPS - RTRN	2015	RTRN2015
2166183.840	758401.197	919746.967	16056702.423	.013		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2166183.770	758401.199	919746.897	16056702.425	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2166183.807	758401.153	919746.934	16056702.379	.033	C	ADJUSTMENT	2003	GPS1919
2166183.807	758401.153	919746.934	16056702.379	.033	C	GPS - STATIC	2003	HMURR

NAD83(1986)

MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2166184.749	758400.658	919747.869	16056701.873	3.281		CLASSICAL SURVEY	1991	H1991

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SHETEK-PQ1384-3S-15JUN2015.jpg	S	Jun 15, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SHETEK-PQ1384-2-15JUN2015.jpg		Jun 15, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SHETEK-PQ1384-1-15JUN2015.jpg		Jun 15, 2015

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



Mn/DOT Name: SHETEK MNDT RM 1

NGS Name: SHETEK RM 1

County: MURRAY, MN (Sheet 1)

NGS ACRN: [PQ1385](#) [Get Map](#)
 NGS Quad / Sta Num : 44095324/
 USGS Quad: TRACY WEST

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	108 N	41 W	441001.84	954450.98	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>
1987	2015	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)	REFERENCE MARK DISK	MNDT

Description: (1987) **Stamping:** SHETEK NO 1 1987

3.5 MILES SOUTH OF GARVIN, 5.3 MILES SOUTH ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 14 (THE JUNCTION IS 1.5 MILES NORTH OF GARVIN), THEN 0.2 MILE WEST ON 221ST STREET, 35.0 FEET NORTH OF 221ST STREET, 76.9 FEET WEST OF A POWER POLE, 63.67 FEET NORTH OF STATION SHETEK MNDT, 75.85 FEET NORTH-NORTHWEST OF SHETEK MNDT RM 2, 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>		
1559.216	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903		
1559.216	.016	2/1				VERTICAL CONTROL SURVEY	2015	VGARV		
1559.216	.016	2/1				VERTICAL ADJUSTMENT	1995	00000135		

<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>		
1558.540	.016	2/1				VERTICAL CONTROL SURVEY	1987	VSLAY		

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>		
1559.114	.262		1471.637	.197	2011	GPS - RTRN	2015	RTRN2015		

Geoid Separations(ft): GEOID18 = -87.490 12B = -87.477 09 = -87.405 03 = -87.250

Lat/Lon and County Coordinates (Feet)

<u>Geodetic Position</u>		<u>Murray 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>
44 10 01.83620	95 44 50.97512	505031.586	216342.060	.131	3	GPS - RTRN	2015	RTRN2015

State Plane and UTM Coordinates (Feet)

<u>MN State Plane - South 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>
2166181.882	758464.790	919745.775	16056766.051	.131	3	GPS - RTRN	2015	RTRN2015

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SHETEK_RM_1-PQ1385-3N-15JUN2015.jpg	N	Jun 15, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SHETEK_RM_1-PQ1385-2-15JUN2015.jpg		Jun 15, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SHETEK_RM_1-PQ1385-1-15JUN2015.jpg		Jun 15, 2015

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



Mn/DOT Name: SHETEK MNDT RM 2

NGS Name: SHETEK RM 2

County: MURRAY, MN (Sheet 1)

NGS ACRN: [PQ1383](#) [Get Map](#)
 NGS Quad / Sta Num : 44095324/
 USGS Quad: TRACY WEST

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	108 N	41 W	441001.20	954450.43	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>
1987	2015	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)	REFERENCE MARK DISK	MNDT

Description: (1987) **Stamping:** SHETEK NO 2 1987

3.5 MILES SOUTH OF GARVIN, 5.3 MILES SOUTH ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 14 (THE JUNCTION IS 1.5 MILES NORTH OF GARVIN), THEN 0.2 MILE WEST ON 221ST STREET, 31.0 FEET SOUTH OF 221ST STREET, 74.7 FEET SOUTHWEST OF A POWER POLE, 36.05 FEET EAST OF STATION SHETEK MNDT, 75.85 FEET SOUTH-SOUTHEAST OF SHETEK MNDT RM 1, 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>	
1563.048	.016	2/1						VERTICAL ADJUSTMENT	2017	00000903	
1563.048	.016	2/1						VERTICAL CONTROL SURVEY	2015	VGARV	
1563.048	.016	2/1						VERTICAL ADJUSTMENT	1995	00000135	

<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>	
1562.372	.016	2/1						VERTICAL CONTROL SURVEY	1987	VSLAY	

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>	
1562.946	.262			1475.469	.197	2011		GPS - RTRN	2015	RTRN2015	

Geoid Separations(ft): GEOID18 = -87.490 12B = -87.477 09 = -87.405 03 = -87.250

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>										
44 10 01.19646	95 44 50.43477			505070.990	216277.282		.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 - South 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>										
2166219.872	758399.184			919782.982	16056699.975		.131	3	GPS - RTRN	2015	RTRN2015

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SHETEK_RM_2-PQ1383-3S-15JUN2015.jpg	S	Jun 15, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SHETEK_RM_2-PQ1383-2-15JUN2015.jpg		Jun 15, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SHETEK_RM_2-PQ1383-1-15JUN2015.jpg		Jun 15, 2015

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



Mn/DOT Name: SILLRUD MNDT

NGS Name: SILLRUD

County: MURRAY, MN (Sheet 1)

NGS ACRN: [AH3681](#) [Get Map](#)
 NGS Quad / Sta Num : 44095334/
 USGS Quad: CURRENT 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>
NW	18	108 N	42 W	441002.15	955610.81	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>
1993	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 20 FT)	SURVEY DISK	MNDT

Description: (1993) **Stamping:** SILLRUD 1993

12.2 MILES NORTH OF LAKE WILSON, 12.3 MILES NORTH ALONG TRUNK HIGHWAY 91 FROM THE JUNCTION OF TRUNK HIGHWAY 91 AND TRUNK HIGHWAY 30 IN LAKE WILSON, AT TRUNK HIGHWAY 91 MILEPOINT 51.10, 173.0 FEET EAST OF TRUNK HIGHWAY 91, 50.7 FEET SOUTH OF COUNTY ROAD 20, 1.0 FOOT EAST OF A WITNESS POST.

Station Pair: SKAND MNDT - MURRAY, 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>					
1675.978	.016	2/1				2020	00000949					
1675.978	.016	2/1				2017	00000903					
1675.978	.016	2/1				2016	VRUSS					

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>					
1675.961	.262		1589.236	.197	2011	2024	RTRN2024					
1675.948	.262		1589.223	.197	2011	2021	GPSBM					
1675.925	.262		1589.196	.197	2011	2016	RTRN2016					
			1589.298	.024	2011	2012	GPS2800					
			1589.387	.020	2007	2007	GPS2300					
1675.915	.197		1589.396	.131	1996	1999	17648					
1675.850	.197		1589.396	.131	1996	1998	GPS937					

<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>					
1675.193						1993	HORZ					

Geoid Separations(ft): GEOID18 = -86.726 12B = -86.732 09 = -86.640 03 = -86.496

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Murray 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>			
44 10 02.15198	95 56 10.80627	455475.220	216419.284	.131	3	2024	RTRN2024			
44 10 02.15170	95 56 10.80636	455475.214	216419.256	.131	3	2021	GPSBM			
44 10 02.15223	95 56 10.80620	455475.226	216419.310	.131	3	2016	RTRN2016			
44 10 02.15171	95 56 10.80574	455475.259	216419.257	.020		2012	GPS2800			

<u>NAD83(2007)</u>		<u>Geodetic Position</u>		<u>Murray 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>			
44 10 02.15170	95 56 10.80673	455475.187	216419.256	.016		2007	GPS2300			

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Murray 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>			
44 10 02.15230	95 56 10.79959	455475.707	216419.316	.066	2	1999	17648			
44 10 02.15230	95 56 10.79959	455475.707	216419.316	.066	2	1998	GPS937			

<u>NAD83(1986)</u>		<u>Geodetic Position</u>		<u>Murray 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>			
44 10 02.14975	95 56 10.78214	455476.979	216419.055	.066	2	1993	HMARS			



State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2116645.521	759613.168	870212.163	16058511.329	.131	3	GPS - RTRN	2024	RTRN2024
2116645.514	759613.140	870212.156	16058511.301	.131	3	GPS - OPUS	2021	GPSBM
2116645.527	759613.193	870212.169	16058511.354	.131	3	GPS - RTRN	2016	RTRN2016
2116645.559	759613.140	870212.201	16058511.301	.020		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2116645.487	759613.140	870212.129	16058511.302	.016		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2116646.008	759613.189	870212.651	16058511.344	.066	2	ADJUSTMENT	1999	17648
2116646.008	759613.189	870212.651	16058511.344	.066	2	ADJUSTMENT	1998	GPS937

NAD83(1986)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2116647.274	759612.900	870213.913	16058511.041	.066	2	GPS - STATIC	1993	HMARS

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SILLRUD-AH3681-3S-13MAY2024.jpg	S	May 13, 2024
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SILLRUD-AH3681-2-13MAY2024.jpg		May 13, 2024
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SILLRUD-AH3681-1-13MAY2024.jpg		May 13, 2024

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



Mn/DOT Name: SKAND MNDT

NGS Name: SKAND

County: MURRAY, MN (Sheet 1)

NGS ACRN: [AH3682](#) [Get Map](#)
 NGS Quad / Sta Num : 44095334/
 USGS Quad: CURRENT 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	7	108 N	42 W	441003.13	955533.41	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>
1993	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 15 FT)	SURVEY DISK	MNDT

Description: (1993) Stamping: SKAND 1993

12.2 MILES NORTH OF LAKE WILSON, 12.3 MILES NORTH ALONG TRUNK HIGHWAY 91 FROM THE JUNCTION OF TRUNK HIGHWAY 91 AND TRUNK HIGHWAY 30 IN LAKE WILSON TO TRUNK HIGHWAY 91 MILEPOINT 51.10, THEN 0.55 MILE EAST ALONG COUNTY ROAD 20 (221ST STREET), 45.1 FEET NORTH OF COUNTY ROAD 20, 3.4 FEET SOUTH OF A WITNESS POST.

Station Pair: SILLRUD MNDT - MURRAY, MN

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>			
1650.856	.016	2/1				VERTICAL ADJUSTMENT	2020	00000949
1650.856	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903
1650.853	.016	2/1				VERTICAL CONTROL SURVEY	2016	VRUSS

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>			
1650.827	.262		1564.049	.197	2011	GPS - RTRN	2024	RTRN2024
1650.781	.262		1563.996	.197	2011	GPS - RTRN	2016	RTRN2016
			1564.114	.024	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			1564.203	.020	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
1650.784	.197		1564.216	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648
1650.718	.197		1564.216	.131	1996	HORIZONTAL ADJUSTMENT	1998	GPS937

<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>			
1649.997						GPS - STATIC	1993	HORZ

Geoid Separations(ft): GEOID18 = -86.778 12B = -86.785 09 = -86.696 03 = -86.548

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>									
44 10 03.13295	95 55 33.40720			458201.617	216513.189	.131	3	GPS - RTRN	2024	RTRN2024
44 10 03.13279	95 55 33.40629			458201.684	216513.172	.131	3	GPS - RTRN	2016	RTRN2016
44 10 03.13291	95 55 33.40634			458201.680	216513.184	.020		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>				<u>Murray 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>									
44 10 03.13290	95 55 33.40732			458201.609	216513.183	.016		ADJUSTMENT	2007	GPS2300

<u>NAD83(1996)</u>				<u>Murray 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>									
44 10 03.13349	95 55 33.40020			458202.128	216513.242	.066	2	ADJUSTMENT	1999	17648
44 10 03.13349	95 55 33.40020			458202.128	216513.242	.066	2	ADJUSTMENT	1998	GPS937

<u>NAD83(1986)</u>				<u>Murray 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>									
44 10 03.13094	95 55 33.38276			458203.399	216512.982	.066	2	GPS - STATIC	1993	HMARS

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2119372.940	759648.080	872940.722	16058513.413	.131	3	GPS - RTRN	2024	RTRN2024
2119373.006	759648.063	872940.788	16058513.394	.131	3	GPS - RTRN	2016	RTRN2016
2119373.002	759648.075	872940.785	16058513.407	.020		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2119372.931	759648.076	872940.713	16058513.408	.016		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2119373.451	759648.123	872941.234	16058513.450	.066	2	ADJUSTMENT	1999	17648
2119373.451	759648.123	872941.234	16058513.450	.066	2	ADJUSTMENT	1998	GPS937

NAD83(1986)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2119374.716	759647.835	872942.496	16058513.146	.066	2	GPS - STATIC	1993	HMARS

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SKAND-AH3682-3N-13MAY2024.jpg	N	May 13, 2024
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SKAND-AH3682-2-22MAR2016.jpg		Mar 22, 2016
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SKAND-AH3682-1-13MAY2024.jpg		May 13, 2024

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



Mn/DOT Name: SLAY

NGS Name: SLAY

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DR2712](#) [Get Map](#)
 NGS Quad / Sta Num : 44095323/
 USGS Quad: CURRIE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	107 N	40 W	440418.37	954042.70	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>
2019	2019	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 29 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2019) Stamping: SLAY 2019

IN CURRIE, 0.8 MILE WEST AND NORTHWEST ALONG TRUNK HIGHWAY 30 FROM THE WEST JUNCTION OF TRUNK HIGHWAY 30 AND COUNTY ROAD 38 IN CURRIE, AT TRUNK HIGHWAY 30 MILEPOINT 44.85, 73.5 FEET NORTHEAST OF TRUNK HIGHWAY 30, 1276.4 FEET NORTHWEST OF COUNTY ROAD 51 (156TH STREET), 1.8 FEET SOUTHWEST OF A RIGHT-OF-WAY POST, 1.8 FEET SOUTHWEST OF A WITNESS POST.

Station Pair: PIONEER - MURRAY, 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>		
1530.473	.016	2/1					VERTICAL ADJUSTMENT			2020	00000949		
1530.473	.016	2/1					VERTICAL CONTROL SURVEY			2019	VDRAY		

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>		
1530.397	.131			1443.160	.066	1996	GPS - STATIC			2019	HDRAY		
1530.423				1442.904	.023	2011	GPS - STATIC			2019	HDRAY		
1530.423				1442.904	.023	2011	HORIZONTAL ADJUSTMENT			2019	GPS3311		
1530.463	.262			1442.910	.197	2011	GPS - RTRN			2019	RTRN2019		

Geoid Separations(ft): GEOID18 = -87.552 12B = -87.552 09 = -87.460 03 = -87.283

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Geodetic Position</u>				<u>Murray County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>					
44 04 18.36666	95 40 42.70230	523166.689	181570.382	.013	C	GPS - STATIC	2019	HDRAY					
44 04 18.36666	95 40 42.70230	523166.689	181570.382	.013		ADJUSTMENT	2019	GPS3311					
44 04 18.36657	95 40 42.70284	523166.650	181570.373	.131	3	GPS - RTRN	2019	RTRN2019					

<u>NAD83(1996)</u>				<u>Geodetic Position</u>				<u>Murray County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>					
44 04 18.36610	95 40 42.70243	523166.679	181570.326	.033	C	GPS - STATIC	2019	HDRAY					

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>				<u>MN State Plane - South 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>					
2183559.241	723313.970	936703.347	16021400.568	.013	C	GPS - STATIC	2019	HDRAY					
2183559.241	723313.970	936703.347	16021400.568	.013		ADJUSTMENT	2019	GPS3311					
2183559.201	723313.962	936703.307	16021400.560	.131	3	GPS - RTRN	2019	RTRN2019					

<u>NAD83(1996)</u>				<u>MN State Plane - South 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>					
2183559.230	723313.913	936703.336	16021400.512	.033	C	GPS - STATIC	2019	HDRAY					



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SLAY-DR2712-3NE-22APR2019.jpg	NE	Apr 22, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SLAY-DR2712-2-22APR2019.jpg		Apr 22, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SLAY-DR2712-1-22APR2019.jpg		Apr 22, 2019

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



Mn/DOT Name: SLAYTON CABLE TV MAST

NGS Name: SLAYTON CABLE TV MAST

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP0846](#) [Get Map](#)
 NGS Quad / Sta Num : 43095414/
 USGS Quad: AVOCA

<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	106 N	41 W	435941.55	954451.32		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>
1981	2015	DESTROYED	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	MNDT

Description: (1988)

Stamping:

AT THE NORTHEAST EDGE OF SLAYTON, 800.0 FEET EAST OF TRUNK HIGHWAY 59, 600.0 FEET NORTH OF COUNTY ROAD 8.

* No Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -87.300 12B = -87.287 09 = -87.208 03 = -87.021

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

<u>Geodetic Position</u>		<u>Murray County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 59 41.55350	95 44 51.31705	505021.202	153525.901	.328	4	ADJUSTMENT	1999	17648
43 59 41.55411	95 44 51.31541	505021.322	153525.962	.328	4	ADJUSTMENT	1998	17655

NAD83(1986)

<u>Geodetic Position</u>		<u>Murray County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 59 41.55007	95 44 51.30112	505022.367	153525.554	.328	4	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>
43 59 41.67961	95 44 50.25551			.100	4	CLASSICAL SURVEY	1982	16710

State Plane and UTM Coordinates (Feet)

NAD83(1996)

<u>MN State Plane - South 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>
2164814.282	695671.329	917624.566	15993978.066	.328	4	ADJUSTMENT	1999	17648
2164814.403	695671.389	917624.688	15993978.124	.328	4	ADJUSTMENT	1998	17655

NAD83(1986)

<u>MN State Plane - South 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>
2164815.438	695670.957	917625.719	15993977.680	.328	4	ADJUSTMENT	1986	17289

NAD27

<u>MN State Plane - South 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>
1540212.198	367595.260			.100	4	CLASSICAL SURVEY	1982	16710



Mn/DOT Name: SLAYTON MNDT

NGS Name: SLAYTON

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP0844](#) [Get Map](#)
 NGS Quad / Sta Num : 43095414/
 USGS Quad: AVOCA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	41 W	435830.19	954256.00	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>
1980	2015	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>
CONCRETE MONUMENT (CAST-IN-PLACE)	HORIZONTAL CONTROL DISK	MNDT

Description: (1988) Stamping: SLAYTON 1980

2.1 MILES EAST-SOUTHEAST OF SLAYTON, 2.4 MILES SOUTHEAST ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 30 IN SLAYTON, AT TRUNK HIGHWAY 59 MILEPOINT 38.75, 23.5 FEET SOUTHWEST OF TRUNK HIGHWAY 59, 82.5 FEET NORTH-NORTHWEST OF AN UNDERGROUND CABLE MARKER, 61.24 FEET NORTH-NORTHWEST OF SLAYTON MNDT RM 1, 55.77 FEET EAST-NORTHEAST OF SLAYTON MNDT RM 2, 47.5 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>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>		
1575.423	.016	2/1							VERTICAL ADJUSTMENT	2017	00000903	
1575.423	.016	2/1							VERTICAL CONTROL SURVEY	2015	VGARV	
1575.423	.016	2/1							VERTICAL ADJUSTMENT	2010	00000628	
1575.427	.016	2/1							VERTICAL CONTROL SURVEY	2007	VSLAT	

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>		
1575.417	.262					1487.989	.197	2011	GPS - RTRN	2015	RTRN2015	
						1487.992	.011	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800	
1575.341	.262					1487.992	.197	2007	GPS - RTRN	2012	RTRN2012	
						1488.084	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2386-B	
1575.423	.131					1488.225	.066	1996	HORIZONTAL ADJUSTMENT	2007	GPS2386	
1575.423	.131					1488.225	.066	1996	GPS - STATIC	2007	HSLAT	
1575.456	.197					1488.317	.131	1996	HORIZONTAL ADJUSTMENT	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>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>		
1575.095									RECIPROCAL VERTICAL ANGLE	1981	HORZ	

Geoid Separations(ft): GEOID18 = -87.447 12B = -87.428 09 = -87.349 03 = -87.162

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 58 30.18821	95 42 55.99985	513456.173	146302.437	.131	3	GPS - RTRN	2015	RTRN2015
43 58 30.18890	95 42 56.00049	513456.126	146302.507	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 58 30.18817	95 42 56.00172	513456.036	146302.433	.131	3	GPS - RTRN	2012	RTRN2012
43 58 30.18883	95 42 56.00130	513456.067	146302.500	.033	C	ADJUSTMENT	2011	GPS2386-B

NAD83(1996)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 58 30.18834	95 42 56.00063	513456.116	146302.450	.033	C	ADJUSTMENT	2007	GPS2386
43 58 30.18834	95 42 56.00063	513456.116	146302.450	.033	C	GPS - STATIC	2007	HSLAT
43 58 30.18915	95 42 55.99986	513456.173	146302.532	.066	2	ADJUSTMENT	1999	17648
43 58 30.18991	95 42 55.99870	513456.257	146302.609	.066	2	ADJUSTMENT	1998	17655

NAD83(1986)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 58 30.18649	95 42 55.98487	513457.270	146302.263	3.281		CLASSICAL SURVEY	1988	HSLAY
43 58 30.18649	95 42 55.98487	513457.269	146302.263	.066	2	ADJUSTMENT	1986	17289

NAD27

Geodetic Position						Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
43 58 30.31544	95 42 54.94213			.100	2	CLASSICAL SURVEY	1982	16710

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2173090.286	688268.117	925813.463	15986474.870	.131	3	GPS - RTRN	2015	RTRN2015
2173090.240	688268.188	925813.418	15986474.941	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2173090.149	688268.116	925813.326	15986474.870	.131	3	GPS - RTRN	2012	RTRN2012
2173090.181	688268.182	925813.359	15986474.936	.033	C	ADJUSTMENT	2011	GPS2386-B

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2173090.229	688268.131	925813.406	15986474.884	.033	C	ADJUSTMENT	2007	GPS2386
2173090.229	688268.131	925813.406	15986474.884	.033	C	GPS - STATIC	2007	HSLAT
2173090.287	688268.212	925813.465	15986474.965	.066	2	ADJUSTMENT	1999	17648
2173090.373	688268.288	925813.553	15986475.039	.066	2	ADJUSTMENT	1998	17655

NAD83(1986)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2173091.377	688267.920	925814.552	15986474.659	3.281		CLASSICAL SURVEY	1988	HSLAY
2173091.377	688267.920	925814.552	15986474.659	.066	2	ADJUSTMENT	1986	17289

NAD27

MN State Plane - South Zone						Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
1548488.192	360192.264			.100	2	CLASSICAL SURVEY	1982	16710

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SLAYTON-OP0844-3SW-08MAY2012.jpg	SW	May 8, 2012
Moment:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SLAYTON-OP0844-2-08MAY2012.jpg		May 8, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SLAYTON-OP0844-1-08MAY2012.jpg		May 8, 2012

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



Mn/DOT Name: SLAYTON MNDT RM 1

NGS Name: SLAYTON RM 1

County: MURRAY, MN (Sheet 1)

NGS ACRN: [CO4557](#) [Get Map](#)
 NGS Quad / Sta Num : 43095414/
 USGS Quad: AVOCA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	41 W	435829.59	954255.86	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	2015	GOOD	Horz=YES Vert=YES	YES		PROJECTS 1 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: (1980) **Stamping:** SLAYTON NO 1 1980

2.1 MILES EAST-SOUTHEAST OF SLAYTON, 2.4 MILES SOUTHEAST ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 30 IN SLAYTON, AT TRUNK HIGHWAY 59 MILEPOINT 38.75, 61.24 FEET SOUTH-SOUTHEAST OF STATION SLAYTON MNDT, 76.5 FEET SOUTHEAST OF SLAYTON MNDT RM 2, 76.0 FEET SOUTHWEST OF TRUNK HIGHWAY 59, 34.5 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>
1570.079	.016	2/1					VERTICAL ADJUSTMENT	2017	00000903
1570.079	.016	2/1					VERTICAL CONTROL SURVEY	2015	VGARV
1570.069	.016	2/1					VERTICAL ADJUSTMENT	2010	00000628
1570.069	.016	2/1					VERTICAL CONTROL SURVEY	2007	VSLAT

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>
1570.072	.262			1482.641	.197	2011	GPS - RTRN	2015	RTRN2015

Geoid Separations(ft): GEOID18 = -87.447 12B = -87.428 09 = -87.349 03 = -87.162

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>									
43 58 29.59453	95 42 55.85721			513466.642	146242.323	.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 - South 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>									
2173099.452	688207.797			925821.911	15986414.431	.131	3	GPS - RTRN	2015	RTRN2015

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SLAYTON_RM_1-CO4557-3SW-10JUN2015.jpg	SW	Jun 10, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SLAYTON_RM_1-CO4557-2-10JUN2015.jpg		Jun 10, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SLAYTON_RM_1-CO4557-1-10JUN2015.jpg		Jun 10, 2015

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



Mn/DOT Name: SLAYTON MNDT RM 2

NGS Name: SLAYTON RM 2

County: MURRAY, MN (Sheet 1)

NGS ACRN: [CO4558](#) [Get Map](#)
 NGS Quad / Sta Num : 43095414/
 USGS Quad: AVOCA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	41 W	435829.92	954256.66	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	2015	GOOD	Horz=YES Vert=YES	YES		PROJECTS 1 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: (1980) **Stamping:** SLAYTON NO 2 1980

2.1 MILES EAST-SOUTHEAST OF SLAYTON, 2.4 MILES SOUTHEAST ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND TRUNK HIGHWAY 30 IN SLAYTON, AT TRUNK HIGHWAY 59 MILEPOINT 38.75, 55.77 FEET WEST-SOUTHWEST OF STATION SLAYTON MNDT, 76.5 FEET NORTHWEST OF SLAYTON MNDT RM 1, 69.0 FEET SOUTHWEST OF TRUNK HIGHWAY 59, 33.5 FEET 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>		
1570.207	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903		
1570.207	.016	2/1				VERTICAL CONTROL SURVEY	2015	VGARV		
1570.217	.016	2/1				VERTICAL ADJUSTMENT	2010	00000628		
1570.217	.016	2/1				VERTICAL CONTROL SURVEY	2007	VSLAT		

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>		
1570.204	.262		1482.776	.197	2011	GPS - RTRN	2015	RTRN2015		

Geoid Separations(ft): GEOID18 = -87.444 12B = -87.428 09 = -87.349 03 = -87.159

Lat/Lon and County Coordinates (Feet)

<u>Geodetic Position</u>		<u>Murray 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>	
43 58 29.92022	95 42 56.66318	513407.680	146275.268	.131	3	GPS - RTRN	2015	RTRN2015	

State Plane and UTM Coordinates (Feet)

<u>MN State Plane - South 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>
2173041.222	688242.005	925764.080	15986449.339	.131	3	GPS - RTRN	2015	RTRN2015

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SLAYTON_RM_2-CO4558-3SW-10JUN2015.jpg	SW	Jun 10, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SLAYTON_RM_2-CO4558-2-10JUN2015.jpg		Jun 10, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SLAYTON_RM_2-CO4558-1-10JUN2015.jpg		Jun 10, 2015

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



Mn/DOT Name: SLAYTON NEW WATER TANK

NGS Name: SLAYTON NEW WATER TANK

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 43095441/
 USGS Quad: SLAYTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	41 W	435926.91	954531.92		

<u>Year Set</u>	<u>Last Recovery</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	2015	GOOD	Horz=NO Vert=NO	YES			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	SURVEY DISK	MNDT

Description: (1988)

Stamping:

IN THE NORTH HALF OF SLAYTON, AT THE SOUTHEAST CORNER OF 23RD STREET AND JUNIPER AVENUE, 90.0 FEET EAST OF JUNIPER AVENUE, 120.0 FEET SOUTH OF 23RD STREET. STATION SLAYTON NEW WATER TANK IS THE FINIAL AT THE TOP OF THE TANK.

* No Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -87.234 12B = -87.218 09 = -87.142 03 = -86.958

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1986)</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 59 26.91890	95 45 31.92514	502052.608	152043.390	3.281		CLASSICAL SURVEY	1991	H1991

State Plane and UTM Coordinates (Feet)

<u>NAD83(1986)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South 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>							
2161814.681	694253.475	914607.530	15992595.802	3.281		CLASSICAL SURVEY	1991	H1991

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SLAYTON_NEW_WATER_TANK-3E-10JUN2015.jpg	E	Jun 10, 2015
Monument:			
Disk:			

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



Mn/DOT Name: SLAYTON WATER TANK

NGS Name: SLAYTON WATER TANK

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP0879](#) [Get Map](#)
 NGS Quad / Sta Num : 43095441/
 USGS Quad: SLAYTON

<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	15	106 N	41 W	435926.90	954521.09		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>
1981	1988	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
SEE DESCRIPTIVE TEXT	ELEVATED TANK	MNDT

Description: (1988)

Stamping:

IN THE NORTH PART OF SLAYTON, BETWEEN LINDEN AVENUE AND BROADWAY AVENUE ON 23RD STREET, 0.15 MILE SOUTH OF TRUNK HIGHWAY 30.

* No Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -87.250 12B = -87.234 09 = -87.159 03 = -86.975

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 59 26.89571	95 45 21.08714	502844.996	152041.132	.328	4	ADJUSTMENT	1999	17648
43 59 26.89586	95 45 21.08389	502845.233	152041.147	.328	4	ADJUSTMENT	1998	17655

NAD83(1986)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 59 26.89240	95 45 21.07151	502846.138	152040.797	.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>
43 59 27.02384	95 45 20.02747			.100	4	CLASSICAL SURVEY	1982	16710

State Plane and UTM Coordinates (Feet)

NAD83(1996)

<u>MN State Plane - South 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>
2162606.746	694234.095	915399.497	15992566.959	.328	4	ADJUSTMENT	1999	17648
2162606.984	694234.105	915399.735	15992566.967	.328	4	ADJUSTMENT	1998	17655

NAD83(1986)

<u>MN State Plane - South 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>
2162607.881	694233.736	915400.628	15992566.586	.328	4	ADJUSTMENT	1986	17289

NAD27

<u>MN State Plane - South 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>
1538004.475	366158.241			.100	4	CLASSICAL SURVEY	1982	16710



Mn/DOT Name: SLUIS AZ MK
 County: MURRAY, MN (Sheet 1)

NGS Name: SLUIS AZ MK

NGS ACRN: [QQ0645](#) [Get Map](#)
 NGS Quad / Sta Num : 43096111/1033
 USGS Quad: EDGERTON NE

<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	106 N	43 W	435634.02	960333.49		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>			
1966	1966	GOOD	Horz=? Vert=YES	NO		RECESSED 2 IN.	STEEL ROD 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: (1966) **Stamping:** SLUIS 1966

7.0 MILES SOUTHWEST OF LAKE WILSON, 5.55 MILES WEST ON TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND MAIN STREET IN LAKE WILSON THEN 3.0 MILES SOUTH ON A GRAVEL ROAD ON THE PIPESTONE-MURRAY COUNTY LINE, 0.25 MILE EAST ON A FIELD ROAD, 95.0 FEET WEST OF A TELEPHONE POLE, 17.0 FEET NORTH OF THE NORTH EDGE OF A FIELD, 0.6 FOOT SOUTH OF A FENCE, 2.0 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>Ellipsoid (NAD83)</u>			<u>Determination Method</u>		<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>		
1771.978	.197		1686.224	.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>		
1765.613						RECIPROCAL VERTICAL ANGLE	1981	HORZ	

Geoid Separations(ft): GEOID18 = -85.918 12B = -85.895 09 = -85.784 03 = -85.689

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Murray 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>		
43 56 34.02330	96 03 33.49332	422915.035	134671.318	.066	2	ADJUSTMENT	1999	17648	
43 56 34.02323	96 03 33.49335	422915.032	134671.311	.066	2	ADJUSTMENT	1998	17655	

<u>NAD83(1986)</u>		<u>Murray 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>		
43 56 34.02163	96 03 33.47658	422916.259	134671.144	.066	2	ADJUSTMENT	1986	17289	

<u>NAD27</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>		
43 56 34.13838	96 03 32.40600			.100	2	CLASSICAL SURVEY	1982	16710	

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>		
2082328.562	678598.521	834916.293	15977884.102	.066	2	ADJUSTMENT	1999	17648	
2082328.560	678598.514	834916.290	15977884.095	.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>		
2082329.782	678598.321	834917.511	15977883.887	.066	2	ADJUSTMENT	1986	17289	

<u>NAD27</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>		
1457726.085	350521.235			.100	2	CLASSICAL SURVEY	1982	16710	



Mn/DOT Name: STA 101 1

NGS Name: STA 101 1

County: MURRAY, MN (Sheet 1)

NGS ACRN: [PQ1067](#) [Get Map](#)
 NGS Quad / Sta Num : 44095323/
 USGS Quad: CURRIE

<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	107 N	40 W	440541.31	953911.23		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>
1967	1967	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:

2.1 MILES NORTHEAST OF CURRIE FROM THE JUNCTION OF COUNTY ROAD 51 AND COUNTY ROAD 38, CONTINUE TO FOLLOW COUNTY ROAD 38 EAST OF CURRIE, STATION STA 101 1 WILL BE ON THE LEFT.

* No Leveling-Derived Orthometric Heights in the Database *

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

<u>NAVD88</u> Orthometric Height			<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>
1578.081	.262		1490.709	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -87.647 12B = -87.634 09 = -87.559 03 = -87.395

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u> Geodetic Position		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 05 41.30582	95 39 11.23337	529833.486	189977.811	.131	3	ADJUSTMENT	1999	17648
44 05 41.30476	95 39 11.22518	529834.084	189977.705	.131	3	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u> Geodetic Position		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 05 41.30350	95 39 11.21826	529834.589	189977.578	.131	3	ADJUSTMENT	1986	17289

<u>NAD27</u> Geodetic Position		<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>
44 05 41.43310	95 39 10.17813			.100	3	CLASSICAL SURVEY	1977	15976

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u> MN State Plane - South Zone		<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>
2190405.236	731574.400	943649.464	16029579.968	.131	3	ADJUSTMENT	1999	17648
2190405.831	731574.281	943650.058	16029579.841	.131	3	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u> MN State Plane - South Zone		<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>
2190406.333	731574.143	943650.558	16029579.697	.131	3	ADJUSTMENT	1986	17289

<u>NAD27</u> MN State Plane - South Zone		<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>
1565803.261	403498.177			.100	3	CLASSICAL SURVEY	1977	15976



Mn/DOT Name: STA 113

NGS Name: STA 113

County: MURRAY, MN (Sheet 1)

NGS ACRN: [PQ1070](#) [Get Map](#)
 NGS Quad / Sta Num : 44095324/
 USGS Quad: TRACY WEST

<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	2	108 N	41 W	441053.51	954407.42		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	2015	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

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

Description:

Stamping:

2.45 MILES SOUTH-SOUTHEAST OF GARVIN, 2.5 MILES SOUTH ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND 4TH STREET, THEN 0.4 MILE EAST ON 231ST STREET, THE STATION WILL BE ON THE RIGHT.

* 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>		
1542.648	.262		1455.374	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648		

Geoid Separations(ft): GEOID18 = -87.575 12B = -87.575 09 = -87.493 03 = -87.329

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
44 10 53.50667	95 44 07.41878	508204.651	221575.807	.131	3	ADJUSTMENT	1999	17648	
44 10 53.50732	95 44 07.41268	508205.095	221575.873	.131	3	ADJUSTMENT	1998	17655	

<u>NAD83(1986)</u>		<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
44 10 53.50483	95 44 07.40167	508205.898	221575.621	.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>	
44 10 53.63213	95 44 06.34462			.100	3	CLASSICAL SURVEY	1977	15976	

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>		<u>MN State Plane - South 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>		
2169466.847	763628.041	923093.569	16061890.633	.131	3	ADJUSTMENT	1999	17648		
2169467.293	763628.098	923094.016	16061890.685	.131	3	ADJUSTMENT	1998	17655		

<u>NAD83(1986)</u>		<u>MN State Plane - South 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>		
2169468.090	763627.829	923094.810	16061890.406	.131	3	ADJUSTMENT	1986	17289		

<u>NAD27</u>		<u>MN State Plane - South 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>
1544865.514	435551.236			.100	3	CLASSICAL SURVEY	1977	15976



Mn/DOT Name: STA 114

NGS Name: STA 114

County: MURRAY, MN (Sheet 1)

NGS ACRN: [PQ1075](#) [Get Map](#)
 NGS Quad / Sta Num : 44095332/
 USGS Quad: HADLEY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	108 N	41 W	440633.02	954752.06		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	1965	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:

7.08 MILES NORTHWEST OF CURRIE, 3.2 MILES NORTHWEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND 1ST STREET, THEN 0.2 MILE NORTH ON 160TH AVENUE, THEN 2.3 MILES NORTH ON TRUNK HIGHWAY 59, THEN 2.7 MILES WEST ON 181ST STREET.

* 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>
1714.892	.262		1627.976	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -87.162 12B = -87.159 09 = -87.080 03 = -86.913

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 06 33.01541	95 47 52.06323	491823.135	195195.465	.131	3	ADJUSTMENT	1999	17648
44 06 33.01631	95 47 52.05778	491823.533	195195.556	.131	3	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 06 33.01307	95 47 52.04723	491824.303	195195.227	.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>
44 06 33.14251	95 47 50.98785			.100	3	CLASSICAL SURVEY	1977	15976

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2152521.316	737611.346	905831.728	16036072.975	.131	3	ADJUSTMENT	1999	17648
2152521.715	737611.428	905832.129	16036073.053	.131	3	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2152522.477	737611.083	905832.887	16036072.698	.131	3	ADJUSTMENT	1986	17289

<u>NAD27</u>						<u>Project Info</u>		
<u>MN State Plane - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1527919.710	409534.908			.100	3	CLASSICAL SURVEY	1977	15976



Mn/DOT Name: STA 116

NGS Name: STA 116

County: MURRAY, MN (Sheet 1)

NGS ACRN: [PQ1073](#) [Get Map](#)
 NGS Quad / Sta Num : 44095332/
 USGS Quad: HADLEY

<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	16	107 N	41 W	440425.41	954548.42		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	2015	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

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

Description:

Stamping:

4.85 MILES WEST OF CURRIE, 3.4 MILES NORTHWEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND 1ST STREET, THEN 0.8 MILE WEST ON COUNTY ROAD 12 (156TH STREET), THEN 318.0 FEET NORTH ON 150TH AVENUE.

* 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>
1644.682	.262		1557.681	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -87.270 12B = -87.264 09 = -87.185 03 = -87.001

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 04 25.40929	95 45 48.42285	500845.249	182271.218	.131	3	ADJUSTMENT	1999	17648
44 04 25.40952	95 45 48.41795	500845.606	182271.242	.131	3	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 04 25.40661	95 45 48.40710	500846.399	182270.947	.131	3	ADJUSTMENT	1986	17289

<u>NAD27</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 04 25.53488	95 45 47.35471			.100	3	CLASSICAL SURVEY	1977	15976

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2161260.900	724496.780	914415.577	16022851.029	.131	3	ADJUSTMENT	1999	17648
2161261.259	724496.795	914415.935	16022851.041	.131	3	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2161262.044	724496.483	914416.717	16022850.719	.131	3	ADJUSTMENT	1986	17289

<u>NAD27</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>MN State Plane - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1536659.070	396420.353			.100	3	CLASSICAL SURVEY	1977	15976



Mn/DOT Name: STA 117

NGS Name: STA 117

County: MURRAY, MN (Sheet 1)

NGS ACRN: [PQ1072](#) [Get Map](#)
 NGS Quad / Sta Num : 44095332/
 USGS Quad: HADLEY

<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	106 N	41 W	440026.37	954530.64		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	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

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

Description:

Stamping:

1.01 MILES NORTHWEST OF SLAYTON, 0.1 MILE EAST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND MAPLE AVENUE, 1.0 MILE NORTH ALONG TRUNK HIGHWAY 30/ TRUNK HIGHWAY 59, THEN 0.3 MILE WEST ALONG 111TH STREET.

Station Notes

USED THE DESCRIPTION AND THE REAL TIME REFERENCE NETWORK (RTRN).

* 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>
1587.923	.262		1500.952	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -87.260 12B = -87.250 09 = -87.172 03 = -86.981

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 00 26.36541	95 45 30.64368	502145.702	158063.472	.131	3	ADJUSTMENT	1999	17648
44 00 26.36517	95 45 30.64057	502145.930	158063.447	.131	3	ADJUSTMENT	1998	17655

NAD83(1986)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 00 26.36206	95 45 30.62787	502146.858	158063.132	.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>
44 00 26.49135	95 45 29.57833			.100	3	CLASSICAL SURVEY	1977	15976

State Plane and UTM Coordinates (Feet)

NAD83(1996)

<u>MN State Plane - South 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>
2162037.823	700269.458	914902.584	15998610.143	.131	3	ADJUSTMENT	1999	17648
2162038.049	700269.429	914902.810	15998610.111	.131	3	ADJUSTMENT	1998	17655

NAD83(1986)

<u>MN State Plane - South 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>
2162038.971	700269.094	914903.727	15998609.765	.131	3	ADJUSTMENT	1986	17289

NAD27

<u>MN State Plane - South 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>
1537435.919	372193.312			.100	3	CLASSICAL SURVEY	1977	15976



Mn/DOT Name: STA 122

NGS Name: STA 122

County: MURRAY, MN (Sheet 1)

NGS ACRN: [QQ0641](#) [Get Map](#)
 NGS Quad / Sta Num : 43096111/
 USGS Quad: EDGERTON NE

<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	16	106 N	43 W	435846.46	960041.18		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	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

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

Description:

Stamping:

3.13 MILES SOUTHWEST OF LAKE WILSON, 2.6 MILES WEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND COLLEGE AVENUE, 1.0 MILE SOUTH ALONG 30TH AVENUE, THEN 0.4 MILE WEST ALONG 91ST STREET.

* 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>
1920.600	.262		1834.904	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -85.853 12B = -85.843 09 = -85.745 03 = -85.643

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 58 46.46089	96 00 41.17885	435563.215	148041.857	.131	3	ADJUSTMENT	1999	17648
43 58 46.46123	96 00 41.17874	435563.223	148041.891	.131	3	ADJUSTMENT	1998	17655

NAD83(1986)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 58 46.45870	96 00 41.16273	435564.394	148041.632	.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>
43 58 46.58193	96 00 40.07450			.100	3	CLASSICAL SURVEY	1977	15976

State Plane and UTM Coordinates (Feet)

NAD83(1996)

<u>MN State Plane - South 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>
2095261.698	691690.842	848008.978	15990826.379	.131	3	ADJUSTMENT	1999	17648
2095261.706	691690.876	848008.987	15990826.413	.131	3	ADJUSTMENT	1998	17655

NAD83(1986)

<u>MN State Plane - South 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>
2095262.870	691690.591	848010.148	15990826.114	.131	3	ADJUSTMENT	1986	17289

NAD27

<u>MN State Plane - South 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>
1470660.785	363614.032			.100	3	CLASSICAL SURVEY	1977	15976



Mn/DOT Name: STA 18

NGS Name: STA 18

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP0840](#) [Get Map](#)
 NGS Quad / Sta Num : 43095413/
 USGS Quad: FULDA 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	27	105 N	41 W	435150.16	954437.76		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	1965	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:

4.13 MILES SOUTH-SOUTHEAST OF IONA, 0.9 MILE EAST ALONG 46TH STREET FROM THE JUNCTION OF 46TH STREET AND CASHEL AVENUE, 1.2 MILES SOUTH ON 150TH AVENUE, 1.0 MILE EAST ON 31ST STREET, THEN 1.9 MILES SOUTH ON COUNTY ROAD 68 (160TH AVENUE), NORTHWEST OF THE JUNCTION OF COUNTY ROAD 88 AND 11TH STREET.

* 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>
1624.341	.262		1537.582	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -87.096 12B = -87.067 09 = -86.965 03 = -86.814

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 51 50.16438	95 44 37.75720	506025.753	105789.681	.131	3	ADJUSTMENT	1999	17648
43 51 50.16374	95 44 37.75654	506025.802	105789.617	.131	3	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 51 50.16034	95 44 37.74131	506026.917	105789.273	.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>
43 51 50.28475	95 44 36.70505			.100	3	CLASSICAL SURVEY	1977	15976

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2164787.082	647929.479	917028.933	15946229.147	.131	3	ADJUSTMENT	1999	17648
2164787.129	647929.414	917028.980	15946229.080	.131	3	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2164788.237	647929.046	917030.084	15946228.699	.131	3	ADJUSTMENT	1986	17289

<u>NAD27</u>						<u>Project Info</u>		
<u>MN State Plane - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1540184.509	319853.325			.100	3	CLASSICAL SURVEY	1977	15976



Mn/DOT Name: STA 19

NGS Name: STA 19

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP0875](#) [Get Map](#)
 NGS Quad / Sta Num : 43095441/
 USGS Quad: SLAYTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	41 W	435330.67	954513.54		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	1965	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:

2.23 MILES SOUTHEAST OF IONA, 0.9 MILE EAST ALONG 46TH STREET FROM THE JUNCTION OF 46TH STREET AND CASHEL AVENUE, 1.2 MILES SOUTH ON 150TH AVENUE, THEN 0.5 MILE EAST ON 31ST STREET.

* 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>
1622.044	.262		1535.279	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -87.106 12B = -87.086 09 = -86.981 03 = -86.817

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Murray 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>							
43 53 30.66508	95 45 13.54488	503402.073	115966.511	.131	3	ADJUSTMENT	1999	17648
43 53 30.66456	95 45 13.54418	503402.125	115966.458	.131	3	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>Murray 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>							
43 53 30.66116	95 45 13.52885	503403.247	115966.115	.131	3	ADJUSTMENT	1986	17289

<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>							
43 53 30.78640	95 45 12.48979			.100	3	CLASSICAL SURVEY	1977	15976

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South 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>							
2162384.158	658159.645	914747.133	15956489.366	.131	3	ADJUSTMENT	1999	17648
2162384.208	658159.591	914747.183	15956489.311	.131	3	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South 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>							
2162385.323	658159.223	914748.293	15956488.930	.131	3	ADJUSTMENT	1986	17289

<u>NAD27</u>						<u>Project Info</u>		
<u>MN State Plane - South 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>							
1537781.689	330083.471			.100	3	CLASSICAL SURVEY	1977	15976



Mn/DOT Name: STA 20

NGS Name: STA 20

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP0876](#) [Get Map](#)
 NGS Quad / Sta Num : 43095441/
 USGS Quad: SLAYTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	42 W	435809.15	954925.13		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	2012	DESTROYED	Horz=NO Vert=NO	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 SOUTHEAST OF HADLEY, 0.4 MILE SOUTH ALONG MAIN STREET SOUTH FROM THE JUNCTION OF MAIN STREET SOUTH AND 4TH AVENUE, 1.5 MILES EAST ALONG TRUNK HIGHWAY 30, THEN 1.7 MILES SOUTH ALONG 120TH AVENUE, THE STATION IS ON THE RIGHT.

* 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>		
1750.653	.262		1664.121	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648		

Geoid Separations(ft): GEOID18 = -86.768 12B = -86.739 09 = -86.663 03 = -86.529

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
43 58 09.14697	95 49 25.13267	484996.905	144172.641	.131	3	ADJUSTMENT	1999	17648	
43 58 09.14688	95 49 25.13225	484996.936	144172.632	.131	3	ADJUSTMENT	1998	17655	

<u>NAD83(1986)</u>		<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
43 58 09.14357	95 49 25.11674	484998.070	144172.296	.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>	
43 58 09.27181	95 49 24.06327			.100	3	CLASSICAL SURVEY	1977	15976	

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>		<u>MN State Plane - South 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>		
2144594.748	686754.021	897294.974	15985300.459	.131	3	ADJUSTMENT	1999	17648		
2144594.779	686754.011	897295.004	15985300.449	.131	3	ADJUSTMENT	1998	17655		

<u>NAD83(1986)</u>		<u>MN State Plane - South 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>		
2144595.905	686753.650	897296.127	15985300.076	.131	3	ADJUSTMENT	1986	17289		

<u>NAD27</u>		<u>MN State Plane - South 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>		
1519992.705	358677.843			.100	3	CLASSICAL SURVEY	1977	15976		



Mn/DOT Name: STA 21

NGS Name: STA 21

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP0878](#) [Get Map](#)
 NGS Quad / Sta Num : 43095441/
 USGS Quad: SLAYTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	42 W	435843.52	955038.71		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	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

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

Description:

Stamping:

1.49 MILES SOUTHEAST OF HADLEY, 0.4 MILE SOUTH ALONG MAIN STREET SOUTH FROM THE JUNCTION OF MAIN STREET SOUTH AND 4TH AVENUE, THEN 1.0 MILE SOUTH ALONG 105TH AVENUE, THEN 0.5 MILE EAST ALONG 91ST STREET.

* 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>	
1772.962	.262		1686.516	.197	1996	HORIZONTAL ADJUSTMENT		1999	17648	

Geoid Separations(ft): GEOID18 = -86.670 12B = -86.640 09 = -86.565 03 = -86.443

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
43 58 43.51602	95 50 38.70618	479619.119	147657.522	.131	3	ADJUSTMENT	1999	17648	
43 58 43.51602	95 50 38.70588	479619.141	147657.522	.131	3	ADJUSTMENT	1998	17655	

<u>NAD83(1986)</u>		<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
43 58 43.51275	95 50 38.69036	479620.276	147657.190	.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>
43 58 43.64115	95 50 37.63330					.100	3	CLASSICAL SURVEY	1977	15976

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>		<u>MN State Plane - South 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>
2139294.134	690353.948	892036.227	15988964.317	.131	3	ADJUSTMENT	1999	17648		
2139294.156	690353.948	892036.249	15988964.317	.131	3	ADJUSTMENT	1998	17655		

<u>NAD83(1986)</u>		<u>MN State Plane - South 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>
2139295.283	690353.591	892037.372	15988963.947	.131	3	ADJUSTMENT	1986	17289		

<u>NAD27</u>		<u>MN State Plane - South 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>
1514692.181	362277.743					.100	3	CLASSICAL SURVEY	1977	15976



Mn/DOT Name: STA 23

NGS Name: STA 23

County: MURRAY, MN (Sheet 1)

NGS ACRN: [PQ1061](#) [Get Map](#)
 NGS Quad / Sta Num : 44095322/
 USGS Quad: DOVRAY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	107 N	39 W	440724.26	953045.42		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>
1966	2009	NOT FOUND	Horz=? Vert=?	NO			SEE DESCRIPTION

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

Description: (2009)

Stamping:

5.08 MILES NORTH-NORTHEAST OF DOVRAY, 5.0 MILES NORTH ALONG COUNTY ROAD 42 FROM THE JUNCTION OF COUNTY ROAD 42 AND 131ST STREET (TRUNK HIGHWAY 30), THEN 1.5 MILES EAST ON 191ST STREET.

Station Notes

THE REAL TIME REFERENCE NETWORK (RTRN) STAKEOUT PUTS THE MARK IN A CORN FIELD.

* 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>
1450.456	.262		1362.540	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -88.205 12B = -88.208 09 = -88.100 03 = -87.972

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 07 24.26207	95 30 45.41928	566717.675	200486.541	.131	3	ADJUSTMENT	1999	17648
44 07 24.25960	95 30 45.40729	566718.551	200486.293	.131	3	ADJUSTMENT	1998	17655

NAD83(1986)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 07 24.25929	95 30 45.40506	566718.713	200486.262	.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>
44 07 24.39490	95 30 44.38723			.100	3	CLASSICAL SURVEY	1977	15976

State Plane and UTM Coordinates (Feet)

NAD83(1996)

<u>MN State Plane - South 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>
2227502.977	741283.016	980867.962	16038843.514	.131	3	ADJUSTMENT	1999	17648
2227503.846	741282.750	980868.828	16038843.238	.131	3	ADJUSTMENT	1998	17655

NAD83(1986)

<u>MN State Plane - South 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>
2227504.009	741282.716	980868.990	16038843.201	.131	3	ADJUSTMENT	1986	17289

NAD27

<u>MN State Plane - South 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>
1602900.330	413207.397			.100	3	CLASSICAL SURVEY	1977	15976



Mn/DOT Name: STA 24

NGS Name: STA 24

County: MURRAY, MN (Sheet 1)

NGS ACRN: [PQ1058](#) [Get Map](#)
 NGS Quad / Sta Num : 44095322/
 USGS Quad: DOVRAY

<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	108 N	39 W	440724.03	953426.00		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>
1966	1966	GOOD	Horz=YES Vert=YES	NO			SEE DESCRIPTION

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

Description: (2009)

Stamping:

5.0 MILES EAST OF OWANKA, 3.4 MILES EAST ALONG 191ST STREET FROM THE JUNCTION OF 191ST STREET AND COUNTY ROAD 36 EAST OF OWANKA.

* 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>
1526.900	.262		1439.203	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -87.992 12B = -87.989 09 = -87.894 03 = -87.739

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 07 24.03033	95 34 25.99721	550626.843	200419.454	.131	3	ADJUSTMENT	1999	17648
44 07 24.02867	95 34 25.98653	550627.622	200419.288	.131	3	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 07 24.02789	95 34 25.98249	550627.917	200419.209	.131	3	ADJUSTMENT	1986	17289

<u>NAD27</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 07 24.16038	95 34 24.95574			.100	3	CLASSICAL SURVEY	1977	15976

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2211416.541	741563.285	964783.400	16039317.428	.131	3	ADJUSTMENT	1999	17648
2211417.316	741563.102	964784.174	16039317.236	.131	3	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2211417.610	741563.017	964784.466	16039317.147	.131	3	ADJUSTMENT	1986	17289

<u>NAD27</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>MN State Plane - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1586814.119	413487.323			.100	3	CLASSICAL SURVEY	1977	15976



Mn/DOT Name: STA 26

NGS Name: STA 26

County: MURRAY, MN (Sheet 1)

NGS ACRN: [PQ1059](#) [Get Map](#)
 NGS Quad / Sta Num : 44095322/
 USGS Quad: DOVRAY

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	107 N	40 W	440528.46	953610.18		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>
1966	1966	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:

3.46 MILES NORTHEAST OF CURRIE, 0.6 MILE NORTH ALONG 200TH AVENUE FROM THE JUNCTION OF 200TH AVENUE AND 1ST STREET NORTH, 3.1 MILES EAST ON 161ST STREET, THEN 0.8 MILE NORTH ON 230TH AVENUE, STATION STA 26 WILL BE ON THE LEFT.

* 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>
1615.482	.262		1527.963	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -87.805 12B = -87.798 09 = -87.710 03 = -87.556

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 05 28.45889	95 36 10.18372	543049.813	188699.036	.131	3	ADJUSTMENT	1999	17648
44 05 28.45749	95 36 10.17506	543050.445	188698.896	.131	3	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
44 05 28.45646	95 36 10.16869	543050.910	188698.792	.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>
44 05 28.58585	95 36 09.13625			.100	3	CLASSICAL SURVEY	1977	15976

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2203589.201	730010.688	956816.290	16027857.678	.131	3	ADJUSTMENT	1999	17648
2203589.830	730010.534	956816.918	16027857.517	.131	3	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2203590.293	730010.421	956817.379	16027857.398	.131	3	ADJUSTMENT	1986	17289

<u>NAD27</u>						<u>Project Info</u>		
<u>MN State Plane - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1578987.039	401934.496			.100	3	CLASSICAL SURVEY	1977	15976



Mn/DOT Name: STA 29

NGS Name: STA 29

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP0780](#) [Get Map](#)
 NGS Quad / Sta Num : 43095144/
 USGS Quad: HERON LAKE 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	12	106 N	39 W	435958.24	952745.90		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	1965	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:

2.97 MILES SOUTH-SOUTHWEST OF WESTBROOK, 2.0 MILES SOUTH ALONG COUNTY ROAD 7 FROM THE JUNCTION OF COUNTY ROAD 7 AND TRUNK HIGHWAY 30, THEN 1.0 MILE WEST ON 330TH STREET, THEN 0.6 MILE SOUTH ON 310TH AVENUE.

* 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>	
1508.527	.262		1420.607	.197	1996	HORIZONTAL ADJUSTMENT		1999	17648	

Geoid Separations(ft): GEOID18 = -88.192 12B = -88.195 09 = -88.081 03 = -87.966

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Cottonwood County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>		<u>Year</u>	<u>Reference</u>	
43 59 58.24406	95 27 45.89763	356293.805	155690.643	.131	3	ADJUSTMENT		1999	17648	

<u>NAD83(1986)</u>		<u>Geodetic Position</u>		<u>Cottonwood County</u>					<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>		<u>Year</u>	<u>Reference</u>	
43 59 58.24069	95 27 45.88466	356294.751	155690.295	.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>
43 59 58.37659	95 27 44.87519			.100	3	CLASSICAL SURVEY		1977	15976

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>		<u>MN State Plane - South 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>
2239786.912	695889.279	992607.688	15993299.360	.131	3	ADJUSTMENT		1999	17648		

<u>NAD83(1986)</u>		<u>MN State Plane - South 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>	
2239787.854	695888.922	992608.625	15993298.990	.131	3	ADJUSTMENT		1986	17289	

<u>NAD27</u>		<u>MN State Plane - South 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>
1615184.100	367814.124			.100	3	CLASSICAL SURVEY		1977	15976



Mn/DOT Name: STA 300+00

NGS Name: STA 300+00

County: MURRAY, MN (Sheet 1)

NGS ACRN: [Get Map](#)
 NGS Quad / Sta Num : 43095414/
 USGS Quad: AVOCA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	40 W	435729.00	953920.00		

<u>Year Set</u>	<u>Last Recovery</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	2015	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:

0.89 MILE NORTHWEST OF AVOCA, 0.9 MILE NORTHWEST ALONG TRUNK HIGHWAY 59 FROM THE JUNCTION OF TRUNK HIGHWAY 59 AND 3RD STREET, AT TRUNK HIGHWAY 59 STATION 300, 150.0 FEET LEFT OF TRUNK HIGHWAY 59.

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>	
1540.689	.033	3				VERTICAL CONTROL SURVEY	1954	CS5104	

Geoid Separations(ft): GEOID18 = -87.720 12B = -87.707 09 = -87.611 03 = -87.418

* No Horizontal Positions in the Database *



Mn/DOT Name: SW 14 108 40

NGS Name: SW 14 108 40

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DF8561](#) [Get Map](#)
 NGS Quad / Sta Num : 44095321/
 USGS Quad: TRACY EAST

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	108 N	40 W	440909.17	953720.49		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>
2003	2019	GOOD	Horz=YES Vert=YES	YES		PROJECTS 2 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MN-101

Description: (2003) Stamping: SW1410840 2003

8.0 MILES NORTH OF CURRIE, 8.0 MILES NORTH ALONG COUNTY ROAD 38 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND COUNTY ROAD 38 IN CURRIE, 30.2 FEET NORTH OF 211TH STREET, 150.0 FEET EAST OF COUNTY ROAD 38, 21.2 FEET SOUTHWEST OF A POWER POLE, 4.6 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>		
1495.463	.262		1407.543	.197	2011	GPS - OPUS		2019	GPSBM		
1495.469	.262		1407.550	.197	2011	GPS - OPUS		2019	GPSBM		
1495.506	.262		1407.586	.197	2011	GPS - RTRN		2019	RTRN2019		
			1407.645	.014	2011	HORIZONTAL ADJUSTMENT		2012	GPS2800		
			1407.740	.015	2007	HORIZONTAL ADJUSTMENT		2007	GPS2300		
1495.535	.131		1407.888	.066	1996	HORIZONTAL ADJUSTMENT		2003	GPS1919		
1495.535	.131		1407.914	.066	1996	GPS - STATIC		2003	HMURR		

Geoid Separations(ft): GEOID18 = -87.920 12B = -87.923 09 = -87.815 03 = -87.657

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>			<u>Murray 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>								
44 09 09.17107	95 37 20.48743		537879.319	211041.146	.131	3	GPS - OPUS	2019	GPSBM
44 09 09.17136	95 37 20.48790		537879.284	211041.176	.131	3	GPS - OPUS	2019	GPSBM
44 09 09.17114	95 37 20.48764		537879.304	211041.154	.131	3	GPS - RTRN	2019	RTRN2019
44 09 09.17119	95 37 20.48721		537879.335	211041.159	.010		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>			<u>Murray 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>								
44 09 09.17120	95 37 20.48811		537879.269	211041.160	.010		ADJUSTMENT	2007	GPS2300

<u>NAD83(1996)</u>			<u>Murray 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>								
44 09 09.17073	95 37 20.48738		537879.323	211041.112	.033	C	ADJUSTMENT	2003	GPS1919
44 09 09.17069	95 37 20.48739		537879.322	211041.108	.033	C	GPS - STATIC	2003	HMURR

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2198903.009	752456.329	952399.570	16050362.418	.131	3	GPS - OPUS	2019	GPSBM
2198902.975	752456.359	952399.537	16050362.448	.131	3	GPS - OPUS	2019	GPSBM
2198902.994	752456.336	952399.555	16050362.425	.131	3	GPS - RTRN	2019	RTRN2019
2198903.025	752456.341	952399.587	16050362.429	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2198902.959	752456.343	952399.521	16050362.433	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2198903.012	752456.294	952399.573	16050362.383	.033	C	ADJUSTMENT	2003	GPS1919
2198903.011	752456.290	952399.572	16050362.379	.033	C	GPS - STATIC	2003	HMURR

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SW_14_108_40-DF8561-3N-22OCT2019.jpg	N	Oct 22, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SW_14_108_40-DF8561-2-22OCT2019.jpg		Oct 22, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SW_14_108_40-DF8561-1-22OCT2019.jpg		Oct 22, 2019

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



Mn/DOT Name: SW 15 105 41

NGS Name: SW 15 105 41

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DF8562](#) [Get Map](#)
 NGS Quad / Sta Num : 43095441/
 USGS Quad: SLAYTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	41 W	435331.58	954550.10		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>
2003	2021	GOOD	Horz=YES Vert=YES	YES		PROJECTS 2 IN.	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MN-101

Description: (2003) **Stamping:** SW 15 105 41 2003

2.6 MILES SOUTHEAST OF IONA, 1.63 MILES SOUTH AND EAST ALONG COUNTY ROAD 4 FROM THE JUNCTION OF COUNTY ROAD 4 AND TRUNK HIGHWAY 267 IN IONA, THEN 1.0 MILE SOUTH ALONG A TOWNSHIP ROAD/ 150TH AVENUE, 34.8 FEET EAST OF A TOWNSHIP ROAD/ 150TH AVENUE, 21.0 FEET NORTH OF A FIELD ENTRANCE, 82.0 FEET NORTH OF A TOWNSHIP ROAD/ 31ST STREET, 4.7 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>Determination Method</u>	<u>Project Info</u>	
<u>Height</u>	<u>Acc</u>	<u>Order (/Class)</u>	<u>Height</u>	<u>Acc</u>	<u>Adj</u>		<u>Year</u>	<u>Reference</u>
1628.530	.262		1541.490	.197	2011	GPS - OPUS	2021	GPSBM
1628.563			1541.536	.015	2011	HORIZONTAL ADJUSTMENT	2014	GPS2998
1628.563			1541.526	.015	2011	GPS - STATIC	2014	HIONA
			1541.536	.019	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1628.540	.131		1541.769	.066	1996	GPS - STATIC	2012	HIONA
1628.517	.262		1541.601	.197	2007	GPS - RTRN	2011	RTRN2011
			1541.624	.021	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
1628.507	.131		1541.749	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1919
1628.474	.131		1541.746	.066	1996	GPS - STATIC	2003	HMURR

Geoid Separations(ft): GEOID18 = -87.041 12B = -87.021 09 = -86.916 03 = -86.758

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 53 31.57973	95 45 50.10192	500724.868	116058.881	.131	3	GPS - OPUS	2021	GPSBM
43 53 31.57991	95 45 50.10191	500724.869	116058.899	.010		ADJUSTMENT	2014	GPS2998
43 53 31.57997	95 45 50.10191	500724.869	116058.905	.010	C	GPS - STATIC	2014	HIONA
43 53 31.57991	95 45 50.10191	500724.869	116058.899	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 53 31.57953	95 45 50.10264	500724.816	116058.861	.131	3	GPS - RTRN	2011	RTRN2011
43 53 31.57985	95 45 50.10278	500724.805	116058.893	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 53 31.57930	95 45 50.10211	500724.855	116058.837	.033	C	GPS - STATIC	2012	HIONA
43 53 31.57930	95 45 50.10210	500724.855	116058.837	.033	C	ADJUSTMENT	2003	GPS1919
43 53 31.57930	95 45 50.10211	500724.855	116058.837	.033	C	GPS - STATIC	2003	HMURR

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2159709.836	658309.833	912074.181	15956671.354	.131	3	GPS - OPUS	2021	GPSBM
2159709.837	658309.851	912074.183	15956671.372	.010		ADJUSTMENT	2014	GPS2998
2159709.837	658309.857	912074.183	15956671.378	.010	C	GPS - STATIC	2014	HIONA
2159709.837	658309.851	912074.183	15956671.372	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2159709.783	658309.814	912074.128	15956671.335	.131	3	GPS - RTRN	2011	RTRN2011
2159709.773	658309.846	912074.119	15956671.368	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2159709.821	658309.789	912074.166	15956671.311	.033	C	GPS - STATIC	2012	HIONA
2159709.822	658309.789	912074.167	15956671.311	.033	C	ADJUSTMENT	2003	GPS1919
2159709.821	658309.789	912074.166	15956671.311	.033	C	GPS - STATIC	2003	HMURR

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SW_15_105_41-DF8562-3E-28APR2021.jpg	E	Apr 28, 2021
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SW_15_105_41-DF8562-2-28APR2021.jpg		Apr 28, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SW_15_105_41-DF8562-1-28APR2021.jpg		Apr 28, 2021

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



Mn/DOT Name: SW 15 107 42

NGS Name: SW 15 107 42

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DF8563](#) [Get Map](#)
 NGS Quad / Sta Num : 44095333/
 USGS Quad: BALATON 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	107 N	42 W	440357.73	955300.90		C

<u>Year Set</u>	<u>Last Recovery</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	2024	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MN-101

Description: (2003) **Stamping:** SW 15 107 42 2003

6.5 MILES NORTH OF HADLEY, 4.39 MILES NORTH ALONG COUNTY ROAD 29 FROM THE JUNCTION OF COUNTY ROAD 29 AND TRUNK HIGHWAY 30 IN HADLEY, THEN 2.0 MILES WEST ALONG COUNTY ROAD 27, THEN 1.0 MILE NORTH ALONG 90TH AVENUE, 24.2 FEET EAST OF 90TH AVENUE EXTENDED, 29.6 FEET NORTH OF 151ST STREET, 24.4 FEET EAST OF A FIELD ENTRANCE, 4.5 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>						
1646.857	.262		1560.089	.197	2011	2024	RTRN2024						
1646.831	.262		1560.066	.197	2011	2021	GPSBM						
1646.768	.262		1560.003	.197	2011	2021	GPSBM						
			1560.020	.024	2011	2012	GPS2800						
			1560.105	.026	2007	2007	GPS2300						
1646.781	.131		1560.263	.066	1996	2003	GPS1919						
1646.781	.131		1560.253	.066	1996	2003	HMURR						

Geoid Separations(ft): GEOID18 = -86.765 12B = -86.762 09 = -86.670 03 = -86.502

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Murray 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>								
44 03 57.73213	95 53 00.89717	469266.298	179490.136	.131	3	GPS - RTRN	2024	RTRN2024	
44 03 57.73205	95 53 00.89750	469266.274	179490.128	.131	3	GPS - OPUS	2021	GPSBM	
44 03 57.73183	95 53 00.89722	469266.294	179490.106	.131	3	GPS - OPUS	2021	GPSBM	
44 03 57.73211	95 53 00.89696	469266.313	179490.134	.010		ADJUSTMENT	2012	GPS2800	

<u>NAD83(2007)</u>		<u>Murray 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>								
44 03 57.73203	95 53 00.89787	469266.247	179490.126	.013		ADJUSTMENT	2007	GPS2300	

<u>NAD83(1996)</u>		<u>Murray 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>								
44 03 57.73158	95 53 00.89734	469266.286	179490.080	.033	C	ADJUSTMENT	2003	GPS1919	
44 03 57.73159	95 53 00.89733	469266.286	179490.082	.033	C	GPS - STATIC	2003	HMURR	

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2129633.095	722399.232	882756.088	16021132.115	.131	3	GPS - RTRN	2024	RTRN2024
2129633.070	722399.224	882756.064	16021132.108	.131	3	GPS - OPUS	2021	GPSBM
2129633.090	722399.202	882756.083	16021132.085	.131	3	GPS - OPUS	2021	GPSBM
2129633.110	722399.230	882756.103	16021132.113	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2129633.043	722399.223	882756.036	16021132.107	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2129633.081	722399.177	882756.073	16021132.060	.033	C	ADJUSTMENT	2003	GPS1919
2129633.082	722399.178	882756.074	16021132.061	.033	C	GPS - STATIC	2003	HMURR

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SW_15_107_42-DF8563-3N-13MAY2024.jpg	N	May 13, 2024
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SW_15_107_42-DF8563-2-28APR2021.jpg		Apr 28, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SW_15_107_42-DF8563-1-13MAY2024.jpg		May 13, 2024

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



Mn/DOT Name: SW 15 107 43

NGS Name: SW 15 107 43

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DF8564](#) [Get Map](#)
NGS Quad / Sta Num : 44095333/
USGS Quad: BALATON SW

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	15	107 N	43 W	440358.55	955956.47		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2003	2021	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MN-101

Description: (2003) **Stamping:** SW 15 107 43 2003

8.0 MILES NORTH-NORTHWEST OF LAKE WILSON, 3.65 MILES WEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 91 AND TRUNK HIGHWAY 30 IN LAKE WILSON, THEN 5.0 MILES NORTH ON COUNTY ROAD 25, THEN 1.25 MILES EAST ON COUNTY ROAD 10, 50.2 FEET NORTH OF COUNTY ROAD 10, 66.0 FEET EAST OF A NORTH FIELD ENTRANCE, 5.0 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		
1723.507	.262		1637.365	.197	2011	GPS - OPUS		2021	GPSBM		
1723.468	.262		1637.326	.197	2011	GPS - OPUS		2021	GPSBM		
			1637.346	.021	2011	HORIZONTAL ADJUSTMENT		2012	GPS2800		
			1637.434	.021	2007	HORIZONTAL ADJUSTMENT		2007	GPS2300		
1723.520	.131		1637.562	.066	1996	HORIZONTAL ADJUSTMENT		2003	GPS1919		
1723.520	.131		1637.559	.066	1996	GPS - STATIC		2003	HMURR		

Geoid Separations(ft): GEOID18 = -86.142 12B = -86.138 09 = -86.040 03 = -85.905

Lat/Lon and County Coordinates (Feet)

NAD83(2011)			Murray County				Project Info			
Geodetic Position				X	Y	Acc	Order	Determination Method	Year	Reference
Latitude	Longitude									
44 03 58.55400	95 59 56.47052			438921.634	179637.664	.131	3	GPS - OPUS	2021	GPSBM
44 03 58.55400	95 59 56.47031			438921.649	179637.664	.131	3	GPS - OPUS	2021	GPSBM
44 03 58.55426	95 59 56.46989			438921.680	179637.690	.013		ADJUSTMENT	2012	GPS2800

NAD83(2007)			Murray County				Project Info			
Geodetic Position				X	Y	Acc	Order	Determination Method	Year	Reference
Latitude	Longitude									
44 03 58.55421	95 59 56.47080			438921.614	179637.685	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)			Murray County				Project Info			
Geodetic Position				X	Y	Acc	Order	Determination Method	Year	Reference
Latitude	Longitude									
44 03 58.55399	95 59 56.47025			438921.654	179637.663	.033	C	ADJUSTMENT	2003	GPS1919
44 03 58.55399	95 59 56.47025			438921.654	179637.663	.033	C	GPS - STATIC	2003	HMURR

State Plane and UTM Coordinates (Feet)

NAD83(2011)			Murray County				Project Info			
MN State Plane - South Zone				X	Y	Acc	Order	Determination Method	Year	Reference
X	Y									
2099302.428	723202.932			852427.153	16022299.214	.131	3	GPS - OPUS	2021	GPSBM
2099302.443	723202.931			852427.168	16022299.213	.131	3	GPS - OPUS	2021	GPSBM
2099302.474	723202.956			852427.200	16022299.238	.013		ADJUSTMENT	2012	GPS2800

NAD83(2007)			Murray County				Project Info			
MN State Plane - South Zone				X	Y	Acc	Order	Determination Method	Year	Reference
X	Y									
2099302.408	723202.953			852427.133	16022299.236	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)			Murray County				Project Info			
MN State Plane - South Zone				X	Y	Acc	Order	Determination Method	Year	Reference
X	Y									
2099302.447	723202.930			852427.172	16022299.212	.033	C	ADJUSTMENT	2003	GPS1919
2099302.447	723202.930			852427.172	16022299.212	.033	C	GPS - STATIC	2003	HMURR



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SW_15_107_43-DF8564-3N-28APR2021.jpg	N	Apr 28, 2021
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SW_15_107_43-DF8564-2-28APR2021.jpg		Apr 28, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SW_15_107_43-DF8564-1-28APR2021.jpg		Apr 28, 2021

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



Mn/DOT Name: SW 31 108 43

NGS Name: SW 31 108 43

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DF8565](#) [Get Map](#)
 NGS Quad / Sta Num : 44096222/
 USGS Quad: WOODSTOCK

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	31	108 N	43 W	440636.54	960350.26		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>
2003	2014	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MN-101

Description: (2003) **Stamping:** SW 31 108 43 2003

13.6 MILES NORTHWEST OF LAKE WILSON, 3.65 MILES WEST ALONG, TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND TRUNK HIGHWAY 91 IN LAKE WILSON, THEN 8.0 MILES NORTH ALONG COUNTY ROAD 25, THEN 2.0 MILES WEST ALONG A TOWNSHIP ROAD/ 181ST STREET, THEN 100.0 FEET NORTH ALONG A TOWNSHIP ROAD/ COUNTY LINE AVENUE, 28.7 FEET EAST OF A TOWNSHIP ROAD, 127.0 FEET NORTH OF A TOWNSHIP ROAD/ 181ST STREET, 17.5 FEET SOUTH OF A FIELD ENTRANCE, 5.0 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>Height</u>	<u>Acc</u>	<u>Adj</u>	<u>Year</u>	<u>Reference</u>	
1763.655			1677.707	.012	2011	2014	GPS3026	1677.707	.012	2011	2014	GPS3026	
1763.674	.131		1677.936	.066	1996	2014	HRUTH	1677.936	.066	1996	2014	HRUTH	
1763.655			1677.726	.012	2011	2014	HRUTH	1677.726	.012	2011	2014	HRUTH	
			1677.707	.014	2011	2012	GPS2800	1677.707	.014	2011	2012	GPS2800	
			1677.802	.015	2007	2007	GPS2300	1677.802	.015	2007	2007	GPS2300	
1763.645	.131		1677.936	.066	1996	2005	GPS2097	1677.936	.066	1996	2005	GPS2097	
1763.645	.131		1677.936	.066	1996	2005	HPSTO	1677.936	.066	1996	2005	HPSTO	
1763.678	.131		1677.936	.066	1996	2003	GPS1919	1677.936	.066	1996	2003	GPS1919	
1763.678	.131		1677.936	.066	1996	2003	HMURR	1677.936	.066	1996	2003	HMURR	

Geoid Separations(ft): GEOID18 = -85.922 12B = -85.915 09 = -85.836 03 = -85.715

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Murray 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>							
44 06 36.54017	96 03 50.26028	421908.282	195691.720	.007		ADJUSTMENT	2014	GPS3026
44 06 36.54026	96 03 50.26031	421908.280	195691.729	.007	C	GPS - STATIC	2014	HRUTH
44 06 36.54017	96 03 50.26028	421908.282	195691.720	.007		ADJUSTMENT	2012	GPS2800

<u>NAD83(2007)</u>		<u>Murray 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>							
44 06 36.54012	96 03 50.26120	421908.215	195691.715	.010		ADJUSTMENT	2007	GPS2300

<u>NAD83(1996)</u>		<u>Murray 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>							
44 06 36.53966	96 03 50.26066	421908.254	195691.668	.033	C	GPS - STATIC	2014	HRUTH
44 06 36.53966	96 03 50.26066	421908.254	195691.668	.033	C	ADJUSTMENT	2005	GPS2097
44 06 36.53966	96 03 50.26066	421908.254	195691.668	.033	C	GPS - STATIC	2005	HPSTO
44 06 36.53966	96 03 50.26066	421908.254	195691.668	.033	C	ADJUSTMENT	2003	GPS1919
44 06 36.53966	96 03 50.26066	421908.254	195691.668	.033	C	GPS - STATIC	2003	HMURR

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2082642.514	739619.296	835958.871	16038920.209	.007		ADJUSTMENT	2014	GPS3026
2082642.513	739619.305	835958.869	16038920.219	.007	C	GPS - STATIC	2014	HRUTH
2082642.514	739619.296	835958.871	16038920.209	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2082642.447	739619.292	835958.804	16038920.207	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
<u>X</u>	<u>Y</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2082642.486	739619.245	835958.842	16038920.159	.033	C	GPS - STATIC	2014	HRUTH
2082642.486	739619.245	835958.842	16038920.159	.033	C	ADJUSTMENT	2005	GPS2097
2082642.486	739619.245	835958.842	16038920.159	.033	C	GPS - STATIC	2005	HPSTO
2082642.486	739619.245	835958.842	16038920.159	.033	C	ADJUSTMENT	2003	GPS1919
2082642.486	739619.245	835958.842	16038920.159	.033	C	GPS - STATIC	2003	HMURR

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SW_31_108_43-DF8565-3E-09APR2014.jpg	E	Apr 9, 2014
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SW_31_108_43-DF8565-2-09APR2014.jpg		Apr 9, 2014
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SW_31_108_43-DF8565-1-09APR2014.jpg		Apr 9, 2014

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



Mn/DOT Name: SWEETMAN

NGS Name: SWEETMAN

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DK2721](#) [Get Map](#)
 NGS Quad / Sta Num : 44095323/
 USGS Quad: CURRIE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	107 N	41 W	440421.60	954434.14	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>
2006	2019	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 20 FT)	SURVEY DISK	MNDT

Description: (2006) Stamping: SWEETMAN 2006

4.0 MILES WEST OF CURRIE, 4.1 MILES NORTHWEST AND WEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND COUNTY ROAD 38 NORTH IN CURRIE TO TRUNK HIGHWAY 30 MILEPOINT 41.60, THEN 0.05 MILE NORTH ON 160TH AVENUE, 111.2 FEET EAST OF 160TH AVENUE, 7.6 FEET EAST OF CABLE BOX NUMBER 763 C, 10.9 FEET EAST OF CABLE BOX NUMBER 956, 1.6 FEET NORTH OF A WITNESS POST.

Station Pair: DOVR - MURRAY, 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>					
1582.149	.016	2/1				2020	00000949					
1582.149	.016	2/1				2019	VDRAY					
1582.149	.016	2/1				2017	00000903					
1582.149	.016	2/1				2015	VGARV					
1582.149	.016	2/1				2010	00000628					
1582.149	.016	2/1				2007	VSLAT					

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>					
1582.149	.131		1495.079	.066	1996	2019	HDRAY					
1582.149			1494.817	.011	2011	2019	HDRAY					
1582.149			1494.817	.011	2011	2019	GPS3311					
1582.165	.262		1494.823	.197	2011	2019	RTRN2019					
1582.149			1494.817	.012	2011	2016	GPS3142					
1582.149	.131		1495.079	.066	1996	2016	HGARV					
1582.149			1494.817	.012	2011	2016	HGARV					
1582.070	.262		1494.728	.197	2011	2015	RTRN2015					
			1494.817	.012	2011	2012	GPS2800					
			1494.922	.066	2007	2011	GPS2386-B					
1582.149	.131		1495.079	.066	1996	2007	GPS2386					
1582.149	.131		1495.079	.066	1996	2007	HSLAT					

Geoid Separations(ft): GEOID18 = -87.346 12B = -87.342 09 = -87.257 03 = -87.073

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 04 21.60446	95 44 34.14420	506268.450	181886.794	.007	C	GPS - STATIC	2019	HDRAY
44 04 21.60446	95 44 34.14420	506268.450	181886.794	.007		ADJUSTMENT	2019	GPS3311
44 04 21.60433	95 44 34.14397	506268.467	181886.781	.131	3	GPS - RTRN	2019	RTRN2019
44 04 21.60446	95 44 34.14420	506268.450	181886.794	.007		ADJUSTMENT	2016	GPS3142
44 04 21.60446	95 44 34.14420	506268.450	181886.794	.007	C	GPS - STATIC	2016	HGARV
44 04 21.60462	95 44 34.14462	506268.420	181886.810	.131	3	GPS - RTRN	2015	RTRN2015
44 04 21.60446	95 44 34.14420	506268.450	181886.794	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 04 21.60443	95 44 34.14500	506268.392	181886.791	.033	C	ADJUSTMENT	2011	GPS2386-B

NAD83(1996)

Geodetic Position		Murray County				Project Info		
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
44 04 21.60393	95 44 34.14435	506268.439	181886.740	.033	C	GPS - STATIC	2019	HDRAY
44 04 21.60393	95 44 34.14435	506268.439	181886.740	.033	C	GPS - STATIC	2016	HGARV
44 04 21.60393	95 44 34.14435	506268.439	181886.740	.033	C	ADJUSTMENT	2007	GPS2386
44 04 21.60393	95 44 34.14435	506268.439	181886.740	.033	C	GPS - STATIC	2007	HSLAT

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2166673.861	723995.314	919823.477	16022284.560	.007	C	GPS - STATIC	2019	HDRAY
2166673.861	723995.314	919823.477	16022284.560	.007		ADJUSTMENT	2019	GPS3311
2166673.878	723995.300	919823.494	16022284.547	.131	3	GPS - RTRN	2019	RTRN2019
2166673.861	723995.314	919823.477	16022284.560	.007		ADJUSTMENT	2016	GPS3142
2166673.861	723995.314	919823.477	16022284.560	.007	C	GPS - STATIC	2016	HGARV
2166673.831	723995.331	919823.447	16022284.577	.131	3	GPS - RTRN	2015	RTRN2015
2166673.861	723995.314	919823.477	16022284.560	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2166673.803	723995.312	919823.419	16022284.559	.033	C	ADJUSTMENT	2011	GPS2386-B

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15				Project Info		
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2166673.849	723995.260	919823.465	16022284.507	.033	C	GPS - STATIC	2019	HDRAY
2166673.849	723995.260	919823.465	16022284.507	.033	C	GPS - STATIC	2016	HGARV
2166673.849	723995.260	919823.465	16022284.507	.033	C	ADJUSTMENT	2007	GPS2386
2166673.849	723995.260	919823.465	16022284.507	.033	C	GPS - STATIC	2007	HSLAT

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SWEETMAN-DK2721-3S-01APR2019.jpg	S	Apr 1, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SWEETMAN-DK2721-2-01APR2019.jpg		Apr 1, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/SWEETMAN-DK2721-1-01APR2019.jpg		Apr 1, 2019

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



Mn/DOT Name: TAYLOR
County: MURRAY, MN (Sheet 1)

NGS Name: TAYLOR

NGS ACRN: [DQ7180](#) [Get Map](#)
NGS Quad / Sta Num : 43095441/
USGS Quad: SLAYTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	41 W	435657.90	954701.71	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>
2011	2021	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 20 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2011) Stamping: TAYLOR 2011

2.35 MILES NORTH OF IONA, 2.35 MILES NORTH ALONG TRUNK HIGHWAY 267 FROM THE JUNCTION OF TRUNK HIGHWAY 267 AND COUNTY ROAD 4 WEST IN IONA, AT TRUNK HIGHWAY 267 MILEPOINT 2.35, 71.8 FEET WEST OF TRUNK HIGHWAY 267, 77.1 FEET SOUTH OF COUNTY ROAD 49, 2.1 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>
1613.875	.016	2/1					VERTICAL ADJUSTMENT	2013	00000792
1613.875	.016	2/1					VERTICAL CONTROL SURVEY	2012	VIONA

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>
1613.888	.262			1526.893	.197	2011	GPS - OPUS	2021	GPSBM
1613.826	.262			1526.851	.197	2011	GPS - RTRN	2015	RTRN2015
1613.875				1526.880	.012	2011	HORIZONTAL ADJUSTMENT	2014	GPS2998
1613.875				1526.880	.012	2011	GPS - STATIC	2014	HIONA
1613.875	.131			1527.143	.066	1996	GPS - STATIC	2012	HIONA

Geoid Separations(ft): GEOID18 = -86.995 12B = -86.975 09 = -86.890 03 = -86.732

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>									
43 56 57.90422	95 47 01.71262			495484.931	136953.307	.131	3	GPS - OPUS	2021	GPSBM
43 56 57.90454	95 47 01.71222			495484.960	136953.340	.131	3	GPS - RTRN	2015	RTRN2015
43 56 57.90470	95 47 01.71214			495484.966	136953.356	.010		ADJUSTMENT	2014	GPS2998
43 56 57.90470	95 47 01.71214			495484.966	136953.356	.010	C	GPS - STATIC	2014	HIONA

<u>NAD83(1996)</u>				<u>Murray 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>									
43 56 57.90417	95 47 01.71237			495484.949	136953.303	.033	C	GPS - STATIC	2012	HIONA

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South 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>									
2154923.172	679310.479			907536.590	15977732.441	.131	3	GPS - OPUS	2021	GPSBM
2154923.202	679310.511			907536.620	15977732.473	.131	3	GPS - RTRN	2015	RTRN2015
2154923.208	679310.527			907536.627	15977732.489	.010		ADJUSTMENT	2014	GPS2998
2154923.208	679310.527			907536.627	15977732.489	.010	C	GPS - STATIC	2014	HIONA

<u>NAD83(1996)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South 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>									
2154923.190	679310.474			907536.608	15977732.436	.033	C	GPS - STATIC	2012	HIONA



Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/TAYLOR-DO7180-3W-28APR2021.jpg	W	Apr 28, 2021
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/TAYLOR-DO7180-2-28APR2021.jpg		Apr 28, 2021
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/TAYLOR-DO7180-1-28APR2021.jpg		Apr 28, 2021

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



Mn/DOT Name: TBM 1 C L19398

NGS Name: TBM 1 C

County: MURRAY, MN (Sheet 1)

NGS ACRN: [AQ4875](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	42 W	435308.00	955540.00		

<u>Year Set</u>	<u>Last Recovery</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	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:

3.66 MILES SOUTHEAST OF CHANDLER, HEAD ONTO COUNTY ROAD 4 (MAIN STREET) FROM CHANDLER, 0.22 MILE SOUTH ON TRUNK HIGHWAY 91, KEEP RIGHT 1.74 MILES SOUTH ON TRUNK HIGHWAY 91 (COUNTY ROAD), 0.13 MILE SOUTH ON TRUNK HIGHWAY 91, 0.63 MILE EAST ON 31ST STREET, 0.97 MILE SOUTH ON 70TH AVENUE, CONTINUE STRAIGHT 0.47 MILE SOUTH.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -86.266 12B = -86.230 09 = -86.151 03 = -86.053



Mn/DOT Name: TBM 100 L360

NGS Name: TBM 100

County: MURRAY, MN (Sheet 1)

NGS ACRN: [BT4637](#) [Get Map](#)
 NGS Quad / Sta Num : 43095412/
 USGS Quad: FULDA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	40 W	435217.00	953647.00		

<u>Year Set</u>	<u>Last Recovery</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:

Stamping:

0.57 MILE WEST FROM FULDA, HEAD SOUTH ON COUNTY ROAD 39 (NORTH ST. PAUL AVENUE), 0.08 MILE WEST ON COUNTY ROAD 2 (WEST FRONT STREET), 0.63 MILE WEST.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -87.867 12B = -87.844 09 = -87.720 03 = -87.536



Mn/DOT Name: TBM 101 L360

NGS Name: TBM 101

County: MURRAY, MN (Sheet 1)

NGS ACRN: [BT4638](#) [Get Map](#)
 NGS Quad / Sta Num : 43095412/
 USGS Quad: FULDA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	40 W	435156.00	953507.00		

<u>Year Set</u>	<u>Last Recovery</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:

Stamping:

1.01 MILES SOUTHEAST OF FULDA, HEAD SOUTH ON COUNTY ROAD 39 (NORTH ST. PAUL AVENUE), 0.08 MILE EAST ON COUNTY ROAD 2 (EAST FRONT STREET), CONTINUE STRAIGHT 0.38 MILE EAST ON TRUNK HIGHWAY 62, KEEP RIGHT 0.52 MILE SOUTH ON 240TH AVENUE, 0.23 MILE SOUTH.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -87.992 12B = -87.969 09 = -87.844 03 = -87.661



Mn/DOT Name: TBM 102 L360

NGS Name: TBM 102

County: MURRAY, MN (Sheet 1)

NGS ACRN: [BT4639](#) [Get Map](#)
 NGS Quad / Sta Num : 43095412/
 USGS Quad: FULDA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	39 W	435142.00	953417.00		

<u>Year Set</u>	<u>Last Recovery</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:

Stamping:

1.57 MILES SOUTHEAST OF FULDA, 1.2 MILES EAST ALONG TRUNK HIGHWAY 62 FROM THE JUNCTION OF TRUNK HIGHWAY 62 AND TRUNK HIGHWAY 59.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -88.054 12B = -88.031 09 = -87.907 03 = -87.720



Mn/DOT Name: TBM 103 L360

NGS Name: TBM 103

County: MURRAY, MN (Sheet 1)

NGS ACRN: [BT4640](#) [Get Map](#)
 NGS Quad / Sta Num : 43095412/
 USGS Quad: FULDA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	39 W	435127.00	953327.00		

<u>Year Set</u>	<u>Last Recovery</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:

Stamping:

2.12 MILES SOUTHEAST OF FULDA, HEAD SOUTH ON COUNTY ROAD 39 (NORTH ST. PAUL AVENUE), 0.08 MILE EAST ON COUNTY ROAD 2 (EAST FRONT STREET), 0.38 MILE EAST TRUNK HIGHWAY 62, 1.61 MILES SOUTH ON 250TH AVENUE, CONTINUE STRAIGHT 0.44 MILE SOUTH.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -88.110 12B = -88.084 09 = -87.962 03 = -87.782



Mn/DOT Name: TBM 72 L360

NGS Name: TBM 72

County: MURRAY, MN (Sheet 1)

NGS ACRN: [BT4607](#) [Get Map](#)
 NGS Quad / Sta Num : 43096111/
 USGS Quad: EDGERTON NE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	43 W	435416.00	960254.00		

<u>Year Set</u>	<u>Last Recovery</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:

Stamping:

5.35 MILES SOUTHWEST OF CHANDLER, HEAD WEST ON COUNTY ROAD 4 (MAIN AVENUE), CONTINUE STRAIGHT 5.43 MILES WEST-SOUTHWEST ON COUNTY ROAD 4.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -86.112 12B = -86.086 09 = -85.964 03 = -85.876



Mn/DOT Name: TBM 75 L360

NGS Name: TBM 75

County: MURRAY, MN (Sheet 1)

NGS ACRN: [BT4610](#) [Get Map](#)
 NGS Quad / Sta Num : 43096111/
 USGS Quad: EDGERTON NE

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	43 W	435451.00	960051.00		

<u>Year Set</u>	<u>Last Recovery</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: **Stamping:**
 3.58 MILES SOUTHWEST FROM CHANDLER, 0.1 MILE WEST ALONG MAIN AVENUE FROM THE JUNCTION OF MAIN AVENUE AND 5TH STREET, THEN 3.4 MILES SOUTHWEST ON COUNTY ROAD 4 (VALLEY ROAD), THE STATION WILL BE ON THE LEFT.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -86.083 12B = -86.046 09 = -85.941 03 = -85.863



Mn/DOT Name: TBM 76 L360

NGS Name: TBM 76

County: MURRAY, MN (Sheet 1)

NGS ACRN: [BT4611](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

<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	10	105 N	43 W	435506.00	955947.00		

<u>Year Set</u>	<u>Last Recovery</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:

Stamping:

2.66 MILES SOUTHWEST FROM CHANDLER, 0.1 MILE WEST ALONG MAIN AVENUE FROM THE JUNCTION OF MAIN AVENUE AND 5TH STREET, THEN 2.5 MILES SOUTHWEST ON COUNTY ROAD 4 (VALLEY ROAD), THE STATION WILL BE ON THE LEFT.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -86.066 12B = -86.033 09 = -85.932 03 = -85.850



Mn/DOT Name: TBM 77 L360

NGS Name: TBM 77

County: MURRAY, MN (Sheet 1)

NGS ACRN: [BT4612](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	43 W	435515.00	955903.00		

<u>Year Set</u>	<u>Last Recovery</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:

Stamping:

2.03 MILES SOUTHWEST FROM CHANDLER, 0.1 MILE WEST ALONG MAIN AVENUE FROM THE JUNCTION OF MAIN AVENUE AND 5TH STREET, 1.7 MILES SOUTHWEST ON COUNTY ROAD 4 (VALLEY ROAD), THEN 0.3 MILE SOUTH ON 40TH AVENUE, THE STATION WILL BE ON THE RIGHT.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -86.053 12B = -86.027 09 = -85.932 03 = -85.843



Mn/DOT Name: TBM 78 L360

NGS Name: TBM 78

County: MURRAY, MN (Sheet 1)

NGS ACRN: [BT4613](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	43 W	435524.00	955820.00		

<u>Year Set</u>	<u>Last Recovery</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:

Stamping:

1.36 MILES SOUTHWEST FROM CHANDLER, HEAD WEST ON COUNTY ROAD 4 (MAIN STREET) FROM CHANDLER, 1.28 MILES WEST.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -86.050 12B = -86.030 09 = -85.935 03 = -85.843



Mn/DOT Name: TBM 79 L360

NGS Name: TBM 79

County: MURRAY, MN (Sheet 1)

NGS ACRN: [BT4614](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	43 W	435532.00	955737.00		

<u>Year Set</u>	<u>Last Recovery</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:

Stamping:

0.85 MILE SOUTHWEST FROM CHANDLER, 0.1 MILE WEST ALONG MAIN AVENUE FROM THE JUNCTION OF MAIN AVENUE AND 5TH STREET, THEN 0.5 MILE ON SOUTH VALLEY ROAD.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -86.056 12B = -86.043 09 = -85.945 03 = -85.846



Mn/DOT Name: TBM 80 L360

NGS Name: TBM 80

County: MURRAY, MN (Sheet 1)

NGS ACRN: [BT4615](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	42 W	435534.00	955603.00		

<u>Year Set</u>	<u>Last Recovery</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:

Stamping:

3459.6 FEET EAST FROM CHANDLER, 0.3 MILE EAST ALONG MAIN AVENUE FROM THE JUNCTION OF MAIN AVENUE AND 5TH STREET, THEN 0.4 MILE WEST ON 56TH STREET.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -86.112 12B = -86.115 09 = -86.004 03 = -85.892



Mn/DOT Name: TBM 82 L360

NGS Name: TBM 82

County: MURRAY, MN (Sheet 1)

NGS ACRN: [BT4617](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	42 W	435525.00	955449.00		

<u>Year Set</u>	<u>Last Recovery</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:

Stamping:

2.01 MILES SOUTHEAST OF CHANDLER, HEAD EAST ON COUNTY ROAD 4 (MAIN AVENUE) FROM CHANDLER, 1.14 MILES SOUTH ON 70TH AVENUE, 0.49 MILE EAST ON 51ST STREET, 0.54 MILE EAST.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -86.184 12B = -86.187 09 = -86.079 03 = -85.961



Mn/DOT Name: TBM 83 L360

NGS Name: TBM 83

County: MURRAY, MN (Sheet 1)

NGS ACRN: [BT4618](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	42 W	435520.00	955329.00		

<u>Year Set</u>	<u>Last Recovery</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:

Stamping:

3.00 MILES SOUTHEAST OF CHANDLER, HEAD EAST ON COUNTY ROAD 4 (MAIN AVENUE) FROM CHANDLER, CONTINUE STRAIGHT 3.21 MILES EAST.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -86.273 12B = -86.279 09 = -86.171 03 = -86.053



Mn/DOT Name: TBM 84 L360

NGS Name: TBM 84

County: MURRAY, MN (Sheet 1)

NGS ACRN: [BT4619](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	42 W	435520.00	955245.00		

<u>Year Set</u>	<u>Last Recovery</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:

Stamping:

3.59 MILES SOUTHEAST OF CHANDLER, HEAD EAST ON COUNTY ROAD 4 (MAIN AVENUE) FROM CHANDLER, 3.81 MILES EAST.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -86.329 12B = -86.335 09 = -86.230 03 = -86.112



Mn/DOT Name: TBM 85 L360

NGS Name: TBM 85

County: MURRAY, MN (Sheet 1)

NGS ACRN: [BT4620](#) [Get Map](#)
 NGS Quad / Sta Num : 43095441/
 USGS Quad: SLAYTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	42 W	435519.00	955158.00		

<u>Year Set</u>	<u>Last Recovery</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:

Stamping:

4.10 MILES NORTHWEST OF IONA, HEAD WEST ON GRACE AVENUE FROM IONA, 0.01 MILE WEST ON COUNTY ROAD 4 (GRACE AVENUE), 4.30 MILES WEST.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -86.394 12B = -86.397 09 = -86.299 03 = -86.174



Mn/DOT Name: TBM 87 L360

NGS Name: TBM 87

County: MURRAY, MN (Sheet 1)

NGS ACRN: [BT4622](#) [Get Map](#)
 NGS Quad / Sta Num : 43095441/
 USGS Quad: SLAYTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	42 W	435514.00	954944.00		

<u>Year Set</u>	<u>Last Recovery</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:

Stamping:

2.28 MILES NORTHWEST OF IONA, 2.5 MILES WEST ALONG COUNTY ROAD 4 (GRACE AVENUE) FROM THE JUNCTION OF COUNTY ROAD 4 (GRACE AVENUE) AND TRUNK HIGHWAY 267, THE STATION WILL BE ON THE LEFT.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -86.621 12B = -86.617 09 = -86.516 03 = -86.381



Mn/DOT Name: TBM 88 L360

NGS Name: TBM 88

County: MURRAY, MN (Sheet 1)

NGS ACRN: [BT4623](#) [Get Map](#)
 NGS Quad / Sta Num : 43095441/
 USGS Quad: SLAYTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	41 W	435509.00	954852.00		

<u>Year Set</u>	<u>Last Recovery</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:

Stamping:

1.55 MILES NORTHWEST OF IONA, HEAD WEST ON GRACE AVENUE FROM IONA, 0.01 MILE WEST ON COUNTY ROAD 4 (GRACE AVENUE), 1.73 MILES WEST-NORTHWEST.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -86.716 12B = -86.709 09 = -86.607 03 = -86.470



Mn/DOT Name: TBM 89 L360

NGS Name: TBM 89

County: MURRAY, MN (Sheet 1)

NGS ACRN: [BT4624](#) [Get Map](#)
 NGS Quad / Sta Num : 43095441/
 USGS Quad: SLAYTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	41 W	435505.00	954806.00		

<u>Year Set</u>	<u>Last Recovery</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:

Stamping:

1.01 MILES NORTHWEST OF IONA, HEAD WEST ON GRACE AVENUE FROM IONA, 0.01 MILE WEST ON COUNTY ROAD 4 (GRACE AVENUE), 1.23 MILES SOUTH ON 130TH AVENUE, 0.20 MILE SOUTH.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -86.808 12B = -86.798 09 = -86.693 03 = -86.548



Mn/DOT Name: TBM 90 L360

NGS Name: TBM 90

County: MURRAY, MN (Sheet 1)

NGS ACRN: [BT4625](#) [Get Map](#)
 NGS Quad / Sta Num : 43095441/
 USGS Quad: SLAYTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	41 W	435501.00	954723.00		

<u>Year Set</u>	<u>Last Recovery</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:

Stamping:

0.28 MILE NORTHWEST OF IONA, HEAD WEST ON GRACE AVENUE FROM IONA, 0.01 MILE WEST ON COUNTY ROAD 4 (GRACE AVENUE), 0.18 MILE NORTH ON COTTER STREET, 0.10 MILE NORTH.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -86.893 12B = -86.880 09 = -86.775 03 = -86.627



Mn/DOT Name: TBM 91 L360

NGS Name: TBM 91

County: MURRAY, MN (Sheet 1)

NGS ACRN: [BT4626](#) [Get Map](#)
 NGS Quad / Sta Num : 43095441/
 USGS Quad: SLAYTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	41 W	435443.00	954613.00		

<u>Year Set</u>	<u>Last Recovery</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:

Stamping:

0.7 MILE SOUTHEAST OF IONA, 0.2 MILE EAST ALONG GRACE AVENUE FROM THE JUNCTION OF GRACE AVENUE AND TRUNK HIGHWAY 267, THEN 0.6 MILE SOUTHEAST ON 46TH STREET, THE STATION WILL BE ON THE RIGHT.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -87.024 12B = -87.008 09 = -86.906 03 = -86.745



Mn/DOT Name: TBM 92 L360

NGS Name: TBM 92

County: MURRAY, MN (Sheet 1)

NGS ACRN: [BT4627](#) [Get Map](#)
 NGS Quad / Sta Num : 43095441/
 USGS Quad: SLAYTON

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	41 W	435428.00	954533.00		

<u>Year Set</u>	<u>Last Recovery</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:

Stamping:

1.39 MILES SOUTHEAST OF IONA, HEAD EAST ON GRACE AVENUE FROM IONA, 0.20 MILE EAST-SOUTHEAST ON 46TH STREET, 0.87 MILE SOUTH ON 150TH AVENUE, 0.26 MILE EAST ON 41ST STREET, 0.25 MILE EAST.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -87.096 12B = -87.077 09 = -86.975 03 = -86.808



Mn/DOT Name: TBM 93 L360

NGS Name: TBM 93

County: MURRAY, MN (Sheet 1)

NGS ACRN: [BT4628](#) [Get Map](#)
 NGS Quad / Sta Num : 43095414/
 USGS Quad: AVOCA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	41 W	435413.00	954453.00		

<u>Year Set</u>	<u>Last Recovery</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:

Stamping:

1.90 MILES SOUTHEAST OF IONA, HEAD EAST ON GRACE AVENUE FROM IONA, 0.20 MILE EAST-SOUTHEAST ON 46TH STREET, 0.87 MILE SOUTH 150TH AVENUE, 0.26 MILE EAST ON 41ST STREET, 0.81 MILE EAST FROM THE JUNCTION OF 150TH AVENUE AND 41ST STREET.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -87.165 12B = -87.145 09 = -87.041 03 = -86.870



Mn/DOT Name: TBM 95 A L360

NGS Name: TBM 95 A

County: MURRAY, MN (Sheet 1)

NGS ACRN: [BT4631](#) [Get Map](#)
 NGS Quad / Sta Num : 43095414/
 USGS Quad: AVOCA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	41 W	435334.00	954312.00		

<u>Year Set</u>	<u>Last Recovery</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:

Stamping:

1.30 MILES NORTHWEST OF WIROCK, HEAD NORTH ON COUNTY ROAD 34 (180TH AVENUE) FROM WIROCK, 0.33 MILE WEST ON 31ST STREET, 0.82 MILE WEST.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -87.323 12B = -87.303 09 = -87.195 03 = -87.014



Mn/DOT Name: TBM 95 B L360

NGS Name: TBM 95 B

County: MURRAY, MN (Sheet 1)

NGS ACRN: [BT4632](#) [Get Map](#)
 NGS Quad / Sta Num : 43095414/
 USGS Quad: AVOCA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	40 W	435302.00	954130.00		

<u>Year Set</u>	<u>Last Recovery</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:

Stamping:

1.11 MILES SOUTHEAST OF WIROCK, HEAD SOUTH ON COUNTY ROAD 34 (180TH AVENUE) FROM WIROCK, 0.68 MILE EAST ON COUNTY ROAD 2 (21ST STREET), 0.99 MILE NORTH ON 190TH AVENUE, 0.47 MILE NORTH.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -87.474 12B = -87.451 09 = -87.339 03 = -87.155



Mn/DOT Name: TBM 95 L360

NGS Name: TBM 95

County: MURRAY, MN (Sheet 1)

NGS ACRN: [BT4630](#) [Get Map](#)
 NGS Quad / Sta Num : 43095414/
 USGS Quad: AVOCA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	41 W	435349.00	954350.00		

<u>Year Set</u>	<u>Last Recovery</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:

Stamping:

1.70 MILES NORTHWEST OF WIROCK, HEAD NORTH ON COUNTY ROAD 34 (180TH AVENUE) FROM WIROCK, 0.33 MILE WEST ON 31ST STREET, 1.01 MILES NORTH ON 170TH AVENUE, 0.36 MILE NORTH.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -87.267 12B = -87.247 09 = -87.139 03 = -86.962



Mn/DOT Name: TBM 96 L360

NGS Name: TBM 96

County: MURRAY, MN (Sheet 1)

NGS ACRN: [BT4633](#) [Get Map](#)
 NGS Quad / Sta Num : 43095414/
 USGS Quad: AVOCA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	40 W	435250.00	954039.00		

<u>Year Set</u>	<u>Last Recovery</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:

Stamping:

1.3 MILES SOUTHEAST OF WIROCK, HEAD SOUTH ON COUNTY ROAD 34 (180TH AVENUE) FROM WIROCK, 0.68 MILE EAST ON COUNTY ROAD 2 (21ST STREET), 1.30 MILES EAST.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -87.546 12B = -87.520 09 = -87.408 03 = -87.224



Mn/DOT Name: TBM 98 L360

NGS Name: TBM 98

County: MURRAY, MN (Sheet 1)

NGS ACRN: [BT4635](#) [Get Map](#)
 NGS Quad / Sta Num : 43095413/
 USGS Quad: FULDA 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	105 N	40 W	435226.00	953812.00		

<u>Year Set</u>	<u>Last Recovery</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:

Stamping:

1.81 MILES NORTHWEST OF FULDA, HEAD SOUTH ON COUNTY ROAD 39 (NORTH ST. PAUL AVENUE) FROM FULDA, 0.08 MILE WEST ON COUNTY ROAD 2 (WEST FRONT STREET), 1.12 MILES NORTH ON 220TH AVENUE, 0.52 MILE WEST ON 21ST STREET, 0.68 MILE WEST.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -87.749 12B = -87.726 09 = -87.608 03 = -87.421



Mn/DOT Name: TBM 99 L360

NGS Name: TBM 99

County: MURRAY, MN (Sheet 1)

NGS ACRN: [BT4636](#) [Get Map](#)
 NGS Quad / Sta Num : 43095413/
 USGS Quad: FULDA 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	27	105 N	40 W	435222.00	953731.00		

<u>Year Set</u>	<u>Last Recovery</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:

Stamping:

1.07 MILES SOUTHWEST OF FULDA, HEAD SOUTH ON COUNTY ROAD 39 (NORTH ST. PAUL AVENUE) FROM FULDA, 0.08 MILE WEST ON COUNTY ROAD 2 (WEST FRONT STREET), 1.24 MILES WEST.

* No Horizontal or Vertical Positions in the Database *

Geoid Separations(ft): GEOID18 = -87.805 12B = -87.785 09 = -87.664 03 = -87.477



Mn/DOT Name: THOM MNDT
County: MURRAY, MN (Sheet 1)

NGS Name: THOM

NGS ACRN: [AH3686](#) [Get Map](#)
NGS Quad / Sta Num : 44095333/
USGS Quad: BALATON SW

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	30	107 N	42 W	440305.02	955548.01	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1993	2024	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 23 FT)	SURVEY DISK	MNDT

Description: (1993) **Stamping:** THOM 1993

4.0 MILES NORTH OF LAKE WILSON, 4.25 MILES NORTH ALONG TRUNK HIGHWAY 91 FROM THE JUNCTION OF TRUNK HIGHWAY 91 AND TRUNK HIGHWAY 30 IN LAKE WILSON TO TRUNK HIGHWAY 91 MILEPOINT 43.05, THEN 0.65 MILE EAST ON 141ST STREET, 29.0 FEET SOUTH OF 141ST STREET, 13.0 FEET WEST OF AN ENTRANCE, 1.5 FEET EAST OF A WITNESS POST.

Station Pair: MONA MNDT - MURRAY, MN

Leveling-Derived Orthometric Heights (Feet)

NAVD88			Orthometric Height			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Year	Reference					
1685.522	.016	2/1				2020	00000949	VERTICAL ADJUSTMENT				
1685.522	.016	2/1				2017	00000903	VERTICAL ADJUSTMENT				
1685.515	.016	2/1				2016	VRUSS	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					
1685.590	.262		1599.118	.197	2011	2024	RTRN2024	GPS - RTRN				
1685.476	.262		1599.013	.197	2011	2016	RTRN2016	GPS - RTRN				
			1599.055	.014	2011	2012	GPS2800	HORIZONTAL ADJUSTMENT				
			1599.144	.012	2007	2007	GPS2300	HORIZONTAL ADJUSTMENT				
1685.528	.131		1599.259	.066	1996	1999	17648	HORIZONTAL ADJUSTMENT				
1685.463	.131		1599.259	.066	1996	1998	GPS937	HORIZONTAL ADJUSTMENT				

NGVD29			Orthometric Height			Ellipsoid (NAD83)			Determination Method		Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Year	Reference					
1684.806						1993	HORZ	GPS - STATIC				

Geoid Separations(ft): GEOID18 = -86.473 12B = -86.463 09 = -86.368 03 = -86.227

Lat/Lon and County Coordinates (Feet)

NAD83(2011)		Geodetic Position		Murray County				Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference	
44 03 05.02265	95 55 48.01232	457053.068	174173.017	.131	3	GPS - RTRN	2024	RTRN2024	
44 03 05.02264	95 55 48.01203	457053.089	174173.016	.131	3	GPS - RTRN	2016	RTRN2016	
44 03 05.02187	95 55 48.01034	457053.213	174172.938	.016		ADJUSTMENT	2012	GPS2800	

NAD83(2007)		Geodetic Position		Murray County				Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference	
44 03 05.02190	95 55 48.01129	457053.143	174172.941	.013		ADJUSTMENT	2007	GPS2300	

NAD83(1996)		Geodetic Position		Murray County				Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference	
44 03 05.02121	95 55 48.00739	457053.428	174172.871	.033	C	ADJUSTMENT	1999	17648	
44 03 05.02121	95 55 48.00739	457053.428	174172.871	.033	C	ADJUSTMENT	1998	GPS937	

NAD83(1986)		Geodetic Position		Murray County				Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference	
44 03 05.01839	95 55 47.99096	457054.627	174172.583	.066	2	GPS - STATIC	1993	HMARS	

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South 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>
2117309.233	717348.079	870368.753	16016227.275	.131	3	GPS - RTRN	2024	RTRN2024
2117309.254	717348.077	870368.774	16016227.273	.131	3	GPS - RTRN	2016	RTRN2016
2117309.375	717347.996	870368.895	16016227.191	.016		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South 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>
2117309.306	717348.001	870368.826	16016227.196	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South 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>
2117309.589	717347.925	870369.108	16016227.116	.033	C	ADJUSTMENT	1999	17648
2117309.589	717347.925	870369.108	16016227.116	.033	C	ADJUSTMENT	1998	GPS937

NAD83(1986)

MN State Plane - South 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>
2117310.782	717347.611	870370.297	16016226.788	.066	2	GPS - STATIC	1993	HMARS

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/THOM-AH3686-3S-13MAY2024.jpg	S	May 13, 2024
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/THOM-AH3686-2-22MAR2016.jpg		Mar 22, 2016
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/THOM-AH3686-1-13MAY2024.jpg		May 13, 2024

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



Mn/DOT Name: TUTT MNDT

NGS Name: TUTT

County: MURRAY, MN (Sheet 1)

NGS ACRN: [AH3688](#) [Get Map](#)
 NGS Quad / Sta Num : 44095333/
 USGS Quad: BALATON 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>	<u>Year Set</u>	<u>Last Recovery</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	1	107 N	43 W	440634.03	955736.23		C	1993	2012	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	MARKER W/BAR MAGNET

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
ALUMINUM ALLOY ROD (NO SLEEVE) (<10 FT) (DEPTH 8 FT)	SURVEY DISK	MNDT

Description: (1993) Stamping: TUTT 1993

8.25 MILES NORTH ALONG TRUNK HIGHWAY 91 FROM THE JUNCTION OF TRUNK HIGHWAY 91 AND TRUNK HIGHWAY 30 IN LAKE WILSON, AT TRUNK HIGHWAY 91 MILEPOINT 47.05, 0.85 MILE WEST OF TRUNK HIGHWAY 91, 144.0 FEET EAST OF AN ENTRANCE, 29.0 FEET SOUTH OF A ROAD, 16.6 FEET WEST-NORTHWEST OF A POWER POLE, 2.5 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>		
			1635.197	.021	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800		
			1635.285	.017	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300		
1721.617	.131		1635.351	.066	1996	HORIZONTAL ADJUSTMENT	1999	17648		
1721.552	.131		1635.351	.066	1996	HORIZONTAL ADJUSTMENT	1998	GPS937		

<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>		
1720.797						GPS - STATIC	1993	HORZ		

Geoid Separations(ft): GEOID18 = -86.463 12B = -86.460 09 = -86.374 03 = -86.227

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
44 06 34.02665	95 57 36.22568	449199.118	195355.932	.016		ADJUSTMENT	2012	GPS2800	

<u>NAD83(2007)</u>		<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
44 06 34.02664	95 57 36.22666	449199.046	195355.931	.013		ADJUSTMENT	2007	GPS2300	

<u>NAD83(1996)</u>		<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
44 06 34.02692	95 57 36.22096	449199.462	195355.959	.033	C	ADJUSTMENT	1999	17648	
44 06 34.02692	95 57 36.22096	449199.462	195355.959	.033	C	ADJUSTMENT	1998	GPS937	

<u>NAD83(1986)</u>		<u>Geodetic Position</u>		<u>Murray County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>	
44 06 34.02433	95 57 36.20398	449200.700	195355.694	.066	2	GPS - STATIC	1993	HMARS	



State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South 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>
2109916.197	738693.257	863229.557	16037666.664	.016		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South 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>
2109916.125	738693.258	863229.486	16037666.666	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South 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>
2109916.542	738693.276	863229.902	16037666.680	.033	C	ADJUSTMENT	1999	17648
2109916.542	738693.276	863229.902	16037666.680	.033	C	ADJUSTMENT	1998	GPS937

NAD83(1986)

MN State Plane - South 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>
2109917.774	738692.984	863231.131	16037666.373	.066	2	GPS - STATIC	1993	HMARS



Mn/DOT Name: TUTT MNDT RESET

NGS Name: TUTT RESET

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DQ3092](#) [Get Map](#)
 NGS Quad / Sta Num : 44095333/
 USGS Quad: BALATON 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	1	107 N	43 W	440634.03	955736.23	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>
2012	2024	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) (<10 FT) (DEPTH 8 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) Stamping: TUTT 1993 2012

8.0 MILES NORTH OF LAKE WILSON, 8.25 MILES NORTH ALONG TRUNK HIGHWAY 91 FROM THE JUNCTION OF TRUNK HIGHWAY 91 AND TRUNK HIGHWAY 30 IN LAKE WILSON TO TRUNK HIGHWAY 91 MILEPOINT 47.05, THEN 0.85 MILE WEST ON 181ST STREET, 29.0 FEET SOUTH OF 181ST STREET, 144.0 FEET EAST OF A FIELD ENTRANCE, 1.5 FEET WEST OF A WITNESS POST.

Station Pair: MCCORD MNDT - MURRAY, 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>
1721.325	.016	2/1						VERTICAL ADJUSTMENT	2020	00000949
1721.325	.016	2/1						VERTICAL ADJUSTMENT	2017	00000903
1721.325	.016	2/1						VERTICAL CONTROL SURVEY	2016	VRUSS

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>
1721.342	.262			1634.879	.197	2011		GPS - RTRN	2024	RTRN2024
1721.233	.262			1634.774	.197	2011		GPS - RTRN	2016	RTRN2016

Geoid Separations(ft): GEOID18 = -86.463 12B = -86.460 09 = -86.374 03 = -86.227

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>				<u>Murray 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>									
44 06 34.02707	95 57 36.22586			449199.105	195355.975	.131	3	GPS - RTRN	2024	RTRN2024
44 06 34.02701	95 57 36.22514			449199.157	195355.969	.131	3	GPS - RTRN	2016	RTRN2016

State Plane and UTM Coordinates (Feet)

<u>NAD83(2011)</u>				<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South 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>									
2109916.185	738693.300			863229.546	16037666.707	.131	3	GPS - RTRN	2024	RTRN2024
2109916.237	738693.292			863229.598	16037666.700	.131	3	GPS - RTRN	2016	RTRN2016

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/TUTT_RESET-DQ3092-3S-13MAY2024.jpg	S	May 13, 2024
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/TUTT_RESET-DQ3092-2-22MAR2016.jpg		Mar 22, 2016
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/TUTT_RESET-DQ3092-1-13MAY2024.jpg		May 13, 2024

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



Mn/DOT Name: VOC MNDT TEMP

NGS Name: VOC TEMP

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP0833](#) [Get Map](#)
 NGS Quad / Sta Num : 43095411/
 USGS Quad: LIME CREEK

<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	36	106 N	40 W	435606.07	953608.16		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>
1980	1980	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

<u>Monument Type</u>	<u>Disk Type</u>	<u>Mon. Agency</u>
PIPE (<10 FT)	UNMONUMENTED	MNDT

Description: (1980) Stamping: VOC 1980

4.0 MILES NORTH OF FULDA, NEAR THE CROSSROADS, 20.0 FEET EAST OF A NORTH-SOUTH GRAVEL ROAD, 24.0 FEET NORTH OF AN EAST-WEST GRAVEL ROAD, 54.72 FEET EAST-SOUTHEAST OF A MINNESOTA DEPARTMENT OF TRANSPORTATION NAIL AND DISK IN A POWER POLE.

* 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>
1540.023	.197		1452.441	.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>
1539.498						RECIPROCAL VERTICAL ANGLE	1981	HORZ

Geoid Separations(ft): GEOID18 = -87.949 12B = -87.936 09 = -87.825 03 = -87.634

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 56 06.07089	95 36 08.15870	543311.219	131746.986	.066	2	ADJUSTMENT	1999	17648
43 56 06.07095	95 36 08.15760	543311.300	131746.992	.066	2	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>Murray County</u>				<u>Project Info</u>		
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
43 56 06.06916	95 36 08.14107	543312.510	131746.813	.066	2	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>
43 56 06.20093	95 36 07.12500			.100	2	CLASSICAL SURVEY	1982	16710

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2202620.814	673072.815	955166.290	15970925.405	.066	2	ADJUSTMENT	1999	17648
2202620.894	673072.820	955166.371	15970925.409	.066	2	ADJUSTMENT	1998	17655

<u>NAD83(1986)</u>		<u>UTM - Zone 15</u>				<u>Project Info</u>		
<u>MN State Plane - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
2202622.100	673072.615	955167.574	15970925.190	.066	2	ADJUSTMENT	1986	17289

<u>NAD27</u>						<u>Project Info</u>		
<u>MN State Plane - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>
1578017.868	344997.517			.100	2	CLASSICAL SURVEY	1982	16710



Mn/DOT Name: WEST

NGS Name: WEST

County: MURRAY, MN (Sheet 1)

NGS ACRN: [DR2714](#) [Get Map](#)
 NGS Quad / Sta Num : 44095322/
 USGS Quad: DOVRAY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	24	107 N	40 W	440322.20	953528.52	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2019	2019	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 21 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2019) **Stamping:** WEST 2019

2.1 MILES WEST-NORTHWEST OF DOVRAY, 2.5 MILES WEST-NORTHWEST ALONG TRUNK HIGHWAY 30 FROM THE JUNCTION OF TRUNK HIGHWAY 30 AND COUNTY ROAD 42 IN DOVRAY, AT TRUNK HIGHWAY 30 MILEPOINT 49.5, 49.8 FEET NORTH OF TRUNK HIGHWAY 30, 19.1 FEET EAST OF A FIELD ENTRANCE, 1.5 FEET WEST OF A WITNESS POST.

Station Pair: FENTON - MURRAY, MN

Leveling-Derived Orthometric Heights (Feet)

NAVD88 Orthometric Height			Ellipsoid (NAD83)			Determination Method	Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj		Year	Reference
1549.137	.016	2/1				VERTICAL ADJUSTMENT	2020	00000949
1549.141	.016	2/1				VERTICAL CONTROL SURVEY	2019	VDRAY

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
1549.039	.131		1461.533	.066	1996	GPS - STATIC	2019	HDRAY
1549.062			1461.286	.021	2011	GPS - STATIC	2019	HDRAY
1549.062			1461.286	.021	2011	HORIZONTAL ADJUSTMENT	2019	GPS3311
1549.177	.262		1461.368	.197	2011	GPS - RTRN	2019	RTRN2019

Geoid Separations(ft): GEOID18 = -87.812 12B = -87.805 09 = -87.723 03 = -87.556

Lat/Lon and County Coordinates (Feet)

NAD83(2011) Geodetic Position		Murray County		Acc	Order	Determination Method	Project Info	
Latitude	Longitude	X	Y				Year	Reference
44 03 22.20327	95 35 28.52327	546117.755	175919.413	.013	C	GPS - STATIC	2019	HDRAY
44 03 22.20327	95 35 28.52327	546117.755	175919.413	.013		ADJUSTMENT	2019	GPS3311
44 03 22.20258	95 35 28.52301	546117.774	175919.343	.131	3	GPS - RTRN	2019	RTRN2019

NAD83(1996) Geodetic Position		Murray County		Acc	Order	Determination Method	Project Info	
Latitude	Longitude	X	Y				Year	Reference
44 03 22.20270	95 35 28.52339	546117.746	175919.355	.033	C	GPS - STATIC	2019	HDRAY

State Plane and UTM Coordinates (Feet)

NAD83(2011) MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2206380.123	717169.380	959453.367	16014981.453	.013	C	GPS - STATIC	2019	HDRAY
2206380.123	717169.380	959453.367	16014981.453	.013		ADJUSTMENT	2019	GPS3311
2206380.140	717169.310	959453.384	16014981.382	.131	3	GPS - RTRN	2019	RTRN2019

NAD83(1996) MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2206380.113	717169.322	959453.356	16014981.395	.033	C	GPS - STATIC	2019	HDRAY

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/WEST-DR2714-3N-22APR2019.jpg	N	Apr 22, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/WEST-DR2714-2-22APR2019.jpg		Apr 22, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/WEST-DR2714-1-22APR2019.jpg		Apr 22, 2019

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



Mn/DOT Name: WILSON MNDT

NGS Name: WILSON

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP0895](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	43 W	435908.19	955637.96	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>
1980	2016	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)	HORIZONTAL CONTROL DISK	MNDT

Description: (2001) Stamping: WILSON 1980

0.75 MILE SOUTH-SOUTHEAST OF LAKE WILSON, 0.55 MILE SOUTH ALONG TRUNK HIGHWAY 91 FROM THE EAST JUNCTION OF TRUNK HIGHWAY 91 AND TRUNK HIGHWAY 30 IN LAKE WILSON, AT TRUNK HIGHWAY 91 MILEPOINT 37.8, 55.5 FEET WEST OF TRUNK HIGHWAY 91, 21.70 FEET SOUTHWEST OF WILSON MNDT RM 1, 18.70 FEET NORTHWEST OF WILSON MNDT RM 2, 3.0 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>		
1694.629	.016	2/1				VERTICAL ADJUSTMENT	2020	00000949		
1694.629	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903		
1694.629	.016	2/1				VERTICAL CONTROL SURVEY	2016	VRUSS		
1694.629	.016	2/1				VERTICAL CONTROL SURVEY	2015	VWLSN		
1694.600	.016	2/1				VERTICAL ADJUSTMENT	1995	00000135		

<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>		
1693.934	.016	2/1				VERTICAL CONTROL SURVEY	1987	VSLAY		

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>		
1694.560	.262		1608.452	.197	2011	GPS - RTRN	2015	RTRN2015		
			1608.501	.008	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800		
			1608.589	.008	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300		
1694.616	.131		1608.684	.066	1996	HORIZONTAL ADJUSTMENT	2005	GPS2097		
1694.616	.131		1608.684	.066	1996	GPS - STATIC	2005	HPSTO		
1694.616	.131		1608.684	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1792		
1694.616	.131		1608.639	.066	1996	HORIZONTAL ADJUSTMENT	2002	GPS1767		
1694.616	.131		1608.684	.066	1996	GPS - STATIC	2002	HWILS		
1694.616	.131		1608.639	.066	1996	GPS - STATIC	2002	HLISM		
1694.616	.131		1608.639	.066	1996	HORIZONTAL ADJUSTMENT	1999	17648		
1694.616	.131		1608.639	.066	1996	HORIZONTAL ADJUSTMENT	1998	GPS937		
1694.616						GPS - STATIC	1993	HORZ		

Geoid Separations(ft): GEOID18 = -86.125 12B = -86.109 09 = -85.997 03 = -85.905

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Murray County		Acc	Order	Determination Method	Project Info	
Latitude	Longitude	X	Y				Year	Reference
43 59 08.18898	95 56 37.95544	453353.786	150196.690	.131	3	GPS - RTRN	2015	RTRN2015
43 59 08.18902	95 56 37.95464	453353.845	150196.694	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Murray County		Acc	Order	Determination Method	Project Info	
Latitude	Longitude	X	Y				Year	Reference
43 59 08.18903	95 56 37.95568	453353.768	150196.695	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Murray County		Acc	Order	Determination Method	Project Info	
Latitude	Longitude	X	Y				Year	Reference
43 59 08.18882	95 56 37.95493	453353.823	150196.674	.033	C	ADJUSTMENT	2005	GPS2097
43 59 08.18882	95 56 37.95493	453353.823	150196.674	.033	C	GPS - STATIC	2005	HPSTO
43 59 08.18882	95 56 37.95493	453353.823	150196.674	.033	C	ADJUSTMENT	2003	GPS1792
43 59 08.18883	95 56 37.95392	453353.897	150196.674	.033	C	ADJUSTMENT	2002	GPS1767
43 59 08.18882	95 56 37.95493	453353.824	150196.675	.033	C	GPS - STATIC	2002	HWILS
43 59 08.18883	95 56 37.95391	453353.898	150196.674	.033	C	GPS - STATIC	2002	HLISM
43 59 08.18883	95 56 37.95391	453353.898	150196.674	.033	C	ADJUSTMENT	1999	17648
43 59 08.18883	95 56 37.95391	453353.898	150196.674	.033	C	ADJUSTMENT	1998	GPS937
43 59 08.18885	95 56 37.95428	453353.871	150196.677	.066	2	ADJUSTMENT	1998	17655

NAD83(1986)

Geodetic Position		Murray County		Acc	Order	Determination Method	Project Info	
Latitude	Longitude	X	Y				Year	Reference
43 59 08.18611	95 56 37.93812	453355.052	150196.396	.066	2	GPS - STATIC	1993	HMARS
43 59 08.18611	95 56 37.93812	453355.052	150196.396	.066	2	ADJUSTMENT	1986	17289

NAD27

Geodetic Position		X	Y	Acc	Order	Determination Method	Project Info	
Latitude	Longitude						Year	Reference
43 59 08.31063	95 56 36.87270			.100	2	CLASSICAL SURVEY	1982	16710

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2113092.746	693460.129	865865.885	15992383.646	.131	3	GPS - RTRN	2015	RTRN2015
2113092.804	693460.132	865865.943	15992383.648	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2113092.728	693460.135	865865.867	15992383.652	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2113092.783	693460.112	865865.921	15992383.629	.033	C	ADJUSTMENT	2005	GPS2097
2113092.783	693460.112	865865.921	15992383.629	.033	C	GPS - STATIC	2005	HPSTO
2113092.783	693460.112	865865.921	15992383.629	.033	C	ADJUSTMENT	2003	GPS1792
2113092.856	693460.111	865865.995	15992383.627	.033	C	ADJUSTMENT	2002	GPS1767
2113092.783	693460.112	865865.921	15992383.629	.033	C	GPS - STATIC	2002	HWILS
2113092.857	693460.111	865865.996	15992383.627	.033	C	GPS - STATIC	2002	HLISM
2113092.857	693460.111	865865.996	15992383.627	.033	C	ADJUSTMENT	1999	17648
2113092.857	693460.111	865865.996	15992383.627	.033	C	ADJUSTMENT	1998	GPS937
2113092.830	693460.114	865865.969	15992383.630	.066	2	ADJUSTMENT	1998	17655

NAD83(1986)

MN State Plane - South Zone		UTM - Zone 15		Acc	Order	Determination Method	Project Info	
X	Y	X	Y				Year	Reference
2113094.005	693459.809	865867.140	15992383.311	.066	2	GPS - STATIC	1993	HMARS
2113094.005	693459.809	865867.140	15992383.311	.066	2	ADJUSTMENT	1986	17289

NAD27

MN State Plane - South Zone		X	Y	Acc	Order	Determination Method	Project Info	
X	Y						Year	Reference
1488490.750	365383.452			.100	2	CLASSICAL SURVEY	1982	16710

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/WILSON-OP0895-3W-27APR2015.jpg	W	Apr 27, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/WILSON-OP0895-2-27APR2015.jpg		Apr 27, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/WILSON-OP0895-1-27APR2015.jpg		Apr 27, 2015

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



Mn/DOT Name: WILSON MNDT RM 1

NGS Name: WILSON RM 1

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP1390](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	43 W	435908.39	955637.85	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	2016	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)	REFERENCE MARK DISK	MNDT

Description: (1987) Stamping: WILSON NO 1 1980

0.75 MILE SOUTH-SOUTHEAST OF LAKE WILSON, 0.55 MILE SOUTH ALONG TRUNK HIGHWAY 91 FROM THE EAST JUNCTION OF TRUNK HIGHWAY 91 AND TRUNK HIGHWAY 30 IN LAKE WILSON, AT TRUNK HIGHWAY 91 MILEPOINT 37.8, 47.8 FEET WEST OF TRUNK HIGHWAY 91, 21.70 FEET NORTHEAST OF STATION WILSON MNDT, 36.21 FOOT NORTH OF WILSON MNDT RM 2, 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>		
1692.739	.016	2/1				VERTICAL ADJUSTMENT	2020	00000949		
1692.743	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903		
1692.739	.016	2/1				VERTICAL CONTROL SURVEY	2016	VRUSS		
1692.743	.016	2/1				VERTICAL CONTROL SURVEY	2015	VWLSN		
1692.743	.016	2/1				VERTICAL ADJUSTMENT	1995	00000135		

<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>		
1692.077	.016	2/1				VERTICAL CONTROL SURVEY	1987	VSLAY		

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>		
1692.641	.262		1606.532	.197	2011	GPS - RTRN	2015	RTRN2015		

Geoid Separations(ft): GEOID18 = -86.125 12B = -86.109 09 = -85.997 03 = -85.905

Lat/Lon and County Coordinates (Feet)

<u>NAD83(2011)</u>		<u>Murray 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>	
43 59 08.38788	95 56 37.84594	453361.836	150216.815	.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 - South Zone</u>		<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>		<u>Year</u>	<u>Reference</u>	
2113101.228	693480.073	865874.607	15992403.494	.131	3	GPS - RTRN	2015	RTRN2015	

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/WILSON_RM_1-OP1390-3W-27APR2015.jpg	W	Apr 27, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/WILSON_RM_1-OP1390-2-27APR2015.jpg		Apr 27, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/WILSON_RM_1-OP1390-1-27APR2015.jpg		Apr 27, 2015

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



Mn/DOT Name: WILSON MNDT RM 2

NGS Name: WILSON RM 2

County: MURRAY, MN (Sheet 1)

NGS ACRN: [OP1391](#) [Get Map](#)
 NGS Quad / Sta Num : 43095444/
 USGS Quad: CHANDLER

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	106 N	43 W	435908.03	955637.82	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	2016	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>
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	MNDT

Description: (1987) **Stamping:** WILSON NO 2 1980

0.75 MILE SOUTH-SOUTHEAST OF LAKE WILSON, 0.55 MILE SOUTH ALONG TRUNK HIGHWAY 91 FROM THE EAST JUNCTION OF TRUNK HIGHWAY 91 AND TRUNK HIGHWAY 30 IN LAKE WILSON, AT TRUNK HIGHWAY 91 MILEPOINT 37.8, 46.2 FEET WEST OF TRUNK HIGHWAY 91, 18.70 FEET SOUTHEAST OF STATION WILSON MNDT, 36.21 FEET SOUTH OF WILSON MNDT RM 1, 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>		
1692.300	.016	2/1				VERTICAL ADJUSTMENT	2020	00000949		
1692.300	.016	2/1				VERTICAL ADJUSTMENT	2017	00000903		
1692.296	.016	2/1				VERTICAL CONTROL SURVEY	2016	VRUSS		
1692.296	.016	2/1				VERTICAL CONTROL SURVEY	2015	VWLSN		
1692.270	.016	2/1				VERTICAL ADJUSTMENT	1995	00000135		

<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>		
1691.608	.016	2/1				VERTICAL CONTROL SURVEY	1987	VSLAY		

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>		
1692.182	.262		1606.073	.197	2011	GPS - RTRN	2015	RTRN2015		

Geoid Separations(ft): GEOID18 = -86.125 12B = -86.109 09 = -85.997 03 = -85.905

Lat/Lon and County Coordinates (Feet)

<u>Geodetic Position</u>		<u>Murray 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>
43 59 08.03145	95 56 37.82261	453363.464	150180.716	.131	3	GPS - RTRN	2015	RTRN2015

State Plane and UTM Coordinates (Feet)

<u>MN State Plane - South 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>
2113102.075	693443.952	865875.023	15992367.354	.131	3	GPS - RTRN	2015	RTRN2015

Station Photos

<u>Type</u>	<u>File Name</u>	<u>Dir</u>	<u>Date</u>
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/WILSON_RM_2-OP1391-3W-27APR2015.jpg	W	Apr 27, 2015
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/WILSON_RM_2-OP1391-2-27APR2015.jpg		Apr 27, 2015
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/murray/WILSON_RM_2-OP1391-1-27APR2015.jpg		Apr 27, 2015

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



Mn/DOT Name: WIROCK MNDT
 County: MURRAY, MN (Sheet 1)

NGS Name: WIROCK

NGS ACRN: [OP0845](#) [Get Map](#)
 NGS Quad / Sta Num : 43095414/
 USGS Quad: AVOCA

				<u>Reference</u>	<u>Reference</u>	<u>Vert</u>	<u>Horz</u>
<u>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	105 N	41 W	435330.09	954317.44		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>
1980	1980	GOOD	Horz=? Vert=YES	NO		RECESSED 2 IN.	STEEL ROD IMBED IN MON

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

Description: (1980) **Stamping:** WIROCK 1980

1.0 MILE WEST-NORTHWEST OF WIROCK, 0.35 MILE NORTH ON COUNTY ROAD 34 FROM WIROCK, THEN 0.9 MILE WEST ON A GRAVEL ROAD, 22.0 FEET NORTH OF A GRAVEL ROAD, 18.0 FEET NORTHEAST OF THE NORTH END OF A CONCRETE CULVERT, 3.4 FEET SOUTH OF A WITNESS POST, 23.59 FEET SOUTHEAST OF WIROCK MNDT RM 2, 20.64 FEET SOUTHWEST OF WIROCK MNDT RM 1.

* 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>		
1587.595	.197		1500.647	.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>		
1588.514						RECIPROCAL VERTICAL ANGLE	1981	HORZ		

Geoid Separations(ft): GEOID18 = -87.310 12B = -87.290 09 = -87.182 03 = -87.004

Lat/Lon and County Coordinates (Feet)

<u>NAD83(1996)</u>		<u>Geodetic Position</u>				<u>Murray County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>			
43 53 30.09174	95 43 17.44285	511904.668	115911.445	.066	2	ADJUSTMENT	1999	17648			
43 53 30.09195	95 43 17.44273	511904.677	115911.467	.066	2	ADJUSTMENT	1998	17655			

<u>NAD83(1986)</u>		<u>Geodetic Position</u>				<u>Murray County</u>				<u>Project Info</u>	
<u>Latitude</u>	<u>Longitude</u>	<u>X</u>	<u>Y</u>	<u>Acc</u>	<u>Order</u>	<u>Determination Method</u>	<u>Year</u>	<u>Reference</u>			
43 53 30.08975	95 43 17.42502	511905.974	115911.245	.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>	
43 53 30.21476	95 43 16.38992			.100	2	CLASSICAL SURVEY	1982	16710	

State Plane and UTM Coordinates (Feet)

<u>NAD83(1996)</u>		<u>MN State Plane - South 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>			
2170882.745	657920.892	923244.122	15956149.577	.066	2	ADJUSTMENT	1999	17648			
2170882.754	657920.913	923244.132	15956149.597	.066	2	ADJUSTMENT	1998	17655			

<u>NAD83(1986)</u>		<u>MN State Plane - South 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>			
2170884.045	657920.663	923245.421	15956149.332	.066	2	ADJUSTMENT	1986	17289			

<u>NAD27</u>		<u>MN State Plane - South 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>	
1546280.362	329844.920			.100	2	CLASSICAL SURVEY	1982	16710	

