Geodetic Data Sheet (Feet)
GSID Station # 23082

1 DNB

04/28/2026
Sheet Help

Mn/DOT Name: 1 DNB
NGS Name: 1 DNB
County: PINE, MN (Sheet 1)

NGS ACRN: DE5998 Get Map
NGS Quad / Sta Num : 46092332/
USGS Quad: SANDSTONE SOUTH

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	24	41 N	20 W	460043.01	924831.48	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1978	2019	GOOD	Horz=YES Vert=YES	YES		RECESSED 4 IN.	MARKER IS STEEL ROD

Monument Type	Disk Type	Mon. Agency
COPPER CLAD ROD (NO SLEEVE)	SURVEY DISK	USGS

Description: (2012) **Stamping:** 1 DNB 1978

5.95 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND INTERSTATE HIGHWAY 35 IN HINCKLEY, 3.3 MILES WEST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND COUNTY ROAD 21 AT CLOVERDALE, AT TRUNK HIGHWAY 48 MILEPOINT 5.95, 72.0 FEET NORTH OF TRUNK HIGHWAY 48, 138.0 FEET EAST OF DRIVE NUMBER 32537 NORTH, 108.3 FEET EAST OF A POWER POLE, 0.7 FOOT SOUTH 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
1018.741	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1018.781	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
1018.781	.016	2/1				VERTICAL ADJUSTMENT	2006	00000497
1018.794	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1018.518	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV
1018.354	.033	3				VERTICAL CONTROL SURVEY	1979	USGS-VERT

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
1018.804	.262		929.860	.197	2011	GPS - OPUS	2020	GPSBM
1018.781			929.795	.011	2011	HORIZONTAL ADJUSTMENT	2015	GPS3071
1018.781			929.805	.011	2011	GPS - STATIC	2015	HCLVR
1018.797	.131		929.916	.066	2007	GPS - STATIC	2012	HCLVR
1018.797	.131		930.024	.066	1996	GPS - STATIC	2012	HCLVR
			929.795	.012	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1018.764	.262		929.887	.197	2007	GPS - RTRN	2012	RTRN2012
			929.903	.013	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
1018.797	.131		930.034	.066	1996	HORIZONTAL ADJUSTMENT	2002	GPS1700
1018.797	.131		930.034	.066	1996	GPS - STATIC	2001	HCLOV

Geoid Separations(ft): GEOID18 = -88.943 12B = -89.002 09 = -88.881 03 = -88.770

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 43.01082	92 48 31.47671	523188.301	202833.566	.131	3	GPS - OPUS	2020	GPSBM
46 00 43.01095	92 48 31.47661	523188.308	202833.579	.013		ADJUSTMENT	2015	GPS3071
46 00 43.01092	92 48 31.47665	523188.305	202833.576	.013	C	GPS - STATIC	2015	HCLVR
46 00 43.01095	92 48 31.47661	523188.308	202833.579	.013		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 43.01091	92 48 31.47722	523188.265	202833.575	.033	C	GPS - STATIC	2012	HCLVR
46 00 43.01021	92 48 31.47730	523188.259	202833.504	.131	3	GPS - RTRN	2012	RTRN2012
46 00 43.01091	92 48 31.47722	523188.265	202833.575	.016		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 43.01098	92 48 31.47688	523188.289	202833.582	.033	C	GPS - STATIC	2012	HCLVR
46 00 43.01098	92 48 31.47688	523188.289	202833.582	.033	C	ADJUSTMENT	2002	GPS1700
46 00 43.01098	92 48 31.47688	523188.289	202833.582	.033	C	GPS - STATIC	2001	HCLOV

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 43.00437	92 48 31.47109	523188.698	202832.911	.033	C	GPS - STATIC	1997	HCLOV

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2990831.780	700422.906	1688993.480	16717134.272	.131	3	GPS - OPUS	2020	GPSBM
2990831.787	700422.919	1688993.487	16717134.285	.013		ADJUSTMENT	2015	GPS3071
2990831.785	700422.916	1688993.484	16717134.282	.013	C	GPS - STATIC	2015	HCLVR
2990831.787	700422.919	1688993.487	16717134.285	.013		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2990831.744	700422.914	1688993.444	16717134.281	.033	C	GPS - STATIC	2012	HCLVR
2990831.740	700422.843	1688993.438	16717134.210	.131	3	GPS - RTRN	2012	RTRN2012
2990831.744	700422.914	1688993.444	16717134.281	.016		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2990831.768	700422.922	1688993.468	16717134.288	.033	C	GPS - STATIC	2012	HCLVR
2990831.768	700422.922	1688993.468	16717134.288	.033	C	ADJUSTMENT	2002	GPS1700
2990831.768	700422.922	1688993.468	16717134.288	.033	C	GPS - STATIC	2001	HCLOV

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2990832.189	700422.260	1688993.878	16717133.620	.033	C	GPS - STATIC	1997	HCLOV

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/1_DNB-DE5998-3N-21NOV2019.jpg	N	Nov 21, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/1_DNB-DE5998-2-21NOV2019.jpg		Nov 21, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/1_DNB-DE5998-1-21NOV2019.jpg		Nov 21, 2019

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

Mn/DOT Name: 13 MN115 **NGS Name:** 13

County: PINE, MN (Sheet 1)

NGS ACRN: DF5914 Get Map
NGS Quad / Sta Num : 45093111/
USGS Quad: BROOK PARK

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	32	40 N	22 W	455452.29	930725.82	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1999	2025	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	HORIZONTAL CONTROL DISK	MN-115

Description: (2002) **Stamping:** NO 13

3.5 MILES NORTH OF HENRIETTE, 3.0 MILES NORTH ALONG TRUNK HIGHWAY 107 FROM THE NORTH JUNCTION OF TRUNK HIGHWAY 107 AND COUNTY ROAD 11 IN HENRIETTE, AT TRUNK HIGHWAY 107 MILEPOINT 15.2, 49.0 FEET WEST OF TRUNK HIGHWAY 107, 42.0 FEET SOUTH OF DRIVEWAY NUMBER 25087, 2.0 FEET EAST 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
1000.582	.016	2/1				VERTICAL ADJUSTMENT	2012	00000745
1000.575	.016	2/1				VERTICAL CONTROL SURVEY	2010	VBRAH

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
1000.835	.262		909.444	.197	2011	GPS - RTRN	2025	RTRN2025
1000.785	.262		909.395	.197	2011	GPS - OPUS	2020	GPSBM
1000.871	.262		909.490	.197	2011	GPS - RTRN	2020	RTRN2020
			909.198	.006	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1000.589	.131		909.316	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2812
1000.589	.131		909.267	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2747
1000.589	.131		909.267	.066	2007	GPS - STATIC	2010	HBRAH
1000.589	.131		909.454	.066	1996	GPS - STATIC	2010	HMORA
1000.589	.131		909.316	.066	2007	GPS - STATIC	2010	HMORA
1000.589	.131		909.388	.066	1996	GPS - STATIC	2010	HBRAH
1000.372	.262		909.244	.197	1996	GPS - RTRN	2009	RTRN2009
			909.007	.008	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
1000.228	.131		909.135	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1924
1000.293	.131		909.135	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1839
1000.228	.131		909.135	.066	1996	GPS - STATIC	2003	HKANA
1000.293	.131		909.135	.066	1996	GPS - STATIC	2002	HPINE

Geoid Separations(ft): GEOID18 = -91.391 12B = -91.381 09 = -91.286 03 = -91.128

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 54 52.29432	93 07 25.81557	443022.867	167372.572	.131	3	GPS - RTRN	2025	RTRN2025
45 54 52.29439	93 07 25.81586	443022.847	167372.579	.131	3	GPS - OPUS	2020	GPSBM
45 54 52.29452	93 07 25.81555	443022.869	167372.592	.131	3	GPS - RTRN	2020	RTRN2020
45 54 52.29508	93 07 25.81639	443022.809	167372.649	.003		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 54 52.29528	93 07 25.81736	443022.741	167372.670	.033	C	ADJUSTMENT	2011	GPS2812
45 54 52.29528	93 07 25.81736	443022.741	167372.670	.033	C	ADJUSTMENT	2011	GPS2747
45 54 52.29528	93 07 25.81736	443022.741	167372.670	.033	C	GPS - STATIC	2010	HBRAH
45 54 52.29528	93 07 25.81736	443022.741	167372.670	.033	C	GPS - STATIC	2010	HMORA
45 54 52.29528	93 07 25.81736	443022.741	167372.670	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 54 52.29496	93 07 25.81668	443022.789	167372.637	.033	C	GPS - STATIC	2010	HMORA
45 54 52.29496	93 07 25.81668	443022.789	167372.637	.033	C	GPS - STATIC	2010	HBRAH
45 54 52.29517	93 07 25.81582	443022.850	167372.658	.131	3	GPS - RTRN	2009	RTRN2009
45 54 52.29496	93 07 25.81668	443022.789	167372.637	.033	C	ADJUSTMENT	2003	GPS1924
45 54 52.29496	93 07 25.81668	443022.789	167372.637	.033	C	ADJUSTMENT	2003	GPS1839
45 54 52.29496	93 07 25.81668	443022.788	167372.637	.033	C	GPS - STATIC	2003	HKANA
45 54 52.29496	93 07 25.81668	443022.789	167372.637	.033	C	GPS - STATIC	2002	HPINE

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2911290.306	663604.777	1608908.230	16681588.333	.131	3	GPS - RTRN	2025	RTRN2025
2911290.285	663604.784	1608908.210	16681588.340	.131	3	GPS - OPUS	2020	GPSBM
2911290.307	663604.797	1608908.232	16681588.353	.131	3	GPS - RTRN	2020	RTRN2020
2911290.247	663604.854	1608908.173	16681588.410	.003		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2911290.178	663604.873	1608908.104	16681588.430	.033	C	ADJUSTMENT	2011	GPS2812
2911290.178	663604.873	1608908.104	16681588.430	.033	C	ADJUSTMENT	2011	GPS2747
2911290.178	663604.873	1608908.104	16681588.430	.033	C	GPS - STATIC	2010	HBRAH
2911290.178	663604.873	1608908.104	16681588.430	.033	C	GPS - STATIC	2010	HMORA
2911290.178	663604.873	1608908.104	16681588.430	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2911290.227	663604.841	1608908.152	16681588.398	.033	C	GPS - STATIC	2010	HMORA
2911290.227	663604.841	1608908.152	16681588.398	.033	C	GPS - STATIC	2010	HBRAH
2911290.287	663604.863	1608908.213	16681588.419	.131	3	GPS - RTRN	2009	RTRN2009
2911290.227	663604.841	1608908.152	16681588.398	.033	C	ADJUSTMENT	2003	GPS1924
2911290.227	663604.841	1608908.152	16681588.398	.033	C	ADJUSTMENT	2003	GPS1839
2911290.227	663604.841	1608908.152	16681588.398	.033	C	GPS - STATIC	2003	HKANA
2911290.227	663604.841	1608908.152	16681588.398	.033	C	GPS - STATIC	2002	HPINE

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/13-DF5914-3W-15SEP2025.jpg	W	Sep 15, 2025
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/13-DF5914-2-15SEP2025.jpg		Sep 15, 2025
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/13-DF5914-1-15SEP2025.jpg		Sep 15, 2025

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

Mn/DOT Name: 14 MN115 **NGS Name:** 14

County: PINE, MN (Sheet 1)

NGS ACRN: DF5915 Get Map
NGS Quad / Sta Num : 45093111/
USGS Quad: BROOK PARK

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	6	39 N	21 W	455415.04	930110.76		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1999	2020	DESTROYED	Horz=NO Vert=NO	YES		FLUSH	MARKER W/BAR MAGNET

Monument Type
CONCRETE MONUMENT (CAST-IN-PLACE)

Disk Type
HORIZONTAL CONTROL DISK

Mon. Agency
MN-115

Description: (2003)

Stamping: NO 14

3.0 MILES WEST OF BEROUN, 3.0 MILES WEST ALONG COUNTY ROAD 14 FROM THE JUNCTION OF COUNTY ROAD 14 AND COUNTY ROAD 61 AT BEROUN, 49.0 FEET SOUTH OF COUNTY ROAD 14, 25.0 FEET EAST OF A FIELD ENTRANCE, 2.0 FEET NORTH OF A WITNESS POST.

Station Notes
CHISEL MARKS IN THE STAMPING 4/15/2010. THE CONCRETE HAS BROKEN AWAY.

*** 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
			879.880	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
970.930	.131		880.051	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2747
970.930	.131		880.051	.066	2007	GPS - STATIC	2010	HBRAH
970.930	.131		880.189	.066	1996	GPS - STATIC	2010	HBRAH
			879.939	.012	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
970.831	.131		880.084	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1839
970.831	.131		880.084	.066	1996	GPS - STATIC	2002	HPINE

Geoid Separations(ft): GEOID18 = -91.004 12B = -90.997 09 = -90.899 03 = -90.758

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 54 15.03765	93 01 10.75901	469536.440	163541.220	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 54 15.03788	93 01 10.75959	469536.399	163541.243	.033	C	ADJUSTMENT	2011	GPS2747
45 54 15.03788	93 01 10.75959	469536.399	163541.243	.033	C	GPS - STATIC	2010	HBRAH
45 54 15.03788	93 01 10.75959	469536.399	163541.243	.020		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 54 15.03764	93 01 10.75896	469536.443	163541.218	.033	C	GPS - STATIC	2010	HBRAH
45 54 15.03764	93 01 10.75896	469536.443	163541.218	.033	C	ADJUSTMENT	2003	GPS1839
45 54 15.03764	93 01 10.75896	469536.443	163541.218	.033	C	GPS - STATIC	2002	HPINE

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2937862.714	660225.947	1635414.777	16677792.074	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2937862.673	660225.969	1635414.736	16677792.097	.033	C	ADJUSTMENT	2011	GPS2747
2937862.673	660225.969	1635414.736	16677792.097	.033	C	GPS - STATIC	2010	HBRAH
2937862.673	660225.969	1635414.736	16677792.097	.020		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2937862.718	660225.946	1635414.781	16677792.073	.033	C	GPS - STATIC	2010	HBRAH
2937862.718	660225.946	1635414.781	16677792.073	.033	C	ADJUSTMENT	2003	GPS1839
2937862.717	660225.946	1635414.781	16677792.072	.033	C	GPS - STATIC	2002	HPINE

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/14-DF5915-3S-28NOV2007.jpg	S	Nov 28, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/14-DF5915-2-28NOV2007.jpg		Nov 28, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/14-DF5915-1-28NOV2007.jpg		Nov 28, 2007

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

Mn/DOT Name: 16 MN115 **NGS Name:** 16

County: PINE, MN (Sheet 1)

NGS ACRN: DF5916 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	36	40 N	21 W	455412.87	925411.54		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1999	2020	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	HORIZONTAL CONTROL DISK	MN-115

Description: (2000) **Stamping:** NO 16

3.0 MILES EAST OF BEROUN, 2.75 MILES EAST ALONG COUNTY ROAD 14 FROM THE JUNCTION OF COUNTY ROAD 14 AND COUNTY ROAD 61 AT BEROUN, 0.25 MILE WEST OF THE SOUTHEAST CORNER OF SECTION 36, 44.0 FEET NORTH OF COUNTY ROAD 14, 2.0 FEET EAST OF A FENCE, 2.0 FEET SOUTH OF A WITNESS POST.

*** No Leveling-Derived Orthometric Heights in the Database ***

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
971.720	.262		881.813	.197	2011	GPS - OPUS	2020	GPSBM
971.714	.262		881.806	.197	2011	GPS - OPUS	2020	GPSBM
971.806	.262		881.885	.197	2011	GPS - RTRN	2020	RTRN2020
			881.803	.006	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
971.783	.131		881.885	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2747
971.783	.131		881.885	.066	2007	GPS - STATIC	2010	HBRAH
971.750	.131		882.042	.066	1996	GPS - STATIC	2010	HBRAH
			881.885	.013	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
971.684	.131		882.042	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1839
971.684	.131		882.042	.066	1996	GPS - STATIC	2002	HPINE

Geoid Separations(ft): GEOID18 = -89.908 12B = -89.918 09 = -89.859 03 = -89. 711

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 54 12.87025	92 54 11.53548	499184.194	163298.767	.131	3	GPS - OPUS	2020	GPSBM
45 54 12.87047	92 54 11.53537	499184.202	163298.790	.131	3	GPS - OPUS	2020	GPSBM
45 54 12.87060	92 54 11.53465	499184.253	163298.803	.131	3	GPS - RTRN	2020	RTRN2020
45 54 12.87052	92 54 11.53531	499184.206	163298.794	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 54 12.87046	92 54 11.53619	499184.144	163298.789	.033	C	ADJUSTMENT	2011	GPS2747
45 54 12.87046	92 54 11.53619	499184.144	163298.789	.033	C	GPS - STATIC	2010	HBRAH
45 54 12.87046	92 54 11.53619	499184.144	163298.789	.023		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 54 12.87035	92 54 11.53560	499184.186	163298.777	.033	C	GPS - STATIC	2010	HBRAH
45 54 12.87035	92 54 11.53560	499184.186	163298.777	.033	C	ADJUSTMENT	2003	GPS1839
45 54 12.87035	92 54 11.53560	499184.185	163298.778	.033	C	GPS - STATIC	2002	HPINE

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2967507.427	660488.709	1665049.570	16677586.941	.131	3	GPS - OPUS	2020	GPSBM
2967507.435	660488.732	1665049.577	16677586.964	.131	3	GPS - OPUS	2020	GPSBM
2967507.485	660488.746	1665049.628	16677586.977	.131	3	GPS - RTRN	2020	RTRN2020
2967507.439	660488.737	1665049.582	16677586.969	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2967507.377	660488.730	1665049.519	16677586.963	.033	C	ADJUSTMENT	2011	GPS2747
2967507.377	660488.730	1665049.519	16677586.963	.033	C	GPS - STATIC	2010	HBRAH
2967507.377	660488.730	1665049.519	16677586.963	.023		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2967507.419	660488.719	1665049.561	16677586.952	.033	C	GPS - STATIC	2010	HBRAH
2967507.419	660488.719	1665049.561	16677586.952	.033	C	ADJUSTMENT	2003	GPS1839
2967507.419	660488.719	1665049.561	16677586.952	.033	C	GPS - STATIC	2002	HPINE

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/16-DF5916-3N-04MAY2020.jpg	N	May 4, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/16-DF5916-2-04MAY2020.jpg		May 4, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/16-DF5916-1-04MAY2020.jpg		May 4, 2020

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

Mn/DOT Name: 17 MN115 **NGS Name:** 17

County: PINE, MN (Sheet 1)

NGS ACRN: DF5917 Get Map
NGS Quad / Sta Num : 45092441/
USGS Quad: CEDAR LAKE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	34	40 N	20 W	455437.23	924939.91		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1999	2019	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	HORIZONTAL CONTROL DISK	MN-115

Description: (2007) **Stamping:** NO 17

7.0 MILES EAST OF BEROUN, 6.0 MILES EAST ALONG COUNTY ROAD 14 FROM THE JUNCTION OF COUNTY ROAD 14 AND COUNTY ROAD 61 IN BEROUN, THEN 0.5 MILE NORTH ALONG EVERGREEN ROAD, THEN 0.45 MILE EAST ALONG BLUE HERON ROAD, 16.0 FEET SOUTH OF BLUE HERON ROAD, 4.0 FEET WEST OF A POWER POLE, 2.0 FEET EAST OF A WITNESS POST.

*** No Leveling-Derived Orthometric Heights in the Database ***

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
996.570	.262		907.515	.197	2011	GPS - OPUS	2019	GPSBM
996.547	.262		907.492	.197	2011	GPS - OPUS	2019	GPSBM
			907.413	.014	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			907.511	.015	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
996.586	.131		907.669	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1839
996.586	.131		907.669	.066	1996	GPS - STATIC	2002	HPINE

Geoid Separations(ft): GEOID18 = -89.055 12B = -89.081 09 = -89.012 03 = -88.927

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 54 37.22666	92 49 39.90936	518391.744	165774.407	.131	3	GPS - OPUS	2019	GPSBM
45 54 37.22735	92 49 39.90875	518391.787	165774.477	.131	3	GPS - OPUS	2019	GPSBM
45 54 37.22744	92 49 39.90924	518391.752	165774.486	.023		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 54 37.22742	92 49 39.90977	518391.715	165774.484	.026		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 54 37.22735	92 49 39.90924	518391.752	165774.477	.033	C	ADJUSTMENT	2003	GPS1839
45 54 37.22735	92 49 39.90924	518391.752	165774.478	.033	C	GPS - STATIC	2002	HPINE

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2986668.130	663291.120	1684245.452	16680085.520	.131	3	GPS - OPUS	2019	GPSBM
2986668.172	663291.190	1684245.495	16680085.590	.131	3	GPS - OPUS	2019	GPSBM
2986668.137	663291.199	1684245.460	16680085.598	.023		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2986668.099	663291.196	1684245.423	16680085.596	.026		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2986668.137	663291.190	1684245.460	16680085.590	.033	C	ADJUSTMENT	2003	GPS1839
2986668.137	663291.190	1684245.460	16680085.590	.033	C	GPS - STATIC	2002	HPINE

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/17-DF5917-3E-21NOV2019.jpg	E	Nov 21, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/17-DF5917-2-21NOV2019.jpg		Nov 21, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/17-DF5917-1-21NOV2019.jpg		Nov 21, 2019

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

Mn/DOT Name: 19 MN115 **NGS Name:** 19

County: PINE, MN (Sheet 1)

NGS ACRN: DF5919 Get Map
NGS Quad / Sta Num : 45092441/
USGS Quad: CEDAR LAKE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	20	40 N	20 W	455648.01	925154.02		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1999	2019	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-115

Description: (2007) **Stamping:** NO 19

8.0 MILES NORTHEAST OF BEROUN, 3.0 MILES EAST ALONG COUNTY ROAD 14 FROM THE JUNCTION OF COUNTY ROAD 14 AND COUNTY ROAD 61 AT BEROUN, THEN 3.0 MILES NORTH ALONG COUNTY ROAD 15, THEN 1.65 MILES EAST ALONG MALLARD ROAD, 32.0 FEET SOUTH OF MALLARD ROAD, 43.0 FEET WEST OF A POWER POLE, 2.0 FEET NORTH OF A WITNESS POST.

*** No Leveling-Derived Orthometric Heights in the Database ***

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
976.215	.262		886.770	.197	2011	GPS - OPUS	2019	GPSBM
976.356	.262		886.911	.197	2011	GPS - OPUS	2019	GPSBM
976.376			886.835	.009	2011	HORIZONTAL ADJUSTMENT	2015	GPS3071
976.376			886.855	.009	2011	GPS - STATIC	2015	HCLVR
976.310	.131		886.934	.066	2007	GPS - STATIC	2012	HCLVR
976.278	.131		887.026	.066	1996	GPS - STATIC	2012	HCLVR
			886.835	.008	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
976.278	.131		886.934	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2566
976.278	.131		887.098	.066	1996	GPS - STATIC	2009	HMOOSE
976.278	.131		886.934	.066	2007	GPS - STATIC	2009	HMOOSE
976.173	.262		886.927	.197	1996	GPS - RTRN	2008	RTRN2008
			886.934	.011	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
976.310	.131		887.098	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1839
976.310	.131		887.098	.066	1996	GPS - STATIC	2002	HPINE

Geoid Separations(ft): GEOID18 = -89.445 12B = -89.485 09 = -89.390 03 = -89.245

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 56 48.00660	92 51 54.01858	508902.675	179016.059	.131	3	GPS - OPUS	2019	GPSBM
45 56 48.00631	92 51 54.01912	508902.637	179016.030	.131	3	GPS - OPUS	2019	GPSBM
45 56 48.00670	92 51 54.01942	508902.616	179016.069	.010		ADJUSTMENT	2015	GPS3071
45 56 48.00668	92 51 54.01939	508902.618	179016.067	.010	C	GPS - STATIC	2015	HCLVR
45 56 48.00670	92 51 54.01942	508902.616	179016.069	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 56 48.00677	92 51 54.01996	508902.578	179016.076	.033	C	GPS - STATIC	2012	HCLVR
45 56 48.00677	92 51 54.01996	508902.578	179016.076	.033	C	ADJUSTMENT	2009	GPS2566
45 56 48.00677	92 51 54.01996	508902.578	179016.076	.033	C	GPS - STATIC	2009	HMOOSE
45 56 48.00677	92 51 54.01996	508902.578	179016.076	.016		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 56 48.00669	92 51 54.01940	508902.617	179016.068	.033	C	GPS - STATIC	2012	HCLVR
45 56 48.00669	92 51 54.01940	508902.617	179016.068	.033	C	GPS - STATIC	2009	HMOOSE
45 56 48.00632	92 51 54.01967	508902.598	179016.031	.131	3	GPS - RTRN	2008	RTRN2008
45 56 48.00669	92 51 54.01940	508902.617	179016.068	.033	C	ADJUSTMENT	2003	GPS1839
45 56 48.00669	92 51 54.01940	508902.617	179016.069	.033	C	GPS - STATIC	2002	HPINE

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2976955.674	676367.802	1674744.028	16693309.405	.131	3	GPS - OPUS	2019	GPSBM
2976955.636	676367.772	1674743.990	16693309.376	.131	3	GPS - OPUS	2019	GPSBM
2976955.614	676367.811	1674743.968	16693309.415	.010		ADJUSTMENT	2015	GPS3071
2976955.616	676367.809	1674743.971	16693309.413	.010	C	GPS - STATIC	2015	HCLVR
2976955.614	676367.811	1674743.968	16693309.415	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2976955.576	676367.817	1674743.930	16693309.422	.033	C	GPS - STATIC	2012	HCLVR
2976955.576	676367.817	1674743.930	16693309.422	.033	C	ADJUSTMENT	2009	GPS2566
2976955.576	676367.817	1674743.930	16693309.422	.033	C	GPS - STATIC	2009	HMOOSE
2976955.576	676367.817	1674743.930	16693309.422	.016		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2976955.616	676367.810	1674743.970	16693309.414	.033	C	GPS - STATIC	2012	HCLVR
2976955.616	676367.810	1674743.970	16693309.414	.033	C	GPS - STATIC	2009	HMOOSE
2976955.597	676367.772	1674743.951	16693309.376	.131	3	GPS - RTRN	2008	RTRN2008
2976955.616	676367.810	1674743.970	16693309.414	.033	C	ADJUSTMENT	2003	GPS1839
2976955.616	676367.810	1674743.970	16693309.414	.033	C	GPS - STATIC	2002	HPINE

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/19-DF5919-3S-21NOV2019.jpg	S	Nov 21, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/19-DF5919-2-21NOV2019.jpg		Nov 21, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/19-DF5919-1-21NOV2019.jpg		Nov 21, 2019

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

2 DNB

Mn/DOT Name: 2 DNB **NGS Name:** 2 DNB

County: PINE, MN (Sheet 1)

NGS ACRN: DH4955 Get Map
NGS Quad / Sta Num : 46092332/
USGS Quad: SANDSTONE SOUTH

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	21	41 N	20 W	460040.76	925208.39	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1978	2020	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER IS STEEL ROD

Monument Type	Disk Type	Mon. Agency
COPPER CLAD ROD (NO SLEEVE)	SURVEY DISK	USGS

Description: (2012) **Stamping:** 2 DNB 1978

3.25 MILES EAST ON TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND INTERSTATE HIGHWAY 35 AT HINCKLEY, AT TRUNK HIGHWAY 48 MILEPOINT 3.02, 75.3 FEET NORTH OF TRUNK HIGHWAY 48, 105.0 FEET WEST OF DRIVE NUMBER 26867 NORTH, 14.5 FEET WEST OF A POWER POLE, 2.8 FEET WEST-SOUTHWEST OF THE RIGHT-OF-WAY MONUMENT, 2.0 FEET WEST OF A WITNESS POST AND A RIGHT-OF-WAY SIGN.

Station Notes
THE ROD DEPTH IS UNKNOWN.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
984.237	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
984.263	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
984.263	.016	2/1				VERTICAL ADJUSTMENT	2006	00000497
984.257	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
983.981	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV
983.971	.033	3				VERTICAL CONTROL SURVEY	1979	USGS-VERT

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
984.158	.262		894.532	.197	2011	GPS - OPUS	2020	GPSBM
984.371	.262		894.746	.197	2011	GPS - RTRN	2020	RTRN2020
984.263			894.614	.016	2011	HORIZONTAL ADJUSTMENT	2015	GPS3071
984.263			894.614	.016	2011	GPS - STATIC	2015	HCLVR
984.250	.131		894.739	.066	2007	GPS - STATIC	2012	HCLVR
984.250	.131		894.821	.066	1996	GPS - STATIC	2012	HCLVR
984.125	.262		894.605	.197	2007	GPS - RTRN	2012	RTRN2012
984.047	.262		894.611	.197	1996	GPS - RTRN	2008	RTRN2008

Geoid Separations(ft): GEOID18 = -89.626 12B = -89.626 09 = -89.518 03 = -89.436

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 40.76006	92 52 08.38776	507878.065	202593.795	.131	3	GPS - OPUS	2020	GPSBM
46 00 40.75934	92 52 08.38763	507878.074	202593.722	.131	3	GPS - RTRN	2020	RTRN2020
46 00 40.76024	92 52 08.38793	507878.053	202593.813	.026		ADJUSTMENT	2015	GPS3071
46 00 40.76024	92 52 08.38793	507878.053	202593.813	.026	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 40.76032	92 52 08.38831	507878.026	202593.822	.033	C	GPS - STATIC	2012	HCLVR
46 00 40.76003	92 52 08.38887	507877.987	202593.792	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 40.76029	92 52 08.38788	507878.057	202593.819	.033	C	GPS - STATIC	2012	HCLVR
46 00 40.76095	92 52 08.38796	507878.051	202593.885	.131	3	GPS - RTRN	2008	RTRN2008

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2975529.467	699922.230	1673690.310	16716875.403	.131	3	GPS - OPUS	2020	GPSBM
2975529.477	699922.157	1673690.320	16716875.330	.131	3	GPS - RTRN	2020	RTRN2020
2975529.454	699922.248	1673690.298	16716875.421	.026		ADJUSTMENT	2015	GPS3071
2975529.454	699922.248	1673690.298	16716875.421	.026	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2975529.428	699922.255	1673690.271	16716875.429	.033	C	GPS - STATIC	2012	HCLVR
2975529.388	699922.225	1673690.232	16716875.400	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2975529.458	699922.253	1673690.302	16716875.426	.033	C	GPS - STATIC	2012	HCLVR
2975529.451	699922.320	1673690.296	16716875.493	.131	3	GPS - RTRN	2008	RTRN2008

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/2_DNB-DH4955-3N-30APR2020.jpg	N	Apr 30, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/2_DNB-DH4955-2-30APR2020.jpg		Apr 30, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/2_DNB-DH4955-1-30APR2020.jpg		Apr 30, 2020

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

Mn/DOT Name: 2 MN115 **NGS Name:** 2

County: PINE, MN (Sheet 1)

NGS ACRN: DF5907 Get Map
NGS Quad / Sta Num : 45092442/
USGS Quad: BASS CREEK

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	16	38 N	20 W	454624.93	925127.51	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1999	2019	GOOD	Horz=YES Vert=YES	YES		FLUSH	STEEL ROD IMBED IN MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MN-115

Description: (2012) **Stamping:** NO 2

6.85 MILES SOUTHEAST OF PINE CITY, 3.13 MILES SOUTH ALONG 6TH STREET SOUTHWEST AND FOREST BOULEVARD FROM THE JUNCTION OF COUNTY HIGHWAY 7 (HILLSIDE AVENUE) IN PINE CITY, THEN 0.49 MILE EAST ALONG 570TH STREET, THEN 5.0 MILES EAST ALONG TRUNK HIGHWAY 70 TO THE JUNCTION OF TRUNK HIGHWAY 70 AND COUNTY ROAD 3, 64.0 FEET NORTH OF TRUNK HIGHWAY 70, 49.0 FEET EAST OF COUNTY ROAD 3, 1.5 FEET WEST 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
942.101	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
942.226	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
942.226	.016	2/1				VERTICAL CONTROL SURVEY	2009	VCHEN

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
942.108	.262		852.272	.197	2011	GPS - OPUS	2019	GPSBM
942.085	.262		852.292	.197	2007	GPS - RTRN	2012	RTRN2012
			852.292	.012	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			852.387	.013	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
942.190	.131		852.534	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1839
942.190	.131		852.534	.066	1996	GPS - STATIC	2002	HPINE

Geoid Separations(ft): GEOID18 = -89.836 12B = -89.836 09 = -89.796 03 = -89.675

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 46 24.92983	92 51 27.51066	510809.507	115899.622	.131	3	GPS - OPUS	2019	GPSBM
45 46 24.92949	92 51 27.51000	510809.554	115899.587	.020		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 46 24.92927	92 51 27.51185	510809.423	115899.565	.131	3	GPS - RTRN	2012	RTRN2012
45 46 24.92949	92 51 27.51054	510809.515	115899.587	.023		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 46 24.92938	92 51 27.51006	510809.550	115899.576	.033	C	ADJUSTMENT	2003	GPS1839
45 46 24.92938	92 51 27.51006	510809.549	115899.575	.033	C	GPS - STATIC	2002	HPINE

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2979937.816	613298.922	1676728.910	16630223.700	.131	3	GPS - OPUS	2019	GPSBM
2979937.863	613298.889	1676728.957	16630223.666	.020		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2979937.732	613298.864	1676728.826	16630223.644	.131	3	GPS - RTRN	2012	RTRN2012
2979937.825	613298.888	1676728.919	16630223.666	.023		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2979937.859	613298.877	1676728.953	16630223.655	.033	C	ADJUSTMENT	2003	GPS1839
2979937.859	613298.877	1676728.953	16630223.655	.033	C	GPS - STATIC	2002	HPINE

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/2-DF5907-3E-20NOV2019.jpg	E	Nov 20, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/2-DF5907-2-20NOV2019.jpg		Nov 20, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/2-DF5907-1-20NOV2019.jpg		Nov 20, 2019

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

Mn/DOT Name: 21 MN115 **NGS Name:** 21

County: PINE, MN (Sheet 1)

NGS ACRN: DF5920 Get Map
NGS Quad / Sta Num : 45093111/
USGS Quad: BROOK PARK

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	21	40 N	22 W	455641.09	930510.17	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1999	2025	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	HORIZONTAL CONTROL DISK	MN-115

Description: (2000) **Stamping:** NO 21

AT BROOK PARK, 0.25 MILE SOUTHWEST ALONG TRUNK HIGHWAY 23 FROM THE JUNCTION OF TRUNK HIGHWAY 23 AND COUNTY ROAD 126, AT TRUNK HIGHWAY 23 MILEPOINT 267.25, 40.0 FEET NORTH OF TRUNK HIGHWAY 23, 40.0 FEET EAST-NORTHEAST OF THE EAST END OF A GUARD RAIL, 2.0 FEET SOUTH 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
1038.384	.016	2/1				VERTICAL ADJUSTMENT	2012	00000745
1038.371	.016	2/1				VERTICAL CONTROL SURVEY	2010	VBRAH

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
1038.394	.262		947.272	.197	2011	GPS - RTRN	2025	RTRN2025
1038.403	.262		947.282	.197	2011	GPS - OPUS	2020	GPSBM
			947.262	.006	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1038.384	.131		947.370	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2812
1038.384	.131		947.341	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2747
1038.384	.131		947.341	.066	2007	GPS - STATIC	2010	HBRAH
1038.384	.131		947.518	.066	1996	GPS - STATIC	2010	HMORA
1038.384	.131		947.370	.066	2007	GPS - STATIC	2010	HMORA
1038.384	.131		947.488	.066	1996	GPS - STATIC	2010	HBRAH
			947.383	.010	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
1038.417	.131		947.518	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1839
1038.417	.131		947.518	.066	1996	GPS - STATIC	2002	HPINE

Geoid Separations(ft): GEOID18 = -91.122 12B = -91.109 09 = -91.020 03 = -90.866

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 56 41.09099	93 05 10.16634	452640.045	178368.961	.131	3	GPS - RTRN	2025	RTRN2025
45 56 41.09042	93 05 10.16675	452640.015	178368.903	.131	3	GPS - OPUS	2020	GPSBM
45 56 41.09064	93 05 10.16708	452639.992	178368.925	.003		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 56 41.09042	93 05 10.16745	452639.966	178368.903	.033	C	ADJUSTMENT	2011	GPS2812
45 56 41.09083	93 05 10.16793	452639.932	178368.944	.033	C	ADJUSTMENT	2011	GPS2747
45 56 41.09083	93 05 10.16793	452639.932	178368.944	.033	C	GPS - STATIC	2010	HBRAH
45 56 41.09042	93 05 10.16745	452639.966	178368.903	.033	C	GPS - STATIC	2010	HMORA
45 56 41.09042	93 05 10.16745	452639.966	178368.903	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 56 41.09019	93 05 10.16688	452640.006	178368.879	.033	C	GPS - STATIC	2010	HMORA
45 56 41.09057	93 05 10.16728	452639.978	178368.918	.033	C	GPS - STATIC	2010	HBRAH
45 56 41.09019	93 05 10.16688	452640.006	178368.879	.033	C	ADJUSTMENT	2003	GPS1839
45 56 41.09019	93 05 10.16688	452640.007	178368.879	.033	C	GPS - STATIC	2002	HPINE

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2920717.863	674762.273	1618507.270	16692591.937	.131	3	GPS - RTRN	2025	RTRN2025
2920717.835	674762.214	1618507.240	16692591.879	.131	3	GPS - OPUS	2020	GPSBM
2920717.811	674762.236	1618507.217	16692591.901	.003		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2920717.785	674762.213	1618507.191	16692591.879	.033	C	ADJUSTMENT	2011	GPS2812
2920717.751	674762.254	1618507.157	16692591.921	.033	C	ADJUSTMENT	2011	GPS2747
2920717.751	674762.254	1618507.157	16692591.921	.033	C	GPS - STATIC	2010	HBRAH
2920717.785	674762.213	1618507.191	16692591.879	.033	C	GPS - STATIC	2010	HMORA
2920717.785	674762.213	1618507.191	16692591.879	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2920717.826	674762.191	1618507.231	16692591.856	.033	C	GPS - STATIC	2010	HMORA
2920717.797	674762.229	1618507.203	16692591.895	.033	C	GPS - STATIC	2010	HBRAH
2920717.826	674762.191	1618507.231	16692591.856	.033	C	ADJUSTMENT	2003	GPS1839
2920717.826	674762.191	1618507.231	16692591.856	.033	C	GPS - STATIC	2002	HPINE

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/21-DF5920-3NW-15SEP2025.jpg	NW	Sep 15, 2025
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/21-DF5920-2-15SEP2025.jpg		Sep 15, 2025
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/21-DF5920-1-15SEP2025.jpg		Sep 15, 2025

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

22 CAP TBM

Mn/DOT Name: 22 CAP TBM

NGS Name: 22 CAP TBM

County: PINE, MN (Sheet 1)

NGS ACRN: AJ9126 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	28	38 N	21 W	454528.00	925744.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1968	1968	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
PIPE (CAPPED) DRIVEN IN GROUND (<10 FT)	CAP OF CAP-AND-BOLT PAIR	MNDT

Description:

5.0 MILES SOUTH OF PINE CITY, 4.4 MILES SOUTH ALONG MAIN STREET SOUTH (6TH STREET) FROM THE JUNCTION OF MAIN STREET SOUTH (6TH STREET) AND TRUNK HIGHWAY 324 IN PINE CITY, AT 558TH STREET.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -91.145 12B = -91.132 09 = -91.073 03 = -90.935

Mn/DOT Name: 22 MN115 **NGS Name:** 22

County: PINE, MN (Sheet 1)

NGS ACRN: DF5921 Get Map
NGS Quad / Sta Num : 45093114/
USGS Quad: QUAMBA

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	7	40 N	22 W	455824.83	930833.75		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1999	2019	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	HORIZONTAL CONTROL DISK	MN-115

Description: (2007) **Stamping:** NO 22

5.0 MILES NORTHWEST OF BROOK PARK, 0.28 MILE WEST ALONG COUNTY ROAD 13 FROM THE JUNCTION OF COUNTY ROAD 13 AND TRUNK HIGHWAY 23, THEN 2.8 MILES WEST ON COUNTY ROAD 131, THEN 1.75 MILES NORTH ON COUNTY ROAD 68, 31.0 FEET EAST OF A COUNTY ROAD 68, 5.0 FEET WEST OF A FENCE CORNER, 2.0 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
1051.914	.262		960.753	.197	2011	GPS - OPUS	2020	GPSBM
1051.868	.262		960.707	.197	2011	GPS - OPUS	2020	GPSBM
			960.533	.006	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1051.671	.131		960.615	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2747
1051.671	.131		960.615	.066	2007	GPS - STATIC	2010	HBRAH
1051.671	.131		960.769	.066	1996	GPS - STATIC	2010	HBRAH
			960.615	.008	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
1051.606	.131		960.769	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1924
1051.704	.131		960.769	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1839
1051.606	.131		960.769	.066	1996	GPS - STATIC	2003	HKANA
1051.704	.131		960.769	.066	1996	GPS - STATIC	2002	HPINE

Geoid Separations(ft): GEOID18 = -91.158 12B = -91.145 09 = -91.060 03 = -90.886

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 58 24.83404	93 08 33.74992	438285.109	188916.938	.131	3	GPS - OPUS	2020	GPSBM
45 58 24.83425	93 08 33.74995	438285.107	188916.959	.131	3	GPS - OPUS	2020	GPSBM
45 58 24.83425	93 08 33.74991	438285.110	188916.959	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 58 24.83442	93 08 33.75085	438285.043	188916.976	.033	C	ADJUSTMENT	2011	GPS2747
45 58 24.83442	93 08 33.75085	438285.043	188916.976	.033	C	GPS - STATIC	2010	HBRAH
45 58 24.83442	93 08 33.75085	438285.043	188916.976	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 58 24.83416	93 08 33.75024	438285.086	188916.950	.033	C	GPS - STATIC	2010	HBRAH
45 58 24.83416	93 08 33.75024	438285.086	188916.950	.033	C	ADJUSTMENT	2003	GPS1924
45 58 24.83416	93 08 33.75024	438285.086	188916.950	.033	C	ADJUSTMENT	2003	GPS1839
45 58 24.83416	93 08 33.75024	438285.086	188916.950	.033	C	GPS - STATIC	2003	HKANA
45 58 24.83416	93 08 33.75024	438285.086	188916.950	.033	C	GPS - STATIC	2002	HPINE

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2906186.826	685063.187	1604145.429	16703117.151	.131	3	GPS - OPUS	2020	GPSBM
2906186.824	685063.208	1604145.426	16703117.172	.131	3	GPS - OPUS	2020	GPSBM
2906186.827	685063.208	1604145.429	16703117.172	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2906186.760	685063.225	1604145.363	16703117.189	.033	C	ADJUSTMENT	2011	GPS2747
2906186.760	685063.225	1604145.363	16703117.189	.033	C	GPS - STATIC	2010	HBRAH
2906186.760	685063.225	1604145.363	16703117.189	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2906186.804	685063.199	1604145.406	16703117.163	.033	C	GPS - STATIC	2010	HBRAH
2906186.804	685063.199	1604145.406	16703117.163	.033	C	ADJUSTMENT	2003	GPS1924
2906186.804	685063.199	1604145.406	16703117.163	.033	C	ADJUSTMENT	2003	GPS1839
2906186.804	685063.199	1604145.406	16703117.163	.033	C	GPS - STATIC	2003	HKANA
2906186.804	685063.199	1604145.406	16703117.163	.033	C	GPS - STATIC	2002	HPINE

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/22-DF5921-3E-10APR2007.jpg	E	Apr 10, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/22-DF5921-2-10APR2007.jpg		Apr 10, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/22-DF5921-1-24DEC2019.jpg		Dec 24, 2019

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

Mn/DOT Name: 23 MN115 **NGS Name:** 23

County: PINE, MN (Sheet 1)

NGS ACRN: DF5922 Get Map
NGS Quad / Sta Num : 45093111/
USGS Quad: BROOK PARK

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	32	41 N	21 W	455919.34	930200.83		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1999	2020	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	HORIZONTAL CONTROL DISK	MN-115

Description: (2009) **Stamping:** NO 23

5.0 MILES NORTHEAST OF BROOK PARK, 2.5 MILES NORTHEAST ALONG TRUNK HIGHWAY 23 FROM THE JUNCTION OF TRUNK HIGHWAY 23 AND COUNTY ROAD 13 IN BROOK PARK TO TRUNK HIGHWAY 23 MILEPOINT 270.65, THEN 1.25 MILES NORTH ALONG ASPEN ROAD, THEN 0.6 MILE WEST ALONG BEAR ROAD, THEN 0.5 MILE NORTH ALONG SOUTHFORK ROAD, 31.0 FEET EAST OF THE SOUTHFORK ROAD, 15.0 FEET NORTH OF THE EXTENDED CENTERLINE OF LARKEY ROAD WEST, 2.3 FEET SOUTH OF A POWER POLE, 2.0 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
1033.000	.262		942.236	.197	2011	GPS - OPUS	2020	GPSBM
1033.088	.262		942.324	.197	2011	GPS - OPUS	2020	GPSBM
1033.125	.262		942.380	.197	2011	GPS - RTRN	2020	RTRN2020
			942.291	.006	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1033.036	.131		942.387	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2747
1033.036	.131		942.387	.066	2007	GPS - STATIC	2010	HBRAH
1033.036	.131		942.531	.066	1996	GPS - STATIC	2010	HBRAH
1033.036	.131		942.387	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2566
1033.036	.131		942.531	.066	1996	GPS - STATIC	2009	HMOOSE
1033.036	.131		942.387	.066	2007	GPS - STATIC	2009	HMOOSE
1032.865	.262		942.360	.197	1996	GPS - RTRN	2008	RTRN2008
			942.387	.010	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
1032.970	.131		942.531	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1924
1033.036	.131		942.531	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1839
1032.970	.131		942.531	.066	1996	GPS - STATIC	2003	HKANA
1033.036	.131		942.531	.066	1996	GPS - STATIC	2002	HPINE

Geoid Separations(ft): GEOID18 = -90.764 12B = -90.745 09 = -90.656 03 = -90.505

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 59 19.33616	93 02 00.83238	466046.978	194372.415	.131	3	GPS - OPUS	2020	GPSBM
45 59 19.33544	93 02 00.83213	466046.995	194372.342	.131	3	GPS - OPUS	2020	GPSBM
45 59 19.33572	93 02 00.83149	466047.041	194372.371	.131	3	GPS - RTRN	2020	RTRN2020
45 59 19.33578	93 02 00.83212	466046.996	194372.377	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 59 19.33625	93 02 00.83289	466046.942	194372.425	.033	C	ADJUSTMENT	2011	GPS2747
45 59 19.33625	93 02 00.83289	466046.942	194372.425	.033	C	GPS - STATIC	2010	HBRAH
45 59 19.33625	93 02 00.83289	466046.942	194372.425	.033	C	ADJUSTMENT	2009	GPS2566
45 59 19.33625	93 02 00.83289	466046.942	194372.425	.033	C	GPS - STATIC	2009	HMOOSE
45 59 19.33625	93 02 00.83289	466046.942	194372.425	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 59 19.33597	93 02 00.83228	466046.985	194372.396	.033	C	GPS - STATIC	2010	HBRAH
45 59 19.33597	93 02 00.83228	466046.985	194372.396	.033	C	GPS - STATIC	2009	HMOOSE
45 59 19.33621	93 02 00.83272	466046.954	194372.420	.131	3	GPS - RTRN	2008	RTRN2008
45 59 19.33597	93 02 00.83228	466046.985	194372.396	.033	C	ADJUSTMENT	2003	GPS1924
45 59 19.33597	93 02 00.83228	466046.985	194372.396	.033	C	ADJUSTMENT	2003	GPS1839
45 59 19.33597	93 02 00.83228	466046.985	194372.396	.033	C	GPS - STATIC	2003	HKANA
45 59 19.33597	93 02 00.83228	466046.985	194372.396	.033	C	GPS - STATIC	2002	HPINE

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2933848.899	690990.140	1631888.109	16708605.139	.131	3	GPS - OPUS	2020	GPSBM
2933848.918	690990.067	1631888.127	16708605.066	.131	3	GPS - OPUS	2020	GPSBM
2933848.963	690990.097	1631888.172	16708605.095	.131	3	GPS - RTRN	2020	RTRN2020
2933848.918	690990.102	1631888.127	16708605.101	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2933848.863	690990.149	1631888.073	16708605.148	.033	C	ADJUSTMENT	2011	GPS2747
2933848.863	690990.149	1631888.073	16708605.148	.033	C	GPS - STATIC	2010	HBRAH
2933848.863	690990.149	1631888.073	16708605.148	.033	C	ADJUSTMENT	2009	GPS2566
2933848.863	690990.149	1631888.073	16708605.148	.033	C	GPS - STATIC	2009	HMOOSE
2933848.863	690990.149	1631888.073	16708605.148	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2933848.907	690990.121	1631888.116	16708605.120	.033	C	GPS - STATIC	2010	HBRAH
2933848.907	690990.121	1631888.116	16708605.120	.033	C	GPS - STATIC	2009	HMOOSE
2933848.875	690990.145	1631888.085	16708605.144	.131	3	GPS - RTRN	2008	RTRN2008
2933848.907	690990.121	1631888.116	16708605.120	.033	C	ADJUSTMENT	2003	GPS1924
2933848.907	690990.121	1631888.116	16708605.120	.033	C	ADJUSTMENT	2003	GPS1839
2933848.907	690990.121	1631888.116	16708605.120	.033	C	GPS - STATIC	2003	HKANA
2933848.907	690990.121	1631888.116	16708605.120	.033	C	GPS - STATIC	2002	HPINE

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/23-DF5922-3E-30APR2020.jpg	E	Apr 30, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/23-DF5922-2-30APR2020.jpg		Apr 30, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/23-DF5922-1-30APR2020.jpg		Apr 30, 2020

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

Mn/DOT Name: 26 MN115 **NGS Name:** 26

County: PINE, MN (Sheet 1)

NGS ACRN: DF5923 Get Map
NGS Quad / Sta Num : 45092414/
USGS Quad: LAKE CLAYTON

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	31	41 N	18 W	455858.85	924018.52		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1999	2019	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-115

Description: (2008) **Stamping:** NO 26

14.0 MILES EAST-SOUTHEAST OF HINCKLEY, 9.0 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND INTERSTATE HIGHWAY 35 AT HINCKLEY, TO COUNTY ROAD 21 AT CLOVERDALE, THEN 2.0 MILES SOUTH ALONG COUNTY ROAD 21, THEN 3.35 MILES EAST ALONG COUNTY ROAD 136 (SAND RIVER ROAD), 32.0 FEET NORTH OF COUNTY ROAD 136, 2.0 FEET SOUTH OF A WITNESS POST.

Station Notes

THE MONUMENT IS A CONCRETE MONUMENT. THERE IS A TREE TO THE NORTH OF MARK THAT MAY MAKE GPS DIFFICULT.

*** 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
941.684	.262		853.962	.197	2011	GPS - OPUS	2020	GPSBM
941.760	.262		854.037	.197	2011	GPS - OPUS	2020	GPSBM
941.927			853.968	.012	2011	HORIZONTAL ADJUSTMENT	2015	GPS3071
941.927			853.994	.012	2011	GPS - STATIC	2015	HCLVR
941.927	.131		854.198	.066	2007	GPS - STATIC	2012	HCLVR
941.927	.131		854.296	.066	1996	GPS - STATIC	2012	HCLVR
			853.968	.012	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
941.829	.262		854.106	.197	2007	GPS - RTRN	2012	RTRN2012
941.681	.262		854.053	.197	1996	GPS - RTRN	2008	RTRN2008
			854.070	.013	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
941.829	.131		854.224	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1839
941.829	.131		854.224	.066	1996	GPS - STATIC	2002	HPINE

Geoid Separations(ft): GEOID18 = -87.723 12B = -87.798 09 = -87.723 03 = -87.624

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 58 58.84936	92 40 18.51679	558013.304	192351.782	.131	3	GPS - OPUS	2020	GPSBM
45 58 58.84921	92 40 18.51697	558013.291	192351.767	.131	3	GPS - OPUS	2020	GPSBM
45 58 58.84934	92 40 18.51668	558013.311	192351.780	.016		ADJUSTMENT	2015	GPS3071
45 58 58.84929	92 40 18.51683	558013.301	192351.775	.016	C	GPS - STATIC	2015	HCLVR
45 58 58.84934	92 40 18.51668	558013.311	192351.780	.020		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 58 58.84938	92 40 18.51738	558013.262	192351.784	.033	C	GPS - STATIC	2012	HCLVR
45 58 58.84849	92 40 18.51734	558013.265	192351.694	.131	3	GPS - RTRN	2012	RTRN2012
45 58 58.84938	92 40 18.51738	558013.262	192351.784	.023		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 58 58.84933	92 40 18.51695	558013.292	192351.779	.033	C	GPS - STATIC	2012	HCLVR
45 58 58.84954	92 40 18.51692	558013.295	192351.801	.131	3	GPS - RTRN	2008	RTRN2008
45 58 58.84933	92 40 18.51695	558013.292	192351.779	.033	C	ADJUSTMENT	2003	GPS1839
45 58 58.84933	92 40 18.51695	558013.293	192351.781	.033	C	GPS - STATIC	2002	HPINE

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3025826.816	690537.523	1723816.318	16706700.699	.131	3	GPS - OPUS	2020	GPSBM
3025826.804	690537.508	1723816.306	16706700.683	.131	3	GPS - OPUS	2020	GPSBM
3025826.824	690537.522	1723816.326	16706700.697	.016		ADJUSTMENT	2015	GPS3071
3025826.814	690537.516	1723816.316	16706700.692	.016	C	GPS - STATIC	2015	HCLVR
3025826.824	690537.522	1723816.326	16706700.697	.020		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3025826.775	690537.525	1723816.277	16706700.700	.033	C	GPS - STATIC	2012	HCLVR
3025826.779	690537.435	1723816.280	16706700.610	.131	3	GPS - RTRN	2012	RTRN2012
3025826.775	690537.525	1723816.277	16706700.700	.023		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3025826.805	690537.520	1723816.307	16706700.695	.033	C	GPS - STATIC	2012	HCLVR
3025826.807	690537.541	1723816.309	16706700.717	.131	3	GPS - RTRN	2008	RTRN2008
3025826.805	690537.520	1723816.307	16706700.695	.033	C	ADJUSTMENT	2003	GPS1839
3025826.805	690537.520	1723816.307	16706700.695	.033	C	GPS - STATIC	2002	HPINE

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/26-DF5923-3N-21NOV2019.jpg	N	Nov 21, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/26-DF5923-2-09MAY2012.jpg		May 9, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/26-DF5923-1-21NOV2019.jpg		Nov 21, 2019

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

30 DM

Mn/DOT Name: 30 DM **NGS Name:** 30 DM

County: PINE, MN (Sheet 1)

NGS ACRN: Get Map
NGS Quad / Sta Num : 45093112/
USGS Quad: HENRIETTE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	24	38 N	22 W	454535.00	930228.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2017	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

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

Description: (1979) **Stamping:** TT 30 DM 1954

6.0 MILES SOUTHWEST OF PINE CITY, 4.0 MILES WEST OF ROCK CREEK, 2.6 MILES WEST ALONG TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 70 AND INTERSTATE HIGHWAY 35, 23.0 FEET NORTH AND 470.0 FEET EAST OF THE JUNCTION OF TRUNK HIGHWAY 70 AND 570TH STREET (NORTH-SOUTH) -COUNTY ROAD 109 (EAST-SOUTHWEST), 10.0 FEET SOUTHWEST OF A POWER POLE.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
990.598	.033	3				VERTICAL CONTROL SURVEY	1966	USGS-VERT

Geoid Separations(ft): GEOID18 = -91.890 12B = -91.880 09 = -91.791 03 = -91.647

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

Mn/DOT Name: 31 DM **NGS Name:** 31 DM

County: PINE, MN (Sheet 1)

NGS ACRN: Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	20	38 N	22 W	454534.50	925957.46		3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2017	GOOD	Horz=NO Vert=NO	YES		FLUSH	STEEL ROD IMBED IN MON

Monument Type
CONCRETE POST (PREFABRICATED)

Disk Type
BENCH MARK DISK

Mon. Agency
USGS

Description: (2007)

Stamping: TT 31 DM 1954 958

0.50 MILE WEST ALONG TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 70 AND INTERSTATE HIGHWAY 35 IN ROCK CREEK, THEN 0.50 MILE SOUTH ON COUNTY ROAD 23 (FALCON AVENUE), THEN 0.10 MILE EAST ON 560TH STREET, 34.0 FEET NORTH OF 560TH STREET, 0.6 FOOT SOUTH OF A WITNESS POST.

Station Notes
DO NOT USE THIS MARK, IT IS LOOSE IN THE GROUND.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
958.000	.033	3				VERTICAL CONTROL SURVEY	1966	USGS-VERT

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
958.272	.262		866.744	.197	2011	GPS - RTRN	2017	RTRN2017

Geoid Separations(ft): GEOID18 = -91.555 12B = -91.529 09 = -91.463 03 = -91.332

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 34.50003	92 59 57.46293	474654.166	110804.097	.131	3	GPS - RTRN	2017	RTRN2017

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2943877.663	607588.468	1640596.475	16625085.244	.131	3	GPS - RTRN	2017	RTRN2017

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/31_DM-3N-23MAY2017.jpg	N	May 23, 2017
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/31_DM-2-23MAY2017.jpg		May 23, 2017
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/31_DM-1-23MAY2017.jpg		May 23, 2017

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

Mn/DOT Name: 32 RC

NGS Name: 32 RC

County: PINE, MN (Sheet 1)

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	7	41 N	17 W	460229.00	923147.00		

NGS ACRN: Get Map
NGS Quad / Sta Num : 46092322/
USGS Quad: WILBUR LAKE

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2007	NOT FOUND	Horz=NO Vert=NO	NO			SEE DESCRIPTION

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

Description: (2010) **Stamping:** 32 RC 1954 1015

11.0 MILES NORTHEAST OF CLOVERDALE, 11.2 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE EASTERN BOUNDARIES OF CLOVERDALE, THEN 2.0 MILES NORTH ON TAMARACK RIVER ROAD FROM THE JUNCTION WITH TRUNK HIGHWAY 48, 164.0 FEET NORTH AND 23.0 FEET WEST OF THE DIM CROSSROADS, AT THE CROWN OF THE HILL, 2.0 FEET EAST OF A TELEPHONE POLE AND A FENCE LINE.

Station Notes

THE SURVEY MARK WAS ON COUNTY ROAD 24 AND WAS UNDER CONSTRUCTION. THIS AREA WAS BARE EARTH, THERE WAS NO SIGN OF THE MARK.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1014.594	.033	3				VERTICAL CONTROL SURVEY	1980	USGS-VERT

Geoid Separations(ft): GEOID18 = -86.929 12B = -87.024 09 = -86.975 03 = -86.873

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

Mn/DOT Name: 33 MN115 **NGS Name:** 33

County: PINE, MN (Sheet 1)

NGS ACRN: DF5924 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	22	41 N	21 W	460105.80	925925.30		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1999	2020	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-115

Description: (2012) **Stamping:** NO 33

2.5 MILES WEST OF HINCKLEY, 2.35 MILES WEST ALONG COUNTY ROAD 18 FROM THE JUNCTION OF COUNTY ROAD 18 AND COUNTY ROAD 61 IN HINCKLEY, 0.1 MILE EAST OF COUNTY ROAD 17, 0.1 MILE EAST OF THE WEST CORNER OF THE SECTION 22, 73.0 FEET NORTH OF COUNTY ROAD 18, 23.0 FEET WEST OF A FIELD ENTRANCE, 20.0 FEET NORTH OF THE WEST END OF A CULVERT, 2.4 FEET EAST OF A WITNESS POST.

*** No Leveling-Derived Orthometric Heights in the Database ***

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1063.344	.262		972.836	.197	2011	GPS - OPUS	2020	GPSBM
1063.328	.262		972.820	.197	2011	GPS - OPUS	2020	GPSBM
1063.489	.262		972.987	.197	2011	GPS - RTRN	2020	RTRN2020
			972.888	.006	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1063.295	.262		972.905	.197	2007	GPS - RTRN	2012	RTRN2012
1063.351	.131		973.003	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2566
1063.351	.131		973.138	.066	1996	GPS - STATIC	2009	HMOOSE
1063.351	.131		973.003	.066	2007	GPS - STATIC	2009	HMOOSE
1063.138	.262		972.895	.197	1996	GPS - RTRN	2008	RTRN2008
			973.003	.009	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
1063.384	.131		973.138	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1839
1063.384	.131		973.138	.066	1996	GPS - STATIC	2002	HPINE

Geoid Separations(ft): GEOID18 = -90.508 12B = -90.502 09 = -90.390 03 = -90.243

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 01 05.80444	92 59 25.30280	477041.635	205142.334	.131	3	GPS - OPUS	2020	GPSBM
46 01 05.80404	92 59 25.30298	477041.622	205142.293	.131	3	GPS - OPUS	2020	GPSBM
46 01 05.80409	92 59 25.30280	477041.635	205142.298	.131	3	GPS - RTRN	2020	RTRN2020
46 01 05.80446	92 59 25.30251	477041.656	205142.336	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 01 05.80400	92 59 25.30327	477041.602	205142.289	.131	3	GPS - RTRN	2012	RTRN2012
46 01 05.80437	92 59 25.30324	477041.604	205142.327	.033	C	ADJUSTMENT	2009	GPS2566
46 01 05.80437	92 59 25.30324	477041.604	205142.327	.033	C	GPS - STATIC	2009	HMOOSE
46 01 05.80437	92 59 25.30324	477041.604	205142.327	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 01 05.80428	92 59 25.30280	477041.635	205142.318	.033	C	GPS - STATIC	2009	HMOOSE
46 01 05.80481	92 59 25.30301	477041.620	205142.371	.131	3	GPS - RTRN	2008	RTRN2008
46 01 05.80428	92 59 25.30280	477041.635	205142.318	.033	C	ADJUSTMENT	2003	GPS1839
46 01 05.80428	92 59 25.30280	477041.634	205142.316	.033	C	GPS - STATIC	2002	HPINE

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2944657.338	701944.671	1642864.350	16719384.094	.131	3	GPS - OPUS	2020	GPSBM
2944657.326	701944.631	1642864.338	16719384.053	.131	3	GPS - OPUS	2020	GPSBM
2944657.339	701944.636	1642864.350	16719384.058	.131	3	GPS - RTRN	2020	RTRN2020
2944657.359	701944.674	1642864.371	16719384.096	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2944657.306	701944.626	1642864.317	16719384.049	.131	3	GPS - RTRN	2012	RTRN2012
2944657.308	701944.664	1642864.319	16719384.086	.033	C	ADJUSTMENT	2009	GPS2566
2944657.308	701944.664	1642864.319	16719384.086	.033	C	GPS - STATIC	2009	HMOOSE
2944657.308	701944.664	1642864.319	16719384.086	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2944657.339	701944.655	1642864.350	16719384.077	.033	C	GPS - STATIC	2009	HMOOSE
2944657.323	701944.709	1642864.335	16719384.131	.131	3	GPS - RTRN	2008	RTRN2008
2944657.339	701944.655	1642864.350	16719384.077	.033	C	ADJUSTMENT	2003	GPS1839
2944657.339	701944.655	1642864.350	16719384.078	.033	C	GPS - STATIC	2002	HPINE

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/33-DF5924-3N-30APR2020.jpg	N	Apr 30, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/33-DF5924-2-30APR2020.jpg		Apr 30, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/33-DF5924-1-30APR2020.jpg		Apr 30, 2020

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

Mn/DOT Name: 33 RC

NGS Name: 33 RC

County: PINE, MN (Sheet 1)

NGS ACRN: DH4963 Get Map
NGS Quad / Sta Num : 46092322/
USGS Quad: WILBUR LAKE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	29	41 N	17 W	460040.66	923142.60	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2012	DESTROYED	Horz=NO Vert=NO	YES		PROJECTS 0 IN.	STEEL ROD IMBED IN MON

Monument Type	Disk Type	Mon. Agency
UNKNOWN	BENCH MARK DISK	USGS

Description: (1954)

Stamping: 33 RC 1954 918

10.2 MILES EAST OF CLOVERDALE, 10.2 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND CLOVERDALE ROAD IN CLOVERDALE, 0.1 MILE EAST OF THE SECTION CORNER, IN THE CREEK BOTTOM, 70.0 FEET SOUTH AND 39.0 FEET EAST OF TRUNK HIGHWAY 48 AT A ROAD NORTH (COUNTY ROAD 24).

Station Notes

THE CONCRETE WAS FOUND MOVING. 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
917.974	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
918.138	.016	2/1				VERTICAL ADJUSTMENT	2006	00000497
918.190	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
917.915	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV
918.076	.033	3				VERTICAL CONTROL SURVEY	1980	USGS-VERT

Geoid Separations(ft): GEOID18 = -86.906 12B = -86.998 09 = -86.965 03 = -86.847

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

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/33_RC-DH4963-3S-25APR2007.jpg	S	Apr 25, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/33_RC-DH4963-2-25APR2007.jpg		Apr 25, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/33_RC-DH4963-1-25APR2007.jpg		Apr 25, 2007

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

34 DM

Mn/DOT Name: 34 DM **NGS Name:** 34 DM

County: PINE, MN (Sheet 1)

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	25	38 N	21 W	454441.00	925358.00		

NGS ACRN: Get Map
NGS Quad / Sta Num : 45092434/
USGS Quad: RUSH CITY

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2007	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

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

Description: (1954) **Stamping:** TT 34 DM 1954 923

4.0 MILES SOUTHEAST OF PINE CITY, 0.5 MILE WEST ALONG 560TH STREET (COUNTY ROAD 109) FROM THE WEST BOUNDARY OF ROCK CREEK, THEN 1.0 MILE SOUTH ALONG KEYSTONE ROAD, THEN 270.0 FEET WEST ALONG 550TH STREET, 29.0 FEET NORTH OF COUNTY ROAD 104 AND 325.0 FEET WEST OF THE CROSSROADS, 4.0 FEET NORTH OF A FENCE.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
922.902	.033	3				VERTICAL CONTROL SURVEY	1968	USGS-VERT

Geoid Separations(ft): GEOID18 = -90.426 12B = -90.439 09 = -90.390 03 = -90.239

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

Mn/DOT Name: 34 MN115 **NGS Name:** 34

County: PINE, MN (Sheet 1)

NGS ACRN: DF5925 Get Map
NGS Quad / Sta Num : 46093222/
USGS Quad: KROSCHEL

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	7	41 N	21 W	460313.57	930201.83		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1999	2019	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-115

Description: (2002) **Stamping:** NO 34

6.5 MILES NORTHWEST OF HINCKLEY, 2.0 MILES SOUTHEAST OF KROSCHEL, 4.8 MILES WEST ALONG COUNTY ROAD 18 FROM THE JUNCTION OF COUNTY ROAD 18 AND COUNTY ROAD 61 IN HINCKLEY, THEN 2.0 MILES NORTH ALONG THE SOUTH FORK ROAD, 45.0 FEET SOUTH OF THE EAST-WEST MARSH HAWK ROAD, 34.0 FEET WEST OF NORTH-SOUTH COUNTY ROAD 140, 2.0 FEET EAST OF A WITNESS POST.

*** No Leveling-Derived Orthometric Heights in the Database ***

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1104.568	.262		1013.853	.197	2011	GPS - OPUS	2020	GPSBM
			1013.787	.007	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1104.427	.131		1013.889	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2566
1104.427	.131		1014.027	.066	1996	GPS - STATIC	2009	HMOOSE
1104.427	.131		1013.889	.066	2007	GPS - STATIC	2009	HMOOSE
1104.187	.262		1013.755	.197	1996	GPS - RTRN	2008	RTRN2008
			1013.889	.009	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
1104.427	.131		1014.027	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1924
1104.493	.131		1014.027	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1839
1104.427	.131		1014.027	.066	1996	GPS - STATIC	2003	HKANA
1104.493	.131		1014.027	.066	1996	GPS - STATIC	2002	HPINE

Geoid Separations(ft): GEOID18 = -90.715 12B = -90.692 09 = -90.597 03 = -90.433

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 03 13.57326	93 02 01.82544	466016.778	218101.106	.131	3	GPS - OPUS	2020	GPSBM
46 03 13.57338	93 02 01.82540	466016.781	218101.118	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 03 13.57350	93 02 01.82623	466016.722	218101.130	.033	C	ADJUSTMENT	2009	GPS2566
46 03 13.57350	93 02 01.82623	466016.722	218101.130	.033	C	GPS - STATIC	2009	HMOOSE
46 03 13.57350	93 02 01.82623	466016.722	218101.130	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 03 13.57338	93 02 01.82570	466016.759	218101.118	.033	C	GPS - STATIC	2009	HMOOSE
46 03 13.57334	93 02 01.82529	466016.788	218101.114	.131	3	GPS - RTRN	2008	RTRN2008
46 03 13.57338	93 02 01.82570	466016.759	218101.118	.033	C	ADJUSTMENT	2003	GPS1924
46 03 13.57338	93 02 01.82570	466016.759	218101.118	.033	C	ADJUSTMENT	2003	GPS1839
46 03 13.57338	93 02 01.82570	466016.760	218101.118	.033	C	GPS - STATIC	2003	HKANA
46 03 13.57338	93 02 01.82570	466016.759	218101.118	.033	C	GPS - STATIC	2002	HPINE

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2933414.501	714712.359	1631828.098	16732323.266	.131	3	GPS - OPUS	2020	GPSBM
2933414.503	714712.372	1631828.101	16732323.278	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2933414.445	714712.383	1631828.042	16732323.290	.033	C	ADJUSTMENT	2009	GPS2566
2933414.445	714712.383	1631828.042	16732323.290	.033	C	GPS - STATIC	2009	HMOOSE
2933414.445	714712.383	1631828.042	16732323.290	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2933414.482	714712.371	1631828.079	16732323.278	.033	C	GPS - STATIC	2009	HMOOSE
2933414.511	714712.368	1631828.108	16732323.274	.131	3	GPS - RTRN	2008	RTRN2008
2933414.482	714712.371	1631828.079	16732323.278	.033	C	ADJUSTMENT	2003	GPS1924
2933414.482	714712.371	1631828.079	16732323.278	.033	C	ADJUSTMENT	2003	GPS1839
2933414.482	714712.371	1631828.080	16732323.278	.033	C	GPS - STATIC	2003	HKANA
2933414.482	714712.371	1631828.079	16732323.278	.033	C	GPS - STATIC	2002	HPINE

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/34-DF5925-3W-12DEC2019.jpg	W	Dec 12, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/34-DF5925-2-12DEC2019.jpg		Dec 12, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/34-DF5925-1-12DEC2019.jpg		Dec 12, 2019

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

Mn/DOT Name: 34 RC
NGS Name: 34 RC 987
County: PINE, MN (Sheet 1)

NGS ACRN: DH4964 Get Map
NGS Quad / Sta Num : 46092233/
USGS Quad: DANBURY WEST

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	21	41 N	17 W	460045.30	922919.25	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2012	DESTROYED	Horz=NO Vert=NO	YES		PROJECTS 2 IN.	STEEL SPIKE IMBED IN MON

Monument Type	Disk Type	Mon. Agency
UNKNOWN	BENCH MARK DISK	USGS

Description: (2008) **Stamping:** 34 RC 1954 987

5.8 MILES WEST OF DANBURY, AT TRUNK HIGHWAY 48 MILEPOINT 21.35, 93.0 FEET NORTH OF TRUNK HIGHWAY 48, 114.0 FEET WEST OF THE JUNCTION OF TRUNK HIGHWAY 48 AND COUNTY ROAD 137 NORTH (TOWNSHIP ROAD SOUTH), 83.0 FEET SOUTH AND 23.0 FEET EAST OF THE SOUTHEAST CORNER OF THE OLD SCHOOLHOUSE PORCH, 0.8 FOOT SOUTH OF A WITNESS POST.

Station Notes
THE CONCRETE WAS FOUND MOVING, THE DISK 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
986.960	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
986.921	.016	2/1				VERTICAL ADJUSTMENT	2012	00000712
987.147	.016	2/1				VERTICAL ADJUSTMENT	2006	00000497
987.206	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
986.930	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV
986.799	.033	3				VERTICAL CONTROL SURVEY	1980	USGS-VERT

Geoid Separations(ft): GEOID18 = -86.752 12B = -86.834 09 = -86.827 03 = -86.703

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

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/34_RC_987-DH4964-3NW-12JUN2008.jpg	NW	Jun 12, 2008
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/34_RC_987-DH4964-2-12JUN2008.jpg		Jun 12, 2008
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/34_RC_987-DH4964-1-12JUN2008.jpg		Jun 12, 2008

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

35 DM

Mn/DOT Name: 35 DM **NGS Name:** 35 DM

County: PINE, MN (Sheet 1)

NGS ACRN: Get Map
NGS Quad / Sta Num : 45092431/
USGS Quad: RANDALL

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	32	38 N	20 W	454440.20	925132.60		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2007	GOOD	Horz=NO Vert=YES	YES		FLUSH	STEEL ROD IMBED IN MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	USGS

Description: (2007) **Stamping:** TT 35 DM 1954 854

5.05 MILES SOUTHEAST OF ROCK CREEK, 1.0 MILE SOUTH ALONG COUNTY ROAD 3 FROM THE JUNCTION OF COUNTY ROAD 3 AND TRUNK HIGHWAY 70 IN ROCK CREEK, THEN 1.0 MILE SOUTH ALONG COUNTY ROAD 104, 30.0 FEET SOUTH OF COUNTY ROAD 104, 390.0 FEET WEST OF THE JUNCTION OF COUNTY ROAD 104 (NORTH AND WEST) AND TOWNSHIP ROAD (EAST 550TH STREET AND MAPLE AVENUE SOUTH), 5.5 FEET WEST OF A POWER POLE, 0.6 FOOT NORTH OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
854.470	.033	3				VERTICAL CONTROL SURVEY	1968	USGS-VERT

Geoid Separations(ft): GEOID18 = -89.997 12B = -900000 09 = -89.951 03 = -89.829

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

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/35_DM-3S-13MAY2007.jpg	S	May 13, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/35_DM-2-13MAY2007.jpg		May 13, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/35_DM-1-13MAY2007.jpg		May 13, 2007

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

35 RC

Mn/DOT Name: 35 RC
NGS Name: 35 RC
County: PINE, MN (Sheet 1)

NGS ACRN: RN0600 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	29	41 N	20 W	460040.00	925406.00	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
UNKNOWN	SURVEY DISK	USGS

Description: (1954) **Stamping:** 35 RC 1954 1018

2.1 MILES EAST OF HINCKLEY, 1.45 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND INTERSTATE HIGHWAY 35 IN HINCKLEY, 53.0 FEET SOUTH OF TRUNK HIGHWAY 48, AT TRUNK HIGHWAY 48 MILEPOINT 1.5, 3.0 FEET EAST OF A 6.0 INCH DIAMETER MAPLE TREE, 1.0 FOOT 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
1019.001	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1018.384	.033	3				VERTICAL CONTROL SURVEY	1979	USGS-VERT
1018.738	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
1018.804	.016	2				VERTICAL CONTROL SURVEY	1974	L23306

Geoid Separations(ft): GEOID18 = -89.934 12B = -89.924 09 = -89.816 03 = -89.718

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

36 DM

Mn/DOT Name: 36 DM

NGS Name: 36 DM

County: PINE, MN (Sheet 1)

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	21	38 N	20 W	454616.00	925127.00		

NGS ACRN: Get Map
NGS Quad / Sta Num : 45092442/
USGS Quad: BASS CREEK

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

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

Description: (1954) **Stamping:** TT 36 DM 1954 943

5.5 MILES NORTHEAST OF ROCK CREEK, 1.0 MILE NORTH ALONG KEYSTONE STREET FROM THE JUNCTION OF KEYSTONE STREET AND COUNTY ROAD 2(COUNTY ROAD 109) IN ROCK CREEK, THEN 1.9 MILES EAST ALONG TRUNK HIGHWAY 70, THEN 850.0 FEET SOUTH AND 28.0 FEET EAST OF THE JUNCTION OF TRUNK HIGHWAY 70 AND COUNTY ROAD 3, 2.0 FEET SOUTH AND 3.0 FEET WEST OF A TELEPHONE POLE.

Station Notes

THE TELEPHONE POLE IS GONE, THERE IS NEW HOUSING, NEW LANDSCAPING, AND A BURIED CABLE IN AREA.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
943.328	.033	3				VERTICAL CONTROL SURVEY	1966	USGS-VERT

Geoid Separations(ft): GEOID18 = -89.846 12B = -89.846 09 = -89.806 03 = -89.685

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

Mn/DOT Name: 36 MN115 **NGS Name:** 36

County: PINE, MN (Sheet 1)

NGS ACRN: DF5926 Get Map
NGS Quad / Sta Num : 46092332/
USGS Quad: SANDSTONE SOUTH

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	1	41 N	20 W	460353.37	924929.64		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1999	2020	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-115

Description: (2012) **Stamping:** NO 36

9.0 MILES NORTHEAST OF HINCKLEY TO TRUNK HIGHWAY 48, 5.15 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND INTERSTATE HIGHWAY 35 AT HINCKLEY, THEN 3.75 MILES NORTH ALONG COUNTY ROAD 20, 32.0 FEET EAST OF COUNTY ROAD 20, 36.0 FEET SOUTH OF A FIELD ENTRANCE, 2.0 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
1029.365	.262		940.011	.197	2011	GPS - OPUS	2020	GPSBM
1029.283	.262		939.929	.197	2011	GPS - OPUS	2020	GPSBM
1029.384	.262		940.015	.197	2011	GPS - RTRN	2020	RTRN2020
1029.352			939.998	.009	2011	HORIZONTAL ADJUSTMENT	2015	GPS3071
1029.352			939.985	.009	2011	GPS - STATIC	2015	HCLVR
1029.427	.131		940.139	.066	2007	GPS - STATIC	2012	HCLVR
1029.427	.131		940.241	.066	1996	GPS - STATIC	2012	HCLVR
			939.998	.008	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1029.299	.262		940.021	.197	2007	GPS - RTRN	2012	RTRN2012
1029.427	.131		940.100	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2566
1029.302	.262		940.120	.197	1996	GPS - RTRN	2009	RTRN2009
1029.427	.131		940.241	.066	1996	GPS - STATIC	2009	HMOOSE
1029.427	.131		940.100	.066	2007	GPS - STATIC	2009	HMOOSE
1029.286	.262		940.103	.197	1996	GPS - RTRN	2008	RTRN2008
			940.100	.012	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
1029.394	.131		940.241	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1839
1029.394	.131		940.241	.066	1996	GPS - STATIC	2002	HPINE

Geoid Separations(ft): GEOID18 = -89.357 12B = -89.370 09 = -89.278 03 = -89.183

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 03 53.36662	92 49 29.63996	519064.735	222112.676	.131	3	GPS - OPUS	2020	GPSBM
46 03 53.36712	92 49 29.64029	519064.712	222112.726	.131	3	GPS - OPUS	2020	GPSBM
46 03 53.36634	92 49 29.63980	519064.747	222112.647	.131	3	GPS - RTRN	2020	RTRN2020
46 03 53.36687	92 49 29.63985	519064.743	222112.701	.010		ADJUSTMENT	2015	GPS3071
46 03 53.36688	92 49 29.63987	519064.742	222112.702	.010	C	GPS - STATIC	2015	HCLVR
46 03 53.36687	92 49 29.63985	519064.743	222112.701	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 03 53.36665	92 49 29.64033	519064.710	222112.679	.033	C	GPS - STATIC	2012	HCLVR
46 03 53.36676	92 49 29.64053	519064.695	222112.690	.131	3	GPS - RTRN	2012	RTRN2012
46 03 53.36665	92 49 29.64033	519064.710	222112.679	.033	C	ADJUSTMENT	2009	GPS2566
46 03 53.36665	92 49 29.64033	519064.710	222112.679	.033	C	GPS - STATIC	2009	HMOOSE
46 03 53.36665	92 49 29.64033	519064.710	222112.679	.020		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 03 53.36660	92 49 29.63992	519064.738	222112.674	.033	C	GPS - STATIC	2012	HCLVR
46 03 53.36726	92 49 29.64104	519064.659	222112.740	.131	3	GPS - RTRN	2009	RTRN2009
46 03 53.36660	92 49 29.63992	519064.738	222112.674	.033	C	GPS - STATIC	2009	HMOOSE
46 03 53.36721	92 49 29.64076	519064.679	222112.736	.131	3	GPS - RTRN	2008	RTRN2008
46 03 53.36660	92 49 29.63992	519064.738	222112.674	.033	C	ADJUSTMENT	2003	GPS1839
46 03 53.36660	92 49 29.63992	519064.739	222112.673	.033	C	GPS - STATIC	2002	HPINE

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2986380.619	719626.854	1684847.536	16736399.705	.131	3	GPS - OPUS	2020	GPSBM
2986380.595	719626.904	1684847.513	16736399.756	.131	3	GPS - OPUS	2020	GPSBM
2986380.631	719626.826	1684847.548	16736399.677	.131	3	GPS - RTRN	2020	RTRN2020
2986380.626	719626.880	1684847.544	16736399.731	.010		ADJUSTMENT	2015	GPS3071
2986380.625	719626.881	1684847.542	16736399.732	.010	C	GPS - STATIC	2015	HCLVR
2986380.626	719626.880	1684847.544	16736399.731	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2986380.593	719626.857	1684847.510	16736399.708	.033	C	GPS - STATIC	2012	HCLVR
2986380.579	719626.868	1684847.496	16736399.719	.131	3	GPS - RTRN	2012	RTRN2012
2986380.593	719626.857	1684847.510	16736399.708	.033	C	ADJUSTMENT	2009	GPS2566
2986380.593	719626.857	1684847.510	16736399.708	.033	C	GPS - STATIC	2009	HMOOSE
2986380.593	719626.857	1684847.510	16736399.708	.020		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2986380.622	719626.852	1684847.539	16736399.703	.033	C	GPS - STATIC	2012	HCLVR
2986380.542	719626.918	1684847.460	16736399.770	.131	3	GPS - RTRN	2009	RTRN2009
2986380.622	719626.852	1684847.539	16736399.703	.033	C	GPS - STATIC	2009	HMOOSE
2986380.562	719626.913	1684847.480	16736399.765	.131	3	GPS - RTRN	2008	RTRN2008
2986380.622	719626.852	1684847.539	16736399.703	.033	C	ADJUSTMENT	2003	GPS1839
2986380.622	719626.852	1684847.539	16736399.703	.033	C	GPS - STATIC	2002	HPINE

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/36-DF5926-3E-30APR2020.jpg	E	Apr 30, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/36-DF5926-2-30APR2020.jpg		Apr 30, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/36-DF5926-1-30APR2020.jpg		Apr 30, 2020

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

Mn/DOT Name: 36 RC

NGS Name: 36 RC

County: PINE, MN (Sheet 1)

NGS ACRN: Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	28	41 N	20 W	460039.00	925248.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

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

Description: (1997) **Stamping:** 36 RC 1954

4.0 MILES EAST OF HINCKLEY, 2.4 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND INTERSTATE HIGHWAY 35 IN HINCKLEY, AT MILEPOINT 3.3, 62.0 FEET SOUTH AND 202.0 FEET WEST OF A PRIVATE DRIVE NORTH, NEAR THE NORTHWEST CORNER OF THE YARD.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
986.957	.033	3				VERTICAL CONTROL SURVEY	1966	USGS-VERT

Geoid Separations(ft): GEOID18 = -89.737 12B = -89.731 09 = -89.623 03 = -89.537

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

Mn/DOT Name: 37 DM
NGS Name: TT 37 DM
County: PINE, MN (Sheet 1)

NGS ACRN: DM5839 Get Map
NGS Quad / Sta Num : 45092442/
USGS Quad: BASS CREEK

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	22	38 N	20 W	454624.46	924916.46	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2012	GOOD	Horz=NO Vert=YES	YES		RECESSED 2 IN.	STEEL ROD IMBED IN MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	USGS

Description: (2012) **Stamping:** TT 37 DM 1954 874

6.64 MILES EAST-NORTHEAST OF ROCK CREEK, 7.5 MILES EAST NORTH AND EAST ALONG TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 70 AND COUNTY ROAD 61 (FOREST BOULEVARD), AT TRUNK HIGHWAY 70 MILEPOINT 27.45, 25.0 FEET SOUTH OF TRUNK HIGHWAY 70, 85.0 FEET EAST OF MAYBERRY AVENUE, IN LINE WITH THE EAST SIDE OF A HOUSE, 2.0 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
873.204	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
873.348	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
873.348	.016	2/1				VERTICAL CONTROL SURVEY	2009	VCHEN

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
874.044	.033	3				VERTICAL CONTROL SURVEY	1966	USGS-VERT

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
873.368	.262		783.945	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -89.462 12B = -89.468 09 = -89.422 03 = -89.311

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 46 24.45676	92 49 16.46123	520099.249	115858.772	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2989226.100	613416.430	1686014.476	16630194.447	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TT_37_DM-DM5839-3S-13MAY2007.jpg	S	May 13, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TT_37_DM-DM5839-2-13MAY2007.jpg		May 13, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TT_37_DM-DM5839-1-13MAY2007.jpg		May 13, 2007

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

Mn/DOT Name: 37 MN115 **NGS Name:** 37

County: PINE, MN (Sheet 1)

NGS ACRN: DF5927 Get Map
NGS Quad / Sta Num : 46092323/
USGS Quad: CLOVERDALE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	6	41 N	18 W	460413.57	924042.91		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1999	2020	GOOD	Horz=NO Vert=NO	YES		FLUSH	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MN-115

Description: (2012) **Stamping:** NO 37

14.0 MILES SOUTHEAST OF SANDSTONE, 3.25 MILES EAST ALONG TRUNK HIGHWAY 123 FROM THE JUNCTION OF TRUNK HIGHWAY 123 AND TRUNK HIGHWAY 23 AT SANDSTONE, THEN 6.0 MILES EAST ALONG COUNTY ROAD 30, THEN 4.4 MILES SOUTH ALONG LITTLE SAND CREEK ROAD, TO THE END OF THE TOWNSHIP ROAD, 18.0 FEET EAST OF LITTLE SAND CREEK ROAD, 3.0 FEET SOUTH OF THE FENCE, 24.0 FEET EAST THE NORTHWEST CORNER OF THE SECTION 6, 2.0 FEET WEST OF A WITNESS POST.

Station Notes

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

*** No Leveling-Derived Orthometric Heights in the Database ***

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1007.111	.262		919.050	.197	2011	GPS - RTRN	2020	RTRN2020
1007.216			919.106	.011	2011	HORIZONTAL ADJUSTMENT	2015	GPS3071
1007.216			919.106	.011	2011	GPS - STATIC	2015	HCLVR
1007.249	.131		919.289	.066	2007	GPS - STATIC	2012	HCLVR
1007.281	.131		919.398	.066	1996	GPS - STATIC	2012	HCLVR
			919.106	.010	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1007.190	.262		919.227	.197	2007	GPS - RTRN	2012	RTRN2012
1007.088	.262		919.214	.197	1996	GPS - RTRN	2009	RTRN2009
			919.211	.011	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
1007.216	.131		919.358	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1839
1007.216	.131		919.358	.066	1996	GPS - STATIC	2002	HPINE

Geoid Separations(ft): GEOID18 = -87.956 12B = -88.061 09 = -87.962 03 = -87.874

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 04 13.56555	92 40 42.90543	556202.241	224228.093	.131	3	GPS - RTRN	2020	RTRN2020
46 04 13.56547	92 40 42.90653	556202.164	224228.084	.016		ADJUSTMENT	2015	GPS3071
46 04 13.56538	92 40 42.90636	556202.175	224228.075	.016	C	GPS - STATIC	2015	HCLVR
46 04 13.56547	92 40 42.90653	556202.164	224228.084	.016		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 04 13.56557	92 40 42.90725	556202.113	224228.095	.033	C	GPS - STATIC	2012	HCLVR
46 04 13.56594	92 40 42.90699	556202.131	224228.132	.131	3	GPS - RTRN	2012	RTRN2012
46 04 13.56557	92 40 42.90725	556202.113	224228.095	.020		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 04 13.56551	92 40 42.90692	556202.136	224228.089	.033	C	GPS - STATIC	2012	HCLVR
46 04 13.56607	92 40 42.90534	556202.247	224228.145	.131	3	GPS - RTRN	2009	RTRN2009
46 04 13.56551	92 40 42.90692	556202.136	224228.089	.033	C	ADJUSTMENT	2003	GPS1839
46 04 13.56551	92 40 42.90692	556202.136	224228.088	.033	C	GPS - STATIC	2002	HPINE

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3023472.588	722374.921	1721966.097	16738560.845	.131	3	GPS - RTRN	2020	RTRN2020
3023472.511	722374.911	1721966.020	16738560.836	.016		ADJUSTMENT	2015	GPS3071
3023472.523	722374.902	1721966.032	16738560.828	.016	C	GPS - STATIC	2015	HCLVR
3023472.511	722374.911	1721966.020	16738560.836	.016		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3023472.460	722374.920	1721965.969	16738560.846	.033	C	GPS - STATIC	2012	HCLVR
3023472.477	722374.958	1721965.987	16738560.884	.131	3	GPS - RTRN	2012	RTRN2012
3023472.460	722374.920	1721965.969	16738560.846	.020		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3023472.483	722374.915	1721965.992	16738560.840	.033	C	GPS - STATIC	2012	HCLVR
3023472.593	722374.974	1721966.104	16738560.897	.131	3	GPS - RTRN	2009	RTRN2009
3023472.483	722374.915	1721965.992	16738560.840	.033	C	ADJUSTMENT	2003	GPS1839
3023472.483	722374.915	1721965.992	16738560.840	.033	C	GPS - STATIC	2002	HPINE

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/37-DF5927-3S-04MAY2020.jpg	S	May 4, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/37-DF5927-2-04MAY2020.jpg		May 4, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/37-DF5927-1-04MAY2020.jpg		May 4, 2020

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

Mn/DOT Name: 37 RC **NGS Name:** 37 RC

County: PINE, MN (Sheet 1)

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	25	41 N	20 W	460042.00	924929.00		

NGS ACRN: Get Map
NGS Quad / Sta Num : 46092332/
USGS Quad: SANDSTONE SOUTH

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	1996	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

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

Description: (1997) **Stamping:** 37 RC 1954

6.0 MILES EAST OF HINCKLEY, 5.1 MILES EAST ALONG TRUNK HIGHWAY 48 FROM ITS THE JUNCTION WITH INTERSTATE HIGHWAY 35, 4.0 MILES WEST OF CLOVERDALE, 35.0 FEET SOUTH AND 200.0 FEET EAST OF A CROSSROADS, 19.0 FEET NORTH OF A FENCE LINE.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
983.062	.033	3				VERTICAL CONTROL SURVEY	1966	USGS-VERT

Geoid Separations(ft): GEOID18 = -89.124 12B = -89.166 09 = -89.048 03 = -88.943

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

Mn/DOT Name: 38 MN115 **NGS Name:** 38

County: PINE, MN (Sheet 1)

NGS ACRN: DF5928 Get Map
NGS Quad / Sta Num : 46092322/
USGS Quad: WILBUR LAKE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	5	41 N	17 W	460412.40	923138.56		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1999	2012	GOOD	Horz=NO Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	SURVEY DISK	MN-115

Description: (2012) **Stamping:** NO 38

23.0 MILES EAST-NORTHEAST OF HINCKLEY, 19.0 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND INTERSTATE HIGHWAY 35 IN HINCKLEY, TO TRUNK HIGHWAY 48 MILEPOINT 19.4, THEN 4.0 MILES NORTH AND 0.1 MILE EAST ALONG COUNTY ROAD 24, 33.0 FEET SOUTH OF COUNTY ROAD 24, 2.0 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
1039.696			952.472	.013	2011	HORIZONTAL ADJUSTMENT	2015	GPS3071
1039.696			952.469	.013	2011	GPS - STATIC	2015	HCLVR
1039.696	.131		952.698	.066	2007	GPS - STATIC	2012	HCLVR
1039.762	.131		952.823	.066	1996	GPS - STATIC	2012	HCLVR
			952.472	.011	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1039.548	.262		952.541	.197	2007	GPS - RTRN	2012	RTRN2012
			952.580	.012	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
1039.630	.131		952.731	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1839
1039.630	.131		952.731	.066	1996	GPS - STATIC	2002	HPINE

Geoid Separations(ft): GEOID18 = -86.972 12B = -87.077 09 = -86.008 03 = -86.922

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 04 12.39687	92 31 38.55552	594584.071	224253.011	.020		ADJUSTMENT	2015	GPS3071
46 04 12.39682	92 31 38.55532	594584.085	224253.006	.020	C	GPS - STATIC	2015	HCLVR
46 04 12.39687	92 31 38.55552	594584.071	224253.011	.016		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 04 12.39694	92 31 38.55621	594584.022	224253.018	.033	C	GPS - STATIC	2012	HCLVR
46 04 12.39646	92 31 38.55482	594584.121	224252.969	.131	3	GPS - RTRN	2012	RTRN2012
46 04 12.39694	92 31 38.55621	594584.022	224253.018	.020		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 04 12.39687	92 31 38.55588	594584.046	224253.011	.033	C	GPS - STATIC	2012	HCLVR
46 04 12.39687	92 31 38.55588	594584.046	224253.011	.033	C	ADJUSTMENT	2003	GPS1839
46 04 12.39687	92 31 38.55588	594584.047	224253.009	.033	C	GPS - STATIC	2002	HPINE

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3061844.194	723054.550	1760331.335	16738633.966	.020		ADJUSTMENT	2015	GPS3071
3061844.208	723054.545	1760331.349	16738633.961	.020	C	GPS - STATIC	2015	HCLVR
3061844.194	723054.550	1760331.335	16738633.966	.016		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3061844.145	723054.556	1760331.287	16738633.973	.033	C	GPS - STATIC	2012	HCLVR
3061844.244	723054.509	1760331.385	16738633.925	.131	3	GPS - RTRN	2012	RTRN2012
3061844.145	723054.556	1760331.287	16738633.973	.020		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3061844.169	723054.549	1760331.310	16738633.966	.033	C	GPS - STATIC	2012	HCLVR
3061844.169	723054.549	1760331.310	16738633.966	.033	C	ADJUSTMENT	2003	GPS1839
3061844.169	723054.549	1760331.310	16738633.966	.033	C	GPS - STATIC	2002	HPINE

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/38-DF5928-3S-08MAY2012.jpg	S	May 8, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/38-DF5928-2-08MAY2012.jpg		May 8, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/38-DF5928-1-08MAY2012.jpg		May 8, 2012

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

Mn/DOT Name: 38 RC

NGS Name: 38 RC

County: PINE, MN (Sheet 1)

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	19	41 N	19 W	460043.00	924658.00		

NGS ACRN: Get Map
NGS Quad / Sta Num : 46092332/
USGS Quad: SANDSTONE SOUTH

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2008	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

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

Description: (1978) **Stamping:** 38 RC 1954

2.0 MILES WEST OF CLOVERDALE, 2.0 MILES WEST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND COUNTY ROAD 21 IN CLOVERDALE, 53.0 FEET NORTH AND 100.0 FEET WEST OF THE CROSSROAD, 4.0 FEET WEST OF AN 8.0 INCH DIAMETER POPLAR TREE.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1023.302	.033	3				VERTICAL CONTROL SURVEY	1967	USGS-VERT

Geoid Separations(ft): GEOID18 = -88.668 12B = -88.737 09 = -88.619 03 = -88.514

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

Mn/DOT Name: 39 RC

NGS Name: 39 RC

County: PINE, MN (Sheet 1)

NGS ACRN: DH4958 Get Map
NGS Quad / Sta Num : 46092323/
USGS Quad: CLOVERDALE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	21	41 N	19 W	460042.40	924424.80	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2012	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	STEEL ROD IMBED IN MON

Monument Type	Disk Type	Mon. Agency
UNKNOWN	HORIZONTAL CONTROL DISK	USGS

Description: (1954)

Stamping: 39 RC 1954

IN CLOVERDALE, AT THE JUNCTION OF TRUNK HIGHWAY 48 AND COUNTY ROAD 21, 34.0 FEET NORTH OF TRUNK HIGHWAY 48, 73.0 FEET WEST OF COUNTY ROAD 21, 56.0 FEET SOUTH OF THE STORE, 5.2 FEET EAST OF AN 18.0 INCH DIAMETER NORWAY PINE.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
972.780	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
972.866	.016	2/1				VERTICAL ADJUSTMENT	2006	00000497
972.902	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
972.626	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV
972.465	.033	3				VERTICAL CONTROL SURVEY	1967	USGS-VERT

Geoid Separations(ft): GEOID18 = -88.277 12B = -88.343 09 = -88.251 03 = -88.163

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

Mn/DOT Name: 4 MN115 **NGS Name:** 4

County: PINE, MN (Sheet 1)

NGS ACRN: DF5908 Get Map
NGS Quad / Sta Num : 45093112/
USGS Quad: HENRIETTE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	22	38 N	22 W	454627.16	930502.11		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1999	2020	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	HORIZONTAL CONTROL DISK	MN-115

Description: (2007) **Stamping:** NO 4

4.7 MILES WEST-NORTHWEST OF ROCK CREEK, 4.65 MILES WEST ALONG TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 70 AND INTERSTATE HIGHWAY 35 IN ROCK CREEK TO TRUNK HIGHWAY 70 MILEPOINT 14, THEN 1.0 MILE NORTH ALONG COUNTY ROAD 111, 30.0 FEET EAST OF COUNTY ROAD 111, 30.0 FEET SOUTH OF MAJESTIC ROAD, 2.0 FEET NORTHWEST 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
975.736	.262		883.709	.197	2011	GPS - OPUS	2020	GPSBM
975.740	.262		883.709	.197	2011	GPS - RTRN	2020	RTRN2020
975.707	.262		883.679	.197	2011	GPS - RTRN	2017	RTRN2017
			883.699	.008	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
975.753	.131		883.781	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2747
975.753	.131		883.781	.066	2007	GPS - STATIC	2010	HBRAH
975.720	.131		883.899	.066	1996	GPS - STATIC	2010	HBRAH
			883.781	.011	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
975.654	.131		883.899	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1839
975.654	.131		883.899	.066	1996	GPS - STATIC	2002	HPINE

Geoid Separations(ft): GEOID18 = -92.027 12B = -92.031 09 = -91.929 03 = -91.778

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 46 27.15708	93 05 02.10671	453065.824	116176.617	.131	3	GPS - OPUS	2020	GPSBM
45 46 27.15714	93 05 02.10567	453065.897	116176.623	.131	3	GPS - RTRN	2020	RTRN2020
45 46 27.15760	93 05 02.10604	453065.871	116176.669	.131	3	GPS - RTRN	2017	RTRN2017
45 46 27.15722	93 05 02.10625	453065.856	116176.631	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 46 27.15704	93 05 02.10664	453065.829	116176.612	.033	C	ADJUSTMENT	2011	GPS2747
45 46 27.15704	93 05 02.10664	453065.829	116176.612	.033	C	GPS - STATIC	2010	HBRAH
45 46 27.15704	93 05 02.10664	453065.829	116176.612	.016		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 46 27.15685	93 05 02.10617	453065.862	116176.593	.033	C	GPS - STATIC	2010	HBRAH
45 46 27.15685	93 05 02.10617	453065.862	116176.593	.033	C	ADJUSTMENT	2003	GPS1839
45 46 27.15685	93 05 02.10617	453065.862	116176.592	.033	C	GPS - STATIC	2002	HPINE

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2922202.793	612592.002	1619011.243	16630428.122	.131	3	GPS - OPUS	2020	GPSBM
2922202.867	612592.009	1619011.317	16630428.128	.131	3	GPS - RTRN	2020	RTRN2020
2922202.840	612592.055	1619011.291	16630428.175	.131	3	GPS - RTRN	2017	RTRN2017
2922202.826	612592.016	1619011.276	16630428.136	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2922202.798	612591.998	1619011.248	16630428.118	.033	C	ADJUSTMENT	2011	GPS2747
2922202.798	612591.998	1619011.248	16630428.118	.033	C	GPS - STATIC	2010	HBRAH
2922202.798	612591.998	1619011.248	16630428.118	.016		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2922202.832	612591.979	1619011.282	16630428.099	.033	C	GPS - STATIC	2010	HBRAH
2922202.832	612591.979	1619011.282	16630428.099	.033	C	ADJUSTMENT	2003	GPS1839
2922202.832	612591.979	1619011.281	16630428.099	.033	C	GPS - STATIC	2002	HPINE

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/4-DF5908-3SE-29APR2020.jpg	SE	Apr 29, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/4-DF5908-2-29APR2020.jpg		Apr 29, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/4-DF5908-1-29APR2020.jpg		Apr 29, 2020

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

Mn/DOT Name: 40 RC **NGS Name:** 40 RC

County: PINE, MN (Sheet 1)

NGS ACRN: DE5981 Get Map
NGS Quad / Sta Num : 46092323/
USGS Quad: CLOVERDALE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	24	41 N	19 W	460042.81	924144.08	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2012	DESTROYED	Horz=NO Vert=NO	YES		FLUSH	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
UNKNOWN	BENCH MARK DISK	USGS

Description: (1954) **Stamping:** 40 RC 1954

2.2 MILES EAST OF CLOVERDALE, 2.1 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND COUNTY ROAD 21 IN CLOVERDALE, 0.2 MILE EAST OF THE SECTION CORNER, AT TRUNK HIGHWAY 48 MILEPOINT 11.45, 49.0 FEET NORTH OF TRUNK HIGHWAY 48, 2.0 FEET EAST 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
985.835	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
985.940	.016	2/1				VERTICAL ADJUSTMENT	2006	00000497
985.979	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
985.703	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV
985.579	.033	3				VERTICAL CONTROL SURVEY	1967	USGS-VERT

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
			897.908	.007	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			898.013	.009	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
985.989	.131		898.161	.066	1996	HORIZONTAL ADJUSTMENT	2002	GPS1700
985.989	.131		898.161	.066	1996	GPS - STATIC	2001	HCLOV

Geoid Separations(ft): GEOID18 = -87.923 12B = -87.989 09 = -87.910 03 = -87.828

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 42.81456	92 41 44.07614	551944.036	202867.126	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 42.81463	92 41 44.07681	551943.989	202867.133	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 42.81463	92 41 44.07643	551944.015	202867.133	.033	C	ADJUSTMENT	2002	GPS1700
46 00 42.81463	92 41 44.07643	551944.015	202867.133	.033	C	GPS - STATIC	2001	HCLOV

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 42.80795	92 41 44.07013	551944.460	202866.458	.033	C	GPS - STATIC	1997	HCLOV

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3019579.738	700946.740	1717736.543	16717203.855	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3019579.690	700946.746	1717736.496	16717203.861	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3019579.717	700946.746	1717736.523	16717203.861	.033	C	ADJUSTMENT	2002	GPS1700
3019579.717	700946.746	1717736.523	16717203.861	.033	C	GPS - STATIC	2001	HCLOV

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3019580.175	700946.079	1717736.970	16717203.187	.033	C	GPS - STATIC	1997	HCLOV

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/40_RC-DE5981-3N-01JUN2009.jpg	N	Jun 1, 2009
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/40_RC-DE5981-2-01JUN2009.jpg		Jun 1, 2009
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/40_RC-DE5981-1-01JUN2009.jpg		Jun 1, 2009

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

Mn/DOT Name: 41 RC

NGS Name: 41 RC

County: PINE, MN (Sheet 1)

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	29	41 N	18 W	460042.00	923918.00		

NGS ACRN: Get Map
NGS Quad / Sta Num : 46092323/
USGS Quad: CLOVERDALE

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2008	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

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

Description: (1978) **Stamping:** 41 RC 1954

4.1 MILES EAST OF CLOVERDALE, 4.1 MILES WEST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND COUNTY ROAD 21 IN CLOVERDALE, 530.0 FEET EAST OF LITTLE SAND CREEK ROAD, 93.0 FEET SOUTH AND 65.0 FEET EAST OF TRUNK HIGHWAY 48 AT THE SOUTHEAST CORNER OF A FIELD, 2.0 FEET NORTH OF A FENCE LINE.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
975.657	.033	3				VERTICAL CONTROL SURVEY	1967	USGS-VERT

Geoid Separations(ft): GEOID18 = -87.624 12B = -87.707 09 = -87.631 03 = -87.542

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

Mn/DOT Name: 42 RC

NGS Name: 42 RC

County: PINE, MN (Sheet 1)

NGS ACRN: Get Map
NGS Quad / Sta Num : 46092322/
USGS Quad: WILBUR LAKE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	28	41 N	18 W	460043.00	923706.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	1978	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

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

Description: (1978) **Stamping:** 42 RC 1954

6.0 MILES EAST OF CLOVERDALE, 490.0 FEET WEST OF A TEE-ROAD NORTH (COUNTY ROAD 22), 66.0 FEET SOUTH AND 68.0 FEET WEST OF TRUNK HIGHWAY 48 AT THE ENTRANCE TO SAINT CROIX STATE PARK, 5.0 FEET NORTH OF AN 8.0 INCH DIAMETER PINE TREE.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
978.906	.033	3				VERTICAL CONTROL SURVEY	1967	USGS-VERT

Geoid Separations(ft): GEOID18 = -87.382 12B = -87.477 09 = -87.405 03 = -87.306

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

43 RC

Mn/DOT Name: 43 RC

NGS Name: 43 RC

County: PINE, MN (Sheet 1)

NGS ACRN: Get Map
NGS Quad / Sta Num : 46092322/
USGS Quad: WILBUR LAKE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	23	41 N	18 W	460044.00	923428.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	1997	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	USGS

Description: (1978) **Stamping:** 43 RC 1949

8.0 MILES EAST OF CLOVERDALE, 49.0 FEET NORTH OF TRUNK HIGHWAY 48, 145.0 FEET WEST OF A FIELD ROAD NORTH, 156.0 FEET WEST OF A TEE FENCE SOUTH, 1.0 FOOT SOUTH AND 2.0 FEET WEST OF A TELEPHONE POLE.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
974.033	.033	3				VERTICAL CONTROL SURVEY	1967	USGS-VERT

Geoid Separations(ft): GEOID18 = -87.129 12B = -87.228 09 = -87.168 03 = -87.063

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

44 RC

Mn/DOT Name: 44 RC
NGS Name: 44 RC
County: PINE, MN (Sheet 1)

NGS ACRN: Get Map
NGS Quad / Sta Num : 46092323/
USGS Quad: CLOVERDALE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	10	41 N	19 W	460227.00	924422.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2008	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

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

Description: (1978) **Stamping:** 44 RC 1954 1022

2.0 MILES NORTH ON COUNTY ROAD 21 FROM THE JUNCTION OF COUNTY ROAD 21 AND TRUNK HIGHWAY 48 AT CLOVERDALE, 92.0 FEET NORTH AND 29.0 FEET EAST OF COUNTY ROAD 21 AT TIMBERLINE WEST, 84.0 FEET SOUTH OF A PRIVATE DRIVE WEST, 5.0 FEET WEST OF A POWER POLE.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1022.570	.033	3				VERTICAL CONTROL SURVEY	1979	USGS-VERT

Geoid Separations(ft): GEOID18 = -88.343 12B = -88.428 09 = -88.320 03 = -88.222

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

Mn/DOT Name: 5801 A

NGS Name: 5801 A

County: PINE, MN (Sheet 1)

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	21	40 N	22 W	455637.84	930523.12	2	

NGS ACRN: DM7910 Get Map
NGS Quad / Sta Num : 45095111/
USGS Quad: LAKE OSAKIS EAST

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1992	2010	GOOD	Horz=NO Vert=NO	YES	58006	FLUSH	NO MAG MATERIAL

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

Description: (2010) **Stamping:** 5801 A 1992

0.7 MILE SOUTHWEST OF BROOK PARK, IN A RAILING IN THE SOUTHEAST CORNER OF TRUNK HIGHWAY 23 BRIDGE NUMBER 58006 OVER THE RAILROAD, 0.4 MILE NORTHEAST ALONG TRUNK HIGHWAY 23 FROM THE JUNCTION OF TRUNK HIGHWAY 23 AND TRUNK HIGHWAY 107 SOUTHWEST OF THE BROOK PARK, AT TRUNK HIGHWAY 23 MILEPOINT 266.95, 23.0 FEET SOUTH OF TRUNK HIGHWAY 23.

Station Notes

THE SURVEY MARK HAS BEEN DEEMED UNSAFE DUE TO FALL RISK AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1059.627	.016	2/1				VERTICAL ADJUSTMENT	2012	00000745
1059.617	.016	2/1				VERTICAL CONTROL SURVEY	2010	VBRAH

Geoid Separations(ft): GEOID18 = -91.138 12B = -91.125 09 = -91.037 03 = -90.882

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

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5801_A-DM7910-3S-15APR2010.jpg	S	Apr 15, 2010
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5801_A-DM7910-2-15APR2010.jpg		Apr 15, 2010
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5801_A-DM7910-1-15APR2010.jpg		Apr 15, 2010

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

Mn/DOT Name: 5801 B **NGS Name:** 5801 B

County: PINE, MN (Sheet 1)

NGS ACRN: DM4930 Get Map
NGS Quad / Sta Num : 45093111/
USGS Quad: BROOK PARK

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	15	40 N	22 W	455709.26	930413.18	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2010	2025	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 35 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2010) **Stamping:** 5801 B 2010

0.5 MILE NORTHEAST OF BROOK PARK, 1.5 MILES NORTHEAST ALONG TRUNK HIGHWAY 23 FROM THE JUNCTION OF TRUNK HIGHWAY 23 AND TRUNK HIGHWAY 107 SOUTHWEST OF BROOK PARK, AT TRUNK HIGHWAY 23 MILEPOINT 268.05, 94.3 FEET NORTH-NORTHWEST OF TRUNK HIGHWAY 23, 23.0 FEET NORTHWEST OF CROSS PARK ROAD, 3.7 FEET SOUTHEAST 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
1016.264	.016	2/1				VERTICAL ADJUSTMENT	2012	00000745
1016.251	.016	2/1				VERTICAL CONTROL SURVEY	2010	VBRAH

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
1016.317	.262		925.284	.197	2011	GPS - RTRN	2025	RTRN2025
1016.343	.262		925.310	.197	2011	GPS - OPUS	2020	GPSBM
1016.277	.262		925.264	.197	2011	GPS - RTRN	2020	RTRN2020
			925.221	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1016.238	.131		925.307	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2747
1016.238	.131		925.307	.066	2007	GPS - STATIC	2010	HBRAH
1016.238	.131		925.451	.066	1996	GPS - STATIC	2010	HBRAH

Geoid Separations(ft): GEOID18 = -91.033 12B = -91.014 09 = -90.932 03 = -90.774

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 57 09.26169	93 04 13.17808	456673.449	181213.638	.131	3	GPS - RTRN	2025	RTRN2025
45 57 09.26150	93 04 13.17839	456673.427	181213.619	.131	3	GPS - OPUS	2020	GPSBM
45 57 09.26237	93 04 13.17755	456673.487	181213.707	.131	3	GPS - RTRN	2020	RTRN2020
45 57 09.26166	93 04 13.17703	456673.523	181213.635	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 57 09.26192	93 04 13.17782	456673.468	181213.661	.033	C	ADJUSTMENT	2011	GPS2747
45 57 09.26192	93 04 13.17782	456673.468	181213.661	.033	C	GPS - STATIC	2010	HBRAH

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 57 09.26166	93 04 13.17719	456673.512	181213.635	.033	C	GPS - STATIC	2010	HBRAH

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2924701.827	677674.949	1622535.298	16695440.424	.131	3	GPS - RTRN	2025	RTRN2025
2924701.805	677674.930	1622535.276	16695440.405	.131	3	GPS - OPUS	2020	GPSBM
2924701.864	677675.019	1622535.336	16695440.493	.131	3	GPS - RTRN	2020	RTRN2020
2924701.901	677674.947	1622535.372	16695440.421	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2924701.845	677674.973	1622535.317	16695440.448	.033	C	ADJUSTMENT	2011	GPS2747
2924701.845	677674.973	1622535.317	16695440.448	.033	C	GPS - STATIC	2010	HBRAH

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2924701.890	677674.947	1622535.361	16695440.421	.033	C	GPS - STATIC	2010	HBRAH

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5801_B-DM4930-3W-15SEP2025.jpg	W	Sep 15, 2025
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5801_B-DM4930-2-15SEP2025.jpg		Sep 15, 2025
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5801_B-DM4930-1-15SEP2025.jpg		Sep 15, 2025

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

Mn/DOT Name: 5801 C
NGS Name: 5801 C
County: PINE, MN (Sheet 1)

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	14	40 N	22 W	455727.21	930305.82	2	C

NGS ACRN: DM4931 Get Map
NGS Quad / Sta Num : 45093111/
USGS Quad: BROOK PARK

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2010	2025	GOOD	Horz=YES Vert=YES	YES		FLUSH	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: (2010)
Stamping: 5801 C 2010

1.4 MILES NORTHEAST OF BROOK PARK, 2.45 MILES NORTHEAST ALONG TRUNK HIGHWAY 23 FROM THE JUNCTION OF TRUNK HIGHWAY 23 AND TRUNK HIGHWAY 107 SOUTHWEST OF BROOK PARK, AT TRUNK HIGHWAY 23 MILEPOINT 269, 66.6 FEET NORTHWEST OF TRUNK HIGHWAY 23, 44.3 FEET EAST OF BEAVER CLAW ROAD, 3.6 FEET SOUTHEAST 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
1029.335	.016	2/1				VERTICAL ADJUSTMENT	2012	00000745
1029.322	.016	2/1				VERTICAL CONTROL SURVEY	2010	VBRAH

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
1029.384	.262		938.450	.197	2011	GPS - RTRN	2025	RTRN2025
1029.247	.262		938.312	.197	2011	GPS - OPUS	2020	GPSBM
1029.352	.262		938.436	.197	2011	GPS - RTRN	2020	RTRN2020
			938.394	.008	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1029.329	.131		938.476	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2747
1029.329	.131		938.476	.066	2007	GPS - STATIC	2010	HBRAH
1029.329	.131		938.623	.066	1996	GPS - STATIC	2010	HBRAH

Geoid Separations(ft): GEOID18 = -90.935 12B = -90.915 09 = -90.833 03 = -90.679

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 57 27.21132	93 03 05.81531	461436.695	183022.312	.131	3	GPS - RTRN	2025	RTRN2025
45 57 27.21215	93 03 05.81584	461436.658	183022.396	.131	3	GPS - OPUS	2020	GPSBM
45 57 27.21250	93 03 05.81574	461436.664	183022.432	.131	3	GPS - RTRN	2020	RTRN2020
45 57 27.21215	93 03 05.81585	461436.657	183022.396	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 57 27.21238	93 03 05.81660	461436.604	183022.420	.033	C	ADJUSTMENT	2011	GPS2747
45 57 27.21238	93 03 05.81660	461436.604	183022.420	.033	C	GPS - STATIC	2010	HBRAH

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 57 27.21214	93 03 05.81597	461436.648	183022.395	.033	C	GPS - STATIC	2010	HBRAH

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2929433.094	679564.312	1627294.148	16697254.286	.131	3	GPS - RTRN	2025	RTRN2025
2929433.055	679564.395	1627294.111	16697254.370	.131	3	GPS - OPUS	2020	GPSBM
2929433.062	679564.431	1627294.118	16697254.406	.131	3	GPS - RTRN	2020	RTRN2020
2929433.055	679564.395	1627294.110	16697254.370	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2929433.001	679564.418	1627294.057	16697254.393	.033	C	ADJUSTMENT	2011	GPS2747
2929433.001	679564.418	1627294.057	16697254.393	.033	C	GPS - STATIC	2010	HBRAH

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2929433.046	679564.394	1627294.101	16697254.369	.033	C	GPS - STATIC	2010	HBRAH

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5801_C-DM4931-3N-15SEP2025.jpg	N	Sep 15, 2025
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5801_C-DM4931-2-15SEP2025.jpg		Sep 15, 2025
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5801_C-DM4931-1-15SEP2025.jpg		Sep 15, 2025

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

Mn/DOT Name: 5801 D **NGS Name:** 5801 D

County: PINE, MN (Sheet 1)

NGS ACRN: DM4932 Get Map
NGS Quad / Sta Num : 45093111/
USGS Quad: BROOK PARK

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	7	40 N	21 W	455759.79	930022.01	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2010	2025	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 15 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2010) **Stamping:** 5801 D 2010

4.6 MILES SOUTHWEST OF HINCKLEY, 2.5 MILES SOUTHWEST ALONG TRUNK HIGHWAY 23 FROM THE JUNCTION OF TRUNK HIGHWAY 23 AND INTERSTATE HIGHWAY 35 SOUTH OF HINCKLEY, AT TRUNK HIGHWAY 23 MILEPOINT 271.35, 63.6 FEET NORTHWEST OF TRUNK HIGHWAY 23, 36.0 FEET EAST OF DRIVEWAY NUMBER 14557, 10.5 FEET WEST OF CABLE BOX NUMBER 4479, 11.1 FEET SOUTHEAST 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
1003.869	.016	2/1				VERTICAL ADJUSTMENT	2012	00000745
1003.856	.016	2/1				VERTICAL CONTROL SURVEY	2010	VBRAH

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
1003.873	.262		913.190	.197	2011	GPS - RTRN	2025	RTRN2025
1003.879	.262		913.200	.197	2011	GPS - OPUS	2020	GPSBM
1003.955	.262		913.289	.197	2011	GPS - RTRN	2020	RTRN2020
			913.174	.006	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1003.869	.131		913.269	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2747
1003.869	.131		913.269	.066	2007	GPS - STATIC	2010	HBRAH
1003.869	.131		913.417	.066	1996	GPS - STATIC	2010	HBRAH

Geoid Separations(ft): GEOID18 = -90.679 12B = -90.666 09 = -90.571 03 = -90.426

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 57 59.78647	93 00 22.01155	473014.260	186303.449	.131	3	GPS - RTRN	2025	RTRN2025
45 57 59.78646	93 00 22.01260	473014.186	186303.448	.131	3	GPS - OPUS	2020	GPSBM
45 57 59.78660	93 00 22.01262	473014.185	186303.462	.131	3	GPS - RTRN	2020	RTRN2020
45 57 59.78757	93 00 22.01124	473014.282	186303.560	.003		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 57 59.78749	93 00 22.01171	473014.249	186303.552	.033	C	ADJUSTMENT	2011	GPS2747
45 57 59.78749	93 00 22.01171	473014.249	186303.552	.033	C	GPS - STATIC	2010	HBRAH

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 57 59.78734	93 00 22.01111	473014.291	186303.537	.033	C	GPS - STATIC	2010	HBRAH

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2940951.913	683041.862	1638862.436	16700548.518	.131	3	GPS - RTRN	2025	RTRN2025
2940951.839	683041.860	1638862.361	16700548.517	.131	3	GPS - OPUS	2020	GPSBM
2940951.838	683041.874	1638862.360	16700548.531	.131	3	GPS - RTRN	2020	RTRN2020
2940951.933	683041.973	1638862.457	16700548.629	.003		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2940951.900	683041.965	1638862.424	16700548.621	.033	C	ADJUSTMENT	2011	GPS2747
2940951.900	683041.965	1638862.424	16700548.621	.033	C	GPS - STATIC	2010	HBRAH

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2940951.943	683041.950	1638862.466	16700548.606	.033	C	GPS - STATIC	2010	HBRAH

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5801_D-DM4932-3N-15SEP2025.jpg	N	Sep 15, 2025
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5801_D-DM4932-2-15SEP2025.jpg		Sep 15, 2025
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5801_D-DM4932-1-15SEP2025.jpg		Sep 15, 2025

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

Mn/DOT Name: 5801 E
NGS Name: 5801 E
County: PINE, MN (Sheet 1)

NGS ACRN: DM4933 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	8	40 N	21 W	455806.95	925945.64	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2010	2020	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: (2010) **Stamping:** 5801 E 2010

4.25 MILES SOUTHWEST OF HINCKLEY, 2.05 MILES SOUTHWEST ALONG TRUNK HIGHWAY 23 FROM THE JUNCTION OF TRUNK HIGHWAY 23 AND INTERSTATE HIGHWAY 35 SOUTH OF HINCKLEY, AT TRUNK HIGHWAY 23 MILEPOINT 271.85, 57.9 FEET NORTHWEST OF TRUNK HIGHWAY 23, 55.4 FEET EAST OF CABLE BOX NUMBER 3150, 13.6 FEET SOUTHEAST OF AN ENTRANCE, 7.4 FEET WEST-NORTHWEST 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
1000.999	.016	2/1				VERTICAL ADJUSTMENT	2012	00000745
1000.995	.016	2/1				VERTICAL CONTROL SURVEY	2010	VBRAH

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
1000.995	.262		910.379	.197	2011	GPS - OPUS	2020	GPSBM
1001.186	.262		910.579	.197	2011	GPS - RTRN	2020	RTRN2020
			910.402	.008	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1000.982	.131		910.500	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2747
1000.982	.131		910.500	.066	2007	GPS - STATIC	2010	HBRAH
1000.982	.131		910.645	.066	1996	GPS - STATIC	2010	HBRAH

Geoid Separations(ft): GEOID18 = -90.617 12B = -90.603 09 = -90.508 03 = -90.367

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 58 06.95460	92 59 45.64176	475584.340	187026.322	.131	3	GPS - OPUS	2020	GPSBM
45 58 06.95407	92 59 45.64126	475584.375	187026.268	.131	3	GPS - RTRN	2020	RTRN2020
45 58 06.95463	92 59 45.64159	475584.351	187026.325	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 58 06.95454	92 59 45.64205	475584.319	187026.316	.033	C	ADJUSTMENT	2011	GPS2747
45 58 06.95454	92 59 45.64205	475584.319	187026.316	.033	C	GPS - STATIC	2010	HBRAH

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 58 06.95440	92 59 45.64145	475584.361	187026.301	.033	C	GPS - STATIC	2010	HBRAH

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2943509.043	683808.341	1641430.463	16701274.299	.131	3	GPS - OPUS	2020	GPSBM
2943509.079	683808.288	1641430.498	16701274.245	.131	3	GPS - RTRN	2020	RTRN2020
2943509.055	683808.344	1641430.475	16701274.301	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2943509.022	683808.334	1641430.443	16701274.293	.033	C	ADJUSTMENT	2011	GPS2747
2943509.022	683808.334	1641430.443	16701274.293	.033	C	GPS - STATIC	2010	HBRAH

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2943509.065	683808.321	1641430.485	16701274.278	.033	C	GPS - STATIC	2010	HBRAH

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5801_E-DM4933-3NW-30APR2020.jpg	NW	Apr 30, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5801_E-DM4933-2-30APR2020.jpg		Apr 30, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5801_E-DM4933-1-30APR2020.jpg		Apr 30, 2020

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

Mn/DOT Name: 5801 F **NGS Name:** 5801 F

County: PINE, MN (Sheet 1)

NGS ACRN: DM4934 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	8	40 N	21 W	455817.08	925855.74	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2010	2010	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: (2010) **Stamping:** 5801 F 2010

3.6 MILES SOUTHWEST OF HINCKLEY, 1.3 MILES SOUTHWEST ALONG TRUNK HIGHWAY 23 FROM THE JUNCTION OF TRUNK HIGHWAY 23 AND INTERSTATE HIGHWAY 35 SOUTH OF HINCKLEY, AT TRUNK HIGHWAY 23 MILEPOINT 272.55, 0.05 MILE SOUTHWEST OF COUNTY ROAD 54/WILDWOOD ROAD, 78.5 FEET NORTHWEST OF TRUNK HIGHWAY 23, 11.7 FEET SOUTHWEST OF AN ENTRANCE, 1.2 FEET SOUTHEAST OF A FENCE.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1015.526	.016	2/1				VERTICAL ADJUSTMENT	2012	00000745
1015.523	.016	2/1				VERTICAL CONTROL SURVEY	2010	VBRAH

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
			925.011	.006	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1015.516	.131		925.106	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2747
1015.516	.131		925.106	.066	2007	GPS - STATIC	2010	HBRAH
1015.516	.131		925.254	.066	1996	GPS - STATIC	2010	HBRAH

Geoid Separations(ft): GEOID18 = -90.525 12B = -90.515 09 = -90.416 03 = -90.279

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 58 17.08258	92 58 55.74307	479110.173	188048.347	.003		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 58 17.08243	92 58 55.74352	479110.141	188048.332	.033	C	ADJUSTMENT	2011	GPS2747
45 58 17.08243	92 58 55.74352	479110.141	188048.332	.033	C	GPS - STATIC	2010	HBRAH

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 58 17.08231	92 58 55.74293	479110.183	188048.320	.033	C	GPS - STATIC	2010	HBRAH

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2947016.593	684890.184	1644953.444	16702300.299	.003		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2947016.561	684890.168	1644953.412	16702300.284	.033	C	ADJUSTMENT	2011	GPS2747
2947016.561	684890.168	1644953.412	16702300.284	.033	C	GPS - STATIC	2010	HBRAH

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2947016.603	684890.156	1644953.454	16702300.272	.033	C	GPS - STATIC	2010	HBRAH

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5801_F-DM4934-3NW-28APR2010.jpg	NW	Apr 28, 2010
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5801_F-DM4934-2-28APR2010.jpg		Apr 28, 2010
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5801_F-DM4934-1-28APR2010.jpg		Apr 28, 2010

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

Mn/DOT Name: 5801 G **NGS Name:** 5801 G

County: PINE, MN (Sheet 1)

NGS ACRN: DM9930 Get Map
NGS Quad / Sta Num : 45093111/
USGS Quad: BROOK PARK

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	20	40 N	22 W	455603.51	930720.01	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2010	2025	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 35 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2010) **Stamping:** 5801 G 2010

2.0 MILES SOUTHWEST OF BROOK PARK, 1.3 MILES SOUTHWEST ALONG TRUNK HIGHWAY 23 FROM THE JUNCTION OF TRUNK HIGHWAY 23 AND TRUNK HIGHWAY 107 IN BROOK PARK, AT TRUNK HIGHWAY 23 MILEPOINT 265.25, 107.7 FEET NORTHWEST OF TRUNK HIGHWAY 23, 16.3 FEET SOUTHEAST OF THE OLD RAILROAD GRADE, 1.1 FEET SOUTHEAST 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
1022.895	.016	2/1				VERTICAL ADJUSTMENT	2021	00000963
1022.895	.016	2/1				VERTICAL CONTROL SURVEY	2019	V18KBEC
1022.895	.016	2/1				VERTICAL ADJUSTMENT	2012	00000745
1022.885	.016	2/1				VERTICAL CONTROL SURVEY	2011	VMORA

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
1022.856	.262		931.576	.197	2011	GPS - RTRN	2025	RTRN2025
			931.625	.006	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1022.898	.131		931.734	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2812
1022.898	.131		931.875	.066	1996	GPS - STATIC	2010	HMORA
1022.898	.131		931.734	.066	2007	GPS - STATIC	2010	HMORA

Geoid Separations(ft): GEOID18 = -91.279 12B = -91.270 09 = -91.178 03 = -91.017

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 56 03.51464	93 07 20.01471	443453.184	174586.029	.131	3	GPS - RTRN	2025	RTRN2025
45 56 03.51515	93 07 20.01530	443453.143	174586.081	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 56 03.51522	93 07 20.01609	443453.087	174586.088	.033	C	ADJUSTMENT	2011	GPS2812
45 56 03.51522	93 07 20.01609	443453.087	174586.088	.033	C	GPS - STATIC	2010	HMORA

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 56 03.51494	93 07 20.01545	443453.132	174586.059	.033	C	GPS - STATIC	2010	HMORA

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2911597.675	670823.807	1609329.264	16688799.118	.131	3	GPS - RTRN	2025	RTRN2025
2911597.633	670823.858	1609329.222	16688799.170	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2911597.577	670823.864	1609329.166	16688799.177	.033	C	ADJUSTMENT	2011	GPS2812
2911597.577	670823.864	1609329.166	16688799.177	.033	C	GPS - STATIC	2010	HMORA

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2911597.623	670823.836	1609329.211	16688799.149	.033	C	GPS - STATIC	2010	HMORA

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5801_G-DM9930-3N-25SEP2025.jpg	N	Sep 25, 2025
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5801_G-DM9930-2-25SEP2025.jpg		Sep 25, 2025
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5801_G-DM9930-1-25SEP2025.jpg		Sep 25, 2025

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

Mn/DOT Name: 5801 H
NGS Name: 5801 H
County: PINE, MN (Sheet 1)

NGS ACRN: DM9931 Get Map
NGS Quad / Sta Num : 45093114/
USGS Quad: QUAMBA

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	30	40 N	22 W	455542.41	930832.65	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2010	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 20 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2010) **Stamping:** 5801 H 2010

3.5 MILES SOUTHWEST OF BROOK PARK, 2.35 MILES SOUTHWEST ALONG TRUNK HIGHWAY 23 FROM THE JUNCTION OF TRUNK HIGHWAY 23 AND TRUNK HIGHWAY 107 IN BROOK PARK, ON THE COUNTY LINE, AT TRUNK HIGHWAY 23 MILEPOINT 264.20, 80.3 FEET NORTHWEST OF TRUNK HIGHWAY 23, 36.1 FEET EAST OF COUNTY ROAD 68 (SHERWOOD STREET), 30.2 FEET SOUTHWEST OF A CABLE PEDESTAL, 1.8 FEET SOUTHWEST 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
1027.980	.016	2/1				VERTICAL ADJUSTMENT	2021	00000963
1027.980	.016	2/1				VERTICAL CONTROL SURVEY	2019	V18KBEC
1027.980	.016	2/1				VERTICAL ADJUSTMENT	2012	00000745
1027.970	.016	2/1				VERTICAL CONTROL SURVEY	2011	VMORA

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
1028.003	.262		936.645	.197	2011	GPS - RTRN	2025	RTRN2025
1028.052	.262		936.698	.197	2011	GPS - OPUS	2020	GPSBM
			936.635	.007	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1027.984	.131		936.753	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2812
1027.984	.131		936.888	.066	1996	GPS - STATIC	2010	HMORA
1027.984	.131		936.753	.066	2007	GPS - STATIC	2010	HMORA

Geoid Separations(ft): GEOID18 = -91.355 12B = -91.348 09 = -91.256 03 = -91.092

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 55 42.41100	93 08 32.65372	438312.399	172463.227	.131	3	GPS - RTRN	2025	RTRN2025
45 55 42.41114	93 08 32.65404	438312.376	172463.241	.131	3	GPS - OPUS	2020	GPSBM
45 55 42.41129	93 08 32.65341	438312.421	172463.256	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 55 42.41147	93 08 32.65429	438312.358	172463.275	.033	C	ADJUSTMENT	2011	GPS2812
45 55 42.41147	93 08 32.65429	438312.358	172463.275	.033	C	GPS - STATIC	2010	HMORA

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 55 42.41117	93 08 32.65363	438312.405	172463.244	.033	C	GPS - STATIC	2010	HMORA

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2906494.293	668613.979	1604193.442	16686670.781	.131	3	GPS - RTRN	2025	RTRN2025
2906494.270	668613.993	1604193.419	16686670.796	.131	3	GPS - OPUS	2020	GPSBM
2906494.315	668614.009	1604193.464	16686670.811	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2906494.252	668614.027	1604193.402	16686670.829	.033	C	ADJUSTMENT	2011	GPS2812
2906494.252	668614.027	1604193.402	16686670.829	.033	C	GPS - STATIC	2010	HMORA

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2906494.300	668613.997	1604193.448	16686670.799	.033	C	GPS - STATIC	2010	HMORA

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5801_H-DM9931-3N-15SEP2025.jpg	N	Sep 15, 2025
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5801_H-DM9931-2-15SEP2025.jpg		Sep 15, 2025
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5801_H-DM9931-1-15SEP2025.jpg		Sep 15, 2025

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

Mn/DOT Name: 5804 A **NGS Name:** 5804 A

County: PINE, MN (Sheet 1)

NGS ACRN: DE5992 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	19	41 N	20 W	460040.69	925440.70	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1996	2012	DESTROYED	Horz=NO Vert=NO	YES		FLUSH	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
UNKNOWN	SURVEY DISK	MNDT

Description: (1996) **Stamping:** 5804 A 1996

1.5 MILES EAST OF HINCKLEY, 1.0 MILE EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND INTERSTATE HIGHWAY 35 IN HINCKLEY, AT TRUNK HIGHWAY 48 MILEPOINT 1.0, 74.0 FEET NORTH OF TRUNK HIGHWAY 48, 14.0 FEET EAST OF A POWER POLE, 2.7 FEET EAST OF A WITNESS POST.

Station Notes

THE DISK WAS LOOSE, IT SPINS ON THE ROD. NO UP AND DOWN MOVEMENT. IT SHOULD BE A RESET MARK WHEN IT CAN BE DUG OUT.
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
1014.253	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1014.263	.016	2/1				VERTICAL ADJUSTMENT	2006	00000497
1014.250	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1013.974	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

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
			924.247	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1014.178	.262		924.388	.197	1996	GPS - RTRN	2008	RTRN2008
			924.355	.010	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
1014.237	.131		924.486	.066	1996	HORIZONTAL ADJUSTMENT	2002	GPS1700
1014.237	.131		924.486	.066	1996	GPS - STATIC	2001	HCLOV

Geoid Separations(ft): GEOID18 = -90.013 12B = -90.003 09 = -89.892 03 = -89.790

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 40.68819	92 54 40.70068	497127.172	202585.183	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 40.68814	92 54 40.70121	497127.135	202585.178	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 40.68829	92 54 40.70097	497127.152	202585.194	.131	3	GPS - RTRN	2008	RTRN2008
46 00 40.68816	92 54 40.70090	497127.157	202585.180	.033	C	ADJUSTMENT	2002	GPS1700
46 00 40.68816	92 54 40.70090	497127.157	202585.180	.033	C	GPS - STATIC	2001	HCLOV

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 40.68188	92 54 40.69552	497127.536	202584.546	.033	C	GPS - STATIC	1997	HCLOV

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2964781.413	699730.400	1662944.190	16716853.302	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2964781.376	699730.394	1662944.153	16716853.298	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2964781.392	699730.410	1662944.170	16716853.313	.131	3	GPS - RTRN	2008	RTRN2008
2964781.398	699730.396	1662944.174	16716853.299	.033	C	ADJUSTMENT	2002	GPS1700
2964781.398	699730.396	1662944.174	16716853.299	.033	C	GPS - STATIC	2001	HCLOV

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2964781.788	699729.767	1662944.555	16716852.664	.033	C	GPS - STATIC	1997	HCLOV

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_A-DE5992-3N-24JAN2008.jpg	N	Jan 24, 2008
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_A-DE5992-2-24JAN2008.jpg		Jan 24, 2008
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_A-DE5992-1-24JAN2008.jpg		Jan 24, 2008

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

5804 A RESET

Mn/DOT Name: 5804 A RESET
NGS Name: 5804 A RESET
County: PINE, MN (Sheet 1)

NGS ACRN: DO8677 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	19	41 N	20 W	460040.69	925440.70	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2020	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 30 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012)
Stamping: 5804 A RESET 2012

1.5 MILES EAST OF HINCKLEY, 1.0 MILE EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND INTERSTATE HIGHWAY 35 IN HINCKLEY, AT TRUNK HIGHWAY 48 MILEPOINT 1.0, 74.0 FEET NORTH OF TRUNK HIGHWAY 48, 14.0 FEET EAST OF A POWER POLE, 2.7 FEET WEST 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
1013.965	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1013.974	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
1013.981	.262		923.971	.197	2011	GPS - OPUS	2020	GPSBM
1014.027	.262		924.024	.197	2011	GPS - RTRN	2020	RTRN2020
1013.981			923.955	.010	2011	HORIZONTAL ADJUSTMENT	2015	GPS3071
1013.981			923.955	.010	2011	GPS - STATIC	2015	HCLVR
1013.974	.131		924.083	.066	2007	GPS - STATIC	2012	HCLVR
1013.974	.131		924.188	.066	1996	GPS - STATIC	2012	HCLVR
1013.915	.262		924.024	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -90.013 12B = -90.003 09 = -89.892 03 = -89.790

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 40.68788	92 54 40.70052	497127.184	202585.152	.131	3	GPS - OPUS	2020	GPSBM
46 00 40.68853	92 54 40.70032	497127.198	202585.218	.131	3	GPS - RTRN	2020	RTRN2020
46 00 40.68830	92 54 40.70063	497127.176	202585.195	.016		ADJUSTMENT	2015	GPS3071
46 00 40.68830	92 54 40.70063	497127.176	202585.195	.016	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 40.68818	92 54 40.70098	497127.151	202585.182	.033	C	GPS - STATIC	2012	HCLVR
46 00 40.68799	92 54 40.70076	497127.167	202585.163	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 40.68815	92 54 40.70058	497127.179	202585.179	.033	C	GPS - STATIC	2012	HCLVR

5804 A RESET

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2964781.425	699730.369	1662944.201	16716853.271	.131	3	GPS - OPUS	2020	GPSBM
2964781.438	699730.435	1662944.215	16716853.337	.131	3	GPS - RTRN	2020	RTRN2020
2964781.416	699730.411	1662944.193	16716853.314	.016		ADJUSTMENT	2015	GPS3071
2964781.416	699730.411	1662944.193	16716853.314	.016	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2964781.392	699730.398	1662944.169	16716853.301	.033	C	GPS - STATIC	2012	HCLVR
2964781.408	699730.379	1662944.184	16716853.282	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2964781.420	699730.396	1662944.197	16716853.299	.033	C	GPS - STATIC	2012	HCLVR

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_A_RESET-DO8677-3N-30APR2020.jpg	N	Apr 30, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_A_RESET-DO8677-2-30APR2020.jpg		Apr 30, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_A_RESET-DO8677-1-30APR2020.jpg		Apr 30, 2020

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

Mn/DOT Name: 5804 AA **NGS Name:** 5804 AA

County: PINE, MN (Sheet 1)

NGS ACRN: DO8693 Get Map
NGS Quad / Sta Num : 46092323/
USGS Quad: CLOVERDALE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	24	41 N	19 W	460042.96	924124.00	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2020	GOOD	Horz=YES Vert=YES	YES		RECESSED 1 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 25 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) **Stamping:** 5804 AA 2012

2.4 MILES EAST OF CLOVERDALE, 2.4 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND COUNTY ROAD 21 IN CLOVERDALE, AT TRUNK HIGHWAY 48 MILEPOINT 11.65, 48.1 FEET NORTH OF TRUNK HIGHWAY 48, 1.5 FEET EAST 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
987.281	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
987.390	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
987.281	.262		899.404	.197	2011	GPS - OPUS	2020	GPSBM
987.429	.262		899.480	.197	2011	GPS - RTRN	2020	RTRN2020
987.393			899.381	.013	2011	HORIZONTAL ADJUSTMENT	2015	GPS3071
987.393			899.381	.013	2011	GPS - STATIC	2015	HCLVR
987.432	.131		899.555	.066	2007	GPS - STATIC	2012	HCLVR
987.432	.131		899.650	.066	1996	GPS - STATIC	2012	HCLVR

Geoid Separations(ft): GEOID18 = -87.880 12B = -87.946 09 = -87.871 03 = -87.785

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 42.96344	92 41 23.99658	553361.277	202885.899	.131	3	GPS - OPUS	2020	GPSBM
46 00 42.96317	92 41 23.99598	553361.319	202885.872	.131	3	GPS - RTRN	2020	RTRN2020
46 00 42.96348	92 41 23.99657	553361.278	202885.903	.016		ADJUSTMENT	2015	GPS3071
46 00 42.96348	92 41 23.99657	553361.278	202885.903	.016	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 42.96355	92 41 23.99723	553361.231	202885.910	.033	C	GPS - STATIC	2012	HCLVR

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 42.96353	92 41 23.99684	553361.259	202885.908	.033	C	GPS - STATIC	2012	HCLVR

5804 AA

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3020996.304	700989.677	1719153.142	16717224.395	.131	3	GPS - OPUS	2020	GPSBM
3020996.346	700989.651	1719153.184	16717224.368	.131	3	GPS - RTRN	2020	RTRN2020
3020996.304	700989.681	1719153.142	16717224.399	.016		ADJUSTMENT	2015	GPS3071
3020996.304	700989.681	1719153.142	16717224.399	.016	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3020996.258	700989.687	1719153.096	16717224.406	.033	C	GPS - STATIC	2012	HCLVR

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3020996.285	700989.686	1719153.123	16717224.404	.033	C	GPS - STATIC	2012	HCLVR

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_AA-DO8693-3N-30APR2020.jpg	N	Apr 30, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_AA-DO8693-2-30APR2020.jpg		Apr 30, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_AA-DO8693-1-30APR2020.jpg		Apr 30, 2020

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

Mn/DOT Name: 5804 AB **NGS Name:** 5804 AB

County: PINE, MN (Sheet 1)

NGS ACRN: DO8695 Get Map
NGS Quad / Sta Num : 46092323/
USGS Quad: CLOVERDALE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	30	41 N	18 W	460042.03	924022.30	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2020	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

Monument Type
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 40 FT)

Disk Type
METAL ROD (WITH REMOVABLE ID DISK)

Mon. Agency
MNDT

Description: (2012)

Stamping: 5804 AB 2012

3.25 MILES EAST OF CLOVERDALE, 3.25 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND COUNTY ROAD 21 IN CLOVERDALE, AT TRUNK HIGHWAY 48 MILEPOINT 12.5, 63.7 FEET SOUTH OF TRUNK HIGHWAY 48, 15.1 FEET NORTHEAST OF THE FENCE CORNER, 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
982.895	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
983.007	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
982.918	.262		895.169	.197	2011	GPS - OPUS	2020	GPSBM
983.154	.262		895.330	.197	2011	GPS - RTRN	2020	RTRN2020
983.026			895.126	.011	2011	HORIZONTAL ADJUSTMENT	2015	GPS3071
983.026			895.126	.011	2011	GPS - STATIC	2015	HCLVR
983.069	.131		895.316	.066	2007	GPS - STATIC	2012	HCLVR
983.069	.131		895.415	.066	1996	GPS - STATIC	2012	HCLVR

Geoid Separations(ft): GEOID18 = -87.752 12B = -87.825 09 = -87.749 03 = -87.664

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 42.03126	92 40 22.30007	557716.284	202803.433	.131	3	GPS - OPUS	2020	GPSBM
46 00 42.03142	92 40 22.29927	557716.340	202803.450	.131	3	GPS - RTRN	2020	RTRN2020
46 00 42.03155	92 40 22.29999	557716.289	202803.463	.016		ADJUSTMENT	2015	GPS3071
46 00 42.03155	92 40 22.29999	557716.289	202803.463	.016	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 42.03161	92 40 22.30050	557716.253	202803.469	.033	C	GPS - STATIC	2012	HCLVR

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 42.03157	92 40 22.30012	557716.280	202803.465	.033	C	GPS - STATIC	2012	HCLVR

5804 AB

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3025351.625	700981.501	1723506.351	16717147.419	.131	3	GPS - OPUS	2020	GPSBM
3025351.681	700981.518	1723506.408	16717147.435	.131	3	GPS - RTRN	2020	RTRN2020
3025351.630	700981.531	1723506.357	16717147.448	.016		ADJUSTMENT	2015	GPS3071
3025351.630	700981.531	1723506.357	16717147.448	.016	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3025351.594	700981.536	1723506.321	16717147.454	.033	C	GPS - STATIC	2012	HCLVR

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3025351.621	700981.532	1723506.348	16717147.450	.033	C	GPS - STATIC	2012	HCLVR

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_AB-DO8695-3S-04MAY2020.jpg	S	May 4, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_AB-DO8695-2-04MAY2020.jpg		May 4, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_AB-DO8695-1-04MAY2020.jpg		May 4, 2020

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

Mn/DOT Name: 5804 AC
NGS Name: 5804 AC
County: PINE, MN (Sheet 1)

NGS ACRN: DO8698 Get Map
NGS Quad / Sta Num : 46092323/
USGS Quad: CLOVERDALE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	20	41 N	18 W	460042.88	923822.16	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2019	GOOD	Horz=YES Vert=YES	YES		RECESSED 1 IN.	BAR MAG IN DRILL HOLE

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

Description: (2012)
Stamping: 5804 AC 2012

4.75 MILES EAST OF CLOVERDALE, 4.85 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND COUNTY ROAD 21 IN CLOVERDALE, AT TRUNK HIGHWAY 48 MILEPOINT 14.10, 48.3 FEET NORTH OF TRUNK HIGHWAY 48, 28.4 FEET SOUTH OF THE FENCE LINE, 1.5 FEET SOUTH 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
965.713	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
965.835	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
965.736	.262		878.217	.197	2011	GPS - OPUS	2020	GPSBM
965.864			878.191	.012	2011	HORIZONTAL ADJUSTMENT	2015	GPS3071
965.864			878.191	.012	2011	GPS - STATIC	2015	HCLVR
965.910	.131		878.361	.066	2007	GPS - STATIC	2012	HCLVR
965.910	.131		878.463	.066	1996	GPS - STATIC	2012	HCLVR

Geoid Separations(ft): GEOID18 = -87.520 12B = -87.608 09 = -87.533 03 = -87.441

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 42.88208	92 38 22.15878	566195.989	202915.614	.131	3	GPS - OPUS	2020	GPSBM
46 00 42.88221	92 38 22.15876	566195.991	202915.627	.016		ADJUSTMENT	2015	GPS3071
46 00 42.88221	92 38 22.15876	566195.991	202915.627	.016	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 42.88228	92 38 22.15946	566195.941	202915.634	.033	C	GPS - STATIC	2012	HCLVR

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 42.88223	92 38 22.15910	566195.967	202915.629	.033	C	GPS - STATIC	2012	HCLVR

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3033827.292	701238.276	1731982.227	16717270.167	.131	3	GPS - OPUS	2020	GPSBM
3033827.293	701238.289	1731982.229	16717270.180	.016		ADJUSTMENT	2015	GPS3071
3033827.293	701238.289	1731982.229	16717270.180	.016	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3033827.243	701238.296	1731982.179	16717270.187	.033	C	GPS - STATIC	2012	HCLVR

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3033827.269	701238.291	1731982.204	16717270.182	.033	C	GPS - STATIC	2012	HCLVR

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_AC-DO8698-3N-21NOV2019.jpg	N	Nov 21, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_AC-DO8698-2-21NOV2019.jpg		Nov 21, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_AC-DO8698-1-21NOV2019.jpg		Nov 21, 2019

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

Mn/DOT Name: 5804 AD **NGS Name:** 5804 AD

County: PINE, MN (Sheet 1)

NGS ACRN: DO8700 Get Map
NGS Quad / Sta Num : 46092322/
USGS Quad: WILBUR LAKE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	21	41 N	18 W	460044.07	923714.79	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2020	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

Monument Type
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 55 FT)

Disk Type
METAL ROD (WITH REMOVABLE ID DISK)

Mon. Agency
MNDT

Description: (2012)

Stamping: 5804 AD 2012

5.75 MILES EAST OF CLOVERDALE, 5.75 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND COUNTY ROAD 21 IN CLOVERDALE, AT TRUNK HIGHWAY 48 MILEPOINT 15.0, 57.5 FEET NORTH OF TRUNK HIGHWAY 48, 1.5 FEET SOUTH 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
975.146	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
975.274	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
975.146	.262		887.748	.197	2011	GPS - OPUS	2020	GPSBM
975.264	.262		887.774	.197	2011	GPS - RTRN	2020	RTRN2020
975.290			887.741	.011	2011	HORIZONTAL ADJUSTMENT	2015	GPS3071
975.290			887.741	.011	2011	GPS - STATIC	2015	HCLVR
975.326	.131		887.912	.066	2007	GPS - STATIC	2012	HCLVR
975.326	.131		888.013	.066	1996	GPS - STATIC	2012	HCLVR

Geoid Separations(ft): GEOID18 = -87.398 12B = -87.490 09 = -87.418 03 = -87.323

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 44.07415	92 37 14.78683	570950.886	203052.504	.131	3	GPS - OPUS	2020	GPSBM
46 00 44.07385	92 37 14.78602	570950.943	203052.474	.131	3	GPS - RTRN	2020	RTRN2020
46 00 44.07431	92 37 14.78647	570950.911	203052.520	.016		ADJUSTMENT	2015	GPS3071
46 00 44.07431	92 37 14.78647	570950.911	203052.520	.016	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 44.07436	92 37 14.78711	570950.866	203052.525	.033	C	GPS - STATIC	2012	HCLVR

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 44.07429	92 37 14.78677	570950.890	203052.518	.033	C	GPS - STATIC	2012	HCLVR

5804 AD

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3038578.661	701456.234	1736734.890	16717412.949	.131	3	GPS - OPUS	2020	GPSBM
3038578.719	701456.205	1736734.947	16717412.919	.131	3	GPS - RTRN	2020	RTRN2020
3038578.686	701456.251	1736734.915	16717412.965	.016		ADJUSTMENT	2015	GPS3071
3038578.686	701456.251	1736734.915	16717412.965	.016	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3038578.641	701456.255	1736734.870	16717412.970	.033	C	GPS - STATIC	2012	HCLVR

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3038578.665	701456.249	1736734.894	16717412.963	.033	C	GPS - STATIC	2012	HCLVR

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_AD-DO8700-3N-04MAY2020.jpg	N	May 4, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_AD-DO8700-2-04MAY2020.jpg		May 4, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_AD-DO8700-1-04MAY2020.jpg		May 4, 2020

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

Mn/DOT Name: 5804 AE **NGS Name:** 5804 AE

County: PINE, MN (Sheet 1)

NGS ACRN: DO8704 Get Map
NGS Quad / Sta Num : 46092322/
USGS Quad: WILBUR LAKE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	23	41 N	18 W	460044.89	923429.45	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2020	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 48 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) **Stamping:** 5804 AE 2012

7.9 MILES EAST OF CLOVERDALE, 7.95 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND COUNTY ROAD 21 IN CLOVERDALE, AT TRUNK HIGHWAY 48 MILEPOINT 17.2, 63.3 FEET NORTH OF TRUNK HIGHWAY 48, 59.2 FEET WEST OF BEAVER DAM LANE, 1.5 FEET EAST 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
974.345	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
974.490	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
974.404	.262		887.272	.197	2011	GPS - OPUS	2020	GPSBM
974.463	.262		887.232	.197	2011	GPS - RTRN	2020	RTRN2020
974.512			887.219	.010	2011	HORIZONTAL ADJUSTMENT	2015	GPS3071
974.512			887.219	.010	2011	GPS - STATIC	2015	HCLVR
974.539	.131		887.374	.066	2007	GPS - STATIC	2012	HCLVR
974.539	.131		887.485	.066	1996	GPS - STATIC	2012	HCLVR

Geoid Separations(ft): GEOID18 = -87.132 12B = -87.231 09 = -87.172 03 = -87.063

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 44.89088	92 34 29.44715	582620.645	203179.571	.131	3	GPS - OPUS	2020	GPSBM
46 00 44.89136	92 34 29.44724	582620.639	203179.620	.131	3	GPS - RTRN	2020	RTRN2020
46 00 44.89115	92 34 29.44719	582620.642	203179.599	.016		ADJUSTMENT	2015	GPS3071
46 00 44.89115	92 34 29.44719	582620.642	203179.599	.016	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 44.89124	92 34 29.44791	582620.591	203179.607	.033	C	GPS - STATIC	2012	HCLVR

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 44.89111	92 34 29.44760	582620.613	203179.594	.033	C	GPS - STATIC	2012	HCLVR

5804 AE

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3050243.327	701782.337	1748399.450	16717554.563	.131	3	GPS - OPUS	2020	GPSBM
3050243.319	701782.385	1748399.444	16717554.611	.131	3	GPS - RTRN	2020	RTRN2020
3050243.323	701782.364	1748399.447	16717554.590	.016		ADJUSTMENT	2015	GPS3071
3050243.323	701782.364	1748399.447	16717554.590	.016	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3050243.273	701782.372	1748399.397	16717554.599	.033	C	GPS - STATIC	2012	HCLVR

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3050243.295	701782.359	1748399.419	16717554.586	.033	C	GPS - STATIC	2012	HCLVR

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_AE-DO8704-3N-04MAY2020.jpg	N	May 4, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_AE-DO8704-2-04MAY2020.jpg		May 4, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_AE-DO8704-1-04MAY2020.jpg		May 4, 2020

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

5804 AF

Mn/DOT Name: 5804 AF **NGS Name:** 5804 AF

County: PINE, MN (Sheet 1)

NGS ACRN: DO8706 Get Map
NGS Quad / Sta Num : 46092322/
USGS Quad: WILBUR LAKE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	24	41 N	18 W	460044.73	923325.42	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2019	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

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

Description: (2012) **Stamping:** 5804 AF 2012

8.8 MILES EAST OF CLOVERDALE, 8.8 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND COUNTY ROAD 21 IN CLOVERDALE, AT TRUNK HIGHWAY 48 MILEPOINT 18.10, 48.3 FEET NORTH OF TRUNK HIGHWAY 48, 32.0 FEET EAST OF A FIELD ENTRANCE, 1.5 FEET WEST 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
984.253	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
984.404	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
984.273	.262		897.232	.197	2011	GPS - OPUS	2020	GPSBM
984.430			897.223	.011	2011	HORIZONTAL ADJUSTMENT	2015	GPS3071
984.430			897.223	.011	2011	GPS - STATIC	2015	HCLVR
984.480	.131		897.380	.066	2007	GPS - STATIC	2012	HCLVR
984.480	.131		897.498	.066	1996	GPS - STATIC	2012	HCLVR

Geoid Separations(ft): GEOID18 = -87.041 12B = -87.139 09 = -87.086 03 = -86.978

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 44.72960	92 33 25.41953	587139.923	203182.211	.131	3	GPS - OPUS	2020	GPSBM
46 00 44.72979	92 33 25.41958	587139.920	203182.230	.016		ADJUSTMENT	2015	GPS3071
46 00 44.72979	92 33 25.41958	587139.920	203182.230	.016	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 44.72994	92 33 25.42031	587139.868	203182.245	.033	C	GPS - STATIC	2012	HCLVR

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 44.72981	92 33 25.42001	587139.889	203182.232	.033	C	GPS - STATIC	2012	HCLVR

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3054761.426	701862.075	1752916.782	16717562.854	.131	3	GPS - OPUS	2020	GPSBM
3054761.422	701862.094	1752916.779	16717562.873	.016		ADJUSTMENT	2015	GPS3071
3054761.422	701862.094	1752916.779	16717562.873	.016	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3054761.371	701862.108	1752916.727	16717562.888	.033	C	GPS - STATIC	2012	HCLVR

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3054761.392	701862.095	1752916.748	16717562.875	.033	C	GPS - STATIC	2012	HCLVR

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_AF-DO8706-3N-21NOV2019.jpg	N	Nov 21, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_AF-DO8706-2-21NOV2019.jpg		Nov 21, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_AF-DO8706-1-21NOV2019.jpg		Nov 21, 2019

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

Mn/DOT Name: 5804 AG **NGS Name:** 5804 AG

County: PINE, MN (Sheet 1)

NGS ACRN: DO8707 Get Map
NGS Quad / Sta Num : 46092322/
USGS Quad: WILBUR LAKE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	30	41 N	17 W	460043.61	923210.18	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2020	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 65 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) **Stamping:** 5804 AG 2012

9.85 MILES EAST OF CLOVERDALE, 9.8 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND COUNTY ROAD 21 IN CLOVERDALE, AT TRUNK HIGHWAY 48 MILEPOINT 19.1, 43.3 FEET SOUTH OF TRUNK HIGHWAY 48, 20.5 FEET WEST OF THE EXTENDED WILDERNESS LANE, 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
981.304	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
981.465	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
981.301	.262		894.358	.197	2011	GPS - OPUS	2020	GPSBM
981.350	.262		894.313	.197	2011	GPS - RTRN	2020	RTRN2020
981.474			894.365	.012	2011	HORIZONTAL ADJUSTMENT	2015	GPS3071
981.474			894.365	.012	2011	GPS - STATIC	2015	HCLVR
981.527	.131		894.526	.066	2007	GPS - STATIC	2012	HCLVR
981.527	.131		894.644	.066	1996	GPS - STATIC	2012	HCLVR

Geoid Separations(ft): GEOID18 = -86.942 12B = -87.037 09 = -86.998 03 = -86.880

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 43.60914	92 32 10.17888	592451.088	203092.300	.131	3	GPS - OPUS	2020	GPSBM
46 00 43.60906	92 32 10.17851	592451.115	203092.292	.131	3	GPS - RTRN	2020	RTRN2020
46 00 43.60890	92 32 10.17903	592451.078	203092.275	.020		ADJUSTMENT	2015	GPS3071
46 00 43.60890	92 32 10.17903	592451.078	203092.275	.020	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 43.60909	92 32 10.17979	592451.024	203092.294	.033	C	GPS - STATIC	2012	HCLVR

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 43.60898	92 32 10.17950	592451.045	203092.283	.033	C	GPS - STATIC	2012	HCLVR

5804 AG

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3060072.794	701862.801	1758225.783	16717479.623	.131	3	GPS - OPUS	2020	GPSBM
3060072.820	701862.793	1758225.810	16717479.615	.131	3	GPS - RTRN	2020	RTRN2020
3060072.784	701862.776	1758225.773	16717479.599	.020		ADJUSTMENT	2015	GPS3071
3060072.784	701862.776	1758225.773	16717479.599	.020	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3060072.730	701862.794	1758225.719	16717479.618	.033	C	GPS - STATIC	2012	HCLVR

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3060072.750	701862.784	1758225.740	16717479.607	.033	C	GPS - STATIC	2012	HCLVR

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_AG-DO8707-3S-04MAY2020.jpg	S	May 4, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_AG-DO8707-2-04MAY2020.jpg		May 4, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_AG-DO8707-1-04MAY2020.jpg		May 4, 2020

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

Mn/DOT Name: 5804 AH **NGS Name:** 5804 AH

County: PINE, MN (Sheet 1)

NGS ACRN: DO8711 Get Map
NGS Quad / Sta Num : 46092233/
USGS Quad: DANBURY WEST

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	26	41 N	17 W	460044.87	922715.85	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2020	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: MNDT

Description: (2012)
Stamping: 5804 AH 2012

13.3 MILES EAST OF CLOVERDALE, 13.75 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND COUNTY ROAD 21 IN CLOVERDALE, AT TRUNK HIGHWAY 48 MILEPOINT 23.0, 32.7 FEET SOUTH OF TRUNK HIGHWAY 48, 62.0 FEET EAST OF A MILEPOST 23, 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
953.755	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
953.938	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
953.646	.262		866.980	.197	2011	GPS - OPUS	2020	GPSBM
953.820	.262		867.082	.197	2011	GPS - RTRN	2020	RTRN2020
953.794			867.108	.011	2011	HORIZONTAL ADJUSTMENT	2015	GPS3071
953.794			867.108	.011	2011	GPS - STATIC	2015	HCLVR
954.034	.131		867.288	.066	2007	GPS - STATIC	2012	HCLVR
954.034	.131		867.423	.066	1996	GPS - STATIC	2012	HCLVR

Geoid Separations(ft): GEOID18 = -86.666 12B = -86.739 09 = -86.752 03 = -86.617

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 44.86928	92 27 15.84832	613224.906	203325.646	.131	3	GPS - OPUS	2020	GPSBM
46 00 44.86922	92 27 15.84754	613224.962	203325.640	.131	3	GPS - RTRN	2020	RTRN2020
46 00 44.86935	92 27 15.84806	613224.925	203325.653	.016		ADJUSTMENT	2015	GPS3071
46 00 44.86935	92 27 15.84806	613224.925	203325.653	.016	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 44.86946	92 27 15.84898	613224.860	203325.664	.033	C	GPS - STATIC	2012	HCLVR

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 44.86932	92 27 15.84878	613224.874	203325.649	.033	C	GPS - STATIC	2012	HCLVR

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3080837.419	702450.572	1778990.481	16717738.835	.131	3	GPS - OPUS	2020	GPSBM
3080837.474	702450.567	1778990.536	16717738.830	.131	3	GPS - RTRN	2020	RTRN2020
3080837.437	702450.579	1778990.499	16717738.843	.016		ADJUSTMENT	2015	GPS3071
3080837.437	702450.579	1778990.499	16717738.843	.016	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3080837.372	702450.589	1778990.434	16717738.853	.033	C	GPS - STATIC	2012	HCLVR

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3080837.386	702450.575	1778990.449	16717738.839	.033	C	GPS - STATIC	2012	HCLVR

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_AH-DO8711-3S-04MAY2020.jpg	S	May 4, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_AH-DO8711-2-04MAY2020.jpg		May 4, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_AH-DO8711-1-04MAY2020.jpg		May 4, 2020

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

Mn/DOT Name: 5804 B **NGS Name:** 5804 B

County: PINE, MN (Sheet 1)

NGS ACRN: DE5993 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	20	41 N	20 W	460040.28	925348.40	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1996	2012	DESTROYED	Horz=NO Vert=NO	YES		RECESSED 3 IN.	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
UNKNOWN	SURVEY DISK	MNDT

Description: (1996) **Stamping:** 5804 B 1996

2.0 MILES EAST OF HINCKLEY, 1.7 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND INTERSTATE HIGHWAY 35 IN HINCKLEY, AT TRUNK HIGHWAY 48 MILEPOINT 1.7, 68.0 FEET NORTH OF TRUNK HIGHWAY 48, 163.5 FEET WEST OF EXTENDED CENTER OF COUNTY ROAD 15, 10.5 FEET EAST OF A POWER POLE, 2.6 FEET EAST OF A WITNESS POST.

Station Notes

THE MARK WAS HIT, IT FALLS ON THE EDGE OF A PLOWED FIELD. DAVE RECOMMENDS RESETTING THE MARK IN THE SPRING AND SHOULD RECESS THE MARK MORE.
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
1004.079	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1004.096	.016	2/1				VERTICAL ADJUSTMENT	2006	00000497
1004.083	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1003.807	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

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
			914.181	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1003.965	.262		914.283	.197	1996	GPS - RTRN	2008	RTRN2008
			914.290	.010	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
1004.066	.131		914.417	.066	1996	HORIZONTAL ADJUSTMENT	2002	GPS1700
1004.066	.131		914.417	.066	1996	GPS - STATIC	2001	HCLOV

Geoid Separations(ft): GEOID18 = -89.895 12B = -89.882 09 = -89.777 03 = -89.682

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 40.27779	92 53 48.40217	500818.626	202543.422	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 40.27771	92 53 48.40273	500818.587	202543.414	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 40.27746	92 53 48.40216	500818.627	202543.389	.131	3	GPS - RTRN	2008	RTRN2008
46 00 40.27777	92 53 48.40242	500818.608	202543.420	.033	C	ADJUSTMENT	2002	GPS1700
46 00 40.27777	92 53 48.40242	500818.608	202543.420	.033	C	GPS - STATIC	2001	HCLOV

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 40.27142	92 53 48.39706	500818.985	202542.777	.033	C	GPS - STATIC	1997	HCLOV

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2968472.654	699751.557	1666634.060	16716816.193	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2968472.615	699751.548	1666634.021	16716816.185	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2968472.655	699751.523	1666634.061	16716816.159	.131	3	GPS - RTRN	2008	RTRN2008
2968472.636	699751.555	1666634.043	16716816.191	.033	C	ADJUSTMENT	2002	GPS1700
2968472.636	699751.555	1666634.043	16716816.191	.033	C	GPS - STATIC	2001	HCLOV

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2968473.026	699750.918	1666634.422	16716815.549	.033	C	GPS - STATIC	1997	HCLOV

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_B-DE5993-3N-24JAN2008.jpg	N	Jan 24, 2008
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_B-DE5993-2-24JAN2008.jpg		Jan 24, 2008
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_B-DE5993-1-24JAN2008.jpg		Jan 24, 2008

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

5804 B RESET

Mn/DOT Name: 5804 B RESET
NGS Name: 5804 B RESET
County: PINE, MN (Sheet 1)

NGS ACRN: DO8678 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	20	41 N	20 W	460040.28	925348.40	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2012	GOOD	Horz=YES Vert=YES	YES		RECESSED 8 IN.	BAR MAG IN DRILL HOLE

Monument Type: ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 25 FT)
Disk Type: METAL ROD (WITH REMOVABLE ID DISK)
Mon. Agency: MNDT

Description: (2012)
Stamping: 5804 B RESET 2012

2.0 MILES EAST OF HINCKLEY, 1.7 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND INTERSTATE HIGHWAY 35 IN HINCKLEY, AT TRUNK HIGHWAY 48 MILEPOINT 1.7, 68.0 FEET NORTH OF TRUNK HIGHWAY 48, 16.5 FEET EAST OF A POWER POLE, 2.6 FEET EAST 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
1003.778	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1003.794	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
1003.787			913.876	.010	2011	HORIZONTAL ADJUSTMENT	2015	GPS3071
1003.787			913.876	.010	2011	GPS - STATIC	2015	HCLVR
1003.771	.131		914.004	.066	2007	GPS - STATIC	2012	HCLVR
1003.771	.131		914.106	.066	1996	GPS - STATIC	2012	HCLVR
1003.705	.262		913.925	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -89.895 12B = -89.882 09 = -89.777 03 = -89.682

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 40.27789	92 53 48.40235	500818.613	202543.432	.016		ADJUSTMENT	2015	GPS3071
46 00 40.27789	92 53 48.40235	500818.613	202543.432	.016	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 40.27778	92 53 48.40264	500818.593	202543.421	.033	C	GPS - STATIC	2012	HCLVR
46 00 40.27718	92 53 48.40206	500818.634	202543.360	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 40.27776	92 53 48.40225	500818.620	202543.419	.033	C	GPS - STATIC	2012	HCLVR

5804 B RESET

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2968472.641	699751.567	1666634.048	16716816.203	.016		ADJUSTMENT	2015	GPS3071
2968472.641	699751.567	1666634.048	16716816.203	.016	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2968472.621	699751.555	1666634.027	16716816.192	.033	C	GPS - STATIC	2012	HCLVR
2968472.663	699751.495	1666634.068	16716816.131	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2968472.648	699751.554	1666634.055	16716816.190	.033	C	GPS - STATIC	2012	HCLVR

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_B_RESET-DO8678-3N-02MAY2012.jpg	N	May 2, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_B_RESET-DO8678-2-02MAY2012.jpg		May 2, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_B_RESET-DO8678-1-02MAY2012.jpg		May 2, 2012

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

Mn/DOT Name: 5804 C **NGS Name:** 5804 C

County: PINE, MN (Sheet 1)

NGS ACRN: DH4953 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	28	41 N	20 W	460039.20	925312.63	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1996	2012	GOOD	Horz=NO Vert=YES	YES	9819	FLUSH	NO MAG MATERIAL

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

Description: (1996) **Stamping:** 5804 C 1996

2.5 MILES EAST OF HINCKLEY, 2.5 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND INTERSTATE HIGHWAY 35 IN HINCKLEY, IN THE ABUTMENT AT THE SOUTHEAST CORNER OF BRIDGE NUMBER 9819 OVER THE GRINDSTONE RIVER, 2.15 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND INTERSTATE HIGHWAY 35 IN HINCKLEY, AT TRUNK HIGHWAY 48 MILEPOINT 2.05, 19.7 FEET SOUTH OF TRUNK HIGHWAY 48.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
989.230	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
989.250	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
989.250	.016	2/1				VERTICAL ADJUSTMENT	2006	00000497
989.240	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
988.965	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

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
989.093	.262		899.404	.197	2007	GPS - RTRN	2012	RTRN2012
989.073	.262		899.477	.197	1996	GPS - RTRN	2008	RTRN2008

Geoid Separations(ft): GEOID18 = -89.803 12B = -89.793 09 = -89.688 03 = -89.600

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 39.20290	92 53 12.63383	503343.331	202434.794	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 39.20390	92 53 12.63399	503343.320	202434.895	.131	3	GPS - RTRN	2008	RTRN2008

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2970998.578	699685.983	1669157.783	16716710.782	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2970998.565	699686.084	1669157.772	16716710.883	.131	3	GPS - RTRN	2008	RTRN2008

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_C-DH4953-3W-02MAY2012.jpg	W	May 2, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_C-DH4953-2-02MAY2012.jpg		May 2, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_C-DH4953-1-02MAY2012.jpg		May 2, 2012

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

Mn/DOT Name: 5804 D **NGS Name:** 5804 D

County: PINE, MN (Sheet 1)

NGS ACRN: DH4954 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	28	41 N	20 W	460039.50	925237.46	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1996	2012	GOOD	Horz=NO Vert=YES	YES	5780	FLUSH	NO MAG MATERIAL

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

Description: (1996) **Stamping:** 5804 D 1996

3.0 MILES EAST OF HINCKLEY, 2.6 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND INTERSTATE HIGHWAY 35 IN HINCKLEY, IN THE ABUTMENT AT SOUTHEAST CORNER OF BRIDGE NUMBER 5780 OVER THE GRINDSTONE RIVER, 2.65 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND INTERSTATE HIGHWAY 35 IN HINCKLEY, AT TRUNK HIGHWAY 48 MILEPOINT 2.65, 19.7 FEET SOUTH OF TRUNK HIGHWAY 48.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
966.993	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
967.019	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
967.019	.016	2/1				VERTICAL ADJUSTMENT	2006	00000497
967.006	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
966.730	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

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
966.894	.262		877.295	.197	2007	GPS - RTRN	2012	RTRN2012
966.875	.262		877.364	.197	1996	GPS - RTRN	2008	RTRN2008

Geoid Separations(ft): GEOID18 = -89.708 12B = -89.705 09 = -89.596 03 = -89.511

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 39.49853	92 52 37.46448	505825.744	202465.305	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 39.49916	92 52 37.46364	505825.803	202465.368	.131	3	GPS - RTRN	2008	RTRN2008

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2973479.849	699758.793	1671639.059	16716744.394	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2973479.908	699758.858	1671639.118	16716744.458	.131	3	GPS - RTRN	2008	RTRN2008

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_D-DH4954-3W-02MAY2012.jpg	W	May 2, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_D-DH4954-2-02MAY2012.jpg		May 2, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_D-DH4954-1-02MAY2012.jpg		May 2, 2012

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

5804 E

Mn/DOT Name: 5804 E

NGS Name: 5804 E

County: PINE, MN (Sheet 1)

NGS ACRN: DH4956 Get Map
NGS Quad / Sta Num : 46092332/
USGS Quad: SANDSTONE SOUTH

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	27	41 N	20 W	460032.00	925107.00	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1996	2012	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 11 FT)	SURVEY DISK	MNDT

Description: (1996)

Stamping: 5804 E 1996

4.0 MILES EAST OF HINCKLEY, 3.8 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND INTERSTATE HIGHWAY 35 IN HINCKLEY, AT TRUNK HIGHWAY 48 MILEPOINT 3.80, 81.4 FEET SOUTH OF TRUNK HIGHWAY 48, 6.2 FEET EAST OF A POWER POLE, 29.9 FEET EAST-SOUTHEAST OF A TELEPHONE PEDESTAL NUMBER 2185, 3.8 FEET EAST OF A WITNESS POST.

Station Notes

THE ROD WAS FOUND WITH NO DISK. THE FIRST 6" OF THE ROD WAS BENT AND ALSO IT TURNS. (POWER LINE BRUSHED OFF). THE ROD WAS FOUND MOVING-COULD NOT RESET.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
984.699	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
984.729	.016	2/1				VERTICAL ADJUSTMENT	2006	00000497
984.726	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
984.450	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

Geoid Separations(ft): GEOID18 = -89.429 12B = -89.449 09 = -89.337 03 = -89.242

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

5804 F

Mn/DOT Name: 5804 F

NGS Name: 5804 F

County: PINE, MN (Sheet 1)

NGS ACRN: DH4957 Get Map
NGS Quad / Sta Num : 46092332/
USGS Quad: SANDSTONE SOUTH

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	26	41 N	20 W	460039.00	925021.00	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1996	2008	DESTROYED	Horz=NO Vert=NO	NO	5781	FLUSH	NO MAG MATERIAL

Monument Type	Disk Type	Mon. Agency
BRIDGE ABUTMENT	SURVEY DISK	MNDT

Description: (2010) **Stamping:** 5804 F 1996

4.75 MILES EAST OF HINCKLEY, 4.4 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND INTERSTATE HIGHWAY 35 IN HINCKLEY, IN THE ABUTMENT AT THE SOUTHEAST CORNER OF THE BRIDGE NUMBER 5781 OVER THE KETTLE RIVER, 4.5 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND INTERSTATE HIGHWAY 35 IN HINCKLEY, AT TRUNK HIGHWAY 48 MILEPOINT 4.5, 18.7 FEET SOUTH-SOUTHEAST OF TRUNK HIGHWAY 48.

Station Notes

THE BRIDGE WAS REPLACED IN 1998.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
930.789	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
930.818	.016	2/1				VERTICAL ADJUSTMENT	2006	00000497
930.822	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
930.546	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

Geoid Separations(ft): GEOID18 = -89.285 12B = -89.317 09 = -89.203 03 = -89.101

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

Mn/DOT Name: 5804 G **NGS Name:** 5804 G

County: PINE, MN (Sheet 1)

NGS ACRN: DE5994 Get Map
NGS Quad / Sta Num : 46092332/
USGS Quad: SANDSTONE SOUTH

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	26	41 N	20 W	460040.02	924931.55	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1996	2012	DESTROYED	Horz=NO Vert=NO	YES		PROJECTS 4 IN.	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
UNKNOWN	SURVEY DISK	MNDT

Description: (1996) **Stamping:** 5804 G 1996

5.5 MILES EAST OF HINCKLEY, 5.15 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND INTERSTATE HIGHWAY 35 IN HINCKLEY, AT TRUNK HIGHWAY 48 MILEPOINT 5.15, 130.0 FEET SOUTH OF THE TRUNK HIGHWAY 48, 33.0 FEET WEST OF COUNTY ROAD 20, 4.3 FEET SOUTH OF A POWER POLE, 31.0 FEET NORTH OF EXTENDED DRIVEWAY NUMBER 38940, 2.0 FEET NORTH 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
977.154	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
977.190	.016	2/1				VERTICAL ADJUSTMENT	2006	00000497
977.196	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
976.921	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

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
			888.049	.014	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			888.154	.015	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
977.196	.131		888.286	.066	1996	HORIZONTAL ADJUSTMENT	2002	GPS1700
977.196	.131		888.286	.066	1996	GPS - STATIC	2001	HCLOV

Geoid Separations(ft): GEOID18 = -89.130 12B = -89.173 09 = -89.055 03 = -88.950

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 40.02415	92 49 31.54580	518948.703	202526.593	.016		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 40.02411	92 49 31.54641	518948.660	202526.588	.020		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 40.02417	92 49 31.54606	518948.685	202526.595	.033	C	ADJUSTMENT	2002	GPS1700
46 00 40.02417	92 49 31.54606	518948.685	202526.595	.033	C	GPS - STATIC	2001	HCLOV

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 40.01758	92 49 31.54031	518949.090	202525.927	.033	C	GPS - STATIC	1997	HCLOV

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2986598.478	700043.740	1684756.138	16716822.118	.016		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2986598.435	700043.735	1684756.095	16716822.114	.020		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2986598.460	700043.741	1684756.120	16716822.120	.033	C	ADJUSTMENT	2002	GPS1700
2986598.460	700043.741	1684756.120	16716822.120	.033	C	GPS - STATIC	2001	HCLOV

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2986598.877	700043.081	1684756.527	16716821.453	.033	C	GPS - STATIC	1997	HCLOV

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_G-DE5994-3W-17MAR2008.jpg	W	Mar 17, 2008
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_G-DE5994-2-01JUN2009.jpg		Jun 1, 2009
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_G-DE5994-1-01JUN2009.jpg		Jun 1, 2009

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

5804 G RESET

Mn/DOT Name: 5804 G RESET **NGS Name:** 5804 G RESET

County: PINE, MN (Sheet 1)

NGS ACRN: DO8685 Get Map
NGS Quad / Sta Num : 46092332/
USGS Quad: SANDSTONE SOUTH

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	26	41 N	20 W	460040.02	924931.55	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2012	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 13 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) **Stamping:** 5804 G RESET 2012

5.5 MILES EAST OF HINCKLEY, 5.15 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND INTERSTATE HIGHWAY 35 IN HINCKLEY, AT TRUNK HIGHWAY 45 MILEPOINT 5.15, 130.0 FEET SOUTH OF TRUNK HIGHWAY 48, 33.0 FEET WEST OF COUNTY ROAD 20, 4.3 FEET SOUTH OF A POWER POLE WITH A GUY WIRE, 31.0 FEET NORTH OF THE EXTENDED DRIVEWAY NUMBER 38940, 2.0 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
976.789	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
976.825	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
976.868			887.705	.014	2011	HORIZONTAL ADJUSTMENT	2015	GPS3071
976.868			887.705	.014	2011	GPS - STATIC	2015	HCLVR
976.901	.131		887.853	.066	2007	GPS - STATIC	2012	HCLVR
976.901	.131		887.951	.066	1996	GPS - STATIC	2012	HCLVR
976.875	.262		887.820	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -89.130 12B = -89.173 09 = -89.055 03 = -88.950

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 40.02431	92 49 31.54538	518948.733	202526.609	.020		ADJUSTMENT	2015	GPS3071
46 00 40.02431	92 49 31.54538	518948.733	202526.609	.020	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 40.02431	92 49 31.54578	518948.705	202526.609	.033	C	GPS - STATIC	2012	HCLVR
46 00 40.02354	92 49 31.54627	518948.670	202526.531	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 40.02429	92 49 31.54534	518948.736	202526.607	.033	C	GPS - STATIC	2012	HCLVR

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2986598.507	700043.756	1684756.168	16716822.134	.020		ADJUSTMENT	2015	GPS3071
2986598.507	700043.756	1684756.168	16716822.134	.020	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2986598.479	700043.756	1684756.140	16716822.134	.033	C	GPS - STATIC	2012	HCLVR
2986598.446	700043.677	1684756.106	16716822.056	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2986598.510	700043.754	1684756.171	16716822.132	.033	C	GPS - STATIC	2012	HCLVR

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_G_RESET-DO8685-3W-02MAY2012.jpg	W	May 2, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_G_RESET-DO8685-2-02MAY2012.jpg		May 2, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_G_RESET-DO8685-1-02MAY2012.jpg		May 2, 2012

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

Mn/DOT Name: 5804 H **NGS Name:** 5804 H

County: PINE, MN (Sheet 1)

NGS ACRN: DE5995 Get Map
NGS Quad / Sta Num : 46092332/
USGS Quad: SANDSTONE SOUTH

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	19	41 N	19 W	460043.26	924658.82	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1996	2012	DESTROYED	Horz=NO Vert=NO	YES		FLUSH	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
UNKNOWN	SURVEY DISK	MNDT

Description: (1996) **Stamping:** 5804 H 1996

2.0 MILES WEST OF CLOVERDALE, 2.1 MILES WEST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND COUNTY ROAD 20 IN CLOVERDALE, AT TRUNK HIGHWAY 48 MILEPOINT 7.2, 74.4 FEET NORTH OF TRUNK HIGHWAY 48, 135.3 FEET WEST OF THE DEAD END ROAD, 4.4 FEET EAST OF A POWER POLE, 2.0 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
1018.833	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1018.889	.016	2/1				VERTICAL ADJUSTMENT	2006	00000497
1018.912	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1018.636	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
			930.182	.013	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			930.290	.015	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
1018.896	.131		930.421	.066	1996	HORIZONTAL ADJUSTMENT	2002	GPS1700
1018.928	.131		930.421	.066	1996	GPS - STATIC	2001	HCLOV

Geoid Separations(ft): GEOID18 = -88.671 12B = -88.740 09 = -88.622 03 = -88.517

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 43.26488	92 46 58.82332	529728.053	202867.862	.016		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 43.26487	92 46 58.82395	529728.008	202867.861	.020		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 43.26491	92 46 58.82358	529728.034	202867.866	.033	C	ADJUSTMENT	2002	GPS1700
46 00 43.26491	92 46 58.82358	529728.034	202867.866	.033	C	GPS - STATIC	2001	HCLOV

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 43.25832	92 46 58.81763	529728.455	202867.199	.033	C	GPS - STATIC	1997	HCLOV

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2997369.309	700568.680	1695530.306	16717176.753	.016		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2997369.265	700568.679	1695530.262	16717176.752	.020		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2997369.291	700568.683	1695530.288	16717176.756	.033	C	ADJUSTMENT	2002	GPS1700
2997369.291	700568.683	1695530.288	16717176.756	.033	C	GPS - STATIC	2001	HCLOV

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2997369.723	700568.023	1695530.710	16717176.090	.033	C	GPS - STATIC	1997	HCLOV

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_H-DE5995-3N-01JUN2009.jpg	N	Jun 1, 2009
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_H-DE5995-2-01JUN2009.jpg		Jun 1, 2009
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_H-DE5995-1-01JUN2009.jpg		Jun 1, 2009

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

5804 H RESET

Mn/DOT Name: 5804 H RESET
NGS Name: 5804 H RESET
County: PINE, MN (Sheet 1)

NGS ACRN: DO8687 Get Map
NGS Quad / Sta Num : 46092332/
USGS Quad: SANDSTONE SOUTH

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	19	41 N	19 W	460043.26	924658.82	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2020	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 35 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) **Stamping:** 5804 H RESET 2012

2.0 MILES WEST OF CLOVERDALE, 2.1 MILES WEST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND COUNTY ROAD 21 IN CLOVERDALE, AT TRUNK HIGHWAY 48 MILEPOINT 7.2, 74.4 FEET NORTH OF TRUNK HIGHWAY 48, 135.3 FEET WEST OF THE BLACK WILLOW ROAD, 2.0 FEET WEST 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
1018.568	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1018.623	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
1018.646	.262		929.975	.197	2011	GPS - OPUS	2020	GPSBM
1018.784	.262		930.047	.197	2011	GPS - RTRN	2020	RTRN2020
1018.656			929.923	.011	2011	HORIZONTAL ADJUSTMENT	2015	GPS3071
1018.656			929.923	.011	2011	GPS - STATIC	2015	HCLVR
1018.666	.131		930.054	.066	2007	GPS - STATIC	2012	HCLVR
1018.666	.131		930.156	.066	1996	GPS - STATIC	2012	HCLVR
1018.558	.262		929.939	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -88.671 12B = -88.740 09 = -88.622 03 = -88.517

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 43.26408	92 46 58.82351	529728.040	202867.781	.131	3	GPS - OPUS	2020	GPSBM
46 00 43.26408	92 46 58.82335	529728.051	202867.781	.131	3	GPS - RTRN	2020	RTRN2020
46 00 43.26461	92 46 58.82363	529728.031	202867.835	.013		ADJUSTMENT	2015	GPS3071
46 00 43.26461	92 46 58.82363	529728.031	202867.835	.013	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 43.26468	92 46 58.82430	529727.984	202867.842	.033	C	GPS - STATIC	2012	HCLVR
46 00 43.26409	92 46 58.82415	529727.994	202867.782	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 43.26466	92 46 58.82386	529728.015	202867.840	.033	C	GPS - STATIC	2012	HCLVR

5804 H RESET

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2997369.298	700568.599	1695530.293	16717176.672	.131	3	GPS - OPUS	2020	GPSBM
2997369.309	700568.599	1695530.305	16717176.672	.131	3	GPS - RTRN	2020	RTRN2020
2997369.288	700568.653	1695530.285	16717176.726	.013		ADJUSTMENT	2015	GPS3071
2997369.288	700568.653	1695530.285	16717176.726	.013	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2997369.241	700568.659	1695530.238	16717176.733	.033	C	GPS - STATIC	2012	HCLVR
2997369.252	700568.599	1695530.248	16717176.673	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2997369.272	700568.657	1695530.268	16717176.731	.033	C	GPS - STATIC	2012	HCLVR

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_H_RESET-DO8687-3N-30APR2020.jpg	N	Apr 30, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_H_RESET-DO8687-2-30APR2020.jpg		Apr 30, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_H_RESET-DO8687-1-30APR2020.jpg		Apr 30, 2020

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

Mn/DOT Name: 5804 J **NGS Name:** 5804 J

County: PINE, MN (Sheet 1)

NGS ACRN: DE5996 Get Map
NGS Quad / Sta Num : 46092332/
USGS Quad: SANDSTONE SOUTH

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	29	41 N	19 W	460042.69	924541.25	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1996	2012	DESTROYED	Horz=NO Vert=NO	NO		PROJECTS 2 IN.	MARKER W/BAR MAGNET

Monument Type: ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 55 FT)
Disk Type: SURVEY DISK
Mon. Agency: MNDT

Description: (1996) **Stamping:** 5804 J 1996

1.0 MILE WEST OF CLOVERDALE, 1.05 MILES WEST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND COUNTY ROAD 20 IN CLOVERDALE, AT TRUNK HIGHWAY 48 MILEPOINT 8.25, 96.0 FEET SOUTH OF TRUNK HIGHWAY 48, 33.5 FEET WEST OF A GRAVEL ROAD, 4.2 FEET SOUTH OF A POWER POLE, 68.2 FEET WEST-SOUTHWEST OF A TELEPHONE PEDESTAL NUMBER 2336, 1.1 FEET NORTH OF A WITNESS POST.

Station Notes

THE CAP WAS MISSING, ROD STILL THERE, MAY BE ABLE TO STRAIGHTEN THE ROD OUT AND REPLACE THE CAP WHEN THE GROUND IS NOT FROZEN. THE
ROD WAS FOUND MOVING. 10.0 FEET THE ROD WAS REMOVED. 5-7-2012

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
987.898	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
987.970	.016	2/1				VERTICAL ADJUSTMENT	2006	00000497
988.000	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
987.724	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
			899.431	.010	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			899.536	.011	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
987.990	.131		899.673	.066	1996	HORIZONTAL ADJUSTMENT	2002	GPS1700
987.990	.131		899.673	.066	1996	GPS - STATIC	2001	HCLOV

Geoid Separations(ft): GEOID18 = -88.468 12B = -88.537 09 = -88.428 03 = -88.330

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 42.68763	92 45 41.24530	535203.865	202818.181	.013		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 42.68765	92 45 41.24594	535203.819	202818.183	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 42.68769	92 45 41.24556	535203.846	202818.187	.033	C	ADJUSTMENT	2002	GPS1700
46 00 42.68769	92 45 41.24556	535203.846	202818.187	.033	C	GPS - STATIC	2001	HCLOV

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 42.68107	92 45 41.23951	535204.274	202817.518	.033	C	GPS - STATIC	1997	HCLOV

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3002844.596	700612.367	1701003.771	16717133.958	.013		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3002844.551	700612.368	1701003.726	16717133.959	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3002844.578	700612.373	1701003.753	16717133.964	.033	C	ADJUSTMENT	2002	GPS1700
3002844.578	700612.373	1701003.753	16717133.964	.033	C	GPS - STATIC	2001	HCLOV

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3002845.017	700611.711	1701004.182	16717133.295	.033	C	GPS - STATIC	1997	HCLOV

Mn/DOT Name: 5804 K

NGS Name: 5804 K

County: PINE, MN (Sheet 1)

NGS ACRN: DH4959 Get Map
NGS Quad / Sta Num : 46092323/
USGS Quad: CLOVERDALE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	26	41 N	19 W	460044.00	924244.00	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1996	2008	DESTROYED	Horz=NO Vert=NO	NO	5783	FLUSH	NO MAG MATERIAL

Monument Type	Disk Type	Mon. Agency
BRIDGE ABUTMENT	SURVEY DISK	MNDT

Description: (1996)

Stamping: 5804 K 1996

1.5 MILES EAST OF CLOVERDALE, IN THE SOUTHEAST CORNER OF BRIDGE NUMBER 5783 ABUTMENT OVER THE SAND RIVER, 1.3 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND COUNTY ROAD 20 IN CLOVERDALE, AT TRUNK HIGHWAY 48 MILEPOINT 10.6, 17.4 FEET SOUTH OF TRUNK HIGHWAY 48.

Station Notes

THERE IS A NEW BRIDGE IN PLACE.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
959.985	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
960.087	.016	2/1				VERTICAL ADJUSTMENT	2006	00000497
960.123	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
959.847	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

Geoid Separations(ft): GEOID18 = -88.048 12B = -88.110 09 = -88.035 03 = -87.949

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

Mn/DOT Name: 5804 L
NGS Name: 5804 L
County: PINE, MN (Sheet 1)

NGS ACRN: DH4960 Get Map
NGS Quad / Sta Num : 46092323/
USGS Quad: CLOVERDALE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	19	41 N	18 W	460043.00	924031.00	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1996	2012	DESTROYED	Horz=NO Vert=NO	NO		PROJECTS 1 IN.	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 33 FT)	SURVEY DISK	MNDT

Description: (1996) **Stamping:** 5804 L 1996

3.0 MILES EAST OF CLOVERDALE, 3.15 MILES EAST ON TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND COUNTY ROAD 20 IN CLOVERDALE, AT TRUNK HIGHWAY 48 MILEPOINT 12.48, 51.0 FEET NORTH OF TRUNK HIGHWAY 48, 12.5 FEET EAST OF A TRAIL, 104.0 FEET NORTH-NORTHEAST OF A FENCE CORNER, 4.5 FEET WEST-SOUTHWEST OF A 5.0 INCH DIAMETER BIRCH TREE, 1.3 FEET EAST 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
985.953	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
986.061	.016	2/1				VERTICAL ADJUSTMENT	2006	00000497
986.104	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
985.828	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

Geoid Separations(ft): GEOID18 = -87.769 12B = -87.841 09 = -87.766 03 = -87.680

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

5804 L RESET

Mn/DOT Name: 5804 L RESET **NGS Name:** 5804 L RESET

County: PINE, MN (Sheet 1)

NGS ACRN: DO8694 Get Map
NGS Quad / Sta Num : 46092323/
USGS Quad: CLOVERDALE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	19	41 N	18 W	460043.24	924029.85	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2012	GOOD	Horz=NO Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 33 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) **Stamping:** 5804 L RESET 2012

3.0 MILES EAST OF CLOVERDALE, 3.15 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND COUNTY ROAD 21 IN CLOVERDALE, AT TRUNK HIGHWAY 48 MILEPOINT 12.48, 104.0 FEET NORTH-NORTHEAST OF A FENCE CORNER, 51.0 FEET NORTH OF TRUNK HIGHWAY 48, 12.5 FEET EAST OF A TRAIL, 1.7 FEET SOUTH 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
985.490	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
985.602	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
985.526	.262		897.761	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -87.769 12B = -87.841 09 = -87.766 03 = -87.680

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 43.23694	92 40 29.84811	557183.171	202924.056	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3024816.589	701093.002	1722973.320	16717267.321	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_L_RESET-DO8694-3N-07MAY2012.jpg	N	May 7, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_L_RESET-DO8694-2-07MAY2012.jpg		May 7, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_L_RESET-DO8694-1-07MAY2012.jpg		May 7, 2012

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

Mn/DOT Name: 5804 M
NGS Name: 5804 M
County: PINE, MN (Sheet 1)

NGS ACRN: DE5982 Get Map
NGS Quad / Sta Num : 46092323/
USGS Quad: CLOVERDALE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	21	41 N	18 W	460043.13	923805.18	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1996	2012	DESTROYED	Horz=NO Vert=NO	YES		PROJECTS 2 IN.	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
UNKNOWN	SURVEY DISK	MNDT

Description: (1996) **Stamping:** 5804 M 1996

5.0 MILES EAST OF CLOVERDALE, 5.05 MILES EAST ON TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND COUNTY ROAD 20 IN CLOVERDALE, AT TRUNK HIGHWAY 48 MILEPOINT 14.35, 74.0 FEET NORTH OF TRUNK HIGHWAY 48, 16.0 FEET EAST OF THE CLOVER CEMETERY ENTRANCE, 2.9 FEET SOUTH OF THE EAST-WEST FENCE, 2.6 FEET SOUTH 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
976.478	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
976.602	.016	2/1				VERTICAL ADJUSTMENT	2006	00000497
976.645	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
976.369	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

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
			888.984	.007	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			889.093	.008	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
976.638	.131		889.244	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1839
976.638	.131		889.244	.066	1996	GPS - STATIC	2002	HPINE
976.638	.131		889.244	.066	1996	HORIZONTAL ADJUSTMENT	2002	GPS1700
976.638	.131		889.244	.066	1996	GPS - STATIC	2001	HCLOV

Geoid Separations(ft): GEOID18 = -87.490 12B = -87.579 09 = -87.503 03 = -87.408

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 43.12943	92 38 05.18031	567394.299	202944.631	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 43.12950	92 38 05.18099	567394.251	202944.638	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 43.12951	92 38 05.18063	567394.276	202944.639	.033	C	ADJUSTMENT	2003	GPS1839
46 00 43.12951	92 38 05.18063	567394.275	202944.640	.033	C	GPS - STATIC	2002	HPINE
46 00 43.12951	92 38 05.18063	567394.276	202944.639	.033	C	ADJUSTMENT	2002	GPS1700
46 00 43.12951	92 38 05.18063	567394.276	202944.639	.033	C	GPS - STATIC	2001	HCLOV

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 43.12281	92 38 05.17426	567394.728	202943.961	.033	C	GPS - STATIC	1997	HCLOV

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3035024.806	701287.725	1733179.980	16717300.671	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3035024.758	701287.731	1733179.932	16717300.678	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3035024.783	701287.732	1733179.958	16717300.679	.033	C	ADJUSTMENT	2003	GPS1839
3035024.784	701287.732	1733179.958	16717300.679	.033	C	GPS - STATIC	2002	HPINE
3035024.783	701287.732	1733179.958	16717300.679	.033	C	ADJUSTMENT	2002	GPS1700
3035024.783	701287.732	1733179.958	16717300.679	.033	C	GPS - STATIC	2001	HCLOV

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3035025.247	701287.063	1733180.410	16717300.002	.033	C	GPS - STATIC	1997	HCLOV

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_M-DE5982-3N-01JUN2009.jpg	N	Jun 1, 2009
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_M-DE5982-2-01JUN2009.jpg		Jun 1, 2009
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_M-DE5982-1-01JUN2009.jpg		Jun 1, 2009

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

5804 M RESET

Mn/DOT Name: 5804 M RESET **NGS Name:** 5804 M RESET

County: PINE, MN (Sheet 1)

NGS ACRN: DO8699 Get Map
NGS Quad / Sta Num : 46092323/
USGS Quad: CLOVERDALE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	21	41 N	18 W	460043.13	923805.18	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2012	GOOD	Horz=NO 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: (2012) **Stamping:** 5804 M RESET 2012

5.05 MILES EAST OF CLOVERDALE, 5.05 MILES EAST ON TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND COUNTY ROAD 21 IN CLOVERDALE, AT TRUNK HIGHWAY 48 MILEPOINT 14.35, 74.0 FEET NORTH OF TRUNK HIGHWAY 48, 16.0 FEET EAST OF THE CLOVER CEMETERY ENTRANCE, 2.6 FEET SOUTH 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
976.287	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
976.412	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
976.366	.262		888.863	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -87.490 12B = -87.579 09 = -87.503 03 = -87.408

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 43.12961	92 38 05.18088	567394.259	202944.649	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3035024.766	701287.742	1733179.940	16717300.689	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_M_RESET-DO8699-3N-22FEB2007.jpg	N	Feb 22, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_M_RESET-DO8699-2-22FEB2007.jpg		Feb 22, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_M_RESET-DO8699-1-22FEB2007.jpg		Feb 22, 2007

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

Mn/DOT Name: 5804 N **NGS Name:** 5804 N

County: PINE, MN (Sheet 1)

NGS ACRN: DH4961 Get Map
NGS Quad / Sta Num : 46092322/
USGS Quad: WILBUR LAKE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	28	41 N	18 W	460043.10	923704.90	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1996	2012	DESTROYED	Horz=NO Vert=NO	YES		FLUSH	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
UNKNOWN	SURVEY DISK	MNDT

Description: (1996) **Stamping:** 5804 N 1996

5.75 MILES EAST OF CLOVERDALE, 5.85 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND COUNTY ROAD 20 IN CLOVERDALE, AT TRUNK HIGHWAY 48 MILEPOINT 15.15, 64.4 FEET SOUTH OF TRUNK HIGHWAY 48, 64.4 FEET WEST OF COUNTY ROAD 22, 36.2 FEET NORTH-NORTHWEST OF THE NORTHWEST CORNER OF A STONE WALL AT PARK ENTRANCE, 1.2 FEET SOUTH-SOUTHEAST 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
978.640	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
978.768	.016	2/1				VERTICAL ADJUSTMENT	2006	00000497
978.814	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
978.538	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

Geoid Separations(ft): GEOID18 = -87.382 12B = -87.474 09 = -87.401 03 = -87.306

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

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_N-DH4961-3S-17MAR2008.jpg	S	Mar 17, 2008
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_N-DH4961-2-17MAR2008.jpg		Mar 17, 2008
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_N-DH4961-1-17MAR2008.jpg		Mar 17, 2008

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

5804 N RESET

Mn/DOT Name: 5804 N RESET **NGS Name:** 5804 N RESET

County: PINE, MN (Sheet 1)

NGS ACRN: DO8701 Get Map
NGS Quad / Sta Num : 46092322/
USGS Quad: WILBUR LAKE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	28	41 N	18 W	460042.94	923704.96	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2012	GOOD	Horz=NO Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 10 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) **Stamping:** 5804 N RESET 2012

5.75 MILES EAST OF CLOVERDALE, 5.85 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND COUNTY ROAD 21 IN CLOVERDALE, AT TRUNK HIGHWAY 48 MILEPOINT 15.15, 66.5 FEET SOUTH OF TRUNK HIGHWAY 48, 65.0 FEET WEST OF COUNTY ROAD 22/SAINT CROIX PARK ROAD, 36.2 FEET NORTH-NORTHWEST OF THE NORTHWEST CORNER OF A STONE WALL AT THE PARK ENTRANCE, 1.0 FOOT 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
978.404	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
978.532	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
978.584	.262		891.183	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -87.382 12B = -87.474 09 = -87.401 03 = -87.306

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 42.93978	92 37 04.95828	571645.018	202940.038	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3039274.538	701355.637	1737428.862	16717301.400	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_N_RESET-DO8701-3SE-07MAY2012.jpg	SE	May 7, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_N_RESET-DO8701-2-07MAY2012.jpg		May 7, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_N_RESET-DO8701-1-07MAY2012.jpg		May 7, 2012

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

Mn/DOT Name: 5804 P **NGS Name:** 5804 P

County: PINE, MN (Sheet 1)

NGS ACRN: DE5997 Get Map
NGS Quad / Sta Num : 46092322/
USGS Quad: WILBUR LAKE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	25	41 N	18 W	460043.31	923425.52	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1996	2012	DESTROYED	Horz=NO Vert=NO	YES		FLUSH	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
UNKNOWN	SURVEY DISK	MNDT

Description: (1996) **Stamping:** 5804 P 1996

8.0 MILES EAST OF CLOVERDALE, 8.0 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND COUNTY ROAD 20 IN CLOVERDALE, AT TRUNK HIGHWAY 48 MILEPOINT 17.3, 98.0 FEET SOUTH OF TRUNK HIGHWAY 48, 2.1 FEET WEST OF THE RIGHT-OF-WAY AND A WITNESS POST, 1.0 FOOT WEST OF CAPED PIPE.

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
978.194	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
978.338	.016	2/1				VERTICAL ADJUSTMENT	2006	00000497
978.387	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
978.112	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

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
			891.091	.012	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			891.199	.013	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
978.377	.131		891.353	.066	1996	HORIZONTAL ADJUSTMENT	2002	GPS1700
978.377	.131		891.353	.066	1996	GPS - STATIC	2001	HCLOV

Geoid Separations(ft): GEOID18 = -87.126 12B = -87.224 09 = -87.165 03 = -87.060

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 43.31255	92 34 25.51555	582898.802	203020.822	.016		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 43.31263	92 34 25.51623	582898.754	203020.830	.016		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 43.31252	92 34 25.51594	582898.774	203020.818	.033	C	ADJUSTMENT	2002	GPS1700
46 00 43.31252	92 34 25.51594	582898.774	203020.818	.033	C	GPS - STATIC	2001	HCLOV

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 43.30579	92 34 25.50921	582899.251	203020.139	.033	C	GPS - STATIC	1997	HCLOV

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3050524.122	701628.372	1748677.686	16717396.229	.016		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3050524.074	701628.379	1748677.638	16717396.237	.016		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3050524.094	701628.368	1748677.658	16717396.226	.033	C	ADJUSTMENT	2002	GPS1700
3050524.094	701628.368	1748677.658	16717396.226	.033	C	GPS - STATIC	2001	HCLOV

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3050524.584	701627.697	1748678.137	16717395.547	.033	C	GPS - STATIC	1997	HCLOV

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_P-DE5997-3S-01JUN2009.jpg	S	Jun 1, 2009
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_P-DE5997-2-01JUN2009.jpg		Jun 1, 2009
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_P-DE5997-1-01JUN2009.jpg		Jun 1, 2009

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

Mn/DOT Name: 5804 P RESET **NGS Name:** 5804 P RESET

County: PINE, MN (Sheet 1)

NGS ACRN: DO8705 Get Map
NGS Quad / Sta Num : 46092322/
USGS Quad: WILBUR LAKE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	25	41 N	18 W	460043.31	923425.52	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2012	GOOD	Horz=NO Vert=YES	YES		RECESSED 2 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: (2012) **Stamping:** 5804 P RESET 2012

8.0 MILES EAST OF CLOVERDALE, 8.0 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND COUNTY ROAD 21 IN CLOVERDALE, AT TRUNK HIGHWAY 48 MILEPOINT 17.3, 98.0 FEET SOUTH OF TRUNK HIGHWAY 48, 2.1 FEET WEST OF THE RIGHT-OF-WAY AND A WITNESS POST, 1.0 FOOT WEST OF A CAPPED PIPE.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
978.003	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
978.148	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
978.128	.262		890.963	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -87.126 12B = -87.224 09 = -87.165 03 = -87.060

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 43.31140	92 34 25.51669	582898.722	203020.705	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3050524.044	701628.254	1748677.606	16717396.112	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_P_RESET-DO8705-3S-08MAY2012.jpg	S	May 8, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_P_RESET-DO8705-2-08MAY2012.jpg		May 8, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_P_RESET-DO8705-1-08MAY2012.jpg		May 8, 2012

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

5804 Q

Mn/DOT Name: 5804 Q

NGS Name: 5804 Q

County: PINE, MN (Sheet 1)

NGS ACRN: DH4962 Get Map
NGS Quad / Sta Num : 46092322/
USGS Quad: WILBUR LAKE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	19	41 N	17 W	460045.00	923313.00	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1996	2012	DESTROYED	Horz=NO Vert=NO	NO			MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 29 FT)	SURVEY DISK	MNDT

Description: (1999) **Stamping:** 5804 Q 1996

9.0 MILES EAST OF CLOVERDALE, 5.3 MILES WEST ALONG TRUNK HIGHWAY 48 FROM THE MINNESOTA-WISCONSIN STATE LINE, AT TRUNK HIGHWAY 48 MILEPOINT 18.3, ABOUT 220.0 FEET NORTH OF TRUNK HIGHWAY 48, 24.5 FEET EAST OF COUNTY ROAD 138, 6.5 FEET SOUTH OF A 15.0 INCH DIAMETER WHITE PINE TREE, 14.5 FEET NORTH OF A 12.0 INCH DIAMETER WHITE PINE TREE, 58.0 FEET NORTH-NORTHWEST OF A POWER POLE, 2.0 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
958.466	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
958.620	.016	2/1				VERTICAL ADJUSTMENT	2006	00000497
958.673	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
958.397	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

Geoid Separations(ft): GEOID18 = -87.024 12B = -87.119 09 = -87.070 03 = -86.958

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

Geodetic Data Sheet (Feet)
GSID Station # 36516

5804 S

04/28/2026
Sheet Help

Mn/DOT Name: 5804 S
NGS Name: 5804 S
County: PINE, MN (Sheet 1)

NGS ACRN: DH4965 Get Map
NGS Quad / Sta Num : 46092233/
USGS Quad: DANBURY WEST

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	27	41 N	17 W	460044.22	922803.25	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1996	2012	GOOD	Horz=NO Vert=YES	YES		RECESSED 2 IN.	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (<10 FT) (DEPTH 8 FT)	SURVEY DISK	MNDT

Description: (2012) **Stamping:** 5804 S 1996

13.15 MILES EAST OF CLOVERDALE, 13.15 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND COUNTY ROAD 21 IN CLOVERDALE, AT TRUNK HIGHWAY 48 MILEPOINT 22.45, 100.9 FEET SOUTH OF TRUNK HIGHWAY 48, 2.6 FEET SOUTH OF A POWER POLE, 28.0 FEET WEST OF ROSEBUD LANE, 47.6 FEET EAST-NORTHEAST OF AN EAST LEG OF A SNOWMOBILE INFORMATION SIGNPOST, 1.1 FEET SOUTH 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
988.285	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
988.469	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
988.249	.016	2/1				VERTICAL ADJUSTMENT	2012	00000712
988.472	.016	2/1				VERTICAL ADJUSTMENT	2006	00000497
988.535	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
988.259	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

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
988.486	.262		901.708	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -86.693 12B = -86.768 09 = -86.775 03 = -86.647

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 44.22231	92 28 03.25161	609879.457	203241.643	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3077494.242	702309.497	1775646.550	16717650.688	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_S-DH4965-3W-08MAY2012.jpg	W	May 8, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_S-DH4965-2-08MAY2012.jpg		May 8, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_S-DH4965-1-08MAY2012.jpg		May 8, 2012

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

Mn/DOT Name: 5804 T **NGS Name:** 5804 T

County: PINE, MN (Sheet 1)

NGS ACRN: DO8679 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	21	41 N	20 W	460039.97	925309.98	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2012	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

Monument Type: ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 25 FT)
Disk Type: METAL ROD (WITH REMOVABLE ID DISK)
Mon. Agency: MNDT

Description: (2012) **Stamping:** 5804 T 2012

2.1 MILES EAST OF HINCKLEY, 2.2 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND INTERSTATE HIGHWAY 35 IN HINCKLEY, AT TRUNK HIGHWAY 48 MILEPOINT 2.2, 55.6 FEET NORTH OF TRUNK HIGHWAY 48, 67.6 FEET EAST-NORTHEAST OF THE EAST END OF A GUARDRAIL, 1.5 FEET SOUTH 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
993.561	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
993.584	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
993.554			903.742	.011	2011	HORIZONTAL ADJUSTMENT	2015	GPS3071
993.554			903.742	.011	2011	GPS - STATIC	2015	HCLVR
993.568	.131		903.879	.066	2007	GPS - STATIC	2012	HCLVR
993.568	.131		903.978	.066	1996	GPS - STATIC	2012	HCLVR

Geoid Separations(ft): GEOID18 = -89.796 12B = -89.787 09 = -89.682 03 = -89.593

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 39.96589	92 53 09.97983	503530.650	202512.118	.016		ADJUSTMENT	2015	GPS3071
46 00 39.96589	92 53 09.97983	503530.650	202512.118	.016	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 39.96574	92 53 09.98026	503530.620	202512.103	.033	C	GPS - STATIC	2012	HCLVR

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 39.96572	92 53 09.97987	503530.647	202512.101	.033	C	GPS - STATIC	2012	HCLVR

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2971184.532	699766.480	1669344.922	16716788.306	.016		ADJUSTMENT	2015	GPS3071
2971184.532	699766.480	1669344.922	16716788.306	.016	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2971184.502	699766.464	1669344.892	16716788.291	.033	C	GPS - STATIC	2012	HCLVR

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2971184.530	699766.462	1669344.919	16716788.289	.033	C	GPS - STATIC	2012	HCLVR

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_T-DO8679-3N-04JUN2012.jpg	N	Jun 4, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_T-DO8679-2-04JUN2012.jpg		Jun 4, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_T-DO8679-1-04JUN2012.jpg		Jun 4, 2012

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

Geodetic Data Sheet (Feet)
GSID Station # 95995

5804 U

04/28/2026
Sheet Help

Mn/DOT Name: 5804 U
NGS Name: 5804 U
County: PINE, MN (Sheet 1)

NGS ACRN: DO8680 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	21	41 N	20 W	460040.06	925240.59	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2012	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 13 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) **Stamping:** 5804 U 2012

2.6 MILES EAST OF HINCKLEY, 2.6 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND INTERSTATE HIGHWAY 35 IN HINCKLEY, AT TRUNK HIGHWAY 48 MILEPOINT 2.5, 42.2 FEET NORTH OF TRUNK HIGHWAY 48, 10.8 FEET NORTH OF THE WEST END OF A GUARDRAIL, 1.5 FEET SOUTH 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
965.674	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
965.697	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
965.680			875.943	.015	2011	HORIZONTAL ADJUSTMENT	2015	GPS3071
965.680			875.943	.015	2011	GPS - STATIC	2015	HCLVR
965.680	.131		876.065	.066	2007	GPS - STATIC	2012	HCLVR
965.680	.131		876.156	.066	1996	GPS - STATIC	2012	HCLVR

Geoid Separations(ft): GEOID18 = -89.718 12B = -89.711 09 = -89.606 03 = -89.521

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 40.06192	92 52 40.58868	505605.207	202522.314	.023		ADJUSTMENT	2015	GPS3071
46 00 40.06192	92 52 40.58868	505605.207	202522.314	.023	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 40.06197	92 52 40.58903	505605.183	202522.320	.033	C	GPS - STATIC	2012	HCLVR

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 40.06194	92 52 40.58859	505605.214	202522.316	.033	C	GPS - STATIC	2012	HCLVR

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2973258.396	699812.030	1671418.548	16716801.102	.023		ADJUSTMENT	2015	GPS3071
2973258.396	699812.030	1671418.548	16716801.102	.023	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2973258.372	699812.035	1671418.524	16716801.107	.033	C	GPS - STATIC	2012	HCLVR

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2973258.403	699812.032	1671418.554	16716801.104	.033	C	GPS - STATIC	2012	HCLVR

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_U-DO8680-3N-20AUG2012.jpg	N	Aug 20, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_U-DO8680-2-20AUG2012.jpg		Aug 20, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_U-DO8680-1-20AUG2012.jpg		Aug 20, 2012

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

Mn/DOT Name: 5804 V **NGS Name:** 5804 V

County: PINE, MN (Sheet 1)

NGS ACRN: DO8681 Get Map
NGS Quad / Sta Num : 46092332/
USGS Quad: SANDSTONE SOUTH

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	22	41 N	20 W	460040.96	925135.30	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2012	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 13 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) **Stamping:** 5804 V 2012

3.5 MILES EAST OF HINCKLEY, 3.5 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND INTERSTATE HIGHWAY 35 IN HINCKLEY, AT TRUNK HIGHWAY 48 MILEPOINT 3.5, 51.9 FEET NORTH OF TRUNK HIGHWAY 48, 1.5 FEET SOUTH 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
986.261	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
986.287	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
986.258			896.704	.016	2011	HORIZONTAL ADJUSTMENT	2015	GPS3071
986.258			896.704	.016	2011	GPS - STATIC	2015	HCLVR
986.284	.131		896.845	.066	2007	GPS - STATIC	2012	HCLVR
986.284	.131		896.934	.066	1996	GPS - STATIC	2012	HCLVR

Geoid Separations(ft): GEOID18 = -89.527 12B = -89.537 09 = -89.426 03 = -89.340

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 40.96061	92 51 35.29901	510213.599	202615.156	.026		ADJUSTMENT	2015	GPS3071
46 00 40.96061	92 51 35.29901	510213.599	202615.156	.026	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 40.96072	92 51 35.29933	510213.576	202615.168	.033	C	GPS - STATIC	2012	HCLVR

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 40.96069	92 51 35.29886	510213.609	202615.164	.033	C	GPS - STATIC	2012	HCLVR

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2977864.052	699983.392	1676024.784	16716899.685	.026		ADJUSTMENT	2015	GPS3071
2977864.052	699983.392	1676024.784	16716899.685	.026	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2977864.029	699983.403	1676024.761	16716899.696	.033	C	GPS - STATIC	2012	HCLVR

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2977864.062	699983.400	1676024.795	16716899.693	.033	C	GPS - STATIC	2012	HCLVR

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_V-DO8681-3E-04OCT2017.jpg	E	Oct 4, 2017
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_V-DO8681-2-04OCT2017.jpg		Oct 4, 2017
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_V-DO8681-1-04OCT2017.jpg		Oct 4, 2017

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

Mn/DOT Name: 5804 W
NGS Name: 5804 W
County: PINE, MN (Sheet 1)

NGS ACRN: DO8683 Get Map
NGS Quad / Sta Num : 46092332/
USGS Quad: SANDSTONE SOUTH

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	26	41 N	20 W	460040.17	925020.10	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1998	2012	GOOD	Horz=NO Vert=NO	YES		FLUSH	NO MAG MATERIAL

Monument Type: BRIDGE RAILING
Disk Type: SURVEY DISK
Mon. Agency: MNDT

Description: (2012)
Stamping: 5804 W 1998

4.5 MILES EAST OF HINCKLEY, IN THE RAIL IN THE SOUTHEAST CORNER OF TRUNK HIGHWAY 48 BRIDGE NUMBER 58005 OVER THE KETTLE RIVER, 4.5 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND INTERSTATE HIGHWAY 35 IN HINCKLEY, AT TRUNK HIGHWAY 48 MILEPOINT 4.45, 22.0 FEET SOUTH OF TRUNK HIGHWAY 48.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
939.765	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
939.795	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
939.696	.262		850.494	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -89.288 12B = -89.321 09 = -89.203 03 = -89.101

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 40.17038	92 50 20.09566	515521.826	202538.484	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2983172.256	699997.215	1681330.759	16716829.706	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_W-DO8683-3S-09MAY2012.jpg	S	May 9, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_W-DO8683-2-09MAY2012.jpg		May 9, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_W-DO8683-1-09MAY2012.jpg		May 9, 2012

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

Mn/DOT Name: 5804 X
NGS Name: 5804 X
County: PINE, MN (Sheet 1)

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	27	41 N	19 W	460041.71	924422.19	2	C

NGS ACRN: DO8690 Get Map
NGS Quad / Sta Num : 46092323/
USGS Quad: CLOVERDALE

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2020	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 70 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) **Stamping:** 5804 X 2012

IN CLOVERDALE, AT THE JUNCTION OF TRUNK HIGHWAY 48 AND COUNTY ROAD 21 IN CLOVERDALE, AT TRUNK HIGHWAY 48 MILEPOINT 9.25, 48.3 FEET SOUTH OF TRUNK HIGHWAY 48, 142.7 FEET EAST OF COUNTY ROAD 21, 22.6 FEET EAST OF AN ENTRANCE, 1.5 FEET WEST 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
976.100	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
976.189	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
976.061	.262		887.787	.197	2011	GPS - OPUS	2020	GPSBM
976.248	.262		887.912	.197	2011	GPS - RTRN	2020	RTRN2020
976.199			887.833	.011	2011	HORIZONTAL ADJUSTMENT	2015	GPS3071
976.199			887.833	.011	2011	GPS - STATIC	2015	HCLVR
976.212	.131		887.971	.066	2007	GPS - STATIC	2012	HCLVR
976.212	.131		888.063	.066	1996	GPS - STATIC	2012	HCLVR

Geoid Separations(ft): GEOID18 = -88.271 12B = -88.336 09 = -88.245 03 = -88.156

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 41.71003	92 44 22.18531	540784.390	202729.638	.131	3	GPS - OPUS	2020	GPSBM
46 00 41.70973	92 44 22.18469	540784.434	202729.607	.131	3	GPS - RTRN	2020	RTRN2020
46 00 41.70979	92 44 22.18584	540784.353	202729.614	.013		ADJUSTMENT	2015	GPS3071
46 00 41.70979	92 44 22.18584	540784.353	202729.614	.013	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 41.70980	92 44 22.18664	540784.296	202729.614	.033	C	GPS - STATIC	2012	HCLVR

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 41.70979	92 44 22.18623	540784.325	202729.613	.033	C	GPS - STATIC	2012	HCLVR

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3008425.233	700618.994	1706581.957	16717052.447	.131	3	GPS - OPUS	2020	GPSBM
3008425.277	700618.965	1706582.001	16717052.417	.131	3	GPS - RTRN	2020	RTRN2020
3008425.196	700618.969	1706581.920	16717052.422	.013		ADJUSTMENT	2015	GPS3071
3008425.196	700618.969	1706581.920	16717052.422	.013	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3008425.140	700618.969	1706581.863	16717052.423	.033	C	GPS - STATIC	2012	HCLVR

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3008425.169	700618.969	1706581.892	16717052.422	.033	C	GPS - STATIC	2012	HCLVR

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_X-DO8690-3S-30APR2020.jpg	S	Apr 30, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_X-DO8690-2-30APR2020.jpg		Apr 30, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_X-DO8690-1-30APR2020.jpg		Apr 30, 2020

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

Mn/DOT Name: 5804 Y **NGS Name:** 5804 Y

County: PINE, MN (Sheet 1)

NGS ACRN: DO8691 Get Map
NGS Quad / Sta Num : 46092323/
USGS Quad: CLOVERDALE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	26	41 N	19 W	460041.85	924247.23	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2000	2013	GOOD	Horz=NO Vert=NO	YES	58007	FLUSH	NO MAG MATERIAL

Monument Type	Disk Type	Mon. Agency
BRIDGE RAILING	SURVEY DISK	MNDT

Description: (2000) **Stamping:** 5804 Y 2000

1.35 MILES EAST OF CLOVERDALE, IN THE RAIL IN THE SOUTHEAST CORNER OF TRUNK HIGHWAY 48 BRIDGE NUMBER 58007 OVER THE SAND RIVER, 1.3 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND COUNTY ROAD 21 IN CLOVERDALE, AT TRUNK HIGHWAY 48 MILEPOINT 10.55, 24.0 FEET SOUTH OF TRUNK HIGHWAY 48.

Station Notes

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

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
963.338	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
963.436	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
963.331	.262		875.294	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -88.058 12B = -88.120 09 = -88.041 03 = -87.956

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 41.85395	92 42 47.22601	547486.938	202758.852	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3015125.603	700762.488	1713281.530	16717090.045	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_Y-DO8691-3S-09MAY2012.jpg	S	May 9, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_Y-DO8691-2-09MAY2012.jpg		May 9, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_Y-DO8691-1-09MAY2012.jpg		May 9, 2012

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

Mn/DOT Name: 5804 Z
NGS Name: 5804 Z
County: PINE, MN (Sheet 1)

NGS ACRN: DO8692 Get Map
NGS Quad / Sta Num : 46092323/
USGS Quad: CLOVERDALE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	23	41 N	19 W	460042.56	924235.71	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2012	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

Monument Type
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 27 FT)

Disk Type
METAL ROD (WITH REMOVABLE ID DISK)

Mon. Agency
MNDT

Description: (2012)

Stamping: 5804 Z 2012

1.45 MILES EAST OF CLOVERDALE, 1.45 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND COUNTY ROAD 21 IN CLOVERDALE, AT TRUNK HIGHWAY 48 MILEPOINT 10.65, 45.9 FEET NORTH OF TRUNK HIGHWAY 48, 26.7 FEET WEST OF A FIELD ENTRANCE, 2.0 FEET WEST OF THE EXTENDED KILLDEER LANE, 1.5 FEET EAST 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
964.214	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
964.316	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
964.316			876.160	.010	2011	HORIZONTAL ADJUSTMENT	2015	GPS3071
964.316			876.160	.010	2011	GPS - STATIC	2015	HCLVR
964.368	.131		876.337	.066	2007	GPS - STATIC	2012	HCLVR
964.368	.131		876.425	.066	1996	GPS - STATIC	2012	HCLVR

Geoid Separations(ft): GEOID18 = -88.031 12B = -88.094 09 = -88.018 03 = -87.933

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 42.56253	92 42 35.71266	548299.421	202832.557	.013		ADJUSTMENT	2015	GPS3071
46 00 42.56253	92 42 35.71266	548299.421	202832.557	.013	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 42.56256	92 42 35.71331	548299.375	202832.560	.033	C	GPS - STATIC	2012	HCLVR

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 42.56253	92 42 35.71290	548299.404	202832.557	.033	C	GPS - STATIC	2012	HCLVR

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3015936.626	700850.030	1714093.565	16717164.736	.013		ADJUSTMENT	2015	GPS3071
3015936.626	700850.030	1714093.565	16717164.736	.013	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3015936.580	700850.032	1714093.519	16717164.739	.033	C	GPS - STATIC	2012	HCLVR

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3015936.609	700850.030	1714093.549	16717164.736	.033	C	GPS - STATIC	2012	HCLVR

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_Z-DO8692-3N-20AUG2012.jpg	N	Aug 20, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_Z-DO8692-2-20AUG2012.jpg		Aug 20, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5804_Z-DO8692-1-20AUG2012.jpg		Aug 20, 2012

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

Mn/DOT Name: 5805 A **NGS Name:** 5805 A

County: PINE, MN (Sheet 1)

NGS ACRN: QO0245 Get Map
NGS Quad / Sta Num : 45092434/
USGS Quad: RUSH CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	34	38 N	21 W	454410.00	925734.00	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1968	2007	GOOD	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CULVERT - ANY SIZE, ANY TYPE	SURVEY DISK	MNDT

Description: (2007) **Stamping:** 5805 A 1968

1.6 MILES SOUTHWEST OF ROCK CREEK, 1.6 MILES SOUTH ALONG TRUNK HIGHWAY 361 FROM THE JUNCTION OF TRUNK HIGHWAY 361 AND 560TH STREET/COUNTY ROAD 109 IN ROCK CREEK, IN THE SOUTHEAST HEADWALL OF TRUNK HIGHWAY 361 (OLD TRUNK HIGHWAY 61) BOX CULVERT.

Station Notes

IF NOT LOCATED, ALSO TRY LOOKING AT THE FOLLOWING REFERENCE LATITUDE/LONGITUDE: 454442.00 AND 925736.00, FOUND NEWER STEEL CULVERTS IN THE AREA.
THERE IS NO BOX CULVERT AT THE LOCATION, THE REPLACED STEEL CULVERT WAS FOUND.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
932.741	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
932.577	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
932.577	.016	2				VERTICAL CONTROL SURVEY	1971	L30 MINN
932.577	.016	2				VERTICAL CONTROL SURVEY	1971	L22190-2

Geoid Separations(ft): GEOID18 = -91.210 12B = -91.201 09 = -91.148 03 = -90.994

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

5805 A 1

Mn/DOT Name: 5805 A 1 **NGS Name:** 5805 A 1

County: PINE, MN (Sheet 1)

NGS ACRN: QO0328 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	27	40 N	21 W	455536.00	925724.00	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1950	2012	DESTROYED	Horz=NO Vert=NO	NO	CO RD		SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
UNKNOWN	SURVEY DISK	MNDT

Description: (1950) **Stamping:** 5805 A1 1950

1.0 MILE NORTH OF BEROUN, IN THE SOUTHEAST CORNER OF A COUNTY ROAD 61 BOX CULVERT OVER THE MISSION CREEK.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
968.689	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
968.427	.016	2				VERTICAL CONTROL SURVEY	1976	L23306

Geoid Separations(ft): GEOID18 = -90.459 12B = -90.439 09 = -90.367 03 = -90.233

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

Mn/DOT Name: 5805 B **NGS Name:** 5805 B

County: PINE, MN (Sheet 1)

NGS ACRN: QO0360 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	22	38 N	21 W	454533.37	925737.41	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1968	2012	GOOD	Horz=NO Vert=NO	YES		FLUSH	NO MAG MATERIAL

Monument Type	Disk Type	Mon. Agency
CULVERT - ANY SIZE, ANY TYPE	BENCH MARK DISK	MNDT

Description: (2012) **Stamping:** 5805 B 1968

AT ROCK CREEK, 42.0 FEET EAST OF OLD HIGHWAY 61 (FOREST BOULEVARD), 23.0 FEET NORTH OF (560TH STREET) COUNTY ROAD 109, IN THE SOUTHEAST CORNER OF A BOX CULVERT AT ROCK CREEK.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
925.533	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
925.536	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
925.536	.016	2/1				VERTICAL CONTROL SURVEY	2009	VCHEN
925.589	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
925.372	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
925.372	.016	2				VERTICAL CONTROL SURVEY	1980	L24425
925.372	.016	2				VERTICAL CONTROL SURVEY	1976	L24016
925.372	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
925.372	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
925.448	.016	2				VERTICAL CONTROL SURVEY	1975	L23805
925.448	.016	2				VERTICAL CONTROL SURVEY	1971	L30 MINN
925.448	.016	2				VERTICAL CONTROL SURVEY	1971	L22190-2

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
925.441	.262		834.395	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -91.115 12B = -91.102 09 = -91.046 03 = -90.905

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 33.37513	92 57 37.40482	484584.867	110680.179	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2953808.187	607633.776	1650522.782	16624973.847	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5805_B-QO0360-3N-16OCT2012.jpg	N	Oct 16, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5805_B-QO0360-2-14MAY2007.jpg		May 14, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5805_B-QO0360-1-14MAY2007.jpg		May 14, 2007

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

Mn/DOT Name: 5805 B 1 **NGS Name:** 5805 B 1

County: PINE, MN (Sheet 1)

NGS ACRN: Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	22	40 N	21 W	455636.61	925714.77		3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1950	2012	GOOD	Horz=YES Vert=YES	YES		PROJECTS 2 IN.	STEEL ROD IMBED IN MON

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

Description: (2008) **Stamping:** 5805 B 1 1950

1.9 MILES SOUTH OF MISSION CREEK, 1.4 MILES SOUTH ALONG COUNTY ROAD 61 FROM THE JUNCTION OF COUNTY ROAD 61 (OLD TRUNK HIGHWAY 61) AND COUNTY ROAD 16, 0.25 MILE SOUTH OF A TOWNSHIP ROAD 84, 51.4 FEET EAST OF COUNTY ROAD 61, 29.4 FEET WEST OF THE WEST RAIL OF THE RAILROAD TRACKS, 50.0 FEET NORTH OF AN ENTRANCE FIRE NUMBER 29449, 0.4 FOOT WEST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
971.419	.033	3				VERTICAL CONTROL SURVEY	1950	CS5805

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
971.999	.262		881.698	.197	2007	GPS - RTRN	2012	RTRN2012
971.796	.262		881.626	.197	1996	GPS - RTRN	2008	RTRN2008

Geoid Separations(ft): GEOID18 = -90.397 12B = -90.384 09 = -90.298 03 = -90.167

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 56 36.61244	92 57 14.77224	486235.329	177864.547	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 56 36.61240	92 57 14.77189	486235.354	177864.544	.131	3	GPS - RTRN	2008	RTRN2008

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2954313.509	674830.290	1652088.216	16692129.981	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2954313.534	674830.286	1652088.240	16692129.976	.131	3	GPS - RTRN	2008	RTRN2008

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5805_B_1-3E-12DEC2007.jpg	E	Dec 12, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5805_B_1-2-12DEC2007.jpg		Dec 12, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5805_B_1-1-12DEC2007.jpg		Dec 12, 2007

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

Mn/DOT Name: 5805 D **NGS Name:** 5805 D

County: PINE, MN (Sheet 1)

NGS ACRN: QO0359 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	21	38 N	21 W	454543.43	925745.76	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1974	2012	GOOD	Horz=NO Vert=NO	YES	6823	FLUSH	NO MAG MATERIAL

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

Description: (2012) **Stamping:** 5805 D 1974

IN ROCK CREEK, 0.4 MILE SOUTHEAST ON FOREST BOULEVARD (OLD HIGHWAY 61) FROM THE JUNCTION OF (FOREST BOULEVARD) OLD HIGHWAY 61 AND TRUNK HIGHWAY 70, 0.3 FOOT NORTH OF THE SOUTH END OF THE RAILROAD BRIDGE NUMBER 6823 OVER THE FOREST BOULEVARD (OLD HIGHWAY 61), IN THE SOUTHWEST CORNER OF THE ABUTMENT, 9.4 FEET EAST OF THE EAST RAIL OF THE RAILROAD TRACKS.

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

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
946.153	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
946.153	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
946.153	.016	2/1				VERTICAL CONTROL SURVEY	2009	VCHEN
946.153	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
945.933	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
945.933	.016	2				VERTICAL CONTROL SURVEY	1980	L24425
945.933	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
945.933	.016	2				VERTICAL CONTROL SURVEY	1976	L24016
945.933	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
946.012	.016	2				VERTICAL CONTROL SURVEY	1975	L23805
946.012	.016	2				VERTICAL CONTROL SURVEY	1974	L23306

Geoid Separations(ft): GEOID18 = -91.132 12B = -91.119 09 = -91.060 03 = -90.922

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

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5805_D-QO0359-3E-14MAY2007.jpg	E	May 14, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5805_D-QO0359-2-14MAY2007.jpg		May 14, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5805_D-QO0359-1-14MAY2007.jpg		May 14, 2007

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

Mn/DOT Name: 5805 E
NGS Name: 5805 E
County: PINE, MN (Sheet 1)

NGS ACRN: QO0358 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	21	38 N	21 W	454608.18	925810.36	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1974	2012	GOOD	Horz=NO Vert=NO	YES		FLUSH	NO MAG MATERIAL

Monument Type
CULVERT - ANY SIZE, ANY TYPE

Disk Type
BENCH MARK DISK

Mon. Agency
MNDT

Description: (2012)

Stamping: 5805 E 1974

0.8 MILE NORTHWEST OF ROCK CREEK, 0.75 MILE NORTH ON COUNTY ROAD 61 (FOREST BOULEVARD) FROM THE JUNCTION OF COUNTY ROAD 61, COUNTY ROAD 2 (560TH STREET) AND COUNTY ROAD 109, 21.6 FEET EAST OF COUNTY ROAD 61, IN THE SOUTHEAST CORNER OF BOX A CULVERT.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
940.786	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
940.799	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
940.799	.016	2/1				VERTICAL CONTROL SURVEY	2009	VCHEN
940.799	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
940.592	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
940.592	.016	2				VERTICAL CONTROL SURVEY	1980	L24425
940.592	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
940.592	.016	2				VERTICAL CONTROL SURVEY	1976	L24016

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
940.687	.262		849.582	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -91.184 12B = -91.165 09 = -91.105 03 = -90.974

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 46 08.18138	92 58 10.35843	482251.368	114207.907	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951415.119	611120.930	1648185.926	16628497.034	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5805_E-QO0358-3E-14MAY2007.jpg	E	May 14, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5805_E-QO0358-2-14MAY2007.jpg		May 14, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5805_E-QO0358-1-14MAY2007.jpg		May 14, 2007

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

Mn/DOT Name: 5805 G
NGS Name: 5805 G
County: PINE, MN (Sheet 1)

NGS ACRN: QO0350 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	33	39 N	21 W	454929.00	925809.00	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1974	1988	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

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

Description: (1988) **Stamping:** 5805 G 1974

IN PINE CITY, AT THE NORTH JUNCTION OF 5TH STREET SOUTHEAST AND 5TH AVENUE SOUTHEAST.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
951.222	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
951.009	.016	2				VERTICAL CONTROL SURVEY	1976	L23306

Geoid Separations(ft): GEOID18 = -90.941 12B = -90.915 09 = -90.853 03 = -90.728

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

5805 G RESET

Mn/DOT Name: 5805 G RESET
NGS Name: 5805 G RESET
County: PINE, MN (Sheet 1)

NGS ACRN: DO8729 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	33	39 N	21 W	454932.54	925808.59	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1988	2012	GOOD	Horz=NO Vert=YES	YES		FLUSH	NO MAG MATERIAL

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

Description: (1988) **Stamping:** 5805 G RESET 1977

IN PINE CITY, AT THE NORTHWEST CORNER OF EAST 4TH AVENUE AND RAILROAD STREET, IN THE SOUTHEAST CORNER OF A WATER TANK FOOTING, 50.1 FEET NORTHEAST OF THE SOUTHEAST CORNER OF A PUMP HOUSE, 48.9 FEET SOUTHEAST OF THE NORTHEAST CORNER OF A PUMP HOUSE.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
952.498	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
952.514	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
952.268	.033	3				VERTICAL CONTROL SURVEY	1988	L23306

Geoid Separations(ft): GEOID18 = -90.935 12B = -90.912 09 = -90.850 03 = -90.725

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

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5805_G_RESET-DO8729-3N-14MAY2007.jpg	N	May 14, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5805_G_RESET-DO8729-2-14MAY2007.jpg		May 14, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5805_G_RESET-DO8729-1-14MAY2007.jpg		May 14, 2007

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

Mn/DOT Name: 5805 H
NGS Name: 5805 H
County: PINE, MN (Sheet 1)

NGS ACRN: QO0351 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	33	39 N	21 W	454940.00	925812.00	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1974	2005	DESTROYED	Horz=NO Vert=NO	NO	58510		SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
STRUCTURE (MASSIVE)	SURVEY DISK	MNDT

Description: (2001) **Stamping:** 5805 H 1974

IN PINE CITY, 0.6 MILE NORTH ON COUNTY ROAD 61 FROM THE JUNCTION OF COUNTY ROAD 61/TRUNK HIGHWAY 324 AND TRUNK HIGHWAY 361, 21.1 FEET EAST OF COUNTY ROAD 61, IN THE SOUTHEAST END OF A CURB ON COUNTY ROAD 61 BRIDGE NUMBER 58510 OVER THE SNAKE RIVER.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
944.322	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
944.109	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
944.204	.016	2				VERTICAL CONTROL SURVEY	1974	L23306

Geoid Separations(ft): GEOID18 = -90.938 12B = -90.912 09 = -90.850 03 = -90.728

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

Mn/DOT Name: 5805 J **NGS Name:** 5805 J

County: PINE, MN (Sheet 1)

NGS ACRN: DM5832 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	16	38 N	21 W	454626.47	925812.62	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2007	2020	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 25 FT)	SURVEY DISK	MNDT

Description: (2007) **Stamping:** 5805 J 2007

1.1 MILES NORTHWEST OF ROCK CREEK, 0.55 MILE NORTH ALONG COUNTY ROAD 61 (FOREST BOULEVARD) FROM THE JUNCTION OF COUNTY ROAD 61 (FOREST BOULEVARD) AND TRUNK HIGHWAY 70, 56.9 FEET EAST OF COUNTY ROAD 61 (FOREST BOULEVARD), 81.4 FEET NORTH OF COUNTY ROAD 110, 57.3 FEET SOUTHWEST OF A POWER POLE, 2.2 FEET SOUTH 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
966.015	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
966.035	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
966.035	.016	2/1				VERTICAL CONTROL SURVEY	2009	VCHEN

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
965.966	.262		874.798	.197	2011	GPS - OPUS	2020	GPSBM
966.038	.262		874.870	.197	2011	GPS - OPUS	2020	GPSBM
966.022	.262		874.877	.197	2011	GPS - RTRN	2020	RTRN2020
965.959	.262		874.870	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -91.168 12B = -91.145 09 = -91.092 03 = -90.958

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 46 26.47402	92 58 12.62204	482092.529	116061.066	.131	3	GPS - OPUS	2020	GPSBM
45 46 26.47391	92 58 12.62158	482092.561	116061.055	.131	3	GPS - OPUS	2020	GPSBM
45 46 26.47422	92 58 12.62105	482092.599	116061.086	.131	3	GPS - RTRN	2020	RTRN2020

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 46 26.47383	92 58 12.62194	482092.536	116061.047	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951224.742	612970.953	1648024.834	16630349.146	.131	3	GPS - OPUS	2020	GPSBM
2951224.775	612970.942	1648024.867	16630349.135	.131	3	GPS - OPUS	2020	GPSBM
2951224.812	612970.975	1648024.904	16630349.167	.131	3	GPS - RTRN	2020	RTRN2020

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951224.749	612970.934	1648024.841	16630349.127	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5805_J-DM5832-3E-29APR2020.jpg	E	Apr 29, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5805_J-DM5832-2-29APR2020.jpg		Apr 29, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5805_J-DM5832-1-29APR2020.jpg		Apr 29, 2020

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

Geodetic Data Sheet (Feet)
GSID Station # 23141

5806 C

04/28/2026
Sheet Help

Mn/DOT Name: 5806 C
NGS Name: 5806 C
County: PINE, MN (Sheet 1)

NGS ACRN: Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	25	41 N	21 W	455951.52	925643.78		3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1950	2008	GOOD	Horz=NO Vert=YES	YES			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CULVERT - ANY SIZE, ANY TYPE	BENCH MARK DISK	MNDT

Description: (1974) **Stamping:** 5806 C 1950 1009.83

1.4 MILES SOUTH OF HINCKLEY, 1.4 MILES SOUTH ALONG TRUNK HIGHWAY 23 FROM THE JUNCTION OF TRUNK HIGHWAY 23 AND COUNTY ROAD 61 IN HINCKLEY, 0.05 MILE SOUTH OF A FARM DRIVEWAY EAST, IN THE NORTH END OF THE EAST HEADWALL OF TRUNK HIGHWAY 23 BOX CULVERT AT THE MISSION CREEK.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1009.250	.033	3				VERTICAL CONTROL SURVEY	1950	CS5806

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
1009.444	.262		919.431	.197	1996	GPS - RTRN	2008	RTRN2008

Geoid Separations(ft): GEOID18 = -90.256 12B = -90.249 09 = -90.138 03 = -90.013

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 59 51.51883	92 56 43.77679	488437.087	197607.361	.131	3	GPS - RTRN	2008	RTRN2008

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2956178.323	694605.740	1654264.209	16711866.778	.131	3	GPS - RTRN	2008	RTRN2008

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5806_C-3E-08MAY2008.jpg	E	May 8, 2008
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5806_C-2-08MAY2008.jpg		May 8, 2008
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5806_C-1-08MAY2008.jpg		May 8, 2008

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

Mn/DOT Name: 5806 D

NGS Name: 5806 D

County: PINE, MN (Sheet 1)

NGS ACRN: Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	24	41 N	21 W	460043.00	925636.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1950	2007	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

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

Description: (1974) **Stamping:** 5806 D 1950

0.4 MILE SOUTH OF HINCKLEY, 0.4 MILE SOUTH ALONG TRUNK HIGHWAY 23 FROM THE JUNCTION OF TRUNK HIGHWAY 23 AND COUNTY ROAD 61 IN HINCKLEY, 45.0 FEET LEFT OF TRUNK HIGHWAY 23.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1020.930	.033	3				VERTICAL CONTROL SURVEY	1950	CS5806

Geoid Separations(ft): GEOID18 = -90.233 12B = -90.236 09 = -90.115 03 = -89.993

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

Mn/DOT Name: 5806 E
NGS Name: 5806 E
County: PINE, MN (Sheet 1)

NGS ACRN: RN0612 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	13	41 N	21 W	460145.00	925616.00	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1950	2008	GOOD	Horz=YES Vert=YES	YES		PROJECTS 14 IN.	STEEL ROD IMBED IN MON

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

Description: (2008) **Stamping:** 5806 E 1950

1.2 MILES NORTHEAST OF HINCKLEY, 1.4 MILES NORTH ALONG COUNTY ROAD 61 FROM THE JUNCTION OF COUNTY ROAD 61 AND TRUNK HIGHWAY 23 IN HINCKLEY, 0.47 MILE NORTH OF THE GRINDSTONE RIVER, 0.25 MILE NORTH OF COUNTY ROAD 140 FROM THE JUNCTION OF COUNTY ROAD 140 AND COUNTY ROAD 61, 49.0 FEET WEST OF COUNTY ROAD 61, 0.5 FOOT EAST 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
1039.312	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1039.024	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
1039.024	.016	2				VERTICAL CONTROL SURVEY	1976	L23306

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
1040.024	.262		950.064	.197	1996	GPS - RTRN	2009	RTRN2009
1039.991	.262		950.031	.197	1996	GPS - RTRN	2008	RTRN2008

Geoid Separations(ft): GEOID18 = -90.207 12B = -90.210 09 = -90.085 03 = -89.960

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 01 42.11237	92 56 16.37390	490377.112	208809.640	.131	3	GPS - RTRN	2009	RTRN2009
46 01 42.11244	92 56 16.37532	490377.011	208809.647	.131	3	GPS - RTRN	2008	RTRN2008

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2957926.979	705838.270	1656189.306	16723066.525	.131	3	GPS - RTRN	2009	RTRN2009
2957926.879	705838.275	1656189.206	16723066.531	.131	3	GPS - RTRN	2008	RTRN2008

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5806_E-RN0612-3W-28MAY2009.jpg	W	May 28, 2009
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5806_E-RN0612-2-28MAY2009.jpg		May 28, 2009
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5806_E-RN0612-1-28MAY2009.jpg		May 28, 2009

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

Mn/DOT Name: 5806 E 1 **NGS Name:** 5806 E 1

County: PINE, MN (Sheet 1)

NGS ACRN: RN0610 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	24	41 N	21 W	460113.00	925632.00	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1974	2007	NOT FOUND	Horz=NO Vert=NO	NO	4433		SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
BRIDGE ABUTMENT	SURVEY DISK	MNDT

Description: (1974) **Stamping:** 5806 E1 1974

IN HINCKLEY, IN THE SOUTHEAST CORNER OF A COUNTY ROAD 61 BRIDGE NUMBER 4433 OVER THE GRINDSTONE RIVER, 0.6 MILE NORTH ALONG COUNTY ROAD 61 FROM THE JUNCTION OF TRUNK HIGHWAY 23 AND COUNTY ROAD 61, 22.8 FEET EAST OF COUNTY ROAD 61.

Station Notes

THE NEW BRIDGE NUMBER 58515 WAS IN PLACE IN 1978.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1019.020	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1018.728	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
1018.732	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
1018.728	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
1018.794	.016	2				VERTICAL CONTROL SURVEY	1975	L23805

Geoid Separations(ft): GEOID18 = -90.216 12B = -90.220 09 = -90.098 03 = -89.974

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

5806 E 2

Mn/DOT Name: 5806 E 2 **NGS Name:** 5806 E 2

County: PINE, MN (Sheet 1)

NGS ACRN: RN0609 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	24	41 N	21 W	460052.00	925629.00	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1974	2005	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	SEE DESCRIPTION

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

Description: (1974) **Stamping:** 5806 E2 1974

IN HINCKLEY, 0.2 MILE NORTH AND 0.05 MILE EAST OF THE JUNCTION OF TRUNK HIGHWAY 23 AND COUNTY ROAD 61, 275.0 FEET EAST OF COUNTY ROAD 61, 200.0 FEET SOUTH OF FIRST STREET, 128.0 FEET WEST OF LAWLER AVENUE, 67.6 FEET SOUTHEAST OF THE SOUTHWEST CORNER OF THE CITY OFFICE, 40.5 FEET SOUTH OF THE SOUTHWEST CORNER OF A PUMP HOUSE, IN A FOOTING OF THE SOUTHWEST LEG OF A WATER TANK.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1035.008	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1035.008	.016	2/1				VERTICAL ADJUSTMENT	2006	00000497
1035.008	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV
1035.008	.016	2/1				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1034.712	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV
1034.712	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
1034.726	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
1034.778	.016	2				VERTICAL CONTROL SURVEY	1975	L23805

Geoid Separations(ft): GEOID18 = -90.223 12B = -90.223 09 = -90.102 03 = -89.980

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

Mn/DOT Name: 5810 A
NGS Name: 5810 A
County: PINE, MN (Sheet 1)

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	29	38 N	22 W	454655.18	930618.81	2	

NGS ACRN: QO1277 Get Map
NGS Quad / Sta Num : 45093112/
USGS Quad: HENRIETTE

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1977	2007	GOOD	Horz=NO Vert=YES	YES		PROJECTS 3 IN.	SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
COPPER CLAD ROD (NO SLEEVE) (DEPTH 27 FT)	VERTICAL CONTROL DISK	MNDT

Description: (2010) **Stamping:** 5810 A 1977

3.1 MILES SOUTHEAST OF GRASSTON, 2.5 MILES EAST ALONG 133RD AVENUE (COUNTY ROAD 5) FROM THE JUNCTION OF 133RD AVENUE/COUNTY ROAD 5 AND TRUNK HIGHWAY/107 AND TRUNK HIGHWAY 70 IN GRASSTON, 68.8 FEET SOUTH OF COUNTY ROAD 5, AT TRUNK COUNTY ROAD 5 MILEPOINT 13.0, 134.0 FEET WEST OF A TOWNSHIP TEE-ROAD SOUTH, 2.0 FEET NORTH OF A POWER POLE, 0.9 FOOT NORTH OF A WITNESS POST.

Station Notes
THE REAL TIME REFERENCE NETWORK (RTRN) SHOT WAS TAKEN 40.0 FEET NORTH OF THE MARK.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
970.592	.016	2/1				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
970.349	.016	2				VERTICAL CONTROL SURVEY	1980	L24425

Geoid Separations(ft): GEOID18 = -92.060 12B = -92.067 09 = -91.962 03 = -91.814

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

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5810_A-QO1277-3S-08MAY2007.jpg	S	May 8, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5810_A-QO1277-2-08MAY2007.jpg		May 8, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5810_A-QO1277-1-08MAY2007.jpg		May 8, 2007

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

Mn/DOT Name: 5810 B **NGS Name:** 5810 B

County: PINE, MN (Sheet 1)

NGS ACRN: QO1279 Get Map
NGS Quad / Sta Num : 45093112/
USGS Quad: HENRIETTE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	22	38 N	22 W	454537.10	930347.95	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1977	2017	GOOD	Horz=YES Vert=YES	YES		PROJECTS 2 IN.	MARKER IS STEEL ROD

Monument Type	Disk Type	Mon. Agency
COPPER CLAD ROD (NO SLEEVE) (DEPTH 23 FT)	VERTICAL CONTROL DISK	MNDT

Description: (2007) **Stamping:** 5810 B 1977

5.0 MILES WEST OF ROCK CREEK, 3.6 MILES WEST ALONG TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 70 AND INTERSTATE HIGHWAY 35 IN ROCK CREEK, AT TRUNK HIGHWAY 70 MILEPOINT 15.0, 226.0 FEET NORTH OF TRUNK HIGHWAY 70, 29.0 FEET WEST OF COUNTY ROAD 1, 0.5 FOOT SOUTH 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
971.304	.016	2/1				VERTICAL ADJUSTMENT	2021	00000963
971.301	.016	2/1				VERTICAL CONTROL SURVEY	2017	VRCRK
971.232	.016	2/1				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
970.992	.016	2				VERTICAL CONTROL SURVEY	1980	L24425

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
971.261	.262		879.250	.197	2011	GPS - RTRN	2017	RTRN2017

Geoid Separations(ft): GEOID18 = -92.014 12B = -92.011 09 = -91.916 03 = -91.768

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 37.10166	93 03 47.94765	458312.254	111094.613	.131	3	GPS - RTRN	2017	RTRN2017

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2927534.571	607600.533	1624261.685	16625355.059	.131	3	GPS - RTRN	2017	RTRN2017

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5810_B-QO1279-3N-22MAY2017.jpg	N	May 22, 2017
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5810_B-QO1279-2-22MAY2017.jpg		May 22, 2017
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5810_B-QO1279-1-22MAY2017.jpg		May 22, 2017

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

Mn/DOT Name: 5810 C
NGS Name: 5810 C
County: PINE, MN (Sheet 1)

NGS ACRN: QO1280 Get Map
NGS Quad / Sta Num : 45093112/
USGS Quad: HENRIETTE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	24	38 N	22 W	454538.00	930232.00	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1977	2007	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
COPPER CLAD ROD (NO SLEEVE) (DEPTH 24 FT)	SURVEY DISK	MNDT

Description: (1977) **Stamping:** 5810 C 1977

3.8 MILES WEST ON TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 361 AND TRUNK HIGHWAY 70 AT ROCK CREEK, 242.0 FEET NORTH OF TRUNK HIGHWAY 70, AT TRUNK HIGHWAY 70 MILEPOINT 16.05, 30.0 FEET EAST OF TOWNSHIP ROAD, 2.5 FEET SOUTH OF A POWER POLE, 0.8 FOOT SOUTH 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
988.312	.016	2/1				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
988.072	.016	2				VERTICAL CONTROL SURVEY	1980	L24425

Geoid Separations(ft): GEOID18 = -91.890 12B = -91.880 09 = -91.791 03 = -91.647

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

Mn/DOT Name: 5810 D **NGS Name:** 5810 D

County: PINE, MN (Sheet 1)

NGS ACRN: QO1281 Get Map
NGS Quad / Sta Num : 45093112/
USGS Quad: HENRIETTE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	19	38 N	21 W	454558.65	930117.54	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1977	2017	DESTROYED	Horz=NO Vert=NO	YES		PROJECTS 2 IN.	SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
COPPER CLAD ROD (NO SLEEVE) (DEPTH 32 FT)	VERTICAL CONTROL DISK	MNDT

Description: (2007) **Stamping:** 5810 D 1977

3.0 MILES WEST-NORTHWEST OF ROCK CREEK, 2.65 MILES WEST ON TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 361 AND TRUNK HIGHWAY 70, 209.0 FEET SOUTH OF TRUNK HIGHWAY 70, AT TRUNK HIGHWAY 70 MILEPOINT 16.05, 26.0 FEET EAST OF COUNTY ROAD 103, 81.0 FEET SOUTH OF A POWER POLE WITH YARD LIGHT, 75.5 FEET NORTHEAST OF A POWER POLE, 2.0 FEET NORTH OF A WITNESS POST.

Station Notes

PULLED OUT 6.0 FOOT OF ROD, NO RESET. 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
990.484	.016	2/1				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
990.244	.016	2				VERTICAL CONTROL SURVEY	1980	L24425

Geoid Separations(ft): GEOID18 = -91.709 12B = -91.696 09 = -91.617 03 = -91.476

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

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5810_D-QO1281-3N-08MAY2007.jpg	N	May 8, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5810_D-QO1281-2-08MAY2007.jpg		May 8, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5810_D-QO1281-1-08MAY2007.jpg		May 8, 2007

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

Mn/DOT Name: 5810 E **NGS Name:** 5810 E

County: PINE, MN (Sheet 1)

NGS ACRN: QO1282 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	20	38 N	21 W	454559.87	925957.25	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1977	2017	DESTROYED	Horz=NO Vert=NO	YES		FLUSH	STEEL ROD IMBED IN MON

Monument Type	Disk Type	Mon. Agency
COPPER CLAD ROD (NO SLEEVE) (DEPTH 24 FT)	VERTICAL CONTROL DISK	MNDT

Description: (1977) **Stamping:** 5810 E 1977

2.0 MILES WEST-NORTHWEST OF ROCK CREEK, 1.55 MILES WEST ALONG TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 361 AND TRUNK HIGHWAY 70 IN ROCK CREEK, 0.1 MILE EAST OF COUNTY ROAD 23, 49.3 FEET SOUTH OF TRUNK HIGHWAY 70, AT TRUNK HIGHWAY 70 MILEPOINT 18.25, 60.3 FEET WEST-NORTHWEST OF A CABLE MARKER NUMBER 571, 32.0 FEET SOUTHWEST OF THE WEST END OF A METAL CULVERT, 1.9 FEET NORTH OF A WITNESS POST.

Station Notes
THE DISK WAS TURNED IN TO THE OFFICE. PULLED OUT 6.0 FOOT OF ROD, NO RESET.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
973.430	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
973.430	.016	2/1				VERTICAL CONTROL SURVEY	2014	VPCTY
973.430	.016	2/1				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
973.194	.016	2				VERTICAL CONTROL SURVEY	1980	L24425

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
973.289	.262		881.799	.197	2011	GPS - RTRN	2014	RTRN2014
972.970	.262		881.681	.197	1996	GPS - RTRN	2008	RTRN2008

Geoid Separations(ft): GEOID18 = -91.519 12B = -91.489 09 = -91.424 03 = -91.292

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 59.86645	92 59 57.24957	474672.499	113373.657	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 59.86842	92 59 57.24766	474672.635	113373.856	.131	3	GPS - RTRN	2008	RTRN2008

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2943852.216	610157.747	1640611.571	16627653.650	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2943852.349	610157.949	1640611.707	16627653.850	.131	3	GPS - RTRN	2008	RTRN2008

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5810_E-QO1282-3S-15FEB2011.jpg	S	Feb 15, 2011
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5810_E-QO1282-2-15FEB2011.jpg		Feb 15, 2011
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5810_E-QO1282-1-15FEB2011.jpg		Feb 15, 2011

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

Mn/DOT Name: 5810 F **NGS Name:** 5810 F

County: PINE, MN (Sheet 1)

NGS ACRN: DO8728 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	21	38 N	21 W	454558.19	925802.83	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2017	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 30 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) **Stamping:** 5810 F 2012

IN ROCK CREEK, AT THE JUNCTION OF TRUNK HIGHWAY 70 AND COUNTY ROAD 61 IN ROCK CREEK, AT TRUNK HIGHWAY 70 MILEPOINT 19.80, 131.2 FEET SOUTH OF TRUNK HIGHWAY 70, 105.3 FEET SOUTHWEST OF COUNTY ROAD 61, 1.5 FEET NORTHEAST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
950.389	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
950.398	.016	2/1				VERTICAL CONTROL SURVEY	2014	VPCTY
950.398	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
950.343	.262		859.188	.197	2011	GPS - RTRN	2017	RTRN2017
950.389	.262		859.237	.197	2011	GPS - RTRN	2014	RTRN2014
950.257	.262		859.162	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -91.174 12B = -91.151 09 = -91.096 03 = -90.964

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 58.18780	92 58 02.82908	482784.287	113195.113	.131	3	GPS - RTRN	2017	RTRN2017
45 45 58.18730	92 58 02.82921	482784.278	113195.063	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 58.18603	92 58 02.83072	482784.171	113194.934	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951965.171	610117.450	1648719.872	16627485.372	.131	3	GPS - RTRN	2017	RTRN2017
2951965.163	610117.399	1648719.862	16627485.321	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951965.058	610117.269	1648719.755	16627485.192	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5810_F-DO8728-3SW-20NOV2012.jpg	SW	Nov 20, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5810_F-DO8728-2-20NOV2012.jpg		Nov 20, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5810_F-DO8728-1-20NOV2012.jpg		Nov 20, 2012

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

Mn/DOT Name: 5810 G **NGS Name:** 5810 G

County: PINE, MN (Sheet 1)

NGS ACRN: DQ7335 Get Map
NGS Quad / Sta Num : 45093112/
USGS Quad: HENRIETTE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	19	38 N	21 W	454600.88	930027.22	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2017	2017	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: (2017) **Stamping:** 5810 G 2017

IN ROCK CREEK, 0.85 MILE WEST ALONG TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 70 AND INTERSTATE HIGHWAY 35 IN ROCK CREEK, AT TRUNK HIGHWAY 70 MILEPOINT 17.85, 36.5 FEET NORTH OF TRUNK HIGHWAY 70, 20.6 FEET WEST OF A FIELD ENTRANCE, 1.5 FEET 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
973.564	.016	2/1				VERTICAL ADJUSTMENT	2021	00000963
973.568	.016	2/1				VERTICAL CONTROL SURVEY	2017	VRCRK

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
973.528	.262		881.960	.197	2011	GPS - RTRN	2017	RTRN2017

Geoid Separations(ft): GEOID18 = -91.591 12B = -91.568 09 = -91.499 03 = -91.361

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 46 00.88341	93 00 27.22102	472547.789	113479.435	.131	3	GPS - RTRN	2017	RTRN2017

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2941726.195	610227.303	1638487.701	16627756.710	.131	3	GPS - RTRN	2017	RTRN2017

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5810_G-DQ7335-3N-30NOV1999.jpg	N	Nov 30, 1999
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5810_G-DQ7335-2-30NOV1999.jpg		Nov 30, 1999
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5810_G-DQ7335-1-30NOV1999.jpg		Nov 30, 1999

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

Mn/DOT Name: 5810 H **NGS Name:** 5810 H

County: PINE, MN (Sheet 1)

NGS ACRN: DQ7337 Get Map
NGS Quad / Sta Num : 45093112/
USGS Quad: HENRIETTE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	24	38 N	22 W	454600.98	930129.17	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2017	2017	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: (2017) **Stamping:** 5810 H 2017

1.7 MILES WEST OF ROCK CREEK, 1.7 MILES WEST ALONG TRUNK HIGHWAY FROM THE JUNCTION OF TRUNK HIGHWAY 70 AND INTERSTATE HIGHWAY 35 IN ROCK CREEK, AT TRUNK HIGHWAY 70 MILEPOINT 17.0, 51.0 FEET NORTH-NORTHWEST OF TRUNK HIGHWAY 70, 22.7 FEET NORTH OF AN ENTRANCE, 5.0 FEET EAST OF CABLE BOX NUMBER 583, 1.5 FEET EAST 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
995.428	.016	2/1				VERTICAL ADJUSTMENT	2021	00000963
995.431	.016	2/1				VERTICAL CONTROL SURVEY	2017	VRCRK

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
995.434	.262		903.715	.197	2011	GPS - RTRN	2017	RTRN2017

Geoid Separations(ft): GEOID18 = -91.732 12B = -91.719 09 = -91.637 03 = -91.496

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 46 00.98027	93 01 29.17159	468155.794	113495.660	.131	3	GPS - RTRN	2017	RTRN2017

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2937334.939	610168.704	1634097.695	16627767.405	.131	3	GPS - RTRN	2017	RTRN2017

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5810_H-DQ7337-3NW-30NOV1999.jpg	NW	Nov 30, 1999
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5810_H-DQ7337-2-30NOV1999.jpg		Nov 30, 1999
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5810_H-DQ7337-1-30NOV1999.jpg		Nov 30, 1999

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

Mn/DOT Name: 5810 J **NGS Name:** 5810 J

County: PINE, MN (Sheet 1)

NGS ACRN: DQ7344 Get Map
NGS Quad / Sta Num : 45093112/
USGS Quad: HENRIETTE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	21	38 N	22 W	454535.78	930616.42	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2017	2017	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 48 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2017) **Stamping:** 5810 J 2017

4.1 MILES NORTHEAST OF BRAHAM, 2.6 MILES EAST ALONG TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 70 AND TRUNK HIGHWAY 107 (THE JUNCTION IS 2.5 MILES NORTH OF BRAHAM), AT TRUNK HIGHWAY 70 MILEPOINT 13.0, 31.7 FEET NORTH TRUNK HIGHWAY 70, 16.4 FEET EAST OF CHURCH ROAD EXTENDED (DRIVEWAY NORTH), 1.5 FEET WEST 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
967.111	.016	2/1				VERTICAL ADJUSTMENT	2021	00000963
967.111	.016	2/1				VERTICAL CONTROL SURVEY	2017	VRCRK

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
966.970	.262		874.782	.197	2011	GPS - RTRN	2017	RTRN2017

Geoid Separations(ft): GEOID18 = -92.188 12B = -92.188 09 = -92.086 03 = -91.936

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 35.77621	93 06 16.42154	447784.560	110984.689	.131	3	GPS - RTRN	2017	RTRN2017

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2917011.177	607311.326	1613738.949	16625231.899	.131	3	GPS - RTRN	2017	RTRN2017

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5810_J-DQ7344-3N-30NOV1999.jpg	N	Nov 30, 1999
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5810_J-DQ7344-2-30NOV1999.jpg		Nov 30, 1999
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5810_J-DQ7344-1-30NOV1999.jpg		Nov 30, 1999

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

Mn/DOT Name: 5811 A **NGS Name:** 5811 A

County: PINE, MN (Sheet 1)

NGS ACRN: DM5833 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	15	38 N	21 W	454625.62	925736.89	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2007	2012	GOOD	Horz=NO Vert=YES	YES		RECESSED 3 IN.	MARKER W/BAR MAGNET

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

Description: (2012) **Stamping:** 5811 A 2007

1.0 MILE NORTH OF ROCK CREEK, 0.85 MILE EAST ALONG TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 70 AND COUNTY ROAD 61 (FOREST BOULEVARD), AT TRUNK HIGHWAY 70 MILEPOINT 20.7, 64.6 FEET NORTHWEST OF TRUNK HIGHWAY 70, 22.9 FEET NORTH OF THE EXTENDED COUNTY ROAD 110, 48.7 FEET WEST OF A CABLE BOX, 2.9 FEET SOUTHEAST 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
953.669	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
953.699	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
953.699	.016	2/1				VERTICAL CONTROL SURVEY	2009	VCHEN

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
953.627	.262		862.649	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -91.046 12B = -91.033 09 = -90.978 03 = -90.840

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 46 25.61670	92 57 36.89201	484625.236	115972.145	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2953758.378	612925.206	1650556.496	16630263.442	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5811_A-DM5833-3N-14JUN2007.jpg	N	Jun 14, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5811_A-DM5833-2-14JUN2007.jpg		Jun 14, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5811_A-DM5833-1-14JUN2007.jpg		Jun 14, 2007

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

Mn/DOT Name: 5811 B **NGS Name:** 5811 B

County: PINE, MN (Sheet 1)

NGS ACRN: DM5834 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	22	38 N	21 W	454623.72	925618.42	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2007	2012	DESTROYED	Horz=NO Vert=NO	YES		RECESSED 1 IN.	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
UNKNOWN	SURVEY DISK	MNDT

Description: (2012) **Stamping:** 5811 B 2007

1.3 MILE NORTHEAST OF ROCK CREEK, 1.85 MILES EAST ALONG TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 70 AND COUNTY ROAD 61 (FOREST BOULEVARD), AT TRUNK HIGHWAY 70 MILEPOINT 21.7, 64.8 FEET SOUTH OF TRUNK HIGHWAY 70, 25.6 FEET WEST OF STEPHANIE LANE, 40.3 FEET SOUTHEAST OF A POWER POLE NUMBER 38212301, 4.5 FEET WEST 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
947.839	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
947.895	.016	2/1				VERTICAL CONTROL SURVEY	2009	VCHEN

Geoid Separations(ft): GEOID18 = -90.761 12B = -90.774 09 = -90.718 03 = -90.554

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

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5811_B-DM5834-3S-14JUN2007.jpg	S	Jun 14, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5811_B-DM5834-2-14JUN2007.jpg		Jun 14, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5811_B-DM5834-1-14JUN2007.jpg		Jun 14, 2007

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

Geodetic Data Sheet (Feet)
GSID Station # 97916

5811 B RESET

04/28/2026
Sheet Help

Mn/DOT Name: 5811 B RESET
NGS Name: 5811 B RESET
County: PINE, MN (Sheet 1)

NGS ACRN: DO8731 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	22	38 N	21 W	454623.72	925618.42	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2020	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

Monument Type: ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 35 FT)
Disk Type: METAL ROD (WITH REMOVABLE ID DISK)
Mon. Agency: MNDT

Description: (2012)
Stamping: 5811 B RESET 2012

1.3 MILES NORTHEAST OF ROCK CREEK, 1.85 MILES EAST ALONG TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 70 AND COUNTY ROAD 61 (FOREST BOULEVARD) IN ROCK CREEK, AT TRUNK HIGHWAY 70 MILEPOINT 21.70, 64.8 FEET SOUTH OF TRUNK HIGHWAY 70, 40.3 FEET SOUTHEAST OF A POWER POLE NUMBER 38212301, 25.6 FEET WEST OF STEPHANIE LANE, 4.5 FEET WEST 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
947.649	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
947.705	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
947.764	.262		857.003	.197	2011	GPS - OPUS	2020	GPSBM
947.652	.262		856.891	.197	2011	GPS - OPUS	2020	GPSBM
947.823	.262		857.049	.197	2011	GPS - RTRN	2020	RTRN2020
947.577	.262		856.859	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -90.761 12B = -90.774 09 = -90.718 03 = -90.554

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 46 23.71714	92 56 18.41806	490187.904	115776.271	.131	3	GPS - OPUS	2020	GPSBM
45 46 23.71735	92 56 18.41842	490187.878	115776.292	.131	3	GPS - OPUS	2020	GPSBM
45 46 23.71698	92 56 18.41802	490187.907	115776.255	.131	3	GPS - RTRN	2020	RTRN2020

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 46 23.71744	92 56 18.41892	490187.843	115776.302	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2959323.094	612824.162	1656116.868	16630074.630	.131	3	GPS - OPUS	2020	GPSBM
2959323.068	612824.183	1656116.843	16630074.651	.131	3	GPS - OPUS	2020	GPSBM
2959323.097	612824.146	1656116.871	16630074.613	.131	3	GPS - RTRN	2020	RTRN2020

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2959323.032	612824.192	1656116.807	16630074.660	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5811_B_RESET-DO8731-3S-29APR2020.jpg	S	Apr 29, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5811_B_RESET-DO8731-2-29APR2020.jpg		Apr 29, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5811_B_RESET-DO8731-1-29APR2020.jpg		Apr 29, 2020

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

Mn/DOT Name: 5811 C **NGS Name:** 5811 C

County: PINE, MN (Sheet 1)

NGS ACRN: DM5835 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	14	38 N	21 W	454625.15	925508.81	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2007	2012	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 52 FT)	SURVEY DISK	MNDT

Description: (2012) **Stamping:** 5811 C 2007

2.2 MILES EAST-NORTHEAST OF ROCK CREEK, 2.85 MILES EAST ALONG TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 70 AND COUNTY ROAD 61 (FOREST BOULEVARD), AT TRUNK HIGHWAY 70 MILEPOINT 22.7, 0.55 MILE EAST OF COUNTY ROAD 4 (GOVERNMENT ROAD) / COUNTY ROAD 106, 52.7 FEET NORTH OF TRUNK HIGHWAY 70, 15.1 FEET WEST OF A FIELD ENTRANCE, 1.4 FEET SOUTH 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
918.968	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
919.040	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
919.040	.016	2/1				VERTICAL CONTROL SURVEY	2009	VCHEN

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
919.040	.262		828.561	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -90.512 12B = -90.538 09 = -90.479 03 = -90.308

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 46 25.14815	92 55 08.81265	495122.085	115919.445	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2964253.692	613051.384	1661048.617	16630223.916	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5811_C-DM5835-3N-14JUN2007.jpg	N	Jun 14, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5811_C-DM5835-2-14JUN2007.jpg		Jun 14, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5811_C-DM5835-1-14JUN2007.jpg		Jun 14, 2007

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

Mn/DOT Name: 5811 D **NGS Name:** 5811 D

County: PINE, MN (Sheet 1)

NGS ACRN: DM5836 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	24	38 N	21 W	454623.91	925354.31	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2007	2020	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: (2012) **Stamping:** 5811 D 2007

3.1 MILES EAST-NORTHEAST OF ROCK CREEK, 3.85 MILES EAST ALONG TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 70 AND COUNTY ROAD 61 (FOREST BOULEVARD), AT TRUNK HIGHWAY 70 MILEPOINT 23.7, 40.4 FEET SOUTH OF TRUNK HIGHWAY 70, 36.2 FEET WEST OF KEYSTONE AVENUE, 4.6 FEET WEST OF A POWER POLE WITH A GUY WIRE, 4.7 FEET NORTHWEST OF A FENCE CORNER, 10.8 FEET NORTHWEST OF CABLE BOX NUMBER 3274, 3.8 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
936.402	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
936.488	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
936.488	.016	2/1				VERTICAL CONTROL SURVEY	2009	VCHEN

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
936.389	.262		846.117	.197	2011	GPS - OPUS	2020	GPSBM
936.468	.262		846.196	.197	2011	GPS - OPUS	2020	GPSBM
936.514	.262		846.225	.197	2011	GPS - RTRN	2020	RTRN2020
936.386	.262		846.153	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -90.272 12B = -90.292 09 = -90.233 03 = -90.088

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 46 23.91172	92 53 54.30959	500403.378	115793.615	.131	3	GPS - OPUS	2020	GPSBM
45 46 23.91161	92 53 54.30962	500403.376	115793.603	.131	3	GPS - OPUS	2020	GPSBM
45 46 23.91158	92 53 54.30969	500403.371	115793.600	.131	3	GPS - RTRN	2020	RTRN2020

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 46 23.91175	92 53 54.31018	500403.336	115793.617	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2969535.905	613015.585	1666327.657	16630104.748	.131	3	GPS - OPUS	2020	GPSBM
2969535.903	613015.574	1666327.655	16630104.736	.131	3	GPS - OPUS	2020	GPSBM
2969535.898	613015.571	1666327.650	16630104.733	.131	3	GPS - RTRN	2020	RTRN2020

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2969535.863	613015.587	1666327.616	16630104.751	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5811_D-DM5836-3S-29APR2020.jpg	S	Apr 29, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5811_D-DM5836-2-29APR2020.jpg		Apr 29, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5811_D-DM5836-1-29APR2020.jpg		Apr 29, 2020

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

Mn/DOT Name: 5811 E **NGS Name:** 5811 E

County: PINE, MN (Sheet 1)

NGS ACRN: DM5837 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	19	38 N	20 W	454624.14	925240.90	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2007	2012	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: (2012) **Stamping:** 5811 E 2007

3.75 MILES EAST-NORTHEAST OF ROCK CREEK, 4.85 MILES EAST ALONG TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 70 AND COUNTY ROAD 61 (FOREST BOULEVARD), AT TRUNK HIGHWAY 70 MILEPOINT 24.7, 1.0 MILE EAST OF THE JUNCTION OF TRUNK HIGHWAY 70 AND KEYSTONE AVENUE, 40.0 FEET SOUTH OF TRUNK HIGHWAY 70, 19.0 FEET EAST OF AN ENTRANCE.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
938.712	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
938.814	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
938.814	.016	2/1				VERTICAL CONTROL SURVEY	2009	VCHEN

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
938.669	.262		848.660	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -90.052 12B = -90.059 09 = -90.010 03 = -89.882

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 46 24.14204	92 52 40.89566	505607.489	115817.716	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2974738.400	613128.373	1671529.365	16630135.340	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5811_E-DM5837-3S-14JUN2007.jpg	S	Jun 14, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5811_E-DM5837-2-14JUN2007.jpg		Jun 14, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5811_E-DM5837-1-14JUN2007.jpg		Jun 14, 2007

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

Mn/DOT Name: 5811 F **NGS Name:** 5811 F

County: PINE, MN (Sheet 1)

NGS ACRN: DM5838 Get Map
NGS Quad / Sta Num : 45092442/
USGS Quad: BASS CREEK

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	16	38 N	20 W	454624.79	925012.63	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2007	2020	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 15 FT)	SURVEY DISK	MNDT

Description: (2012) **Stamping:** 5811 F 2007

5.75 MILES EAST-NORTHEAST OF ROCK CREEK, 6.85 MILES NORTH AND EAST ALONG TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 70 AND COUNTY ROAD 61 (FOREST BOULEVARD), AT TRUNK HIGHWAY 70 MILEPOINT 26.7, 0.75 MILE WEST OF MAYBERRY AVENUE, 24.3 FEET NORTH OF TRUNK HIGHWAY 70, 44.6 FEET SOUTHEAST OF A POWER POLE NUMBER B-11, 48.9 FEET EAST OF A CABLE BOX, 2.0 FEET SOUTH 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
873.286	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
873.417	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
873.417	.016	2/1				VERTICAL CONTROL SURVEY	2009	VCHEN

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
873.309	.262		783.686	.197	2011	GPS - OPUS	2020	GPSBM
873.305	.262		783.683	.197	2011	GPS - OPUS	2020	GPSBM
873.273	.262		783.643	.197	2011	GPS - RTRN	2020	RTRN2020
873.282	.262		783.703	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -89.623 12B = -89.626 09 = -89.580 03 = -89.465

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 46 24.78914	92 50 12.62753	516117.755	115888.890	.131	3	GPS - OPUS	2020	GPSBM
45 46 24.78950	92 50 12.62764	516117.748	115888.927	.131	3	GPS - OPUS	2020	GPSBM
45 46 24.78935	92 50 12.62778	516117.738	115888.912	.131	3	GPS - RTRN	2020	RTRN2020

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 46 24.78934	92 50 12.62781	516117.736	115888.911	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2985245.016	613378.673	1682034.755	16630219.592	.131	3	GPS - OPUS	2020	GPSBM
2985245.008	613378.709	1682034.747	16630219.629	.131	3	GPS - OPUS	2020	GPSBM
2985244.998	613378.694	1682034.738	16630219.614	.131	3	GPS - RTRN	2020	RTRN2020

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2985244.996	613378.693	1682034.736	16630219.613	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5811_F-DM5838-3N-29APR2020.jpg	N	Apr 29, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5811_F-DM5838-2-29APR2020.jpg		Apr 29, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5811_F-DM5838-1-29APR2020.jpg		Apr 29, 2020

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

Geodetic Data Sheet (Feet)
GSID Station # 65899

5811 G

04/28/2026
Sheet Help

Mn/DOT Name: 5811 G
NGS Name: 5811 G
County: PINE, MN (Sheet 1)

NGS ACRN: DM5840 Get Map
NGS Quad / Sta Num : 45092442/
USGS Quad: BASS CREEK

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	23	38 N	20 W	454624.24	924858.31	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2007	2012	POOR	Horz=NO Vert=NO	YES		FLUSH	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 23 FT)	SURVEY DISK	MNDT

Description: (2012) **Stamping:** 5811 G 2007

6.9 MILES EAST-NORTHEAST OF ROCK CREEK, 7.8 MILES NORTH AND EAST ALONG TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 70 AND COUNTY ROAD 61 (FOREST BOULEVARD) TO TRUNK HIGHWAY 70 MILEPOINT 27.7, 55.0 FEET SOUTH OF TRUNK HIGHWAY 70, 47.0 FEET EAST OF NATURE AVENUE, 14.0 FEET NORTHEAST OF A FENCE CORNER, 9.3 FEET EAST OF A POWER POLE, 2.0 FEET NORTH OF A WITNESS POST.

Station Notes
FOUND CAP LOOSE. USE WITH CAUTION.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
882.761	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
882.908	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
882.908	.016	2/1				VERTICAL CONTROL SURVEY	2009	VCHEN

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
882.771	.262		793.401	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -89.413 12B = -89.416 09 = -89.370 03 = -89.262

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 46 24.24326	92 48 58.31268	521385.770	115838.460	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2990512.669	613418.053	1687300.437	16630175.745	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5811_G-DM5840-3S-14JUN2007.jpg	S	Jun 14, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5811_G-DM5840-2-14JUN2007.jpg		Jun 14, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5811_G-DM5840-1-14JUN2007.jpg		Jun 14, 2007

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

5811 H

Mn/DOT Name: 5811 H
NGS Name: 5811 H
County: PINE, MN (Sheet 1)

NGS ACRN: DM5841 Get Map
NGS Quad / Sta Num : 45092442/
USGS Quad: BASS CREEK

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	23	38 N	20 W	454625.40	924748.40	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2007	2017	DESTROYED	Horz=NO Vert=NO	YES		FLUSH	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
UNKNOWN	SURVEY DISK	MNDT

Description: (2007) **Stamping:** 5811 H 2007

7.9 MILES EAST-NORTHEAST OF ROCK CREEK, 8.8 MILES EAST ALONG TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 70 AND TRUNK HIGHWAY 361/COUNTY ROAD 61 (FOREST BOULEVARD), AT TRUNK HIGHWAY 70 MILEPOINT 28.75, 0.2 MILE WEST OF CROIX LANE, 52.0 FEET SOUTH OF TRUNK HIGHWAY 70, 7.9 FEET NORTH OF A POWER POLE NUMBER R 46 WITH A GUY WIRE, 8.5 FEET NORTHWEST OF A CABLE BOX, 40.3 FEET EAST OF DRIVEWAY NUMBER 15530, 7.0 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
856.868	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
856.852	.016	2/1				VERTICAL ADJUSTMENT	2012	00000712
857.032	.016	2/1				VERTICAL CONTROL SURVEY	2009	VCHEN

Geoid Separations(ft): GEOID18 = -89.219 12B = -89.226 09 = -89.183 03 = -89.075

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

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5811_H-DM5841-3S-14JUN2007.jpg	S	Jun 14, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5811_H-DM5841-2-14JUN2007.jpg		Jun 14, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5811_H-DM5841-1-14JUN2007.jpg		Jun 14, 2007

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

5811 H RESET

Mn/DOT Name: 5811 H RESET
NGS Name: 5811 H RESET
County: PINE, MN (Sheet 1)

NGS ACRN: DO8735 Get Map
NGS Quad / Sta Num : 45092442/
USGS Quad: BASS CREEK

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	23	38 N	20 W	454624.53	924739.35	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2017	DESTROYED	Horz=NO Vert=NO	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

Monument Type
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 10 FT)

Disk Type
METAL ROD (WITH REMOVABLE ID DISK)

Mon. Agency
MNDT

Description: (2012)

Stamping: 5811 H RESET 2012

0.2 MILE WEST OF CROIX LAKE, 7.9 MILES EAST-NORTHEAST OF ROCK CREEK, 8.8 MILES EAST ALONG TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 361/COUNTY ROAD 61 (FOREST BOULEVARD) AND TRUNK HIGHWAY 70, AT TRUNK HIGHWAY 70 MILEPOINT 28.75, 52.0 FEET SOUTH OF TRUNK HIGHWAY 70, 7.9 FEET NORTH OF A POWER POLE, 8.5 FEET NORTHWEST OF A CABLE BOX, 40.3 FEET EAST OF DRIVEWAY NUMBER 15530, 1.2 FEET NORTH OF A WITNESS POST.

Station Notes
PINE COUNTY PUBLIC WORKS FOUND THE MARK HAD BEEN HIT BY A BRUSH HOG OR DURING CONSTRUCTION . THE METAL ROD IS BENT AND THE PVC IS SHATTERED.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
856.629	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
856.793	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
856.629	.262		767.469	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -89.196 12B = -89.206 09 = -89.160 03 = -89.052

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 46 24.52930	92 47 39.35459	526982.847	115874.103	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2996107.841	613549.103	1692894.927	16630218.336	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5811_H_RESET-DO8735-3S-17OCT2012.jpg	S	Oct 17, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5811_H_RESET-DO8735-2-17OCT2012.jpg		Oct 17, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5811_H_RESET-DO8735-1-17OCT2012.jpg		Oct 17, 2012

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

5811 H RESET 2

Mn/DOT Name: 5811 H RESET 2 **NGS Name:** 5811 H RESET 2

County: PINE, MN (Sheet 1)

NGS ACRN: Get Map
NGS Quad / Sta Num : 45092442/
USGS Quad: BASS CREEK

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	23	38 N	20 W	475602.82	941138.08		3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2017	2017	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 10 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2017) **Stamping:** 5811 H RESET 2017

7.9 MILES EAST-NORTHEAST OF ROCK CREEK, 8.8 MILES EAST ALONG TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 70 AND COUNTY ROAD 61 IN ROCK CREEK, AT TRUNK HIGHWAY 70 MILEPOINT 28.75, 52.0 FEET SOUTH OF TRUNK HIGHWAY 70, 40.3 FEET EAST OF DRIVEWAY NUMBER 15530, 8.5 FEET NORTHWEST OF A CABLE BOX, 7.9 FEET NORTH OF A POWER POLE NUMBER R46, 1.2 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
1368.734	.262		1274.948	.197	2011	GPS - RTRN	2017	RTRN2017

Geoid Separations(ft): GEOID18 = -93.776 12B = -93.786 09 = -93.684 03 = -93.714

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
47 56 02.81836	94 11 38.08070	182636.329	906625.774	.131	3	GPS - RTRN	2017	RTRN2017

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2638420.846	1398193.260	1347854.590	17420133.567	.131	3	GPS - RTRN	2017	RTRN2017

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5811_H_RESET_2-3S-11SEP2017.jpg	S	Sep 11, 2017
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5811_H_RESET_2-2-11SEP2017.jpg		Sep 11, 2017
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5811_H_RESET_2-1-11SEP2017.jpg		Sep 11, 2017

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

Mn/DOT Name: 5811 J **NGS Name:** 5811 J

County: PINE, MN (Sheet 1)

NGS ACRN: DO8730 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	15	38 N	21 W	454625.54	925719.88	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2017	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 30 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) **Stamping:** 5811 J 2012

IN ROCK CREEK, 2.15 MILE EAST ALONG TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 70 AND INTERSTATE HIGHWAY 35 IN ROCK CREEK, AT TRUNK HIGHWAY 70 MILEPOINT 20.90, 24.6 FEET NORTH OF TRUNK HIGHWAY 70, 15.6 FEET WEST OF A FIELD ENTRANCE, 4.6 FEET SOUTHEAST 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
959.677	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
959.713	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
959.581	.262		868.604	.197	2011	GPS - RTRN	2017	RTRN2017
959.637	.262		868.715	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -90.984 12B = -90.978 09 = -90.922 03 = -90.777

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 46 25.54300	92 57 19.88375	485830.891	115963.802	.131	3	GPS - RTRN	2017	RTRN2017

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 46 25.54229	92 57 19.88362	485830.900	115963.730	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2954963.895	612937.408	1651761.610	16630256.615	.131	3	GPS - RTRN	2017	RTRN2017

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2954963.905	612937.336	1651761.620	16630256.543	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5811_J-DO8730-3N-23MAY2017.jpg	N	May 23, 2017
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5811_J-DO8730-2-23MAY2017.jpg		May 23, 2017
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5811_J-DO8730-1-23MAY2017.jpg		May 23, 2017

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

Mn/DOT Name: 5812 A
NGS Name: 5812 A
County: PINE, MN (Sheet 1)

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	6	38 N	22 W	454831.18	930824.01	2	C

NGS ACRN: DM4935 Get Map
NGS Quad / Sta Num : 45093113/
USGS Quad: GRASSTON

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2010	2020	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 15 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2010) **Stamping:** 5812 A 2010

4.4 MILES SOUTHWEST OF HENRIETTE, 4.45 MILES SOUTH ALONG TRUNK HIGHWAY 107 FROM THE NORTH JUNCTION OF TRUNK HIGHWAY 107 AND COUNTY ROAD 11 IN HENRIETTE, AT TRUNK HIGHWAY 107 MILEPOINT 7.8, 73.1 FEET SOUTHEAST OF TRUNK HIGHWAY 107, 56.8 FEET NORTHWEST OF THE WEST RAILROAD TRACK, 1.7 FEET NORTHWEST 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
962.226	.016	2/1				VERTICAL ADJUSTMENT	2012	00000745
962.222	.016	2/1				VERTICAL CONTROL SURVEY	2010	VBRAH

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
962.150	.262		870.139	.197	2011	GPS - OPUS	2020	GPSBM
962.262	.262		870.257	.197	2011	GPS - RTRN	2020	RTRN2020
			870.215	.008	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
962.236	.131		870.297	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2747
962.236	.131		870.297	.066	2007	GPS - STATIC	2010	HBRAH
962.236	.131		870.408	.066	1996	GPS - STATIC	2010	HBRAH

Geoid Separations(ft): GEOID18 = -92.011 12B = -92.004 09 = -91.916 03 = -91.768

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 48 31.17841	93 08 24.01163	438791.509	128777.901	.131	3	GPS - OPUS	2020	GPSBM
45 48 31.17830	93 08 24.01107	438791.549	128777.889	.131	3	GPS - RTRN	2020	RTRN2020
45 48 31.17792	93 08 24.01122	438791.538	128777.851	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 48 31.17809	93 08 24.01191	438791.489	128777.868	.033	C	ADJUSTMENT	2011	GPS2747
45 48 31.17809	93 08 24.01191	438791.489	128777.868	.033	C	GPS - STATIC	2010	HBRAH

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 48 31.17791	93 08 24.01141	438791.524	128777.850	.033	C	GPS - STATIC	2010	HBRAH

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2907717.198	624947.251	1604727.498	16643005.648	.131	3	GPS - OPUS	2020	GPSBM
2907717.237	624947.241	1604727.538	16643005.636	.131	3	GPS - RTRN	2020	RTRN2020
2907717.228	624947.202	1604727.527	16643005.598	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2907717.178	624947.219	1604727.478	16643005.615	.033	C	ADJUSTMENT	2011	GPS2747
2907717.178	624947.219	1604727.478	16643005.615	.033	C	GPS - STATIC	2010	HBRAH

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2907717.214	624947.201	1604727.513	16643005.597	.033	C	GPS - STATIC	2010	HBRAH

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5812_A-DM4935-3E-29APR2020.jpg	E	Apr 29, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5812_A-DM4935-2-29APR2020.jpg		Apr 29, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5812_A-DM4935-1-29APR2020.jpg		Apr 29, 2020

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

Mn/DOT Name: 5812 B **NGS Name:** 5812 B

County: PINE, MN (Sheet 1)

NGS ACRN: DM4936 Get Map
NGS Quad / Sta Num : 45093113/
USGS Quad: GRASSTON

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	31	39 N	22 W	454922.51	930807.14	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2010	2020	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 15 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2010) **Stamping:** 5812 B 2010

3.4 MILES SOUTHWEST OF HENRIETTE, 3.45 MILES SOUTH ALONG TRUNK HIGHWAY 107 FROM THE NORTH JUNCTION OF TRUNK HIGHWAY 107 AND COUNTY ROAD 11 IN HENRIETTE, AT TRUNK HIGHWAY 107 MILEPOINT 8.75, 50.6 FEET WEST OF TRUNK HIGHWAY 107, 15.4 FEET SOUTH OF A FIELD ENTRANCE, 1.8 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
964.408	.016	2/1				VERTICAL ADJUSTMENT	2012	00000745
964.404	.016	2/1				VERTICAL CONTROL SURVEY	2010	VBRAH

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
964.385	.262		872.452	.197	2011	GPS - OPUS	2020	GPSBM
964.421	.262		872.498	.197	2011	GPS - RTRN	2020	RTRN2020
			872.472	.008	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
964.401	.131		872.551	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2747
964.401	.131		872.551	.066	2007	GPS - STATIC	2010	HBRAH
964.401	.131		872.666	.066	1996	GPS - STATIC	2010	HBRAH

Geoid Separations(ft): GEOID18 = -91.932 12B = -91.926 09 = -91.837 03 = -91.689

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 49 22.51376	93 08 07.14196	440001.973	133974.526	.131	3	GPS - OPUS	2020	GPSBM
45 49 22.51382	93 08 07.14113	440002.032	133974.532	.131	3	GPS - RTRN	2020	RTRN2020
45 49 22.51386	93 08 07.14155	440002.002	133974.536	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 49 22.51403	93 08 07.14224	440001.953	133974.554	.033	C	ADJUSTMENT	2011	GPS2747
45 49 22.51403	93 08 07.14224	440001.953	133974.554	.033	C	GPS - STATIC	2010	HBRAH

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 49 22.51385	93 08 07.14175	440001.988	133974.535	.033	C	GPS - STATIC	2010	HBRAH

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2908838.884	630163.270	1605930.846	16648201.455	.131	3	GPS - OPUS	2020	GPSBM
2908838.942	630163.276	1605930.905	16648201.461	.131	3	GPS - RTRN	2020	RTRN2020
2908838.913	630163.280	1605930.875	16648201.465	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2908838.863	630163.297	1605930.826	16648201.482	.033	C	ADJUSTMENT	2011	GPS2747
2908838.863	630163.297	1605930.826	16648201.482	.033	C	GPS - STATIC	2010	HBRAH

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2908838.899	630163.279	1605930.861	16648201.464	.033	C	GPS - STATIC	2010	HBRAH

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5812_B-DM4936-3W-29APR2020.jpg	W	Apr 29, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5812_B-DM4936-2-29APR2020.jpg		Apr 29, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5812_B-DM4936-1-29APR2020.jpg		Apr 29, 2020

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

Geodetic Data Sheet (Feet)
GSID Station # 89662

5812 C

04/28/2026
Sheet Help

Mn/DOT Name: 5812 C
NGS Name: 5812 C
County: PINE, MN (Sheet 1)

NGS ACRN: DM4937 Get Map
NGS Quad / Sta Num : 45093113/
USGS Quad: GRASSTON

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	19	39 N	22 W	455050.08	930735.46	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2010	2010	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

Monument Type
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 27 FT)

Disk Type
METAL ROD (WITH REMOVABLE ID DISK)

Mon. Agency
MNDT

Description: (2010)

Stamping: 5812 C 2010

1.7 MILES SOUTH OF HENRIETTE, 1.7 MILES SOUTH ALONG TRUNK HIGHWAY 107 FROM THE NORTH JUNCTION OF TRUNK HIGHWAY 107 AND COUNTY ROAD 11 IN HENRIETTE, AT TRUNK HIGHWAY 107 MILEPOINT 10.55, 42.4 FEET WEST OF TRUNK HIGHWAY 107, 21.3 FEET SOUTH OF DRIVEWAY NUMBER 16117, 1.4 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
971.389	.016	2/1				VERTICAL ADJUSTMENT	2012	00000745
971.386	.016	2/1				VERTICAL CONTROL SURVEY	2010	VBRAH

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
			879.608	.006	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
971.389	.131		879.683	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2747
971.389	.131		879.683	.066	2007	GPS - STATIC	2010	HBRAH
971.389	.131		879.798	.066	1996	GPS - STATIC	2010	HBRAH

Geoid Separations(ft): GEOID18 = -91.785 12B = -91.775 09 = -91.689 03 = -91.542

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 50 50.08107	93 07 35.46332	442270.835	142838.474	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 50 50.08115	93 07 35.46396	442270.790	142838.482	.033	C	ADJUSTMENT	2011	GPS2747
45 50 50.08115	93 07 35.46396	442270.790	142838.482	.033	C	GPS - STATIC	2010	HBRAH

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 50 50.08100	93 07 35.46355	442270.819	142838.467	.033	C	GPS - STATIC	2010	HBRAH

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2910956.262	639063.760	1608187.489	16657064.274	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2910956.216	639063.767	1608187.444	16657064.282	.033	C	ADJUSTMENT	2011	GPS2747
2910956.216	639063.767	1608187.444	16657064.282	.033	C	GPS - STATIC	2010	HBRAH

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2910956.246	639063.752	1608187.473	16657064.267	.033	C	GPS - STATIC	2010	HBRAH

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5812_C-DM4937-3W-27APR2010.jpg	W	Apr 27, 2010
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5812_C-DM4937-2-27APR2010.jpg		Apr 27, 2010
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5812_C-DM4937-1-27APR2010.jpg		Apr 27, 2010

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

Mn/DOT Name: 5812 D **NGS Name:** 5812 D

County: PINE, MN (Sheet 1)

NGS ACRN: DM4938 Get Map
NGS Quad / Sta Num : 45093112/
USGS Quad: HENRIETTE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	17	39 N	22 W	455146.41	930728.10	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2010	2020	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 30 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2010) **Stamping:** 5812 D 2010

0.55 MILE SOUTH OF HENRIETTE, 0.65 MILE SOUTH ALONG TRUNK HIGHWAY 107 FROM THE NORTH JUNCTION OF TRUNK HIGHWAY 107 AND COUNTY ROAD 11 IN HENRIETTE, AT TRUNK HIGHWAY 107 MILEPOINT 11.65, 41.8 FEET EAST OF TRUNK HIGHWAY 107, 8.6 FEET NORTH OF A FIELD ENTRANCE, 2.0 FEET SOUTH 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
974.969	.016	2/1				VERTICAL ADJUSTMENT	2012	00000745
974.965	.016	2/1				VERTICAL CONTROL SURVEY	2010	VBRAH

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
974.978	.262		883.295	.197	2011	GPS - RTRN	2020	RTRN2020
			883.276	.006	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
974.965	.131		883.351	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2747
974.965	.131		883.351	.066	2007	GPS - STATIC	2010	HBRAH
974.965	.131		883.466	.066	1996	GPS - STATIC	2010	HBRAH

Geoid Separations(ft): GEOID18 = -91.693 12B = -91.686 09 = -91.594 03 = -91.450

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 51 46.40721	93 07 28.10162	442808.092	148542.778	.131	3	GPS - RTRN	2020	RTRN2020
45 51 46.40294	93 07 28.09959	442808.234	148542.345	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 51 46.40302	93 07 28.10023	442808.189	148542.353	.033	C	ADJUSTMENT	2011	GPS2747
45 51 46.40302	93 07 28.10023	442808.189	148542.353	.033	C	GPS - STATIC	2010	HBRAH

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 51 46.40287	93 07 28.09982	442808.218	148542.338	.033	C	GPS - STATIC	2010	HBRAH

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2911396.248	644775.856	1608717.303	16662766.692	.131	3	GPS - RTRN	2020	RTRN2020
2911396.398	644775.425	1608717.446	16662766.259	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2911396.353	644775.433	1608717.401	16662766.268	.033	C	ADJUSTMENT	2011	GPS2747
2911396.353	644775.433	1608717.401	16662766.268	.033	C	GPS - STATIC	2010	HBRAH

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2911396.382	644775.418	1608717.430	16662766.252	.033	C	GPS - STATIC	2010	HBRAH

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5812_D-DM4938-3E-29APR2020.jpg	E	Apr 29, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5812_D-DM4938-2-29APR2020.jpg		Apr 29, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5812_D-DM4938-1-29APR2020.jpg		Apr 29, 2020

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

Mn/DOT Name: 5812 E
NGS Name: 5812 E
County: PINE, MN (Sheet 1)

NGS ACRN: DM4939 Get Map
NGS Quad / Sta Num : 45093111/
USGS Quad: BROOK PARK

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	5	39 N	22 W	455323.93	930728.90	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2010	2010	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 37 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2010) **Stamping:** 5812 E 2010

1.3 MILES NORTH OF HENRIETTE, 1.25 MILES NORTH ALONG TRUNK HIGHWAY 107 FROM THE JUNCTION OF TRUNK HIGHWAY 107 AND COUNTY ROAD 11 IN HENRIETTE, AT TRUNK HIGHWAY 107 MILEPOINT 13.55, 99.8 FEET EAST OF TRUNK HIGHWAY 107, 36.7 FEET SOUTHEAST OF CABLE BOX NUMBER 604, 15.0 FEET EAST OF A POWER POLE, 13.1 FEET NORTH OF A SOD ROAD, 2.4 FEET SOUTH 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
989.427	.016	2/1				VERTICAL ADJUSTMENT	2012	00000745
989.421	.016	2/1				VERTICAL CONTROL SURVEY	2010	VBRAH

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
989.457	.262		897.921	.197	2011	GPS - RTRN	2022	RTRN2022P
989.407	.262		897.872	.197	2011	GPS - RTRN	2022	RTRN2022T
			897.908	.006	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
989.434	.131		897.984	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2747
989.434	.131		897.984	.066	2007	GPS - STATIC	2010	HBRAH
989.434	.131		898.099	.066	1996	GPS - STATIC	2010	HBRAH

Geoid Separations(ft): GEOID18 = -91.535 12B = -91.522 09 = -91.434 03 = -91.283

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 53 23.93481	93 07 28.89601	442779.776	158422.408	.131	3	GPS - RTRN	2022	RTRN2022P
45 53 23.93459	93 07 28.89617	442779.764	158422.386	.131	3	GPS - RTRN	2022	RTRN2022T
45 53 23.93394	93 07 28.89683	442779.717	158422.320	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 53 23.93404	93 07 28.89750	442779.670	158422.330	.033	C	ADJUSTMENT	2011	GPS2747
45 53 23.93404	93 07 28.89750	442779.670	158422.330	.033	C	GPS - STATIC	2010	HBRAH

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 53 23.93384	93 07 28.89706	442779.701	158422.310	.033	C	GPS - STATIC	2010	HBRAH

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2911199.692	654652.636	1608676.534	16672641.859	.131	3	GPS - RTRN	2022	RTRN2022P
2911199.681	654652.614	1608676.523	16672641.837	.131	3	GPS - RTRN	2022	RTRN2022T
2911199.635	654652.547	1608676.476	16672641.771	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2911199.587	654652.557	1608676.429	16672641.782	.033	C	ADJUSTMENT	2011	GPS2747
2911199.587	654652.557	1608676.429	16672641.782	.033	C	GPS - STATIC	2010	HBRAH

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2911199.619	654652.537	1608676.460	16672641.761	.033	C	GPS - STATIC	2010	HBRAH

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5812_E-DM4939-3W-28APR2010.jpg	W	Apr 28, 2010
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5812_E-DM4939-2-28APR2010.jpg		Apr 28, 2010
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5812_E-DM4939-1-28APR2010.jpg		Apr 28, 2010

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

Mn/DOT Name: 5812 F **NGS Name:** 5812 F

County: PINE, MN (Sheet 1)

NGS ACRN: DM4940 Get Map
NGS Quad / Sta Num : 45093111/
USGS Quad: BROOK PARK

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	6	39 N	22 W	455413.09	930729.76	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2010	2010	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

Monument Type
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 30 FT)

Disk Type
METAL ROD (WITH REMOVABLE ID DISK)

Mon. Agency
MNDT

Description: (2010) **Stamping:** 5812 F 2010

2.25 MILES NORTH OF HENRIETTE, 2.2 MILES NORTH ALONG TRUNK HIGHWAY 107 FROM THE JUNCTION OF TRUNK HIGHWAY 107 AND COUNTY ROAD 11 IN HENRIETTE, AT TRUNK HIGHWAY 107 MILEPOINT 14.45, 52.4 FEET WEST OF TRUNK HIGHWAY 107, 13.7 FEET NORTH OF AN ENTRANCE, 2.4 FEET SOUTH 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
999.493	.016	2/1				VERTICAL ADJUSTMENT	2012	00000745
999.486	.016	2/1				VERTICAL CONTROL SURVEY	2010	VBRAH

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
			908.069	.007	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
999.473	.131		908.145	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2747
999.473	.131		908.145	.066	2007	GPS - STATIC	2010	HBRAH
999.473	.131		908.263	.066	1996	GPS - STATIC	2010	HBRAH

Geoid Separations(ft): GEOID18 = -91.457 12B = -91.443 09 = -91.352 03 = -91.197

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 54 13.09114	93 07 29.76034	442732.714	163402.091	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 54 13.09128	93 07 29.76113	442732.658	163402.105	.033	C	ADJUSTMENT	2011	GPS2747
45 54 13.09128	93 07 29.76113	442732.658	163402.105	.033	C	GPS - STATIC	2010	HBRAH

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 54 13.09104	93 07 29.76060	442732.696	163402.081	.033	C	GPS - STATIC	2010	HBRAH

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2911067.840	659630.317	1608623.213	16677619.258	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2911067.783	659630.330	1608623.157	16677619.272	.033	C	ADJUSTMENT	2011	GPS2747
2911067.783	659630.330	1608623.157	16677619.272	.033	C	GPS - STATIC	2010	HBRAH

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2911067.821	659630.306	1608623.195	16677619.248	.033	C	GPS - STATIC	2010	HBRAH

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5812_F-DM4940-3W-28APR2010.jpg	W	Apr 28, 2010
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5812_F-DM4940-2-28APR2010.jpg		Apr 28, 2010
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5812_F-DM4940-1-28APR2010.jpg		Apr 28, 2010

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

Mn/DOT Name: 5812 G **NGS Name:** 5812 G

County: PINE, MN (Sheet 1)

NGS ACRN: DM4941 Get Map
NGS Quad / Sta Num : 45093111/
USGS Quad: BROOK PARK

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	29	40 N	22 W	455549.23	930634.31	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2010	2025	GOOD	Horz=YES Vert=YES	YES		FLUSH	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: (2010) **Stamping:** 5812 G 2010

2.0 MILES SOUTHWEST OF BROOK PARK, 1.0 MILE SOUTH ALONG TRUNK HIGHWAY 107 FROM THE JUNCTION OF TRUNK HIGHWAY 107 AND TRUNK HIGHWAY 23 SOUTHWEST OF BROOK PARK, AT TRUNK HIGHWAY 107 MILEPOINT 16.55, 57.7 FEET WEST OF TRUNK HIGHWAY 107, 27.2 FEET NORTH OF AN ENTRANCE, 2.2 FEET SOUTH 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
1009.995	.016	2/1				VERTICAL ADJUSTMENT	2012	00000745
1009.985	.016	2/1				VERTICAL CONTROL SURVEY	2010	VBRAH

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
1010.021	.262		918.755	.197	2011	GPS - RTRN	2025	RTRN2025
1009.985	.262		918.719	.197	2011	GPS - OPUS	2020	GPSBM
1009.926	.262		918.673	.197	2011	GPS - RTRN	2020	RTRN2020
			918.765	.007	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1010.037	.131		918.893	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2812
1009.972	.131		918.820	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2747
1009.972	.131		918.820	.066	2007	GPS - STATIC	2010	HBRAH
1010.037	.131		919.030	.066	1996	GPS - STATIC	2010	HMORA
1010.005	.131		918.893	.066	2007	GPS - STATIC	2010	HMORA
1009.972	.131		918.948	.066	1996	GPS - STATIC	2010	HBRAH

Geoid Separations(ft): GEOID18 = -91.266 12B = -91.256 09 = -91.161 03 = -91.004

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 55 49.23345	93 06 34.30890	446679.954	173130.577	.131	3	GPS - RTRN	2025	RTRN2025
45 55 49.23329	93 06 34.30944	446679.916	173130.561	.131	3	GPS - OPUS	2020	GPSBM
45 55 49.23345	93 06 34.30954	446679.909	173130.578	.131	3	GPS - RTRN	2020	RTRN2020
45 55 49.23349	93 06 34.31021	446679.862	173130.582	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 55 49.23370	93 06 34.31097	446679.808	173130.603	.033	C	ADJUSTMENT	2011	GPS2812
45 55 49.23364	93 06 34.31131	446679.784	173130.597	.033	C	ADJUSTMENT	2011	GPS2747
45 55 49.23364	93 06 34.31131	446679.784	173130.597	.033	C	GPS - STATIC	2010	HBRAH
45 55 49.23370	93 06 34.31097	446679.808	173130.603	.033	C	GPS - STATIC	2010	HMORA

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 55 49.23340	93 06 34.31031	446679.854	173130.573	.033	C	GPS - STATIC	2010	HMORA
45 55 49.23335	93 06 34.31069	446679.827	173130.567	.033	C	GPS - STATIC	2010	HBRAH

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2914848.445	669423.663	1612556.430	16687348.381	.131	3	GPS - RTRN	2025	RTRN2025
2914848.407	669423.646	1612556.392	16687348.365	.131	3	GPS - OPUS	2020	GPSBM
2914848.399	669423.662	1612556.385	16687348.381	.131	3	GPS - RTRN	2020	RTRN2020
2914848.352	669423.665	1612556.338	16687348.385	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2914848.298	669423.686	1612556.284	16687348.406	.033	C	ADJUSTMENT	2011	GPS2812
2914848.274	669423.680	1612556.260	16687348.400	.033	C	ADJUSTMENT	2011	GPS2747
2914848.274	669423.680	1612556.260	16687348.400	.033	C	GPS - STATIC	2010	HBRAH
2914848.298	669423.686	1612556.284	16687348.406	.033	C	GPS - STATIC	2010	HMORA

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2914848.345	669423.656	1612556.331	16687348.376	.033	C	GPS - STATIC	2010	HMORA
2914848.318	669423.651	1612556.304	16687348.371	.033	C	GPS - STATIC	2010	HBRAH

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5812_G-DM4941-3NW-15SEP2025.jpg	NW	Sep 15, 2025
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5812_G-DM4941-2-15SEP2025.jpg		Sep 15, 2025
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5812_G-DM4941-1-15SEP2025.jpg		Sep 15, 2025

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

Mn/DOT Name: 5814 A **NGS Name:** 5814 A

County: PINE, MN (Sheet 1)

NGS ACRN: DM5842 Get Map
NGS Quad / Sta Num : 45092442/
USGS Quad: BASS CREEK

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	24	38 N	20 W	454623.92	924655.10	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1991	2012	GOOD	Horz=NO Vert=NO	YES	58004	FLUSH	NO MAG MATERIAL

Monument Type	Disk Type	Mon. Agency
BRIDGE WALKWAY	SURVEY DISK	WIDT

Description: (2007) **Stamping:** 5814 A 2007

8.6 MILES EAST-NORTHEAST OF ROCK CREEK, 9.45 MILES EAST ALONG TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 70 AND TRUNK HIGHWAY 361/COUNTY ROAD 61 (FOREST BOULEVARD), AT TRUNK HIGHWAY 70 MILEPOINT 29.35, 0.42 MILE EAST OF THE JUNCTION OF TRUNK HIGHWAY 70 AND CROIX LANE, IN THE BRIDGE DECK IN THE SOUTHWEST CORNER OF TRUNK HIGHWAY 70 BRIDGE NUMBER 58004 OVER THE ST. CROIX RIVER, 19.5 FEET SOUTH OF TRUNK HIGHWAY 70, 11.4 FEET EAST OF THE WEST END OF A RAIL.

Station Notes
THE DISK WAS SET IN BRIDGE WHEN IT WAS BUILT IN 1991 THEN THE DISK WAS STAMPED WHEN IT WAS USED IN 2007.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
811.301	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
811.475	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
811.475	.016	2/1				VERTICAL CONTROL SURVEY	2009	VCHEN

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
811.330	.262		722.282	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -89.078 12B = -89.094 09 = -89.045 03 = -88.937

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 46 23.91869	92 46 55.09692	530120.234	115816.661	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2999245.480	613545.162	1696030.963	16630164.820	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5814_A-DM5842-3S-14JUN2007.jpg	S	Jun 14, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5814_A-DM5842-2-14JUN2007.jpg		Jun 14, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5814_A-DM5842-1-14JUN2007.jpg		Jun 14, 2007

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

Mn/DOT Name: 5880 A
NGS Name: 5880 A
County: PINE, MN (Sheet 1)

NGS ACRN: QO0357 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	20	38 N	21 W	454559.89	925921.30	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1962	2017	GOOD	Horz=NO Vert=NO	YES	58801	FLUSH	NO MAG MATERIAL

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

Description: (1977) **Stamping:** 5880 A 1962

IN ROCK CREEK, AT THE JUNCTION OF TRUNK HIGHWAY 70 AND INTERSTATE HIGHWAY 35 IN ROCK CREEK, AT TRUNK HIGHWAY 70 MILEPOINT 18.80, 19.7 FEET SOUTH OF TRUNK HIGHWAY 70, IN THE SOUTHEAST CORNER OF TRUNK HIGHWAY 70 BRIDGE NUMBER 58801 OVER INTERSTATE HIGHWAY 35, 178.78 FEET EAST OF STATION GOULD MNDT.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
985.552	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
985.546	.016	2/1				VERTICAL CONTROL SURVEY	2014	VPCTY
985.552	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
985.552	.016	2/1				VERTICAL CONTROL SURVEY	2009	VCHEN
985.552	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
985.320	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
985.320	.016	2				VERTICAL CONTROL SURVEY	1980	L24425
985.320	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
985.320	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
985.320	.016	2				VERTICAL CONTROL SURVEY	1976	L24016
985.411	.016	2				VERTICAL CONTROL SURVEY	1975	L23805
985.362	.016	2				VERTICAL CONTROL SURVEY	1971	L30 MINN
985.362	.016	2				VERTICAL CONTROL SURVEY	1971	L22190-3

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
985.467	.262		894.076	.197	2011	GPS - RTRN	2017	RTRN2017
985.470	.262		894.080	.197	2011	GPS - RTRN	2014	RTRN2014
985.480	.262		894.152	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -91.417 12B = -91.391 09 = -91.329 03 = -91.197

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 59.88539	92 59 21.30154	477221.065	113372.556	.131	3	GPS - RTRN	2017	RTRN2017
45 45 59.88563	92 59 21.30284	477220.973	113372.580	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 59.88466	92 59 21.30317	477220.949	113372.482	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2946400.212	610200.066	1643158.973	16627655.751	.131	3	GPS - RTRN	2017	RTRN2017
2946400.119	610200.089	1643158.881	16627655.775	.131	3	GPS - RTRN	2014	RTRN2014

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2946400.097	610199.991	1643158.857	16627655.677	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_A-QO0357-3W-23MAY2017.jpg	W	May 23, 2017
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_A-QO0357-2-23MAY2017.jpg		May 23, 2017
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_A-QO0357-1-23MAY2017.jpg		May 23, 2017

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

Mn/DOT Name: 5880 A 3 **NGS Name:** 5880 A 3

County: PINE, MN (Sheet 1)

NGS ACRN: QO0375 Get Map
NGS Quad / Sta Num : 45092434/
USGS Quad: RUSH CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	32	38 N	21 W	454429.00	925925.00	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1970	2007	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

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

Description: (1970) **Stamping:** 5880 A 3 1970

1.8 MILES SOUTHWEST OF ROCK CREEK, 1.8 MILES SOUTH OF TRUNK HIGHWAY 70 AT ROCK CREEK, 4.0 MILES NORTH OF THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 361 AT RUSH CITY, 95.5 FEET EAST OF NORTHBOUND INTERSTATE HIGHWAY 35, AT INTERSTATE HIGHWAY 35 STATION 129+00, 6.5 FEET SOUTH OF A TEE FENCE EAST, 160.0 FEET NORTH OF THE RIGHT-OF-WAY POST.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
953.505	.016	2/1				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
953.302	.016	2				VERTICAL CONTROL SURVEY	1976	L24016

Geoid Separations(ft): GEOID18 = -91.555 12B = -91.525 09 = -91.470 03 = -91.338

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

Mn/DOT Name: 5880 A 4 **NGS Name:** 5880 A 4

County: PINE, MN (Sheet 1)

NGS ACRN: QO0376 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	29	38 N	21 W	454516.94	925926.36	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1970	2017	GOOD	Horz=YES Vert=YES	YES		FLUSH	STEEL ROD IMBED IN MON

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

Description: (1993) **Stamping:** 5880 A 4 1970

1.5 MILES WEST-SOUTHWEST OF ROCK CREEK, 0.8 MILE SOUTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 70 IN ROCK CREEK, AT INTERSTATE HIGHWAY 35 MILEPOINT 164.84, 94.5 FEET EAST OF NORTHBOUND INTERSTATE HIGHWAY 35, 4.0 FEET WEST OF A FENCE, 1.5 FEET WEST 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
952.688	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
952.685	.016	2/1				VERTICAL CONTROL SURVEY	2014	VPCTY
952.610	.016	2/1				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
952.403	.016	2/1				UNKNOWN/APPROXIMATE	1992	UNCHECKD
952.403	.016	2				VERTICAL CONTROL SURVEY	1976	L24016

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
952.626	.262		861.160	.197	2011	GPS - RTRN	2017	RTRN2017
952.610			861.147	.012	2011	HORIZONTAL ADJUSTMENT	2014	GPS3044
952.610	.131		861.383	.066	1996	GPS - STATIC	2014	HPCTY
952.610			861.153	.012	2011	GPS - STATIC	2014	HPCTY
952.557	.262		861.091	.197	2011	GPS - RTRN	2014	RTRN2014
			861.147	.011	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			861.238	.011	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
			861.383	.066	1996	GPS - STATIC	1999	GPS917

Geoid Separations(ft): GEOID18 = -91.496 12B = -91.466 09 = -91.404 03 = -91.276

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 16.93963	92 59 26.35844	476857.595	109022.624	.131	3	GPS - RTRN	2017	RTRN2017
45 45 16.93883	92 59 26.35904	476857.552	109022.543	.010		ADJUSTMENT	2014	GPS3044
45 45 16.93897	92 59 26.35893	476857.560	109022.557	.010	C	GPS - STATIC	2014	HPCTY
45 45 16.93889	92 59 26.35932	476857.532	109022.549	.131	3	GPS - RTRN	2014	RTRN2014
45 45 16.93883	92 59 26.35904	476857.552	109022.543	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 16.93888	92 59 26.35975	476857.502	109022.548	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 16.93889	92 59 26.35915	476857.544	109022.549	.033	C	GPS - STATIC	2014	HPCTY
45 45 16.93889	92 59 26.35915	476857.544	109022.548	.033	C	GPS - STATIC	1999	GPS917

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 16.93456	92 59 26.35547	476857.806	109022.111	.033	C	GPS - STATIC	1994	HI35N

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2946110.936	605844.945	1642801.131	16623307.355	.131	3	GPS - RTRN	2017	RTRN2017
2946110.895	605844.863	1642801.089	16623307.274	.010		ADJUSTMENT	2014	GPS3044
2946110.902	605844.878	1642801.097	16623307.289	.010	C	GPS - STATIC	2014	HPCTY
2946110.875	605844.869	1642801.069	16623307.281	.131	3	GPS - RTRN	2014	RTRN2014
2946110.895	605844.863	1642801.089	16623307.274	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2946110.844	605844.867	1642801.039	16623307.280	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2946110.887	605844.869	1642801.081	16623307.281	.033	C	GPS - STATIC	2014	HPCTY
2946110.887	605844.869	1642801.081	16623307.281	.033	C	GPS - STATIC	1999	GPS917

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2946111.155	605844.435	1642801.342	16623306.842	.033	C	GPS - STATIC	1994	HI35N

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_A_4-QO0376-3E-23MAY2017.jpg	E	May 23, 2017
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_A_4-QO0376-2-23MAY2017.jpg		May 23, 2017
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_A_4-QO0376-1-23MAY2017.jpg		May 23, 2017

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

5880 AA

Mn/DOT Name: 5880 AA **NGS Name:** 5880 AA

County: PINE, MN (Sheet 1)

NGS ACRN: RN0595 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	7	41 N	20 W	460246.70	925504.80	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2008	GOOD	Horz=NO Vert=YES	YES		FLUSH	STEEL ROD IMBED IN MON

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

Description: (1961) **Stamping:** 5880 AA 1961

2.7 MILES NORTHEAST OF HINCKLEY, 2.5 MILES NORTH-NORTHEAST ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 48 IN HINCKLEY, 99.5 FEET WEST OF NORTHBOUND INTERSTATE HIGHWAY 35, AT INTERSTATE HIGHWAY 35 MILEPOINT 185.6, IN THE MEDIAN, IN THE GROVE OF NORWAY PINE TREES, 350.0 FEET SOUTH OF A CROSSOVER, 0.5 FOOT 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
1085.227	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1085.227	.016	2/1				VERTICAL CONTROL SURVEY	2009	VMOOSE
1085.227	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1084.929	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
1084.929	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
1084.929	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
1084.991	.016	2				VERTICAL CONTROL SURVEY	1975	L23805

Geoid Separations(ft): GEOID18 = -90.092 12B = -90.095 09 = -89.977 03 = -89.859

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

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_AA-RN0595-3W-27NOV2007.jpg	W	Nov 27, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_AA-RN0595-2-12NOV2008.jpg		Nov 12, 2008
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_AA-RN0595-1-12NOV2008.jpg		Nov 12, 2008

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

Mn/DOT Name: 5880 AB **NGS Name:** 5880 AB

County: PINE, MN (Sheet 1)

NGS ACRN: DO7254 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	36	41 N	21 W	455909.31	925652.97	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1981	2012	GOOD	Horz=NO Vert=YES	YES	58003	FLUSH	NO MAG MATERIAL

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

Description: (2008) **Stamping:** 5880 AB 2008

2.0 MILES SOUTH OF HINCKLEY, 0.5 MILE NORTH OF MISSION CREEK, IN THE ABUTMENT IN THE SOUTHEAST CORNER OF TRUNK HIGHWAY 23 BRIDGE NUMBER 58003 OVER THE RAILROAD, 0.8 MILE NORTHEAST ALONG TRUNK HIGHWAY 23 FROM THE JUNCTION OF TRUNK HIGHWAY 23 AND COUNTY ROAD 61 IN MISSION CREEK, 26.0 FEET SOUTHEAST OF TRUNK HIGHWAY 23.

Station Notes

THE DISK WAS SET IN THE BRIDGE WHEN IT WAS BUILT IN APPROXIMATELY 1981 THEN IT WAS STAMPED WHEN IT WAS USED IN 2008.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1045.070	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1045.070	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
1045.070	.016	2/1				VERTICAL CONTROL SURVEY	2009	VMOOSE

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
1045.018	.262		954.854	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -90.279 12B = -90.272 09 = -90.164 03 = -90.042

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 59 09.30716	92 56 52.97115	487785.368	193331.651	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2955599.620	690319.989	1653618.147	16707592.149	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_AB-DO7254-3SE-20NOV2008.jpg	SE	Nov 20, 2008
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_AB-DO7254-2-20NOV2008.jpg		Nov 20, 2008
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_AB-DO7254-1-20NOV2008.jpg		Nov 20, 2008

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

5880 AC

Mn/DOT Name: 5880 AC **NGS Name:** 5880 AC

County: PINE, MN (Sheet 1)

NGS ACRN: DO8715 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	15	40 N	21 W	455742.19	925734.81	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2012	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 50 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) **Stamping:** 5880 AC 2012

3.5 MILES SOUTH OF HINCKLEY, 3.8 MILES SOUTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 48 IN HINCKLEY, AT INTERSTATE HIGHWAY 35 MILEPOINT 179.30, 49.3 FEET EAST-SOUTHEAST OF SOUTHBOUND INTERSTATE HIGHWAY 35, 36.2 FEET WEST-NORTHWEST OF NORTHBOUND INTERSTATE HIGHWAY 35, 22.8 FEET SOUTH-SOUTHWEST OF A CROSSOVER, 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
982.596	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
982.590	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
982.498	.262		892.206	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -90.400 12B = -90.387 09 = -90.292 03 = -90.164

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 57 42.18761	92 57 34.81453	484823.912	184508.364	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2952789.236	681448.425	1650669.086	16698769.066	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_AC-DO8715-3W-19NOV2012.jpg	W	Nov 19, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_AC-DO8715-2-19NOV2012.jpg		Nov 19, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_AC-DO8715-1-19NOV2012.jpg		Nov 19, 2012

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

5880 AD

Mn/DOT Name: 5880 AD **NGS Name:** 5880 AD

County: PINE, MN (Sheet 1)

NGS ACRN: DO8716 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	21	40 N	21 W	455609.50	925802.80	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2012	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 35 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) **Stamping:** 5880 AD 2012

5.5 MILES SOUTH OF HINCKLEY, 5.6 MILES SOUTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 48 IN HINCKLEY, AT INTERSTATE HIGHWAY 35 MILEPOINT 177.50, 93.8 FEET WEST-NORTHWEST OF SOUTHBOUND INTERSTATE HIGHWAY 35, 4.2 FEET EAST-SOUTHEAST OF THE RIGHT-OF-WAY FENCE, 1.5 FEET EAST 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
972.672	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
972.672	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

Geoid Separations(ft): GEOID18 = -90.525 12B = -90.508 09 = -90.423 03 = -90.289

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

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_AD-DO8716-3W-21NOV2012.jpg	W	Nov 21, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_AD-DO8716-2-21NOV2012.jpg		Nov 21, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_AD-DO8716-1-21NOV2012.jpg		Nov 21, 2012

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

Geodetic Data Sheet (Feet)
GSID Station # 98257

5880 AE

04/28/2026
Sheet Help

Mn/DOT Name: 5880 AE
NGS Name: 5880 AE
County: PINE, MN (Sheet 1)

NGS ACRN: DO8717 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	28	40 N	21 W	455526.61	925758.21	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2020	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 45 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) **Stamping:** 5880 AE 2012

1.0 MILE NORTHWEST OF BEROUN, 1.4 MILES NORTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND COUNTY ROAD 14 IN BEROUN, AT INTERSTATE HIGHWAY 35 MILEPOINT 176.70, 95.4 FEET EAST OF NORTHBOUND INTERSTATE HIGHWAY 35, 3.5 FEET WEST OF THE RIGHT-OF-WAY FENCE, 1.5 FEET WEST 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
966.917	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
966.917	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
966.927	.262		876.383	.197	2011	GPS - OPUS	2020	GPSBM
966.967	.262		876.439	.197	2011	GPS - RTRN	2020	RTRN2020

Geoid Separations(ft): GEOID18 = -90.544 12B = -90.528 09 = -90.449 03 = -90.318

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 55 26.60585	92 57 58.20872	483159.749	170775.178	.131	3	GPS - OPUS	2020	GPSBM
45 55 26.60615	92 57 58.20804	483159.797	170775.208	.131	3	GPS - RTRN	2020	RTRN2020

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951359.473	667690.248	1649022.907	16685039.913	.131	3	GPS - OPUS	2020	GPSBM
2951359.520	667690.279	1649022.955	16685039.943	.131	3	GPS - RTRN	2020	RTRN2020

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_AE-DO8717-3E-04MAY2020.jpg	E	May 4, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_AE-DO8717-2-04MAY2020.jpg		May 4, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_AE-DO8717-1-04MAY2020.jpg		May 4, 2020

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

5880 AF

Mn/DOT Name: 5880 AF

NGS Name: 5880 AF

County: PINE, MN (Sheet 1)

NGS ACRN: DO8719 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	4	39 N	21 W	455323.81	925805.10	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2012	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 30 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) **Stamping:** 5880 AF 2012

1.5 MILES SOUTH OF BEROUN, 0.95 MILE SOUTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND COUNTY ROAD 14 AT BEROUN, AT INTERSTATE HIGHWAY 35 MILEPOINT 174.30, 112.0 FEET NORTHWEST OF A POWER POLE, 45.6 FEET EAST OF SOUTHBOUND INTERSTATE HIGHWAY 35, 1.5 FEET WEST 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
967.593	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
967.590	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

Geoid Separations(ft): GEOID18 = -90.669 12B = -90.656 09 = -90.584 03 = -90.453

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

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_AF-DO8719-3E-19NOV2012.jpg	E	Nov 19, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_AF-DO8719-2-19NOV2012.jpg		Nov 19, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_AF-DO8719-1-19NOV2012.jpg		Nov 19, 2012

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

5880 AG

Mn/DOT Name: 5880 AG **NGS Name:** 5880 AG

County: PINE, MN (Sheet 1)

NGS ACRN: DO8720 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	9	39 N	21 W	455230.55	925807.51	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2012	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 30 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) **Stamping:** 5880 AG 2012

3.0 MILES NORTH OF PINE CITY, 2.0 MILES NORTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND COUNTY ROAD 11 IN PINE CITY, AT INTERSTATE HIGHWAY 35 MILEPOINT 173.30, 96.5 FEET EAST OF NORTHBOUND INTERSTATE HIGHWAY 35, 2.8 FEET WEST OF THE RIGHT-OF-WAY FENCE, 1.5 FEET WEST 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
959.178	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
959.178	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
959.109	.262		868.466	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -90.731 12B = -90.715 09 = -90.643 03 = -90.515

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 52 30.54883	92 58 07.51252	482486.599	152941.181	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2950990.347	649849.089	1648372.446	16667213.057	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_AG-DO8720-3E-19NOV2012.jpg	E	Nov 19, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_AG-DO8720-2-19NOV2012.jpg		Nov 19, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_AG-DO8720-1-19NOV2012.jpg		Nov 19, 2012

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

5880 AH

Mn/DOT Name: 5880 AH
NGS Name: 5880 AH
County: PINE, MN (Sheet 1)

NGS ACRN: DO8721 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	16	39 N	21 W	455146.60	925820.50	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2012	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 40 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) **Stamping:** 5880 AH 2012

2.0 MILES NORTH OF PINE CITY, 1.1 MILES NORTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND COUNTY ROAD 11 AT PINE CITY, AT INTERSTATE HIGHWAY 35 MILEPOINT 172.45, 87.2 FEET WEST-NORTHWEST OF SOUTHBOUND INTERSTATE HIGHWAY 35, 12.2 FEET EAST-SOUTHEAST OF THE RIGHT-OF-WAY FENCE, 1.5 FEET EAST 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
950.303	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
950.303	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

Geoid Separations(ft): GEOID18 = -90.820 12B = -90.800 09 = -90.728 03 = -90.600

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

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_AH-DO8721-3W-21NOV2012.jpg	W	Nov 21, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_AH-DO8721-2-21NOV2012.jpg		Nov 21, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_AH-DO8721-1-21NOV2012.jpg		Nov 21, 2012

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

5880 AJ

Mn/DOT Name: 5880 AJ
NGS Name: 5880 AJ
County: PINE, MN (Sheet 1)

NGS ACRN: DO8723 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	32	39 N	21 W	454939.49	925902.82	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2012	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

Monument Type
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 60 FT)

Disk Type
METAL ROD (WITH REMOVABLE ID DISK)

Mon. Agency
MNDT

Description: (2012)

Stamping: 5880 AJ 2012

IN PINE CITY, 1.4 MILES SOUTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND COUNTY ROAD 11 AT PINE CITY, AT INTERSTATE HIGHWAY 35 MILEPOINT 169.90, 53.9 FEET WEST-NORTHWEST OF SOUTHBOUND INTERSTATE HIGHWAY 35, 47.8 FEET EAST-SOUTHEAST OF THE RIGHT-OF-WAY FENCE LINE, 1.5 FEET SOUTHEAST 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
940.303	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
940.303	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

Geoid Separations(ft): GEOID18 = -91.089 12B = -91.063 09 = -90.994 03 = -90.866

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

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_AJ-DO8723-3NW-19NOV2012.jpg	NW	Nov 19, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_AJ-DO8723-2-19NOV2012.jpg		Nov 19, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_AJ-DO8723-1-19NOV2012.jpg		Nov 19, 2012

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

5880 AK

Mn/DOT Name: 5880 AK **NGS Name:** 5880 AK

County: PINE, MN (Sheet 1)

NGS ACRN: DO8724 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	32	39 N	21 W	454919.01	925903.98	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2024	DESTROYED	Horz=NO Vert=NO	YES		RECESSED 4 IN.	BAR MAG IN DRILL HOLE

Monument Type: ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 40 FT)
Disk Type: METAL ROD (WITH REMOVABLE ID DISK)
Mon. Agency: MNDT

Description: (2012) **Stamping:** 5880 AK 2012

0.5 MILE WEST OF PINE CITY, AT THE JUNCTION OF INTERSTATE HIGHWAY 35 AND COUNTY ROAD 7 IN PINE CITY, AT THE INTERSTATE HIGHWAY 35 MILEPOINT 169.50, 234.7 FEET WEST OF SOUTHBOUND INTERSTATE HIGHWAY 35, 79.2 FEET EAST OF OFF-RAMP TO COUNTY ROAD 7, 30.0 FEET NORTH OF COUNTY ROAD 7, 1.5 FEET SOUTH 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
959.086	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
959.089	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
959.004	.262		867.984	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -91.115 12B = -91.092 09 = -91.023 03 = -90.892

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 49 19.00705	92 59 03.98155	478470.390	133541.986	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2947305.612	630386.076	1644382.402	16647817.569	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_AK-DO8724-3N-20NOV2012.jpg	N	Nov 20, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_AK-DO8724-2-20NOV2012.jpg		Nov 20, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_AK-DO8724-1-20NOV2012.jpg		Nov 20, 2012

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

5880 AL

Mn/DOT Name: 5880 AL **NGS Name:** 5880 AL

County: PINE, MN (Sheet 1)

NGS ACRN: DP7326 Get Map
NGS Quad / Sta Num : 45092434/
USGS Quad: RUSH CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	32	38 N	21 W	454434.63	925932.58	2	3

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

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

Description: (2014) **Stamping:** 5880 AL 2014

3.0 MILES SOUTHWEST OF ROCK CREEK, 1.5 MILES SOUTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 70 IN ROCK CREEK, AT THE INTERSTATE HIGHWAY 35 MILEPOST 164.02, 58.6 FEET WEST OF SOUTHBOUND INTERSTATE HIGHWAY 35 FOG LINE, 172.9 FEET NORTHWEST OF MILEPOINT 164.0, 29.4 FEET EAST OF THE RIGHT-OF-WAY FENCE, 1.5 FEET EAST 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
952.633	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
952.629	.016	2/1				VERTICAL CONTROL SURVEY	2014	VPCTY

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
952.583	.262		861.042	.197	2011	GPS - RTRN	2014	RTRN2014

Geoid Separations(ft): GEOID18 = -91.571 12B = -91.545 09 = -91.486 03 = -91.355

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 44 34.63473	92 59 32.57748	476411.620	104737.716	.131	3	GPS - RTRN	2014	RTRN2014

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2945738.066	601553.423	1642360.743	16619023.855	.131	3	GPS - RTRN	2014	RTRN2014

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_AL-DP7326-3W-17JUN2014.jpg	W	Jun 17, 2014
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_AL-DP7326-2-17JUN2014.jpg		Jun 17, 2014
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_AL-DP7326-1-17JUN2014.jpg		Jun 17, 2014

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

Mn/DOT Name: 5880 B 2 **NGS Name:** 5880 B 2

County: PINE, MN (Sheet 1)

NGS ACRN: QO0354 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	17	38 N	21 W	454703.39	925927.19	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1970	2017	GOOD	Horz=YES Vert=YES	YES		FLUSH	STEEL ROD IMBED IN MON

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

Description: (2012) **Stamping:** 5880 B 2 1970

2.1 MILES SOUTH-SOUTHEAST OF PINE CITY, 1.1 MILES NORTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 70 IN ROCK CREEK, AT INTERSTATE HIGHWAY 35 MILEPOINT 166.9, 93.0 FEET WEST OF SOUTHBOUND INTERSTATE HIGHWAY 35, 2.5 FEET EAST OF A FENCE, 0.9 FOOT EAST 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
977.715	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
977.715	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
977.715	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
977.495	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
977.495	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
977.495	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
977.596	.016	2				VERTICAL CONTROL SURVEY	1975	L23805

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
977.626	.262		886.301	.197	2011	GPS - RTRN	2017	RTRN2017
977.649	.262		886.393	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -91.348 12B = -91.322 09 = -91.256 03 = -91.125

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 47 03.38831	92 59 27.18541	476811.273	119805.782	.131	3	GPS - RTRN	2017	RTRN2017

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 47 03.38848	92 59 27.18620	476811.217	119805.799	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2945880.910	616624.819	1642741.288	16634085.523	.131	3	GPS - RTRN	2017	RTRN2017

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2945880.854	616624.835	1642741.233	16634085.540	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_B_2-QO0354-3W-23MAY2017.jpg	W	May 23, 2017
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_B_2-QO0354-2-23MAY2017.jpg		May 23, 2017
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_B_2-QO0354-1-23MAY2017.jpg		May 23, 2017

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

5880 BB

Mn/DOT Name: 5880 BB **NGS Name:** 5880 BB

County: PINE, MN (Sheet 1)

NGS ACRN: RN0591 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	6	41 N	20 W	460334.60	925438.40	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2008	GOOD	Horz=NO Vert=YES	YES		FLUSH	STEEL ROD IMBED IN MON

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

Description: (1961) **Stamping:** 5880 BB 1961

3.7 MILES NORTHEAST OF HINCKLEY, 3.5 MILES NORTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 48 IN HINCKLEY, 150.0 FEET WEST OF NORTHBOUND INTERSTATE HIGHWAY 35, AT THE INTERSTATE HIGHWAY 35 MILEPOINT 186.65, 110.0 FEET SOUTH OF THE NORTH EDGE OF A NORWAY PINE TREE, 0.5 FOOT NORTH OF A WITNESS POST.

Station Notes

THE MARK IS IN THE PINE TREE GROVE.
NO REAL TIME REFERENCE NETWORK (RTRN) POSITION.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1074.945	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1074.942	.016	2/1				VERTICAL CONTROL SURVEY	2009	VMOOSE
1074.883	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1074.568	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
1074.568	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
1074.568	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
1074.627	.016	2				VERTICAL CONTROL SURVEY	1975	L23805

Geoid Separations(ft): GEOID18 = -90.065 12B = -90.072 09 = -89.954 03 = -89.832

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

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_BB-RN0591-3S-12NOV2008.jpg	S	Nov 12, 2008
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_BB-RN0591-2-12NOV2008.jpg		Nov 12, 2008
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_BB-RN0591-1-12NOV2008.jpg		Nov 12, 2008

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

Mn/DOT Name: 5880 C 2 **NGS Name:** 5880 C 2

County: PINE, MN (Sheet 1)

NGS ACRN: QO0353 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	5	38 N	21 W	454808.68	925927.19	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1970	2012	GOOD	Horz=YES Vert=YES	YES		RECESSED 4 IN.	STEEL ROD IMBED IN MON

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

Description: (2012) **Stamping:** 5880 C 2 1970

0.75 MILE SOUTHWEST OF PINE CITY, 1.4 MILES SOUTH ON INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND COUNTY HIGHWAY 7 IN PINE CITY, 95.0 FEET WEST OF SOUTHBOUND INTERSTATE HIGHWAY 35, AT INTERSTATE HIGHWAY 35 MILEPOINT 168.15, 31.0 FEET SOUTHEAST OF A POWER POLE, 45.0 FEET SOUTH-SOUTHWEST OF 24.0 INCH DIAMETER WILLOW TREE, 250.0 FEET WEST OF A NORTHBOUND INTERSTATE HIGHWAY 35 SIGN, 4.3 FEET EAST OF A FENCE, 1.0 FOOT WEST 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
985.477	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
985.477	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
985.477	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
985.260	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
985.260	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
985.323	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
985.356	.016	2				VERTICAL CONTROL SURVEY	1975	L23805

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
985.326	.262		894.158	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -91.260 12B = -91.240 09 = -91.168 03 = -91.040

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 48 08.68419	92 59 27.18889	476818.583	126420.170	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2945775.529	623237.789	1642740.288	16640696.910	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_C_2-QO0353-3W-16OCT2012.jpg	W	Oct 16, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_C_2-QO0353-2-16OCT2012.jpg		Oct 16, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_C_2-QO0353-1-16OCT2012.jpg		Oct 16, 2012

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

5880 CC

Mn/DOT Name: 5880 CC **NGS Name:** 5880 CC

County: PINE, MN (Sheet 1)

NGS ACRN: RN0590 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	5	41 N	20 W	460413.40	925416.40	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2008	GOOD	Horz=NO Vert=YES	YES		FLUSH	STEEL ROD IMBED IN MON

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

Description: (1961) **Stamping:** 5880 CC 1961

4.5 MILES NORTHEAST OF HINCKLEY, 4.3 MILES NORTHEAST ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 48 IN HINCKLEY, 4.0 MILES SOUTH OF THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 23 AT SANDSTONE, AT INTERSTATE HIGHWAY 35 MILEPOINT 187.4, 150.0 FEET WEST OF NORTHBOUND INTERSTATE HIGHWAY 35, 75.0 FEET SOUTH OF THE NORTH EDGE OF A PINE TREE GROVE, IN THE MEDIAN, 0.3 FOOT NORTH OF A WITNESS POST.

Station Notes

THE MARK IS IN THE PINE TREE GROVE.
NO REAL TIME REFERENCE NETWORK (RTRN) POSITION.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1101.277	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1101.274	.016	2/1				VERTICAL CONTROL SURVEY	2009	VMOOSE
1101.261	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1100.949	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
1100.949	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
1100.949	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
1101.005	.016	2				VERTICAL CONTROL SURVEY	1975	L23805

Geoid Separations(ft): GEOID18 = -90.049 12B = -90.052 09 = -89.937 03 = -89.816

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

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_CC-RN0590-3W-12NOV2008.jpg	W	Nov 12, 2008
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_CC-RN0590-2-12NOV2008.jpg		Nov 12, 2008
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_CC-RN0590-1-12NOV2008.jpg		Nov 12, 2008

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

Mn/DOT Name: 5880 D **NGS Name:** 5880 D

County: PINE, MN (Sheet 1)

NGS ACRN: QO0352 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	5	38 N	21 W	454835.32	925917.46	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1962	2012	GOOD	Horz=NO Vert=YES	YES		PROJECTS 1 IN.	STEEL ROD IMBED IN MON

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

Description: (2012) **Stamping:** 5880 D 1962

0.95 MILE SOUTHWEST OF PINE CITY, 0.9 MILE SOUTH ON INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND COUNTY HIGHWAY 7, 98.0 FEET WEST OF SOUTHBOUND INTERSTATE HIGHWAY 35, AT INTERSTATE HIGHWAY 35 MILEPOINT 168.65, 82.0 FEET NORTH OF A POWER POLE, 159.0 FEET NORTH-NORTHWEST OF THE WEST LEG OF A HIGHWAY SIGN, 1.5 FEET EAST OF A FENCE, 0.4 FOOT EAST 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
987.423	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
987.426	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
987.482	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
987.265	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
987.265	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
987.265	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
987.360	.016	2				VERTICAL CONTROL SURVEY	1975	L23805

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
987.347	.262		896.235	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -91.201 12B = -91.181 09 = -91.109 03 = -90.981

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 48 35.32363	92 59 17.45955	477510.901	129117.938	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2946421.722	625946.721	1643428.903	16643394.322	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_D-QO0352-3N-16OCT2012.jpg	N	Oct 16, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_D-QO0352-2-16OCT2012.jpg		Oct 16, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_D-QO0352-1-16OCT2012.jpg		Oct 16, 2012

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

Mn/DOT Name: 5880 E
NGS Name: 5880 E
County: PINE, MN (Sheet 1)

NGS ACRN: QO0345 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	32	39 N	21 W	454919.00	925859.00	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	1982	DESTROYED	Horz=NO Vert=NO	YES	58802		SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
STRUCTURE (MASSIVE)	SURVEY DISK	MNDT

Description: (1982) **Stamping:** 5880 E 1961

IN PINE CITY, 0.1 MILE WEST ALONG HILLSIDE AVENUE FROM THE JUNCTION OF HILLSIDE AVENUE AND 13TH STREET IN PINE CITY.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
964.230	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
964.011	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
964.011	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
964.106	.016	2				VERTICAL CONTROL SURVEY	1975	L23805

Geoid Separations(ft): GEOID18 = -91.102 12B = -91.076 09 = -91.007 03 = -90.879

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

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_E-QO0345-3E-16OCT2012.jpg	E	Oct 16, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_E-QO0345-2-16OCT2012.jpg		Oct 16, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_E-QO0345-1-16OCT2012.jpg		Oct 16, 2012

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

5880 E RESET

Mn/DOT Name: 5880 E RESET **NGS Name:** 5880 E RESET

County: PINE, MN (Sheet 1)

NGS ACRN: QO2484 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	32	39 N	21 W	454917.90	925859.99	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1982	2012	GOOD	Horz=NO Vert=YES	YES	58802	FLUSH	NO MAG MATERIAL

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

Description: (1982) **Stamping:** 5880 E 1961 RESET 1982

IN PINE CITY, AT THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 324, AT INTERSTATE HIGHWAY 35 MILEPOINT 169.5, 26.0 FEET SOUTH OF TRUNK HIGHWAY 324, IN THE SOUTHEAST CORNER OF TRUNK HIGHWAY 324 BRIDGE NUMBER 58802 OVER INTERSTATE HIGHWAY 35.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
963.348	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
963.348	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
963.131	.016	3				VERTICAL CONTROL SURVEY	1982	CS5880

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
963.308	.262		872.295	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -91.105 12B = -91.079 09 = -91.014 03 = -90.882

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 49 17.90316	92 58 59.98587	478753.269	133429.864	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2947590.334	630278.800	1644665.293	16647705.853	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_E_RESET-QO2484-3S-15MAY2007.jpg	S	May 15, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_E_RESET-QO2484-2-15MAY2007.jpg		May 15, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_E_RESET-QO2484-1-15MAY2007.jpg		May 15, 2007

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

Mn/DOT Name: 5880 F **NGS Name:** 5880 F

County: PINE, MN (Sheet 1)

NGS ACRN: QO0344 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	32	39 N	21 W	454943.80	925858.30	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2012	GOOD	Horz=NO Vert=YES	YES		PROJECTS 3 IN.	STEEL ROD IMBED IN MON

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

Description: (1961) **Stamping:** 5880 F 1961

IN PINE CITY, 0.45 MILE NORTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 324, 1.3 MILES SOUTH OF COUNTY ROAD 11, 105.0 FEET EAST OF NORTHBOUND INTERSTATE HIGHWAY 35, 100.0 FEET SOUTH OF THE SNAKE RIVER, 20.0 FEET EAST OF A FENCE, 79.6 FEET EAST-NORTHEAST OF INTERSTATE HIGHWAY 35 MILEPOST 170, 0.5 FOOT WEST 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
947.564	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
947.564	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
947.564	.016	2/1				VERTICAL ADJUSTMENT	2009	00000425-36
947.564	.016	2/1				VERTICAL CONTROL SURVEY	2008	VFLEA
947.564	.016	2/1				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
947.334	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
947.334	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
947.334	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
947.426	.016	2				VERTICAL CONTROL SURVEY	1975	L23805

Geoid Separations(ft): GEOID18 = -91.073 12B = -91.050 09 = -90.981 03 = -90.853

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

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_F-QO0344-3E-16OCT2012.jpg	E	Oct 16, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_F-QO0344-2-16OCT2012.jpg		Oct 16, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_F-QO0344-1-16OCT2012.jpg		Oct 16, 2012

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

Mn/DOT Name: 5880 G **NGS Name:** 5880 G

County: PINE, MN (Sheet 1)

NGS ACRN: QO0343 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	32	39 N	21 W	454945.74	925900.09	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1962	2012	GOOD	Horz=NO Vert=YES	YES	58803	FLUSH	NO MAG MATERIAL

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

Description: (1962) **Stamping:** 5880 G 1962

IN PINE CITY, 0.45 MILE NORTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 324, 1.3 MILES SOUTH OF COUNTY ROAD 11, 20.7 FEET EAST OF SOUTHBOUND INTERSTATE HIGHWAY 35, IN THE SOUTHEAST CORNER OF SOUTHBOUND INTERSTATE HIGHWAY 35 BRIDGE NUMBER 58803 OVER THE SNAKE RIVER, AT INTERSTATE HIGHWAY 35 MILEPOINT 170.05.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
947.856	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
947.852	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
947.852	.016	2/1				VERTICAL ADJUSTMENT	2009	00000425-36
947.852	.016	2/1				VERTICAL CONTROL SURVEY	2008	VFLEA
947.852	.016	2/1				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
947.623	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
947.623	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
947.623	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
947.715	.016	2				VERTICAL CONTROL SURVEY	1975	L23805

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
947.728	.262		856.750	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -91.073 12B = -91.050 09 = -90.981 03 = -90.853

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 49 45.73844	92 59 00.08970	478748.869	136249.559	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2947537.895	633097.755	1644657.355	16650524.266	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_G-QO0343-3S-16OCT2012.jpg	S	Oct 16, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_G-QO0343-2-16OCT2012.jpg		Oct 16, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_G-QO0343-1-16OCT2012.jpg		Oct 16, 2012

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

Mn/DOT Name: 5880 H
NGS Name: 5880 H
County: PINE, MN (Sheet 1)

NGS ACRN: QO0342 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	32	39 N	21 W	454947.94	925858.24	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1962	2012	GOOD	Horz=NO Vert=YES	YES	58804	FLUSH	NO MAG MATERIAL

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

Description: (1972) **Stamping:** 5880 H 1962

IN PINE CITY, 0.5 MILE NORTH ON INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 324, 1.25 MILES SOUTH OF COUNTY ROAD 11, 19.7 FEET EAST OF NORTHBOUND INTERSTATE HIGHWAY 35, AT INTERSTATE HIGHWAY 35 MILEPOINT 170.1, IN THE NORTHEAST CORNER OF NORTHBOUND INTERSTATE HIGHWAY 35 BRIDGE NUMBER 58804 OVER THE SNAKE RIVER.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
947.879	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
947.879	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
947.879	.016	2/1				VERTICAL ADJUSTMENT	2009	00000425-36
947.879	.016	2/1				VERTICAL CONTROL SURVEY	2008	VFLEA
947.879	.016	2/1				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
947.652	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
947.652	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
947.652	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
947.744	.016	2				VERTICAL CONTROL SURVEY	1975	L23805

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
947.856	.262		856.881	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -91.066 12B = -91.040 09 = -90.971 03 = -90.846

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 49 47.94090	92 58 58.23947	478880.127	136472.529	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2947665.323	633322.909	1644788.274	16650747.300	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_H-QO0342-3N-16OCT2012.jpg	N	Oct 16, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_H-QO0342-2-16OCT2012.jpg		Oct 16, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_H-QO0342-1-16OCT2012.jpg		Oct 16, 2012

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

Mn/DOT Name: 5880 H 2 **NGS Name:** 5880 H 2

County: PINE, MN (Sheet 1)

NGS ACRN: QO0340 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	28	39 N	21 W	455023.28	925844.25	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1970	2012	GOOD	Horz=YES Vert=YES	YES		PROJECTS 3 IN.	NO MAG MATERIAL

Monument Type	Disk Type	Mon. Agency
CONCRETE MAT FOUNDATION (NON-PAVEMENT)	BENCH MARK DISK	MNDT

Description: (2012) **Stamping:** 5880 H 2 1970

1.1 MILE NORTHWEST OF PINE CITY, 1.3 MILES NORTH ON INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 324 AT PINE CITY, 0.5 MILE SOUTH OF COUNTY ROAD 11, 0.75 MILE NORTH OF THE SNAKE RIVER, 0.05 MILE NORTH OF THE DEAD END EAST-WEST ROAD, 56.5 FEET EAST OF NORTHBOUND INTERSTATE HIGHWAY 35, AT INTERSTATE HIGHWAY 35 MILEPOINT 170.8, IN THE WEST LEG BASE OF A SIGN, 1.3 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
942.416	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
942.416	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
942.416	.016	2/1				VERTICAL ADJUSTMENT	2009	00000425-36
942.416	.016	2/1				VERTICAL CONTROL SURVEY	2008	VFLEA
942.072	.016	2				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
941.832	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
941.832	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
941.862	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
941.924	.016	2				VERTICAL CONTROL SURVEY	1975	L23805

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
942.308	.262		851.416	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -90.984 12B = -90.961 09 = -90.892 03 = -90.768

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 50 23.28331	92 58 44.24533	479874.678	140051.677	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2948598.658	636918.155	1645777.881	16654326.079	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_H_2-QO0340-3E-16OCT2012.jpg	E	Oct 16, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_H_2-QO0340-2-16OCT2012.jpg		Oct 16, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_H_2-QO0340-1-16OCT2012.jpg		Oct 16, 2012

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

5880 J

Mn/DOT Name: 5880 J

NGS Name: 5880 J

County: PINE, MN (Sheet 1)

NGS ACRN: QO0341 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	29	39 N	21 W	454955.00	925854.00	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
UNKNOWN	SURVEY DISK	MNDT

Description: (1961) **Stamping:** 5880 J 1961

IN PINE CITY, 0.75 MILE NORTH ON INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 324, 0.2 MILE NORTH OF THE SNAKE RIVER, 1.05 MILES SOUTH OF COUNTY ROAD 11, 98.0 FEET EAST OF NORTHBOUND INTERSTATE HIGHWAY 35, AT INTERSTATE HIGHWAY 35 MILEPOST 170, 144.5 FEET NORTH OF THE RIGHT-OF-WAY POST, 73.0 FEET SOUTHEAST OF AN 8.0 INCH DIAMETER OAK TREE, 5.5 FEET EAST OF A 2.0 INCH DIAMETER POPLAR TREE, 0.5 FOOT WEST 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
938.371	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
938.135	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
938.135	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
938.226	.016	2				VERTICAL CONTROL SURVEY	1975	L23805

Geoid Separations(ft): GEOID18 = -91.046 12B = -91.020 09 = -90.951 03 = -90.827

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

Mn/DOT Name: 5880 K **NGS Name:** 5880 K

County: PINE, MN (Sheet 1)

NGS ACRN: QO0338 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	21	39 N	21 W	455047.00	925831.00	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2007	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

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

Description: (1961) **Stamping:** 5880 K 1961

0.5 MILE NORTH OF PINE CITY, 1.8 MILES NORTH OF THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 324 IN PINE CITY, 1.25 MILES NORTH OF THE SNAKE RIVER, 435.0 FEET EAST ON COUNTY ROAD 11 FROM NORTHBOUND INTERSTATE HIGHWAY 35, 106.0 FEET SOUTH OF COUNTY ROAD 11, 17.0 FEET WEST OF A FENCE CORNER, 18.5 FEET WEST OF A TELEPHONE POLE, 3.0 FEET NORTH OF A FENCE, 0.5 FOOT 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
960.116	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
959.880	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
959.972	.016	2				VERTICAL CONTROL SURVEY	1974	L23306

Geoid Separations(ft): GEOID18 = -90.918 12B = -90.895 09 = -90.827 03 = -90.705

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

Mn/DOT Name: 5880 L
NGS Name: 5880 L
County: PINE, MN (Sheet 1)

NGS ACRN: QO0339 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	21	39 N	21 W	455048.27	925831.79	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2012	DESTROYED	Horz=NO Vert=NO	NO	58805		SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
UNKNOWN	SURVEY DISK	MNDT

Description: (1993)
Stamping: 5880 L 1961

1.5 MILES NORTHEAST OF PINE CITY, 1.8 MILES NORTH ON INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 324 IN PINE CITY, 4.0 MILES SOUTH OF COUNTY ROAD 14 EXIT AT BEROUN, 18.5 FEET SOUTH OF COUNTY ROAD 11, IN THE SOUTHEAST CORNER OF COUNTY ROAD 11 BRIDGE NUMBER 58805 OVER INTERSTATE HIGHWAY 35, AT INTERSTATE HIGHWAY 35 MILEPOINT 171.3.

Station Notes
A NEW BRIDGE WAS BUILT IN 1991, REFERENCE MARK NUMBER 1 FOR SNAKE MNDT.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
967.852	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
967.610	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
967.610	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
967.698	.016	2				VERTICAL CONTROL SURVEY	1975	L23805

Geoid Separations(ft): GEOID18 = -90.912 12B = -90.886 09 = -90.820 03 = -90.699

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

5880 L 2

Mn/DOT Name: 5880 L 2 **NGS Name:** 5880 L 2

County: PINE, MN (Sheet 1)

NGS ACRN: QO0333 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	16	39 N	21 W	455221.10	925812.32	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1970	2020	GOOD	Horz=YES Vert=YES	YES		FLUSH	STEEL ROD IMBED IN MON

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

Description: (2000) **Stamping:** 5880 L 2 1970

3.2 MILES NORTHEAST OF PINE CITY, 3.6 MILES NORTH ON INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 324 IN PINE CITY, 2.2 MILES SOUTH OF COUNTY ROAD 14 AT BEROUN, 0.2 MILE SOUTH OF A CROSSOVER, IN THE MEDIAN, 150.0 FEET WEST OF NORTHBOUND INTERSTATE HIGHWAY 35, AT STATION STENCIL 615, AT INTERSTATE HIGHWAY 35 MILEPOINT 173.1, 1.3 FEET SOUTH 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
957.938	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
957.938	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
957.938	.016	2/1				VERTICAL ADJUSTMENT	2009	00000425-36
957.938	.016	2/1				VERTICAL CONTROL SURVEY	2008	VFLEA
957.938	.016	2/1				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
957.685	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
957.685	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
957.685	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
957.770	.016	2				VERTICAL CONTROL SURVEY	1975	L23805

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
957.984	.262		867.229	.197	2011	GPS - OPUS	2020	GPSBM
957.895	.262		867.229	.197	2007	GPS - RTRN	2012	RTRN2012
			867.157	.007	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
957.938	.131		867.242	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2747
957.938	.131		867.242	.066	2007	GPS - STATIC	2010	HBRAH
957.938	.131		867.390	.066	1996	GPS - STATIC	2010	HBRAH
			867.259	.010	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
957.938	.131		867.420	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1839
957.938	.131		867.420	.066	1996	GPS - STATIC	2002	HPINE

Geoid Separations(ft): GEOID18 = -90.754 12B = -90.741 09 = -90.666 03 = -90.538

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 52 21.10426	92 58 12.31874	482145.680	151984.747	.131	3	GPS - OPUS	2020	GPSBM
45 52 21.10440	92 58 12.31884	482145.673	151984.761	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 52 21.10417	92 58 12.31908	482145.656	151984.737	.131	3	GPS - RTRN	2012	RTRN2012
45 52 21.10456	92 58 12.31969	482145.612	151984.777	.033	C	ADJUSTMENT	2011	GPS2747
45 52 21.10456	92 58 12.31969	482145.612	151984.777	.033	C	GPS - STATIC	2010	HBRAH
45 52 21.10409	92 58 12.31871	482145.682	151984.729	.016		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 52 21.10440	92 58 12.31906	482145.657	151984.761	.033	C	GPS - STATIC	2010	HBRAH
45 52 21.10396	92 58 12.31817	482145.720	151984.716	.033	C	ADJUSTMENT	2003	GPS1839
45 52 21.10396	92 58 12.31817	482145.719	151984.716	.033	C	GPS - STATIC	2002	HPINE

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2950665.805	648887.076	1648032.880	16666256.625	.131	3	GPS - OPUS	2020	GPSBM
2950665.797	648887.090	1648032.873	16666256.639	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2950665.781	648887.066	1648032.856	16666256.616	.131	3	GPS - RTRN	2012	RTRN2012
2950665.737	648887.105	1648032.813	16666256.655	.033	C	ADJUSTMENT	2011	GPS2747
2950665.737	648887.105	1648032.813	16666256.655	.033	C	GPS - STATIC	2010	HBRAH
2950665.807	648887.059	1648032.882	16666256.607	.016		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2950665.782	648887.090	1648032.857	16666256.639	.033	C	GPS - STATIC	2010	HBRAH
2950665.845	648887.046	1648032.920	16666256.594	.033	C	ADJUSTMENT	2003	GPS1839
2950665.845	648887.046	1648032.920	16666256.594	.033	C	GPS - STATIC	2002	HPINE

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_L_2-QO0333-3W-15OCT2012.jpg	W	Oct 15, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_L_2-QO0333-2-15OCT2012.jpg		Oct 15, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_L_2-QO0333-1-18FEB2020.jpg		Feb 18, 2020

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

Mn/DOT Name: 5880 M
NGS Name: 5880 M
County: PINE, MN (Sheet 1)

NGS ACRN: QO0329 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	4	39 N	21 W	455327.90	925759.56	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2012	GOOD	Horz=NO Vert=YES	YES		FLUSH	STEEL ROD IMBED IN MON

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

Description: (1993) **Stamping:** 5880 M 1961

5.0 MILES NORTH ON INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 324 AT PINE CITY, 0.9 MILE SOUTH OF COUNTY ROAD 14 EXIT AT BEROUN, 0.1 MILE NORTH OF THE OLD TOWNSHIP ROAD CROSSING, 95.0 FEET EAST OF NORTHBOUND INTERSTATE HIGHWAY 35, AT INTERSTATE HIGHWAY 35 MILEPOINT 174.45, 34.1 FEET NORTH OF A PIPELINE SIGN, 3.5 FEET WEST OF A FENCE, 0.5 FOOT WEST 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
981.287	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
981.284	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
981.107	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
980.854	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
980.854	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
980.854	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
980.940	.016	2				VERTICAL CONTROL SURVEY	1976	L23805

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
981.301	.262		890.736	.197	2007	GPS - RTRN	2012	RTRN2012
			890.635	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			890.730	.010	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
			890.877	.066	1996	GPS - STATIC	1999	GPS917

Geoid Separations(ft): GEOID18 = -90.649 12B = -90.636 09 = -90.564 03 = -90.433

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 53 27.90211	92 57 59.56144	483054.059	158750.571	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 53 27.90214	92 57 59.56257	483053.979	158750.574	.131	3	GPS - RTRN	2012	RTRN2012
45 53 27.90223	92 57 59.56216	483054.008	158750.583	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 53 27.90209	92 57 59.56159	483054.047	158750.568	.033	C	GPS - STATIC	1999	GPS917

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 53 27.89699	92 57 59.55665	483054.398	158750.053	.033	C	GPS - STATIC	1994	HI35N

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951458.688	655666.753	1648932.359	16673020.553	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951458.608	655666.754	1648932.279	16673020.556	.131	3	GPS - RTRN	2012	RTRN2012
2951458.637	655666.764	1648932.308	16673020.565	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951458.677	655666.750	1648932.348	16673020.551	.033	C	GPS - STATIC	1999	GPS917

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951459.035	655666.240	1648932.698	16673020.034	.033	C	GPS - STATIC	1994	HI35N

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_M-QO0329-3E-15OCT2012.jpg	E	Oct 15, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_M-QO0329-2-15OCT2012.jpg		Oct 15, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_M-QO0329-1-15OCT2012.jpg		Oct 15, 2012

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

Mn/DOT Name: 5880 P
NGS Name: 5880 P
County: PINE, MN (Sheet 1)

NGS ACRN: QO0322 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	4	39 N	21 W	455414.30	925759.12	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2012	GOOD	Horz=NO Vert=YES	YES	58806	FLUSH	NO MAG MATERIAL

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

Description: (1970) **Stamping:** 5880 P 1961

5.0 MILES NORTHWEST OF PINE CITY, 5.7 MILES NORTH ON INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 324 AT PINE CITY, 7.9 MILES SOUTH OF TRUNK HIGHWAY 23 BRIDGE OVER INTERSTATE HIGHWAY 35 AT HINCKLEY, IN THE SOUTHEAST CORNER OF COUNTY ROAD 14 BRIDGE NUMBER 58806 OVER INTERSTATE HIGHWAY 35, 19.0 FEET SOUTH OF COUNTY ROAD 14.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
986.668	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
986.658	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
986.658	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
986.396	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
986.396	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
986.478	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
986.396	.016	2				VERTICAL CONTROL SURVEY	1976	L23805

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
986.563	.262		896.042	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -90.607 12B = -90.590 09 = -90.518 03 = -90.387

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 54 14.30096	92 57 59.12308	483088.992	163450.742	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951413.529	660366.384	1648961.377	16677718.662	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_P-QO0322-3S-05JUN2007.jpg	S	Jun 5, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_P-QO0322-2-05JUN2007.jpg		Jun 5, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_P-QO0322-1-05JUN2007.jpg		Jun 5, 2007

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

5880 Q

Mn/DOT Name: 5880 Q
NGS Name: 5880 Q
County: PINE, MN (Sheet 1)

NGS ACRN: QO0317 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	28	40 N	21 W	455532.68	925804.25	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2012	GOOD	Horz=NO Vert=YES	YES	91010	FLUSH	NO MAG MATERIAL

Monument Type
CULVERT - ANY SIZE, ANY TYPE

Disk Type
BENCH MARK DISK

Mon. Agency
MNDT

Description: (1970)

Stamping: 5880 Q 1961

6.1 MILES SOUTH OF HINCKLEY, 6.4 MILES SOUTH ON INTERSTATE HIGHWAY 35 FROM TRUNK HIGHWAY 23 BRIDGE OVER INTERSTATE HIGHWAY 35, 1.5 MILES NORTH OF COUNTY ROAD 14 AT BEROUN, 33.3 FEET WEST OF SOUTHBOUND INTERSTATE HIGHWAY 35, AT INTERSTATE HIGHWAY 35 MILEPOINT 176.8, 1.1 FEET SOUTHWEST OF THE STEEL GUARD POST, IN THE NORTHWEST CORNER OF SOUTHBOUND INTERSTATE HIGHWAY 35 BOX CULVERT NUMBER 91010 AT MISSION CREEK.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
968.682	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
968.682	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
968.682	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
968.410	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
968.410	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
968.410	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
968.489	.016	2				VERTICAL CONTROL SURVEY	1975	L23805

Geoid Separations(ft): GEOID18 = -90.554 12B = -90.538 09 = -90.459 03 = -90.325

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

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_Q-QO0317-3W-27NOV2007.jpg	W	Nov 27, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_Q-QO0317-2-27NOV2007.jpg		Nov 27, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_Q-QO0317-1-27NOV2007.jpg		Nov 27, 2007

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

Mn/DOT Name: 5880 Q 2 **NGS Name:** 5880 Q 2

County: PINE, MN (Sheet 1)

NGS ACRN: QO0316 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	21	40 N	21 W	455559.84	925801.53	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1970	2012	GOOD	Horz=NO Vert=YES	YES		RECESSED 3 IN.	STEEL ROD IMBED IN MON

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

Description: (1970) **Stamping:** 5880 Q 2 1970

5.5 MILES SOUTH OF HINCKLEY, 5.8 MILES SOUTH ON INTERSTATE HIGHWAY 35 FROM A TRUNK HIGHWAY 23 BRIDGE OVER INTERSTATE HIGHWAY 35 AT HINCKLEY, 2.0 MILES NORTH OF COUNTY ROAD 14 EXIT AT BEROUN, IN THE MEDIAN, 100.0 FEET NORTH OF THE DEAD END ROAD EXTENDED, 150.0 FEET WEST OF NORTHBOUND INTERSTATE HIGHWAY 35, AT INTERSTATE HIGHWAY 35 MILEPOINT 177.35, 129.0 FEET EAST OF SOUTHBOUND INTERSTATE HIGHWAY 35, 72.0 FEET NORTH OF A POWER POLE, 1.9 FEET SOUTH 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
968.869	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
968.866	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
968.853	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
968.577	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
968.577	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
968.577	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
968.656	.016	2				VERTICAL CONTROL SURVEY	1975	L23805

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
968.784	.262		878.355	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -90.528 12B = -90.512 09 = -90.430 03 = -90.295

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 55 59.84121	92 58 01.52926	482927.842	174142.125	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951070.255	671052.423	1648786.876	16688405.066	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_Q_2-QO0316-3E-27NOV2007.jpg	E	Nov 27, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_Q_2-QO0316-2-27NOV2007.jpg		Nov 27, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_Q_2-QO0316-1-27NOV2007.jpg		Nov 27, 2007

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

Mn/DOT Name: 5880 Q 3 **NGS Name:** 5880 Q 3

County: PINE, MN (Sheet 1)

NGS ACRN: QO0315 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	21	40 N	21 W	455650.55	925749.24	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1970	2012	GOOD	Horz=YES Vert=YES	YES		RECESSED 1 IN.	STEEL ROD IMBED IN MON

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

Description: (2009) **Stamping:** 5880 Q 3 1970

4.5 MILES SOUTH OF HINCKLEY, 4.9 MILES SOUTH ALONG INTERSTATE HIGHWAY 35 FROM TRUNK HIGHWAY 48 BRIDGE OVER INTERSTATE HIGHWAY 35 AT HINCKLEY, 2.0 MILES SOUTH OF THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 23 WEST, 100.0 FEET EAST OF SOUTHBOUND INTERSTATE HIGHWAY 35, 100.0 FEET WEST OF NORTHBOUND INTERSTATE HIGHWAY 35, AT INTERSTATE HIGHWAY 35 MILEPOINT 178.3, 85.0 FEET SOUTH OF A DITCH BLOCK, 51.0 FEET SOUTH OF THE EAST-WEST POWER LINE CROSSING, 1.5 FEET SOUTH 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
974.083	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
974.076	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
974.001	.016	2				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
973.722	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
973.722	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
973.722	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
973.797	.016	2				VERTICAL CONTROL SURVEY	1975	L23805

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
973.997	.262		883.637	.197	2007	GPS - RTRN	2012	RTRN2012
			883.617	.006	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
973.984	.262		883.624	.197	2007	GPS - RTRN	2012	RTRN2012
974.079	.131		883.719	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2747
974.079	.131		883.719	.066	2007	GPS - STATIC	2010	HBRAH
974.079	.131		883.866	.066	1996	GPS - STATIC	2010	HBRAH
974.014	.131		883.719	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2566
974.014	.131		883.866	.066	1996	GPS - STATIC	2009	HMOOSE
974.014	.131		883.719	.066	2007	GPS - STATIC	2009	HMOOSE
973.922	.262		883.692	.197	1996	GPS - RTRN	2008	RTRN2008
			883.719	.010	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
974.014	.131		883.866	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1839
974.014	.131		883.866	.066	1996	GPS - STATIC	2002	HPINE

Geoid Separations(ft): GEOID18 = -90.462 12B = -90.453 09 = -90.361 03 = -90.229

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 56 50.55204	92 57 49.24458	483800.279	179278.439	.003		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 56 50.55171	92 57 49.24516	483800.238	179278.406	.131	3	GPS - RTRN	2012	RTRN2012
45 56 50.55186	92 57 49.24502	483800.248	179278.421	.131	3	GPS - RTRN	2012	RTRN2012
45 56 50.55201	92 57 49.24523	483800.233	179278.436	.033	C	ADJUSTMENT	2011	GPS2747
45 56 50.55201	92 57 49.24523	483800.233	179278.436	.033	C	GPS - STATIC	2010	HBRAH
45 56 50.55201	92 57 49.24523	483800.233	179278.436	.033	C	ADJUSTMENT	2009	GPS2566
45 56 50.55201	92 57 49.24523	483800.233	179278.436	.033	C	GPS - STATIC	2009	HMOOSE
45 56 50.55201	92 57 49.24523	483800.233	179278.436	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 56 50.55190	92 57 49.24464	483800.275	179278.425	.033	C	GPS - STATIC	2010	HBRAH
45 56 50.55190	92 57 49.24464	483800.275	179278.425	.033	C	GPS - STATIC	2009	HMOOSE
45 56 50.55215	92 57 49.24548	483800.215	179278.450	.131	3	GPS - RTRN	2008	RTRN2008
45 56 50.55190	92 57 49.24464	483800.275	179278.425	.033	C	ADJUSTMENT	2003	GPS1839
45 56 50.55190	92 57 49.24464	483800.276	179278.424	.033	C	GPS - STATIC	2002	HPINE

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951854.965	676202.345	1649652.476	16693540.185	.003		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951854.925	676202.311	1649652.435	16693540.152	.131	3	GPS - RTRN	2012	RTRN2012
2951854.934	676202.326	1649652.445	16693540.167	.131	3	GPS - RTRN	2012	RTRN2012
2951854.919	676202.341	1649652.430	16693540.182	.033	C	ADJUSTMENT	2011	GPS2747
2951854.919	676202.341	1649652.430	16693540.182	.033	C	GPS - STATIC	2010	HBRAH
2951854.919	676202.341	1649652.430	16693540.182	.033	C	ADJUSTMENT	2009	GPS2566
2951854.919	676202.341	1649652.430	16693540.182	.033	C	GPS - STATIC	2009	HMOOSE
2951854.919	676202.341	1649652.430	16693540.182	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951854.961	676202.330	1649652.471	16693540.171	.033	C	GPS - STATIC	2010	HBRAH
2951854.961	676202.330	1649652.471	16693540.171	.033	C	GPS - STATIC	2009	HMOOSE
2951854.901	676202.355	1649652.412	16693540.196	.131	3	GPS - RTRN	2008	RTRN2008
2951854.961	676202.330	1649652.471	16693540.171	.033	C	ADJUSTMENT	2003	GPS1839
2951854.961	676202.331	1649652.471	16693540.171	.033	C	GPS - STATIC	2002	HPINE

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_Q_3-QO0315-3W-01MAY2012.jpg	W	May 1, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_Q_3-QO0315-2-01MAY2012.jpg		May 1, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_Q_3-QO0315-1-01MAY2012.jpg		May 1, 2012

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

5880 Q 4

Mn/DOT Name: 5880 Q 4 **NGS Name:** 5880 Q 4

County: PINE, MN (Sheet 1)

NGS ACRN: QO0314 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	15	40 N	21 W	455742.00	925730.00	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1970	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
UNKNOWN	SURVEY DISK	MNDT

Description: (1970) **Stamping:** 5880 Q 4 1970

3.8 MILES SOUTH OF HINCKLEY, 1.05 MILES SOUTH ON INTERSTATE HIGHWAY 35 FROM A TRUNK HIGHWAY 23 WEST BRIDGE OVER INTERSTATE HIGHWAY 35, 56.2 FEET EAST OF NORTHBOUND INTERSTATE HIGHWAY 35, AT STATION 945 STENCIL, AT INTERSTATE HIGHWAY 35 MILEPOINT 179.3, 83.0 FEET SOUTH OF A TOWNSHIP ROAD EAST EXTENDED, IN THE BASE OF THE WEST LEG OF A HIGHWAY SIGN, 2.0 FEET EAST OF A WITNESS POST.

Station Notes
THERE WAS NO WITNESS POST, THERE WAS A NEW HIGHWAY SIGN ON AN H BEAM, THERE WAS NO CONCRETE FOOTING.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
981.678	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
981.399	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
981.399	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
981.471	.016	2				VERTICAL CONTROL SURVEY	1975	L23805

Geoid Separations(ft): GEOID18 = -90.390 12B = -90.377 09 = -90.282 03 = -90.154

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

Mn/DOT Name: 5880 R **NGS Name:** 5880 R

County: PINE, MN (Sheet 1)

NGS ACRN: QO0318 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	28	40 N	21 W	455532.49	925759.08	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2012	GOOD	Horz=NO Vert=YES	YES	91010	FLUSH	NO MAG MATERIAL

Monument Type
CULVERT - ANY SIZE, ANY TYPE

Disk Type
BENCH MARK DISK

Mon. Agency
MNDT

Description: (1961) **Stamping:** 5880 R 1961

6.4 MILES SOUTH OF HINCKLEY, 1.5 MILES NORTH ON INTERSTATE HIGHWAY 35 FROM THE COUNTY ROAD 14 EXIT AT BEROUN, 31.8 FEET EAST OF NORTHBOUND INTERSTATE HIGHWAY 35, AT INTERSTATE HIGHWAY 35 MILEPOINT 176.8, 1.6 FEET NORTH OF THE STEEL GUARD POST, IN THE SOUTHEAST CORNER OF NORTHBOUND INTERSTATE HIGHWAY 35 CULVERT NUMBER 91010 AT MISSION CREEK.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
968.869	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
968.869	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
968.869	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
968.600	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
968.600	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
968.600	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
968.679	.016	2				VERTICAL CONTROL SURVEY	1975	L23805

Geoid Separations(ft): GEOID18 = -90.544 12B = -90.528 09 = -90.446 03 = -90.315

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

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_R-QO0318-3E-27NOV2007.jpg	E	Nov 27, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_R-QO0318-2-27NOV2007.jpg		Nov 27, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_R-QO0318-1-27NOV2007.jpg		Nov 27, 2007

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

Mn/DOT Name: 5880 S **NGS Name:** 5880 S

County: PINE, MN (Sheet 1)

NGS ACRN: QO0309 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	3	40 N	21 W	455835.61	925719.48	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2012	DESTROYED	Horz=NO Vert=NO	YES	9782	FLUSH	NO MAG MATERIAL

Monument Type	Disk Type	Mon. Agency
UNKNOWN	BENCH MARK DISK	MNDT

Description: (1961) **Stamping:** 5880 S 1961

2.7 MILES SOUTH OF HINCKLEY, 19.2 FEET NORTH OF TRUNK HIGHWAY 23, IN THE NORTHEAST CORNER OF TRUNK HIGHWAY 23 BRIDGE NUMBER 9782 OVER INTERSTATE HIGHWAY 35, AT INTERSTATE HIGHWAY 35 MILEPOINT 180.4.

Station Notes

THERE IS NEW BRIDGE BUILT IN 2010, SEE "BR 58819 SE."

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1022.229	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1022.229	.016	2/1				VERTICAL CONTROL SURVEY	2009	VMOOSE
1022.229	.016	2/1				VERTICAL ADJUSTMENT	2008	00000561
1022.229	.016	2/1				VERTICAL CONTROL SURVEY	2005	VHINC
1022.229	.016	2/1				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1021.947	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
1021.947	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
1022.016	.016	2				VERTICAL CONTROL SURVEY	1975	L23805

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
1022.065	.262		931.960	.197	1996	GPS - RTRN	2008	RTRN2008

Geoid Separations(ft): GEOID18 = -90.341 12B = -90.334 09 = -90.229 03 = -90.102

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 58 35.61111	92 57 19.47596	485911.311	189919.425	.131	3	GPS - RTRN	2008	RTRN2008

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2953784.169	686876.676	1651749.208	16704179.085	.131	3	GPS - RTRN	2008	RTRN2008

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_S-QO0309-3N-10NOV2008.jpg	N	Nov 10, 2008
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_S-QO0309-2-10NOV2008.jpg		Nov 10, 2008
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_S-QO0309-1-10NOV2008.jpg		Nov 10, 2008

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

Mn/DOT Name: 5880 T **NGS Name:** 5880 T

County: PINE, MN (Sheet 1)

NGS ACRN: QO0308 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	36	41 N	21 W	455907.92	925651.32	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2012	GOOD	Horz=NO Vert=YES	YES	9784	FLUSH	NO MAG MATERIAL

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

Description: (1961) **Stamping:** 5880 T 1961

2.0 MILES SOUTH OF HINCKLEY, 0.8 MILE NORTH ON INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 23 WEST, AT INTERSTATE HIGHWAY 35 MILEPOINT 181.15, 18.7 FEET EAST-SOUTHEAST OF NORTHBOUND INTERSTATE HIGHWAY 35, 8.8 FEET SOUTHWEST OF THE WEST LEG OF A HIGHWAY SIGN, IN THE NORTHEAST CORNER OF NORTHBOUND INTERSTATE HIGHWAY 35 BRIDGE NUMBER 9784 OVER A RAILROAD.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1044.496	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1044.493	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
1044.493	.016	2/1				VERTICAL CONTROL SURVEY	2009	VMOOSE
1044.493	.016	2/1				VERTICAL ADJUSTMENT	2008	00000561
1044.493	.016	2/1				VERTICAL CONTROL SURVEY	2005	VHINC
1044.493	.016	2/1				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1044.214	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
1044.214	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
1044.214	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
1044.283	.016	2				VERTICAL CONTROL SURVEY	1975	L23805

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
1044.345	.262		954.306	.197	1996	GPS - RTRN	2008	RTRN2008

Geoid Separations(ft): GEOID18 = -90.275 12B = -90.269 09 = -90.161 03 = -90.039

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 59 07.92031	92 56 51.32407	487901.595	193191.092	.131	3	GPS - RTRN	2008	RTRN2008

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2955718.213	690181.445	1653734.499	16707451.798	.131	3	GPS - RTRN	2008	RTRN2008

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_T-QO0308-3SE-10NOV2008.jpg	SE	Nov 10, 2008
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_T-QO0308-2-10NOV2008.jpg		Nov 10, 2008
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_T-QO0308-1-10NOV2008.jpg		Nov 10, 2008

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

Mn/DOT Name: 5880 U
NGS Name: 5880 U
County: PINE, MN (Sheet 1)

NGS ACRN: QO0307 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	25	41 N	21 W	455948.04	925618.40	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2012	GOOD	Horz=NO Vert=YES	YES		FLUSH	STEEL ROD IMBED IN MON

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

Description: (1993) **Stamping:** 5880 U 1961

1.0 MILE SOUTH OF HINCKLEY, 1.0 MILE SOUTH-SOUTHWEST ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 48 EAST OF HINCKLEY, 112.0 FEET NORTHEAST OF INTERSTATE HIGHWAY 35 MILEPOST 182, 95.0 FEET EAST OF NORTHBOUND INTERSTATE HIGHWAY 35, 35.0 FEET NORTH OF COUNTY ROAD 33 DEAD END EXTENDED, 7.8 FEET NORTHWEST OF A POWER POLE, 4.7 FEET WEST OF A FENCE, AT THE INTERSECTION OF NORTH-SOUTH AND THE EAST-WEST POWER LINES, 0.5 FOOT WEST 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
1018.308	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1018.308	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
1018.298	.016	2/1				VERTICAL CONTROL SURVEY	2009	VMOOSE
1018.298	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1018.023	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
1018.023	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
1018.023	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
1018.092	.016	2				VERTICAL CONTROL SURVEY	1975	L23805

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
1018.259	.262		928.171	.197	2007	GPS - RTRN	2012	RTRN2012
1018.256	.262		928.167	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -90.207 12B = -90.200 09 = -90.088 03 = -89.970

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 59 48.03769	92 56 18.40098	490228.491	197253.772	.131	3	GPS - RTRN	2012	RTRN2012
45 59 48.03786	92 56 18.40008	490228.555	197253.790	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2957975.305	694282.764	1656055.262	16711515.596	.131	3	GPS - RTRN	2012	RTRN2012
2957975.368	694282.782	1656055.325	16711515.613	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_U-QO0307-3NE-01MAY2012.jpg	NE	May 1, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_U-QO0307-2-01MAY2012.jpg		May 1, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_U-QO0307-1-01MAY2012.jpg		May 1, 2012

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

Mn/DOT Name: 5880 V

NGS Name: 5880 V

County: PINE, MN (Sheet 1)

NGS ACRN: RN0599 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	25	41 N	21 W	460039.00	925555.00	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	1996	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
STRUCTURE (MASSIVE)	SURVEY DISK	MNDT

Description: (2010) **Stamping:** 5880 V 1961

IN HINCKLEY, 0.5 MILE SOUTH ALONG OLD TRUNK HIGHWAY 61 SOUTH FROM THE JUNCTION OF TRUNK HIGHWAY 61 AND ITS JUNCTION WITH FIRE MONUMENT ROAD, 0.6 MILE EAST ALONG FIRE MONUMENT ROAD TO ITS JUNCTION WITH INTERSTATE HIGHWAY 35.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1038.043	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1037.757	.033	3				VERTICAL CONTROL SURVEY	1979	USGS-VERT
1037.764	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
1037.764	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
1037.826	.016	2				VERTICAL CONTROL SURVEY	1975	L23805

Geoid Separations(ft): GEOID18 = -90.161 12B = -90.157 09 = -90.039 03 = -89.924

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

5880 V RESET

Mn/DOT Name: 5880 V RESET **NGS Name:** 5880 V RESET

County: PINE, MN (Sheet 1)

NGS ACRN: DH4952 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	25	41 N	21 W	460039.69	925553.56	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1986	2012	GOOD	Horz=NO Vert=YES	YES	9785	FLUSH	NO MAG MATERIAL

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

Description: (2010) **Stamping:** 5880 V RESET 1986

AT EAST EDGE OF HINCKLEY, AT THE JUNCTION OF FIRE MONUMENT ROAD (TRUNK HIGHWAY 48) AND INTERSTATE HIGHWAY 35, IN THE SOUTHEAST WING WALL OF TRUNK HIGHWAY 48 BRIDGE NUMBER 9785 OVER INTERSTATE HIGHWAY 35, 33.5 FEET SOUTH OF TRUNK HIGHWAY 48, AT TRUNK HIGHWAY 48 STATION 30+75.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1038.321	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1038.321	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
1038.321	.016	2/1				VERTICAL CONTROL SURVEY	2009	VMOOSE
1038.321	.016	2/1				VERTICAL ADJUSTMENT	2006	00000497
1038.305	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1038.029	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV
1038.029	.033	3				VERTICAL CONTROL SURVEY	1988	L23805

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
1038.236	.262		948.197	.197	2007	GPS - RTRN	2012	RTRN2012
1038.154	.262		948.230	.197	1996	GPS - RTRN	2008	RTRN2008

Geoid Separations(ft): GEOID18 = -90.157 12B = -90.154 09 = -90.036 03 = -89.921

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 39.69318	92 55 53.55638	491984.666	202485.773	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 39.69379	92 55 53.55600	491984.693	202485.834	.131	3	GPS - RTRN	2008	RTRN2008

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2959641.888	699543.382	1657804.089	16716747.479	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2959641.914	699543.444	1657804.116	16716747.541	.131	3	GPS - RTRN	2008	RTRN2008

5880 V RESET

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_V_RESET-DH4952-3W-01MAY2012.jpg	W	May 1, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_V_RESET-DH4952-2-01MAY2012.jpg		May 1, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_V_RESET-DH4952-1-01MAY2012.jpg		May 1, 2012

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

Mn/DOT Name: 5880 W **NGS Name:** 5880 W

County: PINE, MN (Sheet 1)

NGS ACRN: RN0598 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	19	41 N	20 W	460055.19	925546.46	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2012	GOOD	Horz=NO Vert=YES	YES	9788	FLUSH	NO MAG MATERIAL

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

Description: (1961) **Stamping:** 5880 W 1961

IN HINCKLEY, 0.3 MILE NORTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND FIRE MONUMENT ROAD (TRUNK HIGHWAY 48), IN THE SOUTHEAST CORNER OF NORTHBOUND INTERSTATE HIGHWAY 35 BRIDGE NUMBER 9788 OVER THE GRINDSTONE RIVER, 26.4 FEET EAST OF NORTHBOUND INTERSTATE HIGHWAY 35, AT INTERSTATE HIGHWAY 35 MILEPOINT 183.4, STATION 5880 W IS THE AZIMUTH MARK FOR STATION BUBALO MNDT.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1017.610	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1017.610	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
1017.610	.016	2/1				VERTICAL CONTROL SURVEY	2009	VMOOSE
1017.610	.016	2/1				VERTICAL ADJUSTMENT	2006	00000497
1017.593	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV
1017.593	.016	2				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1017.318	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV
1017.318	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
1017.318	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
1017.318	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
1017.380	.016	2				VERTICAL CONTROL SURVEY	1975	L23805

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
1017.498	.262		927.475	.197	2007	GPS - RTRN	2012	RTRN2012
1017.426	.262		927.518	.197	1996	GPS - RTRN	2008	RTRN2008

Geoid Separations(ft): GEOID18 = -90.144 12B = -90.144 09 = -90.026 03 = -89.908

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 55.18875	92 55 46.45678	492486.372	204055.305	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 55.18938	92 55 46.45608	492486.422	204055.368	.131	3	GPS - RTRN	2008	RTRN2008

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2960116.724	701121.071	1658303.602	16718316.946	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2960116.772	701121.135	1658303.651	16718317.009	.131	3	GPS - RTRN	2008	RTRN2008

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_W-RN0598-3N-01MAY2012.jpg	N	May 1, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_W-RN0598-2-01MAY2012.jpg		May 1, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_W-RN0598-1-01MAY2012.jpg		May 1, 2012

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

5880 WW

Mn/DOT Name: 5880 WW
NGS Name: 5880 WW
County: PINE, MN (Sheet 1)

NGS ACRN: DK9897 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	21	39 N	21 W	455048.70	925831.49	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1991	2012	GOOD	Horz=NO Vert=NO	YES	58818	FLUSH	NO MAG MATERIAL

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

Description: (2007) **Stamping:** 5880 WW 1991

1.2 MILES NORTH-NORTHEAST OF PINE CITY, 1.2 MILES NORTH ALONG COUNTY ROAD 11 FROM THE JUNCTION OF COUNTY ROAD 11 AND INTERSTATE HIGHWAY 35, AT INTERSTATE HIGHWAY 35 MILEPOINT 171.4, IN THE SOUTHEAST CORNER OF COUNTY ROAD 11 BRIDGE NUMBER 58818 OVER INTERSTATE HIGHWAY 35, 23.0 FEET SOUTH-SOUTHWEST OF COUNTY ROAD 11, 20.5 FEET WEST-NORTHWEST OF THE EAST END OF A BRIDGE RAILING.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
971.750	.016	2/1				VERTICAL ADJUSTMENT	2009	00000425-36
971.750	.016	2/1				VERTICAL CONTROL SURVEY	2008	VFLEA

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
971.668	.262		880.841	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -90.918 12B = -90.892 09 = -90.827 03 = -90.702

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 50 48.70309	92 58 31.49062	480780.186	142625.804	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2949460.094	639507.100	1646679.749	16656900.182	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_WW-DK9897-3S-15OCT2012.jpg	S	Oct 15, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_WW-DK9897-2-15OCT2012.jpg		Oct 15, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_WW-DK9897-1-15OCT2012.jpg		Oct 15, 2012

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

Mn/DOT Name: 5880 Y

NGS Name: 5880 Y

County: PINE, MN (Sheet 1)

NGS ACRN: RN0597 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	19	41 N	20 W	460131.00	925529.00	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2007	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

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

Description: (1961) **Stamping:** 5880 Y 1961

1.3 MILES NORTHEAST OF IN HINCKLEY, 1.0 MILE NORTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 48 IN HINCKLEY, 93.4 FEET EAST OF NORTHBOUND INTERSTATE HIGHWAY 35, AT INTERSTATE HIGHWAY 35 MILEPOINT 184.1, 29.0 FEET SOUTH OF COUNTY ROAD 40 EAST EXTENDED, 5.4 FEET WEST OF A FENCE, 11.0 FEET WEST OF A POWER POLE, 0.7 FOOT 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
1031.619	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1031.376	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
1031.337	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
1031.402	.016	2				VERTICAL CONTROL SURVEY	1975	L23805

Geoid Separations(ft): GEOID18 = -90.108 12B = -90.108 09 = -89.987 03 = -89.872

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

Mn/DOT Name: 5880 Z **NGS Name:** 5880 Z

County: PINE, MN (Sheet 1)

NGS ACRN: RN0596 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	18	41 N	20 W	460156.38	925530.11	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2012	GOOD	Horz=NO Vert=YES	YES	9790		NO MAG MATERIAL

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

Description: (1961) **Stamping:** 5880 Z 1961

1.4 MILES NORTH-NORTHEAST OF HINCKLEY, 1.45 MILES NORTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 48 AT HINCKLEY, IN THE SOUTHEAST CORNER OF NORTHBOUND INTERSTATE HIGHWAY 35 BRIDGE NUMBER 9790 OVER THE RAILROAD TRACKS, AT INTERSTATE HIGHWAY 35 MILEPOINT 184.55, 19.0 FEET EAST OF NORTHBOUND INTERSTATE HIGHWAY 35.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1077.865	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1077.885	.016	2/1				VERTICAL CONTROL SURVEY	2009	VMOOSE
1077.865	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1077.583	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
1077.583	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
1077.583	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
1077.645	.016	2				VERTICAL CONTROL SURVEY	1975	L23805

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
1077.787	.262		987.780	.197	2007	GPS - RTRN	2012	RTRN2012
1077.695	.262		987.806	.197	1996	GPS - RTRN	2008	RTRN2008

Geoid Separations(ft): GEOID18 = -90.124 12B = -90.128 09 = -90.006 03 = -89.888

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 01 56.38289	92 55 30.11040	493642.036	210253.979	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 01 56.38337	92 55 30.11032	493642.042	210254.027	.131	3	GPS - RTRN	2008	RTRN2008

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2961166.470	707337.879	1659450.969	16724514.323	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2961166.475	707337.928	1659450.975	16724514.372	.131	3	GPS - RTRN	2008	RTRN2008

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_Z-RN0596-3N-01MAY2012.jpg	N	May 1, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_Z-RN0596-2-01MAY2012.jpg		May 1, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/5880_Z-RN0596-1-01MAY2012.jpg		May 1, 2012

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

59 RC

Mn/DOT Name: 59 RC

NGS Name: 59 RC

County: PINE, MN (Sheet 1)

NGS ACRN: QO0337 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	21	39 N	21 W	455106.00	925848.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
UNKNOWN	SEE DESCRIPTION	USGS

Description: (1974)

Stamping: 59 RC 1954 954

1.5 MILES NORTHWEST OF PINE CITY, 0.4 MILE NORTHWEST OF A COUNTY ROAD 11 BRIDGE OVER INTERSTATE HIGHWAY 35, 66.0 FEET EAST OF THE JUNCTION OF COUNTY ROAD 11 AND TOWNSHIP ROAD NORTH, 33.6 FEET NORTHEAST OF COUNTY ROAD 11, 6.0 FEET SOUTHWEST OF A FENCE POST, 1.2 FEET SOUTHWEST OF A WITNESS POST.

Station Notes

THE TIE JUNCTION COUNTY ROAD 11/ TOWNSHIP ROAD NORTH WERE REBUILT WHEN THE NORTH PINE CITY INTERCHANGE WAS BUILT (AND NEW BRIDGE).

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
954.079	.033	3				VERTICAL CONTROL SURVEY	1966	USGS-VERT

Geoid Separations(ft): GEOID18 = -90.941 12B = -90.922 09 = -90.850 03 = -90.725

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

Mn/DOT Name: 6 MN115 **NGS Name:** 6

County: PINE, MN (Sheet 1)

NGS ACRN: DF5910 Get Map
NGS Quad / Sta Num : 45093112/
USGS Quad: HENRIETTE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	36	39 N	22 W	454915.01	930229.97		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1999	2019	GOOD	Horz=YES Vert=?	YES		FLUSH	NO MAG MATERIAL

Monument Type
CONCRETE MAT FOUNDATION (NON-PAVEMENT)

Disk Type
CHISELED CROSS

Mon. Agency
MN-115

Description: (2008)

Stamping: NO 6

3.5 MILES WEST OF PINE CITY, 3.0 MILES WEST ALONG COUNTY ROAD 7 FROM THE JUNCTION OF COUNTY ROAD 7 AND INTERSTATE HIGHWAY 35 TO THE JUNCTION OF COUNTY ROAD 7 AND COUNTY ROAD 53, 54.0 FEET NORTHEAST OF COUNTY ROAD 7 (POKEGAMA ROAD), 40.6 FEET WEST-NORTHWEST OF COUNTY ROAD 53 (TIGUA ROAD), 1.0 FOOT SOUTHWEST OF A WITNESS POST.

Station Notes
THE MARK IS A STAMPED CROSS IN THE NORTH RIM OF A SANITARY SEWER MANHOLE.

*** 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
941.068	.262		849.500	.197	2011	GPS - OPUS	2019	GPSBM
940.982	.262		849.414	.197	2011	GPS - OPUS	2019	GPSBM
			849.546	.008	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
941.107	.131		849.651	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2747
941.107	.131		849.651	.066	2007	GPS - STATIC	2010	HBRAH
941.107	.131		849.782	.066	1996	GPS - STATIC	2010	HBRAH
			849.651	.013	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
941.074	.131		849.782	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1839
941.074	.131		849.782	.066	1996	GPS - STATIC	2002	HPINE

Geoid Separations(ft): GEOID18 = -91.568 12B = -91.568 09 = -91.463 03 = -91.325

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 49 15.01129	93 02 29.96621	463880.739	133157.952	.131	3	GPS - OPUS	2019	GPSBM
45 49 15.01158	93 02 29.96617	463880.742	133157.981	.131	3	GPS - OPUS	2019	GPSBM
45 49 15.01151	93 02 29.96647	463880.721	133157.974	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 49 15.01216	93 02 29.96728	463880.663	133158.040	.033	C	ADJUSTMENT	2011	GPS2747
45 49 15.01216	93 02 29.96728	463880.663	133158.040	.033	C	GPS - STATIC	2010	HBRAH
45 49 15.01216	93 02 29.96728	463880.663	133158.040	.023		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 49 15.01203	93 02 29.96676	463880.700	133158.027	.033	C	GPS - STATIC	2010	HBRAH
45 49 15.01203	93 02 29.96676	463880.700	133158.027	.033	C	ADJUSTMENT	2003	GPS1839
45 49 15.01203	93 02 29.96676	463880.700	133158.028	.033	C	GPS - STATIC	2002	HPINE

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2932725.937	629753.585	1629799.842	16647415.367	.131	3	GPS - OPUS	2019	GPSBM
2932725.940	629753.614	1629799.844	16647415.396	.131	3	GPS - OPUS	2019	GPSBM
2932725.919	629753.607	1629799.823	16647415.389	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2932725.860	629753.672	1629799.766	16647415.455	.033	C	ADJUSTMENT	2011	GPS2747
2932725.860	629753.672	1629799.766	16647415.455	.033	C	GPS - STATIC	2010	HBRAH
2932725.860	629753.672	1629799.766	16647415.455	.023		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2932725.897	629753.659	1629799.803	16647415.442	.033	C	GPS - STATIC	2010	HBRAH
2932725.897	629753.659	1629799.803	16647415.442	.033	C	ADJUSTMENT	2003	GPS1839
2932725.897	629753.659	1629799.803	16647415.442	.033	C	GPS - STATIC	2002	HPINE

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/6-DF5910-3NW-20NOV2019.jpg	NW	Nov 20, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/6-DF5910-2-20NOV2019.jpg		Nov 20, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/6-DF5910-1-20NOV2019.jpg		Nov 20, 2019

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

60 RC USGS

Mn/DOT Name: 60 RC USGS
NGS Name: 60 RC
County: PINE, MN (Sheet 1)

NGS ACRN: QO1585 Get Map
NGS Quad / Sta Num : 45093112/1001
USGS Quad: HENRIETTE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	18	39 N	21 W	455154.96	930029.60		2

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2007	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	USGS

Description: (1993) **Stamping:** 60 RC 1954 966

3.0 MILES NORTHWEST OF PINE CITY, 34.0 FEET SOUTH OF THE JUNCTION OF COUNTY ROAD 112 AND A DRIVEWAY NORTH, 14.0 FEET WEST OF A FIELD ENTRANCE, 4.0 FEET SOUTHWEST OF A POWER POLE, 93.87 FEET SOUTHWEST OF STATION FEDDER.

Station Notes

IN 1993 GEODETIC UNIT COULD NOT FIND THE STATION FEDDER OR FEDDER RM 1 AND STATION 60 RC USGS, THE COUNTY ROAD HAS BEEN WIDENED.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
965.940	.033	3				VERTICAL CONTROL SURVEY	1966	USGS-VERT

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
966.238	.197		875.379	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -91.115 12B = -91.109 09 = -91.014 03 = -90.882

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 51 54.96122	93 00 29.59842	472428.038	149347.358	.066	2	ADJUSTMENT	1999	17648
45 51 54.95735	93 00 29.59162	472428.519	149346.965	.066	2	ADJUSTMENT	1991	17497

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 51 54.95646	93 00 29.59297	472428.423	149346.875	.066	2	ADJUSTMENT	1986	17289

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 51 55.10990	93 00 28.84260			.100	2	CLASSICAL SURVEY	1961	12611

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2940995.420	646084.757	1638322.920	16663608.216	.066	2	ADJUSTMENT	1999	17648
2940995.907	646084.373	1638323.401	16663607.824	.066	2	ADJUSTMENT	1991	17497

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2940995.813	646084.281	1638323.306	16663607.734	.066	2	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2316391.512	318015.125			.100	2	CLASSICAL SURVEY	1961	12611

61 RC

Mn/DOT Name: 61 RC
NGS Name: 61 RC
County: PINE, MN (Sheet 1)

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	14	39 N	22 W	455218.97	930243.69		

NGS ACRN: Get Map
NGS Quad / Sta Num : 45093112/
USGS Quad: HENRIETTE

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2008	GOOD	Horz=YES Vert=YES	YES		PROJECTS 1 IN.	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	USGS

Description: (2007) **Stamping:** 61 RC 1954 942

3.5 MILES EAST OF HENRIETTA, 3.5 MILES EAST ALONG COUNTY ROAD 11 FROM THE JUNCTION OF COUNTY ROAD 11 AND A RAILROAD TRACK, 262.8 FEET WEST-NORTHWEST OF THE NORTHWEST END OF A COUNTY ROAD 11 BRIDGE OVER POKEGAMA CREEK, 106.0 FEET NORTH OF THE CENTERLINE OF COUNTY ROAD 11, 8.0 FEET EAST OF A DRIVEWAY NORTH, 6.0 FEET WEST OF A WITNESS POST, 1.0 FOOT WEST OF A STEEL POST FOR A GATE.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
942.242	.033	3				VERTICAL CONTROL SURVEY	1966	USGS-VERT

Geoid Separations(ft): GEOID18 = -91.319 12B = -91.319 09 = -91.214 03 = -91.076

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

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/61_RC-3N-02OCT2008.jpg	N	Oct 2, 2008
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/61_RC-2-02OCT2008.jpg		Oct 2, 2008
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/61_RC-1-02OCT2008.jpg		Oct 2, 2008

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

Mn/DOT Name: 62 RC

NGS Name: 62 RC

County: PINE, MN (Sheet 1)

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	15	39 N	22 W	455219.00	930447.00		

NGS ACRN: Get Map
NGS Quad / Sta Num : 45093112/
USGS Quad: HENRIETTE

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2007	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

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

Description: (1954) **Stamping:** 62 RC 1954 964

1.8 MILES EAST OF HENRIETTA, 730.0 FEET EAST OF THE CROSSROADS, 30.0 FEET NORTH AND 92.0 FEET EAST OF COUNTY ROAD 11 AT A PRIVATE DRIVE SOUTH, 1.0 FOOT SOUTH OF A FENCE LINE.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
964.093	.033	3				VERTICAL CONTROL SURVEY	1966	USGS-VERT

Geoid Separations(ft): GEOID18 = -91.483 12B = -91.479 09 = -91.378 03 = -91.237

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

63 RC USGS

Mn/DOT Name: 63 RC USGS **NGS Name:** 63 RC

County: PINE, MN (Sheet 1)

NGS ACRN: QO1586 Get Map
NGS Quad / Sta Num : 45093112/1002
USGS Quad: HENRIETTE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	17	39 N	22 W	455218.55	930701.45		2

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2010	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	USGS

Description: (1971) **Stamping:** 63 RC 1954 996

AT A RAILROAD CROSSING OF COUNTY ROAD 11 IN HENRIETTE, 116.0 FEET NORTH OF THE NORTHEAST CORNER OF THE RAILROAD DEPOT, 22.0 FEET SOUTH OF COUNTY ROAD 11, 21.0 FEET WEST OF THE WEST RAIL OF MAIN RAILROAD TRACK, 4.0 FEET NORTHWEST OF A TELEPHONE POLE, 204.87 FEET NORTH OF STATION HENRIETTE, THE MONUMENT IS A 7.0 INCH DIAMETER CONCRETE POST.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
996.077	.033	3				VERTICAL CONTROL SURVEY	1966	USGS-VERT

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
996.520	.197		905.143	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -91.617 12B = -91.611 09 = -91.519 03 = -91.374

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 52 18.55497	93 07 01.44765	444703.359	151794.084	.066	2	ADJUSTMENT	1999	17648

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 52 18.54900	93 07 01.44354	444703.648	151793.478	.066	2	ADJUSTMENT	1986	17289

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 52 18.70830	93 07 00.66790			.100	2	CLASSICAL SURVEY	1961	12611

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2913235.693	648058.661	1610607.617	16666018.930	.066	2	ADJUSTMENT	1999	17648

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2913235.993	648058.061	1610607.907	16666018.326	.066	2	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2288632.653	319989.423			.100	2	CLASSICAL SURVEY	1961	12611

66 RC

Mn/DOT Name: 66 RC

NGS Name: 66 RC

County: PINE, MN (Sheet 1)

NGS ACRN: Get Map
NGS Quad / Sta Num : 45093111/
USGS Quad: BROOK PARK

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	8	39 N	21 W	455234.00	930005.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2008	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

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

Description: (2010) **Stamping:** 66 RC 1954 965

3.8 MILES NORTHWEST OF PINE CITY, 2.1 MILES NORTHWEST ALONG HENRIETTE ROAD (COUNTY ROAD11) FROM THE JUNCTION OF HENRIETTE ROAD (COUNTY ROAD11) TRUNK HIGHWAY 61 IN PINE CITY, THEN 0.9 MILE NORTH ALONG PIONEER ROAD, 280.0 FEET NORTH AND 29.0 FEET EAST OF A CROSSROADS, 4.0 FEET WEST OF A POWER POLE, 1.0 FOOT WEST OF A FENCE LINE.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
964.883	.033	3				VERTICAL CONTROL SURVEY	1966	USGS-VERT

Geoid Separations(ft): GEOID18 = -91.014 12B = -91.004 09 = -90.909 03 = -90.777

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

Mn/DOT Name: 67 RC

NGS Name: 67 RC

County: PINE, MN (Sheet 1)

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	6	39 N	21 W	455413.04	930005.86		

NGS ACRN: Get Map
NGS Quad / Sta Num : 45093111/
USGS Quad: BROOK PARK

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2007	GOOD	Horz=? Vert=YES	YES			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	USGS

Description: (2008)

Stamping: TT 67 RC 1954 990

2.3 MILES SOUTHWEST OF BEROUN, 1.67 MILES WEST ALONG COUNTY ROAD 14 FROM THE JUNCTION OF COUNTY ROAD 14 AND INTERSTATE HIGHWAY 35 IN BEROUN, 242.0 FEET SOUTH BEROUN CROSSING ROAD (COUNTY ROAD 14), 26.6 FEET WEST OF SUNNY HILL ROAD, 14.0 FEET SOUTHEAST OF ENTRANCE NUMBER 23919, 4.4 FEET EAST OF A POWER POLE.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
989.430	.033	3				VERTICAL CONTROL SURVEY	1966	USGS-VERT

Geoid Separations(ft): GEOID18 = -90.889 12B = -90.879 09 = -90.784 03 = -90.646

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

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/67_RC-3W-28NOV2007.jpg	W	Nov 28, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/67_RC-2-28NOV2007.jpg		Nov 28, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/67_RC-1-28NOV2007.jpg		Nov 28, 2007

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

68 RC

Mn/DOT Name: 68 RC

NGS Name: 68 RC

County: PINE, MN (Sheet 1)

NGS ACRN: Get Map
NGS Quad / Sta Num : 45093111/
USGS Quad: BROOK PARK

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	29	40 N	21 W	455550.60	930006.30		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2008	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

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

Description: (1954) **Stamping:** 68 RC 1954 960

1.3 MILES NORTH AND 2.0 MILES WEST OF BEROUN, 1.0 MILE WEST ALONG RILE ROAD FROM THE JUNCTION OF RAILROAD AND COUNTY ROAD 54, THEN 940.0 FEET SOUTH ALONG SUNNY HILL ROAD TO A DRIVEWAY EAST (FIRE NUMBER 27636), 17.0 FEET NORTH AND 23.0 FEET EAST OF A PRIVATE DRIVE EAST.

Station Notes

10-02-2008 THE MARK WAS FOUND WITH BROKEN CONCRETE WITH NO CAP.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
959.142	.033	3				VERTICAL CONTROL SURVEY	1966	USGS-VERT

Geoid Separations(ft): GEOID18 = -90.777 12B = -90.768 09 = -90.676 03 = -90.535

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

68 RC RESET

Mn/DOT Name: 68 RC RESET
NGS Name: 68 RC RESET
County: PINE, MN (Sheet 1)

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	29	40 N	21 W	455551.00	930005.00		

NGS ACRN: Get Map
NGS Quad / Sta Num : 45093111/
USGS Quad: BROOK PARK

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1979	2007	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

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

Description: (2010) **Stamping:** 68 RC 1954 RESET 1979

1.3 MILES NORTH AND 2.0 MILES WEST OF BEROUN, 2.6 MILES NORTH ALONG COUNTY ROAD 130 (WEST FRONTAGE ROAD) FROM THE JUNCTION OF COUNTY ROAD 130 (WEST FRONTAGE ROAD) AND BREOUN CROSSING (COUNTY ROAD 14), WEST ALONG COUNTY ROAD 13 (2 CREEK ROAD) TO ITS THE JUNCTION WITH SUNNY HILLS ROAD, THEN NORTH 0.8 MILE NORTH ALONG SUNNY HILL ROAD, 940.0 FEET SOUTH OF A CROSSROADS, 17.0 FEET NORTH AND 23.0 FEET EAST OF A PRIVATE DRIVE EAST.

Station Notes
THE MARK WAS FOUND IN POOR CONDITION, THE DISK WAS REMOVED AND TURNED IN TO THE CENTRAL OFFICE.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
959.142	.033	3				VERTICAL CONTROL SURVEY	1984	USGS-VERT

Geoid Separations(ft): GEOID18 = -90.777 12B = -90.764 09 = -90.672 03 = -90.531

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

69 RC

Mn/DOT Name: 69 RC

NGS Name: 69 RC

County: PINE, MN (Sheet 1)

NGS ACRN: Get Map
NGS Quad / Sta Num : 45093111/
USGS Quad: BROOK PARK

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	19	40 N	21 W	455651.36	930107.84		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2007	GOOD	Horz=YES Vert=YES	YES		PROJECTS 24 IN.	SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	USGS

Description: (2008) **Stamping:** 69 RC 1954 1016

4.0 MILES NORTHWEST OF BEROUN, 2.5 MILES EAST OF BROCK PARK, 0.2 MILE EAST ALONG COUNTY ROAD 13 FROM THE JUNCTION OF COUNTY ROAD 13 AND TRUNK HIGHWAY 23 IN BROOK PARK, THEN 2.5 MILES EAST ON COUNTY ROAD 131 TO THE MARK, 31.5 FEET SOUTH OF MALLARD ROAD, 93.4 FEET WEST OF ENTRANCE FIRE NUMBER 13364, 75.0 FEET EAST OF ENTRANCE FIRE NUMBER 13304.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1015.995	.033	3				VERTICAL CONTROL SURVEY	1966	USGS-VERT

Geoid Separations(ft): GEOID18 = -90.810 12B = -90.797 09 = -90.705 03 = -90.564

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

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/69_RC-3S-29NOV2007.jpg	S	Nov 29, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/69_RC-2-29NOV2007.jpg		Nov 29, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/69_RC-1-29NOV2007.jpg		Nov 29, 2007

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

Mn/DOT Name: 7 MN115 **NGS Name:** 7

County: PINE, MN (Sheet 1)

NGS ACRN: DF5911 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	31	39 N	20 W	454902.18	925347.83		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1999	2023	DESTROYED	Horz=NO Vert=NO	YES		FLUSH	MARKER W/BAR MAGNET

Monument Type
CONCRETE MONUMENT (CAST-IN-PLACE)

Disk Type
HORIZONTAL CONTROL DISK

Mon. Agency
MN-115

Description: (2000)

Stamping: NO 7

4.0 MILES EAST OF PINE CITY, 4.1 MILES EAST ALONG COUNTY ROAD 8 FROM THE JUNCTION OF COUNTY ROAD 8 AND COUNTY ROAD 51 IN PINE CITY, 385.0 FEET EAST OF SUNNY SIDE ROAD, 44.0 FEET NORTH OF COUNTY ROAD 8, 3.0 FEET SOUTH OF A FENCE CORNER, 1.5 FEET SOUTH OF A WITNESS POST.

Station Notes
REPORTED BY PINE COUNTY SURVEYOR.

*** 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
969.201	.262		879.139	.197	2011	GPS - OPUS	2019	GPSBM
969.207	.262		879.145	.197	2011	GPS - OPUS	2019	GPSBM
			879.070	.010	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
969.148	.262		879.276	.197	1996	GPS - RTRN	2009	RTRN2009
969.024	.262		879.152	.197	1996	GPS - RTRN	2008	RTRN2008
			879.165	.011	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
969.158	.131		879.316	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1839
969.158	.131		879.316	.066	1996	GPS - STATIC	2002	HPINE

Geoid Separations(ft): GEOID18 = -90.062 12B = -90.072 09 = -90.020 03 = -89.872

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 49 02.18050	92 53 47.83088	500861.955	131826.065	.131	3	GPS - OPUS	2019	GPSBM
45 49 02.18021	92 53 47.83103	500861.944	131826.035	.131	3	GPS - OPUS	2019	GPSBM
45 49 02.18005	92 53 47.83099	500861.947	131826.019	.016		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 49 02.18000	92 53 47.83135	500861.922	131826.014	.016		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 49 02.17965	92 53 47.83017	500862.005	131825.978	.131	3	GPS - RTRN	2009	RTRN2009
45 49 02.18044	92 53 47.83109	500861.940	131826.059	.131	3	GPS - RTRN	2008	RTRN2008
45 49 02.17988	92 53 47.83085	500861.957	131826.002	.033	C	ADJUSTMENT	2003	GPS1839
45 49 02.17988	92 53 47.83085	500861.958	131826.003	.033	C	GPS - STATIC	2002	HPINE

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2969721.147	629052.107	1666765.979	16646130.488	.131	3	GPS - OPUS	2019	GPSBM
2969721.136	629052.078	1666765.968	16646130.458	.131	3	GPS - OPUS	2019	GPSBM
2969721.140	629052.061	1666765.971	16646130.442	.016		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2969721.114	629052.056	1666765.945	16646130.437	.016		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2969721.198	629052.022	1666766.029	16646130.402	.131	3	GPS - RTRN	2009	RTRN2009
2969721.132	629052.101	1666765.964	16646130.481	.131	3	GPS - RTRN	2008	RTRN2008
2969721.150	629052.044	1666765.981	16646130.425	.033	C	ADJUSTMENT	2003	GPS1839
2969721.149	629052.044	1666765.981	16646130.425	.033	C	GPS - STATIC	2002	HPINE

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/7-DF5911-3N-20NOV2019.jpg	N	Nov 20, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/7-DF5911-2-20NOV2019.jpg		Nov 20, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/7-DF5911-1-20NOV2019.jpg		Nov 20, 2019

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

Mn/DOT Name: 70 RC USGS
NGS Name: 70 RC
County: PINE, MN (Sheet 1)

NGS ACRN: QO0349 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	9	38 N	21 W	454738.91	925813.14	2	2

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2012	GOOD	Horz=YES Vert=YES	YES		PROJECTS 2 IN.	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	USGS

Description: (1984) **Stamping:** 70 RC 1954 973 FEET

2.8 MILES SOUTH OF PINE CITY, 1.7 MILES SOUTH ALONG TRUNK HIGHWAY 361 FROM THE JUNCTION OF TRUNK HIGHWAY 361 AND HILLSIDE AVENUE IN PINE CITY, 66.5 FEET EAST OF TRUNK HIGHWAY 361, 138.0 FEET EAST OF A POWER POLE, 3.5 FEET NORTH-NORTHWEST OF A POWER POLE, 2.5 FEET WEST OF THE NORTH-SOUTH FENCE LINE, ACROSS FROM DRIVEWAY NUMBER 2281, 1.0 FOOT WEST 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
973.062	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
973.079	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
973.079	.016	2/1				VERTICAL CONTROL SURVEY	2009	VCHEN
973.148	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
972.931	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
972.931	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
972.846	.033	3				VERTICAL CONTROL SURVEY	1966	USGS-VERT

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
973.161	.197		882.308	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -91.076 12B = -91.056 09 = -91.004 03 = -90.869

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 47 38.90875	92 58 13.14268	482062.108	123398.639	.066	2	ADJUSTMENT	1999	17648

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 47 38.90599	92 58 13.14201	482062.156	123398.359	.066	2	CLASSICAL SURVEY	1994	G17352
45 47 38.90599	92 58 13.14201	482062.156	123398.359	.066	2	ADJUSTMENT	1994	17352

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 47 39.06270	92 58 12.38960			.100	2	CLASSICAL SURVEY	1984	3306-09

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951069.309	620306.301	1647985.222	16637683.335	.066	2	ADJUSTMENT	1999	17648

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951069.361	620306.023	1647985.269	16637683.056	.066	2	CLASSICAL SURVEY	1994	G17352
2951069.361	620306.023	1647985.269	16637683.056	.066	2	ADJUSTMENT	1994	17352

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2326465.545	292237.397			.100	2	CLASSICAL SURVEY	1984	3306-09

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/70_RC-QO0349-3E-08MAY2007.jpg	E	May 8, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/70_RC-QO0349-2-08MAY2007.jpg		May 8, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/70_RC-QO0349-1-08MAY2007.jpg		May 8, 2007

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

71 RC

Mn/DOT Name: 71 RC
NGS Name: 71 RC
County: PINE, MN (Sheet 1)

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	26	38 N	21 W	454532.00	925516.00		

NGS ACRN: Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2007	GOOD	Horz=NO Vert=YES	YES		PROJECTS 1 IN.	STEEL ROD IMBED IN MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	USGS

Description: (2010) **Stamping:** 71 RC 1954 934

2.0 MILES EAST OF ROCK CREEK, 5.0 MILES NORTHEAST OF RUSH CITY, 4.8 MILES NORTH ALONG TRUNK HIGHWAY 361 (FOREST BOULEVARD) FROM THE JUNCTION OF SOUTH BREMER AVENUE IN RUSH CITY TO ITS JUNCTION WITH 560TH STREET (COUNTY ROAD 109), THEN 1.9 MILES EAST ALONG 560TH STREET, 32.0 FEET SOUTH OF COUNTY ROAD 42, 42.0 FEET EAST OF A FIELD DRIVE SOUTH, 0.5 FOOT NORTH AND 27.0 FEET EAST OF A FENCE CORNER, 0.7 FOOT NORTH OF A WITNESS POST.

Station Notes
THERE WAS NO REAL TIME REFERENCE NETWORK (RTRN) DUE TO TREES NEAR THE MARK.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
934.486	.033	3				VERTICAL CONTROL SURVEY	1968	USGS-VERT

Geoid Separations(ft): GEOID18 = -90.603 12B = -90.630 09 = -90.574 03 = -90.400

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

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/71_RC-3S-14MAY2007.jpg	S	May 14, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/71_RC-2-14MAY2007.jpg		May 14, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/71_RC-1-14MAY2007.jpg		May 14, 2007

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

Mn/DOT Name: 72 RC

NGS Name: 72 RC

County: PINE, MN (Sheet 1)

NGS ACRN: Get Map
NGS Quad / Sta Num : 45092442/
USGS Quad: BASS CREEK

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	11	38 N	20 W	454734.00	924822.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2007	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

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

Description: (1954) **Stamping:** 72 RC 1954 881

7.5 MILES NORTHEAST OF ROCK CREEK, 2.0 MILES SOUTH AND 8.0 MILES EAST OF PINE CITY, 740.0 FEET SOUTH OF THE SOUTH EDGE OF A LARGE FIELD NEAR THE CENTER OF SECTION 11, 19.0 FEET EAST OF A ROAD, AT THE NORTH EDGE OF A LARGE CLEARING, 3.0 FEET NORTH OF A 4.0 INCH DIAMETER OAK TREE.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
880.605	.033	3				VERTICAL CONTROL SURVEY	1966	USGS-VERT

Geoid Separations(ft): GEOID18 = -89.229 12B = -89.232 09 = -89.186 03 = -89.084

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

Mn/DOT Name: 73 RC

NGS Name: 73 RC

County: PINE, MN (Sheet 1)

NGS ACRN: Get Map
NGS Quad / Sta Num : 45092442/
USGS Quad: BASS CREEK

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	2	38 N	20 W	454858.00	924744.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2007	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

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

Description: (1954) **Stamping:** 73 RC 1954 880

8.35 MILES SOUTHEAST OF PINE CITY, 124.0 FEET SOUTH OF THE SOUTHWEST CORNER OF A SCHOOLHOUSE PORCH, 62.0 FEET SOUTH AND 120.0 FEET WEST OF COUNTY ROAD 118 AT A TEE-ROAD SOUTH, 1.0 FOOT NORTH AND 3.0 FEET EAST OF A TELEPHONE POLE.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
879.749	.033	3				VERTICAL CONTROL SURVEY	1966	USGS-VERT

Geoid Separations(ft): GEOID18 = -89.032 12B = -89.039 09 = -88.993 03 = -88.901

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

74 RC

Mn/DOT Name: 74 RC

NGS Name: 74 RC

County: PINE, MN (Sheet 1)

NGS ACRN: Get Map
NGS Quad / Sta Num : 45092442/
USGS Quad: BASS CREEK

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	34	39 N	20 W	454901.00	925000.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2007	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

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

Description: (1954) **Stamping:** 74 RC 1954 990

6.5 MILES SOUTHEAST OF PINE CITY, 900.0 FEET EAST OF THE JUNCTION OF COUNTY ROAD 8 WEST- COUNTY ROAD 118 EAST-COUNTY ROAD 117 SOUTH AND A TOWNSHIP ROAD NORTH, 31.0 FEET NORTH AND 189.0 FEET WEST OF COUNTY ROAD 118 AT A PRIVATE DRIVE SOUTH, 3.0 FEET SOUTH AND 3.0 FEET WEST OF THE CORNER POST AT A FENCE NORTH.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
989.716	.033	3				VERTICAL CONTROL SURVEY	1966	USGS-VERT

Geoid Separations(ft): GEOID18 = -89.396 12B = -89.386 09 = -89.350 03 = -89.255

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

Mn/DOT Name: 75 RC

NGS Name: 75 RC

County: PINE, MN (Sheet 1)

NGS ACRN: Get Map
NGS Quad / Sta Num : 45092442/
USGS Quad: BASS CREEK

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	32	39 N	20 W	454939.00	925128.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2007	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

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

Description: (1954) **Stamping:** 75 RC 1954 964

5.5 MILES EAST OF PINE CITY, 18.0 FEET SOUTH AND 34.0 FEET WEST OF THE ROAD AT A PRIVATE DRIVE WEST, 0.5 FOOT NORTH AND 17.0 FEET WEST OF A FENCE CORNER.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
963.951	.033	3				VERTICAL CONTROL SURVEY	1966	USGS-VERT

Geoid Separations(ft): GEOID18 = -89.606 12B = -89.603 09 = -89.554 03 = -89.452

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

Mn/DOT Name: 76 RC
NGS Name: 76 RC
County: PINE, MN (Sheet 1)

NGS ACRN: DF5913 Get Map
NGS Quad / Sta Num : 45092442/
USGS Quad: BASS CREEK

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	22	39 N	20 W	455047.68	925013.20		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2020	GOOD	Horz=YES Vert=YES	YES		FLUSH	STEEL ROD IMBED IN MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	USGS

Description: (2007) **Stamping:** 76 RC 1954 947

1.5 MILES NORTH AND 6.5 MILES EAST OF PINE CITY, 0.2 MILE EAST ALONG 3RD AVENUE SOUTHWEST FROM THE JUNCTION OF 3RD AVENUE SOUTHWEST AND COUNTY ROAD 61 IN PINE CITY, THEN 0.8 MILE EAST AND SOUTH ALONG COUNTY ROAD 8 FROM THE JUNCTION OF COUNTY ROAD 8 AND 3RD AVENUE SOUTHWEST, THEN 2.45 MILES NORTH ALONG COUNTY ROAD 9 FROM THE JUNCTION OF COUNTY ROAD 9 AND COUNTY ROAD 8, THEN 4.9 MILES EAST ALONG CROOKED RIVER ROAD, 196.0 FEET NORTH OF CROOKED RIVER ROAD, 28.0 FEET EAST OF THE SOUTHWEST CORNER OF RECTANGULAR PROTUBERANCE (ESTIMATED TO BE 2.0 MILES NORTH-SOUTH BY 1.0 MILE EAST-WEST) ON THE WEST SIDE OF THE TOWNSHIP, AT A TEE JUNCTION OF EVERGREEN ROAD (GOING NORTH), AT THE SOUTHWEST CORNER OF SECTION 22, 0.5 FOOT SOUTH OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
946.937	.033	3				VERTICAL CONTROL SURVEY	1966	USGS-VERT

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
947.255	.262		857.931	.197	2011	GPS - OPUS	2020	GPSBM
947.268	.262		857.944	.197	2011	GPS - OPUS	2020	GPSBM
947.403	.262		858.082	.197	2011	GPS - RTRN	2020	RTRN2020
			857.984	.010	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			858.079	.011	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
947.406	.131		858.233	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1839
947.406	.131		858.233	.066	1996	GPS - STATIC	2002	HPINE

Geoid Separations(ft): GEOID18 = -89.324 12B = -89.321 09 = -89.275 03 = -89.193

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 50 47.68235	92 50 13.19852	516056.189	142519.652	.131	3	GPS - OPUS	2020	GPSBM
45 50 47.68224	92 50 13.19827	516056.207	142519.640	.131	3	GPS - OPUS	2020	GPSBM
45 50 47.68279	92 50 13.19784	516056.237	142519.696	.131	3	GPS - RTRN	2020	RTRN2020
45 50 47.68222	92 50 13.19856	516056.186	142519.639	.016		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 50 47.68213	92 50 13.19888	516056.164	142519.629	.020		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 50 47.68197	92 50 13.19838	516056.199	142519.613	.033	C	ADJUSTMENT	2003	GPS1839
45 50 47.68197	92 50 13.19838	516056.199	142519.613	.033	C	GPS - STATIC	2002	HPINE

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2984729.529	640002.135	1681939.999	16656838.241	.131	3	GPS - OPUS	2020	GPSBM
2984729.547	640002.124	1681940.017	16656838.230	.131	3	GPS - OPUS	2020	GPSBM
2984729.576	640002.181	1681940.047	16656838.286	.131	3	GPS - RTRN	2020	RTRN2020
2984729.527	640002.122	1681939.996	16656838.228	.016		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2984729.504	640002.112	1681939.973	16656838.219	.020		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2984729.540	640002.097	1681940.009	16656838.203	.033	C	ADJUSTMENT	2003	GPS1839
2984729.540	640002.097	1681940.009	16656838.203	.033	C	GPS - STATIC	2002	HPINE

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/76_RC-DF5913-3E-29APR2020.jpg	E	Apr 29, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/76_RC-DF5913-2-29APR2020.jpg		Apr 29, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/76_RC-DF5913-1-29APR2020.jpg		Apr 29, 2020

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

77 RC

Mn/DOT Name: 77 RC
NGS Name: 77 RC
County: PINE, MN (Sheet 1)

NGS ACRN: Get Map
NGS Quad / Sta Num : 45092441/
USGS Quad: CEDAR LAKE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	10	39 N	20 W	455235.00	925013.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2007	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

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

Description: (1954) **Stamping:** 77 RC 1954 956

7.2 MILES NORTHEAST OF PINE CITY, 462.0 FEET NORTH OF THE CROSSROADS, 148.0 FEET NORTH AND 29.0 FEET EAST OF A PRIVATE DRIVE WEST, 1.0 FOOT WEST OF A TEE FENCE EAST AND THE NORTHWEST CORNER OF A FIELD.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
955.992	.033	3				VERTICAL CONTROL SURVEY	1966	USGS-VERT

Geoid Separations(ft): GEOID18 = -89.226 12B = -89.232 09 = -89.180 03 = -89.098

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

78 RC

Mn/DOT Name: 78 RC

NGS Name: 78 RC

County: PINE, MN (Sheet 1)

NGS ACRN: Get Map
NGS Quad / Sta Num : 45092441/
USGS Quad: CEDAR LAKE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	5	39 N	20 W	455324.00	925129.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2007	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

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

Description: (2010) **Stamping:** 78 RC 1954 979

4.5 MILES NORTH AND 5.5 MILES EAST OF PINE CITY, 0.4 MILE SOUTH ALONG COUNTY ROAD 127 (RED ROBIN ROAD) FROM THE JUNCTION WITH THE EAST-WEST REACH, THEN 4.7 MILES EAST ALONG BEROUN CROSSING (COUNTY ROAD 14), THEN 0.9 MILE SOUTH ALONG DOWNEY ROAD, 125.0 FEET NORTH AND 20.0 FEET WEST OF HOLLY ROAD, 1.0 FOOT SOUTH AND 2.0 FEET WEST OF A FENCE CORNER, AT THE NORTHEAST CORNER OF A SMALL FIELD.

Station Notes

THE MONUMENT WAS NOT LOCATED USING THE TIES. THE CROSSROAD TIES DON'T FIT THE 1/4 SECTION. LOOKED IN ALL THE QUADRANTS.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
979.368	.033	3				VERTICAL CONTROL SURVEY	1966	USGS-VERT

Geoid Separations(ft): GEOID18 = -89.406 12B = -89.429 09 = -89.360 03 = -89.255

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

79 RC

Mn/DOT Name: 79 RC

NGS Name: 79 RC

County: PINE, MN (Sheet 1)

NGS ACRN: Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	12	39 N	21 W	455320.00	925359.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	1961	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

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

Description: (1954) **Stamping:** 79 RC 1954 985

1.5 MILE SOUTH AND 3.0 MILES EAST OF BEROUN, 22.0 FEET SOUTH AND 360.0 FEET WEST OF THE CROSSROADS, 5.0 FEET NORTH OF A TELEPHONE POLE, 1.0 FOOT SOUTH AND 1.0 FOOT EAST OF A FENCE CORNER AT THE NORTHEAST CORNER OF A PASTURE.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
984.476	.033	3				VERTICAL CONTROL SURVEY	1966	USGS-VERT

Geoid Separations(ft): GEOID18 = -89.885 12B = -89.905 09 = -89.842 03 = -89.691

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

Mn/DOT Name: 8 MN115 **NGS Name:** 8

County: PINE, MN (Sheet 1)

NGS ACRN: DF5912 Get Map
NGS Quad / Sta Num : 45092442/
USGS Quad: BASS CREEK

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	31	39 N	19 W	454900.20	924616.72		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1999	2007	NOT FOUND	Horz=YES Vert=YES	NO		FLUSH	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	HORIZONTAL CONTROL DISK	MN-115

Description: (2000) **Stamping:** NO 8

10.0 MILES EAST OF PINE CITY, 9.3 MILES EAST ALONG ST. CROIX ROAD SOUTHEAST (COUNTY ROAD 8) FROM THE JUNCTION OF COUNTY ROAD 8 AND 8TH AVENUE SOUTHEAST IN PINE CITY, TO COUNTY ROAD 118, THEN 3.35 MILES EAST ALONG COUNTY ROAD 118, 0.05 MILE WEST OF NORWAY PINE ROAD, 32.0 FEET NORTH OF COUNTY ROAD 118, 0.15 MILE EAST OF THE SOUTHWEST CORNER OF SECTION 31, 45.0 FEET EAST OF A NORTH-SOUTH DITCH, 1.5 FEET SOUTH OF A WITNESS POST.

*** No Leveling-Derived Orthometric Heights in the Database ***

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
			774.844	.010	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			774.939	.011	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
863.745	.131		775.094	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1839
863.745	.131		775.094	.066	1996	GPS - STATIC	2002	HPINE

Geoid Separations(ft): GEOID18 = -88.806 12B = -88.822 09 = -88.770 03 = -88.678

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 49 00.20404	92 46 16.72219	532814.902	131652.375	.016		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 49 00.20399	92 46 16.72254	532814.877	131652.370	.016		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 49 00.20386	92 46 16.72204	532814.912	131652.357	.033	C	ADJUSTMENT	2003	GPS1839
45 49 00.20386	92 46 16.72204	532814.912	131652.358	.033	C	GPS - STATIC	2002	HPINE

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3001669.538	629423.119	1698704.726	16645996.736	.016		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3001669.513	629423.113	1698704.701	16645996.731	.016		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3001669.548	629423.101	1698704.737	16645996.718	.033	C	ADJUSTMENT	2003	GPS1839
3001669.548	629423.100	1698704.737	16645996.717	.033	C	GPS - STATIC	2002	HPINE

80 RC

Mn/DOT Name: 80 RC
NGS Name: 80 RC
County: PINE, MN (Sheet 1)

NGS ACRN: Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	2	39 N	21 W	455408.00	925507.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2007	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

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

Description: (1954) **Stamping:** 80 RC 1954 982

0.5 MILE SOUTH ALONG RED ROBIN ROAD (COUNTY ROAD 127), THEN 1.7 MILES EAST ALONG BEROUN CROSSING ROAD TO ITS JUNCTION WITH COUNTY ROAD 9, 432.0 FEET SOUTH AND 27.0 FEET WEST OF THE JUNCTION OF COUNTY ROAD 14 (EAST-WEST) -COUNTY ROAD 9 (SOUTH) AND CROSS LAKE ROAD (NORTH), 11.0 FEET SOUTH AND 27.0 FEET WEST OF COUNTY ROAD 9 AND A DRIVE WEST TO A BARNYARD, 2.0 FEET SOUTH AND 1.0 FOOT EAST OF A FENCE CORNER.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
981.809	.033	3				VERTICAL CONTROL SURVEY	1966	USGS-VERT

Geoid Separations(ft): GEOID18 = -90.095 12B = -90.098 09 = -90.039 03 = -89.905

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

81 RC

Mn/DOT Name: 81 RC
NGS Name: 81 RC
County: PINE, MN (Sheet 1)

NGS ACRN: QO0323 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	33	40 N	21 W	455415.00	925737.00	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2012	DESTROYED	Horz=NO Vert=NO	NO		PROJECTS 6 IN.	SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
UNKNOWN	SURVEY DISK	USGS

Description: (1954)
Stamping: 81 RC 1954 972

5.1 MILES NORTH OF THE SNAKE RIVER AT PINE CITY, 0.5 MILE SOUTH OF BEROUN, 0.3 MILE EAST OF INTERSTATE HIGHWAY 35 ON COUNTY ROAD 14, 177.0 FEET WEST OF COUNTY ROAD 61, 34.0 FEET NORTH OF COUNTY ROAD 14, 71.8 FEET NORTH-NORTHWEST OF A POWER POLE, 4.5 FEET NORTHEAST OF A CORNER FENCE POST, 0.5 FOOT SOUTHWEST OF A FENCE LINE, 1.0 FOOT SOUTH 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
972.934	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
972.672	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
972.383	.033	3				VERTICAL CONTROL SURVEY	1966	USGS-VERT

Geoid Separations(ft): GEOID18 = -90.551 12B = -90.535 09 = -90.466 03 = -90.331

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

82 RC

Mn/DOT Name: 82 RC **NGS Name:** 82 RC

County: PINE, MN (Sheet 1)

NGS ACRN: Get Map
NGS Quad / Sta Num : 45092441/
USGS Quad: CEDAR LAKE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	34	40 N	20 W	455412.00	924933.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2007	GOOD	Horz=NO Vert=YES	YES		PROJECTS 14 IN.	STEEL ROD IMBED IN MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	USGS

Description: (2007) **Stamping:** 82 RC 1954 961

0.5 MILE SOUTH AND 6.5 MILES EAST OF BEROUN, 6.0 MILES EAST ALONG COUNTY ROAD 14 FROM THE JUNCTION OF COUNTY ROAD 14 AND COUNTY ROAD 61 IN BEROUN, THEN 0.5 MILE EAST ALONG BEROUN CROSSING ROAD, 37.0 FEET NORTH OF BEROUN CROSSING ROAD, 10.0 FEET EAST OF THE EXTENDED CENTERLINE OF A DRIVEWAY SOUTH (FIRE NUMBER 31998).

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
960.917	.033	3				VERTICAL CONTROL SURVEY	1966	USGS-VERT

Geoid Separations(ft): GEOID18 = -89.048 12B = -89.068 09 = -89.006 03 = -88.924

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

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/82_RC-3N-22MAY2007.jpg	N	May 22, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/82_RC-2-22MAY2007.jpg		May 22, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/82_RC-1-22MAY2007.jpg		May 22, 2007

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

Mn/DOT Name: 83 RC
NGS Name: 83 RC
County: PINE, MN (Sheet 1)

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	36	40 N	20 W	455423.00	924630.00		

NGS ACRN: Get Map
NGS Quad / Sta Num : 45092441/
USGS Quad: CEDAR LAKE

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2007	GOOD	Horz=? Vert=YES	NO			SEE DESCRIPTION

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

Description: (2010) **Stamping:** 83 RC 1954 920

0.25 MILE SOUTH AND 9.0 MILES EAST OF BEROUN, 0.4 MILE SOUTH OF RED ROBIN ROAD FROM THE JUNCTION OF RED ROBIN ROAD AND PRAHA AVENUE IN BEROUN, 5.7 MILES EAST ALONG COUNTY ROAD 14, CONTINUE 2.2 MILES EAST ALONG COUNTY ROAD 128, 0.85 MILE NORTHEAST OF COUNTY ROAD 128, 16.0 FEET SOUTH AND 50.0 FEET WEST OF THE END OF THE ROAD, 7.0 FEET WEST OF THE WEST BOUNDARY OF THE SAINT CROIX STATE PARK.

Station Notes
AN ALL-TERRAIN VEHICLE (ATV) IS NEEDED.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
919.581	.033	3				VERTICAL CONTROL SURVEY	1966	USGS-VERT

Geoid Separations(ft): GEOID18 = -88.582 12B = -88.609 09 = -88.543 03 = -88.468

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

84 RC

Mn/DOT Name: 84 RC
NGS Name: 84 RC
County: PINE, MN (Sheet 1)

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	26	40 N	19 W	455553.00	924032.00		

NGS ACRN: Get Map
NGS Quad / Sta Num : 45092414/
USGS Quad: LAKE CLAYTON

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2008	GOOD	Horz=NO Vert=YES	YES		PROJECTS 12 IN.	NO MAG MATERIAL

Monument Type	Disk Type	Mon. Agency
ROCK (0 TO 1 METERS)	BENCH MARK DISK	USGS

Description: (2010) **Stamping:** 84 RC 1954 876

AT SAINT CROIX STATE PARK, 1.0 MILE WEST OF CROSBY TOWNSHIP, 2.7 MILES SOUTH ALONG COUNTY ROAD 22 FROM THE JUNCTION WITH COUNTY ROAD 136, THEN 2.6 MILES EAST ALONG AN UNNAMED ROAD, THEN 1.0 MILE SOUTH ALONG AN UNNAMED ROAD, 125.0 FEET EAST OF THE WEST BANK OF BEAR CREEK, 25.0 FEET SOUTH OF THE EAST POINT OF A BRUSHY TRIANGLE FORMED BY ROAD FORKS AT A TEE-ROAD EAST, IN A LARGE BOULDER, 25.0 FEET SOUTHEAST OF A TRAIL SIGN.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
876.514	.033	3				VERTICAL CONTROL SURVEY	1967	USGS-VERT

Geoid Separations(ft): GEOID18 = -87.779 12B = -87.851 09 = -87.785 03 = -87.661

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

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/84_RC-3S-21OCT2008.jpg	S	Oct 21, 2008
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/84_RC-2-21OCT2008.jpg		Oct 21, 2008
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/84_RC-1-21OCT2008.jpg		Oct 21, 2008

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

85 RC

Mn/DOT Name: 85 RC

NGS Name: 85 RC

County: PINE, MN (Sheet 1)

NGS ACRN: Get Map
NGS Quad / Sta Num : 45092414/
USGS Quad: LAKE CLAYTON

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	19	40 N	18 W	455619.00	923839.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2007	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

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

Description: (2020) **Stamping:** 85 RC 1954 876

AT SAINT CROIX STATE PARK, NEAR THE CENTER OF SECTION 19, 1.0 MILE NORTHEAST OF CROSBY TOWNSHIP, 4.6 MILES SOUTH ALONG COUNTY HIGHWAY 22 (FLEMING LOGGING ROAD TO COUNTY HIGHWAY 136 (SAND RIVER ROAD), THEN 1.6 MILES WEST ALONG AN UNNAMED ROAD, THEN 0.1 MILE SOUTH, 0.6 MILE WEST OF NORWAY POINT CAMP, AT THE BEACH, 34.0 FEET NORTH AND 28.0 FEET EAST OF THE ROAD AT THE EAST EDGE OF A SPILLWAY, 1.0 FOOT SOUTH AND 4.0 FEET EAST OF AN 8.0 INCH DIAMETER OAK TREE.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
875.723	.033	3				VERTICAL CONTROL SURVEY	1967	USGS-VERT

Geoid Separations(ft): GEOID18 = -87.565 12B = -87.644 09 = -87.588 03 = -87.460

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

Mn/DOT Name: 86 RC **NGS Name:** 86 RC

County: PINE, MN (Sheet 1)

NGS ACRN: DF5918 Get Map
NGS Quad / Sta Num : 45092411/
USGS Quad: MONSON LAKE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	21	40 N	18 W	455646.21	923620.47		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2012	POOR	Horz=YES Vert=YES	YES		RECESSED 2 IN.	STEEL ROD IMBED IN MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	METAL ROD	USGS

Description: (2012) **Stamping:** 86 RC 1954 900

IN SAINT CROIX STATE PARK, 7.7 MILES SOUTHEAST OF CLOVERDALE, 5.85 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND COUNTY ROAD 21 IN CLOVERDALE TO TRUNK HIGHWAY 48 MILEPOINT 5.15, THEN 4.65 MILES SOUTH ALONG COUNTY ROAD 22/ ST. CROIX PARK ROAD, 300.0 FEET SOUTHEAST OF THE OFFICE BUILDING, 80.0 FEET EAST OF COUNTY ROAD 22 (ST. CROIX PARK ROAD), 18.0 FEET SOUTH OF A ROAD IN A TRAIL CENTER, 2.0 FEET WEST OF A WITNESS POST. 2004, THE CAP WAS FOUND MISSING, THE STEM CENTER WAS PUNCHED FOR USE.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
899.627	.033	3				VERTICAL CONTROL SURVEY	1967	USGS-VERT

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
			812.134	.010	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
899.559	.262		812.187	.197	2007	GPS - RTRN	2012	RTRN2012
			812.236	.011	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
899.637	.131		812.393	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1839
899.637	.131		812.393	.066	1996	GPS - STATIC	2002	HPINE

Geoid Separations(ft): GEOID18 = -87.329 12B = -87.411 09 = -87.372 03 = -87.237

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 56 46.20898	92 36 20.46935	574873.904	178970.509	.016		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 56 46.20872	92 36 20.46932	574873.906	178970.482	.131	3	GPS - RTRN	2012	RTRN2012
45 56 46.20902	92 36 20.47005	574873.855	178970.512	.016		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 56 46.20897	92 36 20.46961	574873.886	178970.508	.033	C	ADJUSTMENT	2003	GPS1839
45 56 46.20897	92 36 20.46961	574873.886	178970.508	.033	C	GPS - STATIC	2002	HPINE

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3042911.486	677447.132	1740686.278	16693346.294	.016		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3042911.489	677447.106	1740686.280	16693346.268	.131	3	GPS - RTRN	2012	RTRN2012
3042911.436	677447.135	1740686.229	16693346.298	.016		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3042911.468	677447.131	1740686.260	16693346.293	.033	C	ADJUSTMENT	2003	GPS1839
3042911.468	677447.130	1740686.260	16693346.293	.033	C	GPS - STATIC	2002	HPINE

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/86_RC-DF5918-3NE-25APR2007.jpg	NE	Apr 25, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/86_RC-DF5918-2-25APR2007.jpg		Apr 25, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/86_RC-DF5918-1-25APR2007.jpg		Apr 25, 2007

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

87 RC

Mn/DOT Name: 87 RC
NGS Name: 87 RC
County: PINE, MN (Sheet 1)

NGS ACRN: Get Map
NGS Quad / Sta Num : 45092411/
USGS Quad: MONSON LAKE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	15	40 N	18 W	455733.00	923427.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2007	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

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

Description: (2010) **Stamping:** 87 RC 1954 918

AT SAINT CROIX STATE PARK, 4.5 MILES SOUTHEAST OF CLOVER TOWNSHIP, 4.7 MILES SOUTH ALONG COUNTY ROAD 22 FROM THE JUNCTION WITH TRUNK HIGHWAY 48, 2.0 MILES NORTHEAST ALONG ST. JOHNS ROAD FROM THE OFFICE BUILDING, 131.0 FEET SOUTH AND 19.0 FEET EAST OF A DIM ROAD EAST, AT THE NORTH EDGE OF JACK PINE GROVE.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
918.318	.033	3				VERTICAL CONTROL SURVEY	1967	USGS-VERT

Geoid Separations(ft): GEOID18 = -87.149 12B = -87.234 09 = -87.201 03 = -87.073

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

88 RC

Mn/DOT Name: 88 RC
NGS Name: 88 RC
County: PINE, MN (Sheet 1)

NGS ACRN: Get Map
NGS Quad / Sta Num : 45092411/
USGS Quad: MONSON LAKE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	2	40 N	18 W	455858.00	923322.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2007	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

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

Description: (2010) **Stamping:** 88 RC 1954 945

AT SAINT CROIX STATE PARK, 4.0 MILES SOUTHEAST OF CLOVER TOWNSHIP FROM THE JUNCTION WITH TRUNK HIGHWAY 48 NEAR CLOVER TOWNSHIP, 4.6 MILES SOUTH ALONG COUNTY ROAD 22 TO ITS JUNCTION WITH ST. JOHNS ROAD, THEN 4.0 MILES NORTHEAST ALONG ST. JOHNS ROAD, 24.0 FEET SOUTH AND 100.0 FEET EAST OF A ROAD AT A ROAD NORTH.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
945.159	.033	3				VERTICAL CONTROL SURVEY	1967	USGS-VERT

Geoid Separations(ft): GEOID18 = -87.044 12B = -87.136 09 = -87.093 03 = -86.975

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

89 RC

Mn/DOT Name: 89 RC
NGS Name: 89 RC
County: PINE, MN (Sheet 1)

NGS ACRN: Get Map
NGS Quad / Sta Num : 45092411/
USGS Quad: MONSON LAKE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	36	41 N	18 W	455951.00	923322.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2008	NOT FOUND	Horz=NO Vert=NO	NO			SEE DESCRIPTION

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

Description: (2010) **Stamping:** 89 RC 1954 943

AT SAINT CROIX STATE PARK, 4.0 MILES SOUTHEAST OF CLOVER TOWNSHIP FROM THE JUNCTION WITH TRUNK HIGHWAY 48 NEAR CLOVER TOWNSHIP, 4.6 MILES SOUTH ALONG COUNTY ROAD 22 TO THE JUNCTION WITH ST. JOHNS ROAD, THEN 4.1 MILES NORTHEAST ALONG ST. JOHNS ROAD, 1.0 MILE SOUTH ALONG ABANDONED ROAD FROM THE FIRE WARDEN HOUSE ON TRUNK HIGHWAY 48, AT THE TOP OF A STEEP GRADE, 12.0 FEET WEST OF A ROAD AT A GATE, 2.0 FEET WEST OF THE WEST GATE POST ON THE EAST-WEST FENCE LINE.

Station Notes
THE COORDINATES PUT MARK IN WOODS.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
943.062	.033	3				VERTICAL CONTROL SURVEY	1967	USGS-VERT

Geoid Separations(ft): GEOID18 = -87.037 12B = -87.132 09 = -87.086 03 = -86.972

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

A FENCE CORNER

Mn/DOT Name: A FENCE CORNER
NGS Name: A FENCE CORNER
County: PINE, MN (Sheet 1)

NGS ACRN: CJ3058 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	35	39 N	21 W	454912.08	925536.45		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
	2010	UNKNOWN	Horz=? Vert=?	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
UNKNOWN	UNSPECIFIC DISK TYPE (SEE TEXT)	UNK

Description:

2.0 MILES SOUTHEAST OF PINE CITY, 1.8 MILES SOUTH THEN EAST ALONG ST. CROIX ROAD SOUTHEAST/COUNTY ROAD 8 FROM THE JUNCTION OF ST. CROIX ROAD SOUTHEAST/COUNTY ROAD 8 AND EAST CROSS LAKE ROAD IN PINE CITY, THEN 0.2 MILE EAST OF WICK LANE.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.426 12B = -90.430 09 = -90.364 03 = -90.216

ADEL

Mn/DOT Name: ADEL **NGS Name:** ADEL

County: PINE, MN (Sheet 1)

NGS ACRN: DO8734 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	17	38 N	20 W	454646.38	925128.87	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2012	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

Monument Type
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 25 FT)

Disk Type
METAL ROD (WITH REMOVABLE ID DISK)

Mon. Agency
MNDT

Description: (2012)

Stamping: ADEL 2012

IN ROCK CREEK, 5.85 MILES EAST ALONG TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 70 AND COUNTY ROAD 61 IN ROCK CREEK TO TRUNK HIGHWAY 70 MILEPOINT 25.70, THEN 0.4 MILE NORTH ALONG COUNTY ROAD 3 (MAPLE AVENUE), 35.5 FEET WEST OF COUNTY ROAD 3, 1.5 FEET EAST 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
953.220	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
953.345	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
953.256	.262		863.483	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -89.810 12B = -89.810 09 = -89.770 03 = -89.649

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 46 46.37936	92 51 28.87295	510711.792	118072.378	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2979803.090	615469.509	1676628.529	16632395.346	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ADEL-DO8734-3W-20NOV2012.jpg	W	Nov 20, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ADEL-DO8734-2-20NOV2012.jpg		Nov 20, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ADEL-DO8734-1-20NOV2012.jpg		Nov 20, 2012

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

ADOPTION

Mn/DOT Name: ADOPTION
NGS Name: ADOPTION
County: PINE, MN (Sheet 1)

NGS ACRN: DL4718 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	18	41 N	20 W	460132.71	925529.83	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2008	2012	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

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

Description: (2009) **Stamping:** ADOPTION 2008

1.0 MILE NORTHEAST OF HINCKLEY, 1.05 MILES NORTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 48 IN HINCKLEY, AT INTERSTATE HIGHWAY 35 MILEPOINT 184.15, 40.0 FEET EAST-SOUTHEAST OF NORTHBOUND INTERSTATE HIGHWAY 35, 70.0 FEET WEST-NORTHWEST OF A FENCE LINE, 2.1 FEET NORTHWEST 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
1031.455	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1031.464	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
1031.464	.016	2/1				VERTICAL CONTROL SURVEY	2009	VMOOSE

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
			941.340	.007	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1031.373	.262		941.373	.197	2007	GPS - RTRN	2012	RTRN2012
1031.461	.131		941.458	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2566
1031.461	.131		941.576	.066	1996	GPS - STATIC	2009	HMOOSE
1031.461	.131		941.458	.066	2007	GPS - STATIC	2009	HMOOSE

Geoid Separations(ft): GEOID18 = -90.118 12B = -90.121 09 = -900000 03 = -89.885

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 01 32.71292	92 55 29.82678	493661.296	207856.162	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 01 32.71251	92 55 29.82710	493661.273	207856.121	.131	3	GPS - RTRN	2012	RTRN2012
46 01 32.71280	92 55 29.82726	493661.262	207856.150	.033	C	ADJUSTMENT	2009	GPS2566
46 01 32.71280	92 55 29.82726	493661.262	207856.150	.033	C	GPS - STATIC	2009	HMOOSE

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 01 32.71275	92 55 29.82688	493661.289	207856.145	.033	C	GPS - STATIC	2009	HMOOSE

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2961226.584	704940.995	1659473.232	16722117.594	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2961226.562	704940.953	1659473.209	16722117.552	.131	3	GPS - RTRN	2012	RTRN2012
2961226.551	704940.982	1659473.198	16722117.582	.033	C	ADJUSTMENT	2009	GPS2566
2961226.551	704940.982	1659473.198	16722117.582	.033	C	GPS - STATIC	2009	HMOOSE

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2961226.578	704940.977	1659473.225	16722117.576	.033	C	GPS - STATIC	2009	HMOOSE

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ADOPTION-DL4718-3E-01MAY2012.jpg	E	May 1, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ADOPTION-DL4718-2-01MAY2012.jpg		May 1, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ADOPTION-DL4718-1-01MAY2012.jpg		May 1, 2012

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

ALLEN

Mn/DOT Name: ALLEN
NGS Name: ALLEN
County: PINE, MN (Sheet 1)

NGS ACRN: QO1576 Get Map
NGS Quad / Sta Num : 45092443/1029
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	4	38 N	21 W	454849.61	925814.36		1

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1934	1954	DESTROYED	Horz=NO Vert=NO	NO		PROJECTS 4 IN.	SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	NGS

Description: (1934) **Stamping:** ALLEN 1934

0.9 MILE SOUTH OF THE PINE COUNTY COURTHOUSE IN PINE CITY, IN THE SOUTHEAST CORNER OF A PASTURE, 47.5 FEET WEST OF THE CENTERLINE OF TRUNK HIGHWAY 61, 12.0 FEET WEST OF A FENCE LINE, 30.0 FEET NORTH OF A GRAVEL ROAD TO THE WEST, 19.0 FEET NORTH OF A FENCE LINE.

*** 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
1010.497	.131		919.742	.066	1996	HORIZONTAL ADJUSTMENT	1999	17648

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1010.497						RECIPROCAL VERTICAL ANGLE	1934	HORZ

Geoid Separations(ft): GEOID18 = -910000 12B = -90.974 09 = -90.915 03 = -90.787

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 48 49.61383	92 58 14.36144	481982.108	130561.057	.033	1	ADJUSTMENT	1999	17648
45 48 49.61067	92 58 14.35889	481982.288	130560.737	.033	1	ADJUSTMENT	1991	17497

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 48 49.60930	92 58 14.35976	481982.226	130560.598	.033	1	ADJUSTMENT	1986	17289

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 48 49.76400	92 58 13.60500			.100	1	CLASSICAL SURVEY	1961	12611

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2950867.292	627465.680	1647896.270	16644842.399	.033	1	ADJUSTMENT	1999	17648
2950867.478	627465.363	1647896.451	16644842.079	.033	1	ADJUSTMENT	1991	17497

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2950867.418	627465.223	1647896.389	16644841.941	.033	1	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2326263.754	299396.349			.100	1	CLASSICAL SURVEY	1961	12611

ALLEN AZ MK

Mn/DOT Name: ALLEN AZ MK

NGS Name: ALLEN AZ MK

County: PINE, MN (Sheet 1)

NGS ACRN: CJ3786 Get Map
NGS Quad / Sta Num : 45092443/1029
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	4	38 N	21 W	454852.00	925814.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1934	1954	DESTROYED	Horz=NO Vert=NO	NO		PROJECTS 6 IN.	SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	NGS

Description:

Stamping: ALLEN 1934

0.9 MILE SOUTH OF THE PINE COUNTY COURTHOUSE IN PINE CITY, IN THE SOUTHEAST CORNER OF A PASTURE, 37.0 FEET WEST OF TRUNK HIGHWAY 61, 8.0 FEET ABOVE THE GRADE, 25.0 FEET NORTH OF POLE NUMBER 7 OF THE TELEPHONE LINE, 175.0 FEET NORTH OF A DRIVEWAY.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.994 12B = -90.971 09 = -90.912 03 = -90.784

ALLEN RM 1

Mn/DOT Name: ALLEN RM 1

NGS Name: ALLEN RM 1

County: PINE, MN (Sheet 1)

NGS ACRN: CJ3787 Get Map
NGS Quad / Sta Num : 45092443/1029
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	4	38 N	21 W	454854.00	925810.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1934	1954	DESTROYED	Horz=NO Vert=NO	NO		PROJECTS 6 IN.	SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description:

Stamping: ALLEN NO 1 1934

0.9 MILE SOUTH OF THE PINE COUNTY COURTHOUSE IN PINE CITY, IN THE SOUTHEAST CORNER OF A PASTURE, 39.0 FEET EAST OF TRUNK HIGHWAY 61, 110.0 FEET NORTH OF A FENCE LINE, 5.0 FEET EAST OF A FENCE LINE.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.981 12B = -90.958 09 = -90.899 03 = -90.768

ALLEN RM 2

Mn/DOT Name: ALLEN RM 2

NGS Name: ALLEN RM 2

County: PINE, MN (Sheet 1)

NGS ACRN: CJ3788 Get Map
NGS Quad / Sta Num : 45092443/1029
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	4	38 N	21 W	454848.00	925811.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1934	1954	DESTROYED	Horz=NO Vert=NO	NO		PROJECTS 8 IN.	SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description:

Stamping: ALLEN NO 2 1934

0.9 MILE SOUTH OF THE PINE COUNTY COURTHOUSE IN PINE CITY, IN THE SOUTHEAST CORNER OF A PASTURE, 36.0 FEET EAST OF THE CENTERLINE OF TRUNK HIGHWAY 61, 2.0 FEET EAST OF A FENCE LINE.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.991 12B = -90.968 09 = -90.909 03 = -90.777

ARLONE MNDT

Mn/DOT Name: ARLONE MNDT **NGS Name:** ARLONE

County: PINE, MN (Sheet 1)

NGS ACRN: AC4959 Get Map
NGS Quad / Sta Num : 46092323/
USGS Quad: CLOVERDALE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	22	41 N	19 W	460043.03	924341.01	2	B

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1995	2016	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER IS STEEL ROD

Monument Type	Disk Type	Mon. Agency
STEEL ROD (NO SLEEVE) (DEPTH 24 FT)	METAL ROD	MNDT

Description: (1995) **Stamping:** ARLONE 1995

9.75 MILES EAST OF HINCKLEY, 9.85 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 48 IN HINCKLEY, AT TRUNK HIGHWAY 48 MILEPOINT 9.85, 95.0 FEET NORTH OF TRUNK HIGHWAY 48, 4.2 FEET SOUTH OF A FENCE, 4.0 FEET SOUTH 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
988.381	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
988.479	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
988.479	.016	2/1				VERTICAL ADJUSTMENT	2006	00000497
988.515	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
988.239	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

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
988.381			900.205	.008	2011	HORIZONTAL ADJUSTMENT	2018	GPS3119
988.525	.131		900.448	.066	1996	GPS - STATIC	2017	HMNCORS07
988.381			900.205	.008	2011	GPS - STATIC	2017	HMNPH
988.479			900.205	.007	2011	HORIZONTAL ADJUSTMENT	2015	GPS3071
988.354	.262		900.113	.197	2011	GPS - RTRN	2015	RTRN2015
988.479			900.195	.007	2011	GPS - STATIC	2015	HCLVR
			900.448	.066	1996	GPS - STATIC	2014	HMNCORS06
			900.205	.006	2011	HORIZONTAL ADJUSTMENT	2013	GPS2829-E
988.476	.131		900.234	.066	2011	HORIZONTAL ADJUSTMENT	2012	GPS2829-D
988.479	.131		900.238	.066	2011	HORIZONTAL ADJUSTMENT	2012	GPS2829-C
988.515	.131		900.359	.066	2007	GPS - STATIC	2012	HCLVR
988.515	.131		900.448	.066	1996	GPS - STATIC	2012	HCLVR
			900.205	.006	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
988.446	.262		900.290	.197	2007	GPS - RTRN	2012	RTRN2012
			900.310	.033	2007	HORIZONTAL ADJUSTMENT	2012	GPS2829-B
			900.310	.049	2007	HORIZONTAL ADJUSTMENT	2011	GPS2829
			900.310	.008	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
988.515	.098		900.448	.049	1996	GPS - STATIC	2004	GPS1954
988.515	.131		900.448	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1839
988.515	.131		900.448	.066	1996	GPS - STATIC	2002	HPINE
988.515	.131		900.448	.066	1996	HORIZONTAL ADJUSTMENT	2002	GPS1700
988.515	.131		900.448	.066	1996	GPS - STATIC	2001	HCLOV
988.469	.098		900.448	.049	1996	GPS - STATIC	1997	GPS805-B
988.469	.131		900.448	.066	1996	GPS - STATIC	1997	GPS805-C

Geoid Separations(ft): GEOID18 = -88.179 12B = -88.241 09 = -88.156 03 = -88.071

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 43.03105	92 43 41.00556	543690.722	202869.532	.007		ADJUSTMENT	2018	GPS3119
46 00 43.03105	92 43 41.00556	543690.722	202869.532	.007	C	GPS - STATIC	2017	HMNPH
46 00 43.03105	92 43 41.00556	543690.722	202869.532	.007		ADJUSTMENT	2015	GPS3071
46 00 43.02987	92 43 41.00533	543690.739	202869.413	.131	3	GPS - RTRN	2015	RTRN2015
46 00 43.03104	92 43 41.00561	543690.719	202869.531	.007	C	GPS - STATIC	2015	HCLVR
46 00 43.03104	92 43 41.00556	543690.722	202869.531	.007		ADJUSTMENT	2013	GPS2829-E
46 00 43.03105	92 43 41.00556	543690.722	202869.532	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 43.03111	92 43 41.00622	543690.675	202869.538	.033	C	GPS - STATIC	2012	HCLVR
46 00 43.03040	92 43 41.00709	543690.614	202869.466	.131	3	GPS - RTRN	2012	RTRN2012
46 00 43.03111	92 43 41.00622	543690.675	202869.538	.033	C	ADJUSTMENT	2012	GPS2829-B
46 00 43.03111	92 43 41.00622	543690.675	202869.538	.016	B	ADJUSTMENT	2011	GPS2829
46 00 43.03111	92 43 41.00622	543690.675	202869.538	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 43.03113	92 43 41.00583	543690.703	202869.540	.033	C	GPS - STATIC	2017	HMNCORS07
46 00 43.03113	92 43 41.00583	543690.703	202869.540	.033	C	GPS - STATIC	2014	HMNCORS06
46 00 43.03113	92 43 41.00583	543690.703	202869.540	.033	C	GPS - STATIC	2012	HCLVR
46 00 43.03113	92 43 41.00583	543690.703	202869.540	.016	B	GPS - STATIC	2004	GPS1954
46 00 43.03113	92 43 41.00583	543690.703	202869.540	.033	C	ADJUSTMENT	2003	GPS1839
46 00 43.03113	92 43 41.00583	543690.703	202869.540	.033	C	GPS - STATIC	2002	HPINE
46 00 43.03113	92 43 41.00583	543690.703	202869.540	.033	C	ADJUSTMENT	2002	GPS1700
46 00 43.03113	92 43 41.00583	543690.703	202869.540	.033	C	GPS - STATIC	2001	HCLOV
46 00 43.03113	92 43 41.00583	543690.703	202869.540	.016	B	GPS - STATIC	1997	GPS805-B
46 00 43.03113	92 43 41.00583	543690.703	202869.540	.033	C	GPS - STATIC	1997	GPS805-C

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 43.02447	92 43 40.99962	543691.144	202868.866	.033	C	GPS - STATIC	1997	HCLOV

ARLONE MNDT

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3011328.451	700808.409	1709486.839	16717195.922	.007		ADJUSTMENT	2018	GPS3119
3011328.451	700808.409	1709486.839	16717195.922	.007	C	GPS - STATIC	2017	HMNPH
3011328.451	700808.409	1709486.839	16717195.922	.007		ADJUSTMENT	2015	GPS3071
3011328.470	700808.290	1709486.855	16717195.802	.131	3	GPS - RTRN	2015	RTRN2015
3011328.448	700808.408	1709486.835	16717195.921	.007	C	GPS - STATIC	2015	HCLVR
3011328.451	700808.408	1709486.839	16717195.921	.007		ADJUSTMENT	2013	GPS2829-E
3011328.451	700808.409	1709486.839	16717195.922	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3011328.405	700808.415	1709486.792	16717195.927	.033	C	GPS - STATIC	2012	HCLVR
3011328.345	700808.341	1709486.731	16717195.855	.131	3	GPS - RTRN	2012	RTRN2012
3011328.405	700808.415	1709486.792	16717195.927	.033	C	ADJUSTMENT	2012	GPS2829-B
3011328.405	700808.415	1709486.792	16717195.927	.016	B	ADJUSTMENT	2011	GPS2829
3011328.405	700808.415	1709486.792	16717195.927	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3011328.432	700808.417	1709486.820	16717195.929	.033	C	GPS - STATIC	2017	HMNCORS07
3011328.432	700808.417	1709486.820	16717195.929	.033	C	GPS - STATIC	2014	HMNCORS06
3011328.432	700808.417	1709486.820	16717195.929	.033	C	GPS - STATIC	2012	HCLVR
3011328.432	700808.417	1709486.820	16717195.929	.016	B	GPS - STATIC	2004	GPS1954
3011328.432	700808.417	1709486.820	16717195.929	.033	C	ADJUSTMENT	2003	GPS1839
3011328.432	700808.417	1709486.820	16717195.929	.033	C	GPS - STATIC	2002	HPINE
3011328.432	700808.417	1709486.820	16717195.929	.033	C	ADJUSTMENT	2002	GPS1700
3011328.432	700808.417	1709486.820	16717195.929	.033	C	GPS - STATIC	2001	HCLOV
3011328.432	700808.417	1709486.820	16717195.929	.016	B	GPS - STATIC	1997	GPS805-B
3011328.432	700808.417	1709486.820	16717195.929	.033	C	GPS - STATIC	1997	GPS805-C

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3011328.883	700807.751	1709487.260	16717195.257	.033	C	GPS - STATIC	1997	HCLOV

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ARLONE-AC4959-3N-07MAY2012.jpg	N	May 7, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ARLONE-AC4959-2-07MAY2012.jpg		May 7, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ARLONE-AC4959-1-07MAY2012.jpg		May 7, 2012

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

B 60

Mn/DOT Name: B 60 **NGS Name:** B 60

County: PINE, MN (Sheet 1)

NGS ACRN: RN0472 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	24	41 N	21 W	460105.00	925637.00	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1934	1956	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	NGS

Description: (1956) **Stamping:** B 60 1934

IN HINCKLEY, 141.0 FEET WEST ALONG COUNTY ROAD 18 FROM THE JUNCTION OF COUNTY ROAD 61 AND SECOND STREET NORTHEAST, 84.0 FEET NORTH OF THE NORTH LINE OF THE GREAT NORTHERN RAILWAY STATION, 57.0 FEET WEST OF THE MAIN TRACK, 15.0 FEET WEST OF A SPUR TRACK, 12.0 FEET SOUTH OF A POLE, 4.0 FEET NORTH OF A SIDEWALK.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1033.485	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

Geoid Separations(ft): GEOID18 = -90.236 12B = -90.239 09 = -90.118 03 = -89.993

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

BARN CUPOLA N

Mn/DOT Name: BARN CUPOLA N

NGS Name: BARN CUPOLA N

County: PINE, MN (Sheet 1)

NGS ACRN: CS8957 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	20	38 N	21 W	454559.00	925923.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
	2017	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
SEE DESCRIPTIVE TEXT	CUPOLA	UNK

Description:

5.7 MILES SOUTH OF PINE CITY, AT THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 70.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -91.424 12B = -91.397 09 = -91.335 03 = -91.204

BARN CUPOLA S

Mn/DOT Name: BARN CUPOLA S
NGS Name: BARN CUPOLA S
County: PINE, MN (Sheet 1)

NGS ACRN: CS8956 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	20	38 N	21 W	454559.00	925923.00		

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

Monument Type	Disk Type	Mon. Agency
SEE DESCRIPTIVE TEXT	CUPOLA	UNK

Description:

5.7 MILES SOUTH OF PINE CITY, AT THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 70.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -91.424 12B = -91.397 09 = -91.335 03 = -91.204

BARREL

Mn/DOT Name: BARREL
NGS Name: BARREL
County: PINE, MN (Sheet 1)

NGS ACRN: DL4725 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	7	41 N	20 W	460242.11	925507.37	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2008	2008	GOOD	Horz=YES Vert=YES	NO		FLUSH	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 11 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2008) **Stamping:** BARREL 2008

2.5 MILES NORTHEAST OF HINCKLEY, 2.5 MILES NORTHEAST ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 48 IN HINCKLEY, AT INTERSTATE HIGHWAY 35 MILEPOINT 185.5, 27.6 FEET NORTHWEST OF NORTHBOUND INTERSTATE HIGHWAY 35, 5.0 FEET SOUTHEAST 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
1076.858	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1076.861	.016	2/1				VERTICAL CONTROL SURVEY	2009	VMOOSE

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
			986.757	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1076.868	.131		986.845	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2566
1076.868	.131		986.963	.066	1996	GPS - STATIC	2009	HMOOSE
1076.868	.131		986.845	.066	2007	GPS - STATIC	2009	HMOOSE

Geoid Separations(ft): GEOID18 = -90.095 12B = -90.098 09 = -89.980 03 = -89.859

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 02 42.10999	92 55 07.37078	495247.576	214885.781	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 02 42.10981	92 55 07.37131	495247.539	214885.763	.033	C	ADJUSTMENT	2009	GPS2566
46 02 42.10981	92 55 07.37131	495247.539	214885.763	.033	C	GPS - STATIC	2009	HMOOSE

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 02 42.10971	92 55 07.37091	495247.567	214885.753	.033	C	GPS - STATIC	2009	HMOOSE

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2962692.676	711995.871	1661049.981	16729146.091	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2962692.639	711995.853	1661049.944	16729146.072	.033	C	ADJUSTMENT	2009	GPS2566
2962692.639	711995.853	1661049.944	16729146.072	.033	C	GPS - STATIC	2009	HMOOSE

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2962692.667	711995.843	1661049.972	16729146.062	.033	C	GPS - STATIC	2009	HMOOSE

Mn/DOT Name: BARRY
NGS Name: BARRY
County: PINE, MN (Sheet 1)

NGS ACRN: RN0602 Get Map
NGS Quad / Sta Num : 46092333/1008
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	29	41 N	20 W	460008.69	925353.52	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2008	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	MNDT

Description: (1993) **Stamping:** BARRY 1961

1.75 MILES EAST-SOUTHEAST OF HINCKLEY, 1.6 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND INTERSTATE HIGHWAY 35, THEN 0.55 MILE SOUTH ON COUNTY ROAD 15, 48.0 FEET NORTH OF A POWER POLE, 39.0 FEET NORTHEAST OF THE JUNCTION OF COUNTY ROAD 15 AND A DRIVEWAY, 34.0 FEET EAST OF COUNTY ROAD 15, 21.0 FEET NORTH OF A DRIVEWAY, 3.0 FEET EAST OF A FENCE, 46.37 FEET NORTH OF BARRY RM 1, 64.35 FEET EAST OF BARRY RM 2, 4.0 FEET SOUTHEAST 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
1013.338	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1013.075	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
1013.141	.016	2				VERTICAL CONTROL SURVEY	1974	L23306

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
1013.351	.262		923.663	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -89.895 12B = -89.878 09 = -89.777 03 = -89.685

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 08.69320	92 53 53.52083	500457.401	199343.847	.131	3	ADJUSTMENT	1999	17648
46 00 08.68749	92 53 53.51619	500457.728	199343.268	.131	3	ADJUSTMENT	1991	17497

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 08.68678	92 53 53.51586	500457.752	199343.196	.131	3	ADJUSTMENT	1986	17289

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 08.86180	92 53 52.77710			.100	3	CLASSICAL SURVEY	1961	12611
46 00 08.86636	92 53 52.77813			.100	3	CLASSICAL SURVEY	1950	UNK

BARRY

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2968166.046	696546.626	1666277.011	16713617.582	.131	3	ADJUSTMENT	1999	17648
2968166.384	696546.053	1666277.339	16713617.004	.131	3	ADJUSTMENT	1991	17497

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2968166.408	696545.982	1666277.362	16713616.933	.131	3	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2343561.944	368478.773			.100	3	CLASSICAL SURVEY	1961	12611
2343561.860	368479.230			.100	3	CLASSICAL SURVEY	1950	UNK

BARRY AZ MK

Mn/DOT Name: BARRY AZ MK
NGS Name: BARRY AZ MK
County: PINE, MN (Sheet 1)

NGS ACRN: RN0604 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	29	41 N	20 W	460000.00	925401.00	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2008	DESTROYED	Horz=NO Vert=NO	NO		PROJECTS 6 IN.	SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	MNDT

Description: (2004) **Stamping:** BARRY 1961

1.9 MILES EAST-SOUTHEAST OF HINCKLEY, 1.6 MILES EAST ON TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND INTERSTATE HIGHWAY 35, THEN 0.9 MILE SOUTH ON COUNTY ROAD 15, 0.1 MILE NORTH OF COUNTY ROAD 33, 30.0 FEET WEST OF COUNTY ROAD 15, 25.0 FEET SOUTH OF THE FIRE NUMBER H600 SIGN, 14.0 FEET NORTH OF A TELEPHONE POLE, 0.5 FOOT EAST OF A FENCE, 2.0 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
1012.902	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1012.642	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
1012.708	.016	2				VERTICAL CONTROL SURVEY	1974	L23306

Geoid Separations(ft): GEOID18 = -89.892 12B = -89.875 09 = -89.773 03 = -89.682

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

BARRY RM 1

Mn/DOT Name: BARRY RM 1 **NGS Name:** BARRY RM 1

County: PINE, MN (Sheet 1)

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	29	41 N	20 W	460008.24	925353.52	2	

NGS ACRN: RN0603 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2008	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	MNDT

Description: (1993) **Stamping:** BARRY NO 1 1961

1.75 MILES EAST-SOUTHEAST OF HINCKLEY, 1.6 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND INTERSTATE HIGHWAY 35, THEN 0.55 MILE SOUTH ON COUNTY ROAD 15, 34.0 FEET EAST OF COUNTY ROAD 15, 68.8 FEET SOUTHEAST OF BARRY RM 2, 46.4 FEET SOUTH OF STATION BARRY, 56.0 FEET SOUTH OF AN 8.0 INCH DIAMETER CEDAR TREE, 26.0 FEET SOUTH OF A DRIVE EAST WITH FIRE NUMBER 1344, 1.8 FEET NORTHWEST OF A POWER POLE, 49.8 FEET SOUTH OF A WITNESS POST.

Station Notes

THE TIES FALL ON THE INSIDE SLOPE OF A DITCH.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1012.754	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1012.495	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
1012.560	.016	2				VERTICAL CONTROL SURVEY	1974	L23306

Geoid Separations(ft): GEOID18 = -89.892 12B = -89.878 09 = -89.777 03 = -89.682

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

BARRY RM 2

Mn/DOT Name: BARRY RM 2 **NGS Name:** BARRY RM 2

County: PINE, MN (Sheet 1)

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	29	41 N	20 W	460008.53	925354.40	2	

NGS ACRN: RN0601 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2009	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	MNDT

Description: (1993) **Stamping:** BARRY NO 2 1961

1.75 MILES EAST-SOUTHEAST OF HINCKLEY, 1.6 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND INTERSTATE HIGHWAY 35, THEN 0.6 MILE SOUTH ON COUNTY ROAD 15, 30.0 FEET WEST OF COUNTY ROAD 15, OPPOSITE A DRIVEWAY EAST WITH FIRE NUMBER B44, 68.8 FEET NORTHWEST OF BARRY RM 1, 64.4 FEET WEST OF STATION BARRY, 69.0 FEET WEST-SOUTHWEST OF AN 8.0 INCH DIAMETER CEDAR TREE, 62.0 FEET WEST OF A WITNESS POST.

Station Notes

THE TIES FALL ON THE INSIDE SLOPE OF A DITCH.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1011.966	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1011.707	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
1011.773	.016	2				VERTICAL CONTROL SURVEY	1974	L23306

Geoid Separations(ft): GEOID18 = -89.895 12B = -89.878 09 = -89.777 03 = -89.685

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

BENSON

Mn/DOT Name: BENSON
NGS Name: BENSON
County: PINE, MN (Sheet 1)

NGS ACRN: DO8709 Get Map
NGS Quad / Sta Num : 46092233/
USGS Quad: DANBURY WEST

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	28	41 N	17 W	460044.72	922929.55	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2020	GOOD	Horz=YES Vert=YES	NO		RECESSED 1 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 35 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) **Stamping:** BENSON 2012

11.8 MILES EAST OF CLOVERDALE, 11.95 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND COUNTY ROAD 21 IN CLOVERDALE, AT TRUNK HIGHWAY 48 MILEPOINT 21.3, 47.8 FEET NORTH OF TRUNK HIGHWAY 48, 18.3 FEET EAST OF A FIELD ENTRANCE, 3.0 FEET SOUTH OF A FENCE, 1.5 FEET WEST 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
983.105	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
983.285	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
983.180	.262		896.419	.197	2011	GPS - OPUS	2020	GPSBM
983.151	.262		896.304	.197	2011	GPS - RTRN	2020	RTRN2020
983.233			896.350	.012	2011	HORIZONTAL ADJUSTMENT	2015	GPS3071
983.233			896.350	.012	2011	GPS - STATIC	2015	HCLVR
983.364	.131		896.521	.066	2007	GPS - STATIC	2012	HCLVR
983.364	.131		896.642	.066	1996	GPS - STATIC	2012	HCLVR

Geoid Separations(ft): GEOID18 = -86.762 12B = -86.844 09 = -86.837 03 = -86.712

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 44.71657	92 29 29.55152	603787.977	203259.517	.131	3	GPS - OPUS	2020	GPSBM
46 00 44.71657	92 29 29.55121	603787.999	203259.517	.131	3	GPS - RTRN	2020	RTRN2020
46 00 44.71668	92 29 29.55159	603787.973	203259.528	.016		ADJUSTMENT	2015	GPS3071
46 00 44.71668	92 29 29.55159	603787.973	203259.528	.016	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 44.71685	92 29 29.55223	603787.927	203259.545	.033	C	GPS - STATIC	2012	HCLVR

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 44.71672	92 29 29.55200	603787.943	203259.532	.033	C	GPS - STATIC	2012	HCLVR

BENSON

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3071403.985	702223.417	1769557.630	16717660.942	.131	3	GPS - OPUS	2020	GPSBM
3071404.007	702223.417	1769557.651	16717660.942	.131	3	GPS - RTRN	2020	RTRN2020
3071403.980	702223.428	1769557.625	16717660.953	.016		ADJUSTMENT	2015	GPS3071
3071403.980	702223.428	1769557.625	16717660.953	.016	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3071403.935	702223.444	1769557.579	16717660.970	.033	C	GPS - STATIC	2012	HCLVR

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3071403.951	702223.432	1769557.595	16717660.957	.033	C	GPS - STATIC	2012	HCLVR

BEROUN

Mn/DOT Name: BEROUN
NGS Name: BEROUN
County: PINE, MN (Sheet 1)

NGS ACRN: QO1582 Get Map
NGS Quad / Sta Num : 45092444/1017
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	32	40 N	21 W	455439.43	925958.82		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2010	GOOD	Horz=NO Vert=NO	YES		RECESSED 14 IN.	STEEL SPIKE ADJ TO MON

Monument Type: CONCRETE MONUMENT (CAST-IN-PLACE)
Disk Type: HORIZONTAL CONTROL DISK
Mon. Agency: MNDT

Description: (1993)
Stamping: BEROUN 1961

2.0 MILES WEST OF BEROUN, 1.6 MILES WEST ALONG COUNTY ROAD 14 FROM THE JUNCTION OF COUNTY ROAD 14 AND INTERSTATE HIGHWAY 35 IN BEROUN, THEN 0.5 MILE NORTH ON SUNNY HILL ROAD, THEN 0.1 MILE EAST ON A FARM DRIVE (FIRE NUMBER 24936), AT THE SOUTH EDGE OF THE CULTIVATED FIELD, 40.3 FEET NORTH OF THE NORTHWEST CORNER OF A BARN, 40.3 FEET NORTHEAST OF NORTHEAST CORNER OF A SHED, 69.33 FEET NORTHWEST OF BEROUN RM 1, 91.63 FEET EAST OF BEROUN RM 2, 92.0 FEET NORTHEAST OF A WITNESS POST, 2.0 FEET SOUTH OF A WITNESS POST.

Station Notes

THE MONUMENT HAS AN ACCESS COVER. THE SURVEY MARK IS ON PRIVATE PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

*** No Leveling-Derived Orthometric Heights in the Database ***

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
			917.646	.007	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1008.495	.131		917.721	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2747
1008.495	.131		917.721	.066	2007	GPS - STATIC	2010	HBRAH
1008.495	.131		917.839	.066	1996	GPS - STATIC	2010	HBRAH
			917.721	.010	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
			917.839	.066	1996	GPS - STATIC	1999	GPS917
1008.430	.131		917.839	.066	1996	HORIZONTAL ADJUSTMENT	1999	17648

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1008.200						GPS - STATIC	1994	HORZ
1013.810						RECIPROCAL VERTICAL ANGLE	1961	HORZ

Geoid Separations(ft): GEOID18 = -90.843 12B = -90.833 09 = -90.741 03 = -90.600

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 54 39.42819	92 59 58.82315	474626.884	166004.966	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 54 39.42857	92 59 58.82391	474626.830	166005.005	.033	C	ADJUSTMENT	2011	GPS2747
45 54 39.42857	92 59 58.82391	474626.830	166005.005	.033	C	GPS - STATIC	2010	HBRAH
45 54 39.42857	92 59 58.82391	474626.830	166005.005	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 54 39.42841	92 59 58.82334	474626.871	166004.989	.033	C	GPS - STATIC	2010	HBRAH
45 54 39.42841	92 59 58.82334	474626.872	166004.990	.033	C	GPS - STATIC	1999	GPS917
45 54 39.42841	92 59 58.82334	474626.871	166004.989	.033	C	ADJUSTMENT	1999	17648
45 54 39.42296	92 59 58.81671	474627.339	166004.436	.066	2	ADJUSTMENT	1991	17497

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 54 39.42259	92 59 58.81745	474627.286	166004.399	.066	2	ADJUSTMENT	1986	17289

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 54 39.58170	92 59 58.07280			.100	2	CLASSICAL SURVEY	1961	12611

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2942909.953	662775.817	1640499.847	16680261.116	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2942909.899	662775.855	1640499.793	16680261.155	.033	C	ADJUSTMENT	2011	GPS2747
2942909.899	662775.855	1640499.793	16680261.155	.033	C	GPS - STATIC	2010	HBRAH
2942909.899	662775.855	1640499.793	16680261.155	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2942909.940	662775.839	1640499.833	16680261.138	.033	C	GPS - STATIC	2010	HBRAH
2942909.940	662775.839	1640499.833	16680261.138	.033	C	GPS - STATIC	1999	GPS917
2942909.940	662775.839	1640499.833	16680261.138	.033	C	ADJUSTMENT	1999	17648
2942910.417	662775.295	1640500.302	16680260.587	.066	2	ADJUSTMENT	1991	17497

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2942910.365	662775.257	1640500.250	16680260.549	.066	2	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2318305.672	334706.570			.100	2	CLASSICAL SURVEY	1961	12611

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/BEROUN-QO1582-3N-26APR2010.jpg	N	Apr 26, 2010
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/BEROUN-QO1582-2-26APR2010.jpg		Apr 26, 2010
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/BEROUN-QO1582-1-26APR2010.jpg		Apr 26, 2010

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

BEROUN AZ MK

Mn/DOT Name: BEROUN AZ MK

NGS Name: BEROUN AZ MK

County: PINE, MN (Sheet 1)

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	32	40 N	21 W	455442.00	930001.00		

NGS ACRN: CJ3853 Get Map
NGS Quad / Sta Num : 45093111/1017
USGS Quad: BROOK PARK

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2008	NOT FOUND	Horz=? Vert=?	NO		PROJECTS 4 IN.	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
UNKNOWN	AZIMUTH MARK DISK	MNDT

Description:

Stamping: BEROUN 1961

2.0 MILES WEST OF BEROUN, 1.6 MILES WEST ALONG COUNTY ROAD 14 FROM THE JUNCTION OF COUNTY ROAD 14 AND INTERSTATE HIGHWAY 35 BEROUN, THEN 1.0 MILE NORTH ON SUNNY HILL ROAD, THEN 0.25 MILE WEST ON TWO CREEK ROAD TO STATION BEROUN AZ MK ON THE LEFT, 28.0 FEET SOUTH OF THE CENTERLINE OF THE ROAD, 15.0 FEET WEST OF THE CENTERLINE OF A FIELD ENTRANCE, 1.0 FOOT NORTHEAST OF A WITNESS POST.

Station Notes

IN 10-02-2008 NOTED THAT THE PREVIOUS LATITUDE AND LONGITUDE WERE INCORRECT, AND THE TIES PLACE IT IN A LARGE ROCK PILE.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.863 12B = -90.853 09 = -90.758 03 = -90.617

BEROUN CH OF ST JOSEPH STEEPLE

Mn/DOT Name: BEROUN CH OF ST JOSEPH STEEPLE **NGS Name:** BEROUN CH OF ST JOSEPH STEEPLE

County: PINE, MN (Sheet 1)

NGS ACRN: QO1581 Get Map
NGS Quad / Sta Num : 45092444/1030
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	34	40 N	21 W	455432.82	925719.10		4

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1934	2008	GOOD	Horz=NO Vert=NO	YES			NO MAG MATERIAL

Monument Type	Disk Type	Mon. Agency
BLANK	CHURCH SPIRE	NGS

Description: (1961)

Stamping:

IN THE SOUTHEAST PART OF BEROUN, 0.15 MILE EAST OF COUNTY ROAD 61 (ROSEWOOD LANE), AT THE JUNCTION OF RED ROBIN ROAD AND PRAHA AVENUE.

*** No Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.489 12B = -90.472 09 = -90.403 03 = -90.272

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 54 32.81706	92 57 19.09849	485920.872	165324.257	.328	4	ADJUSTMENT	1999	17648
45 54 32.82145	92 57 19.09518	485921.106	165324.701	.328	4	ADJUSTMENT	1991	17497

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 54 32.81959	92 57 19.09628	485921.028	165324.513	.328	4	ADJUSTMENT	1986	17289

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 54 32.98500	92 57 18.35600			.100	4	CLASSICAL SURVEY	1961	12611

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2954212.802	662287.696	1651789.638	16679594.893	.328	4	ADJUSTMENT	1999	17648
2954213.028	662288.145	1651789.872	16679595.338	.328	4	ADJUSTMENT	1991	17497

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2954212.954	662287.955	1651789.794	16679595.150	.328	4	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2329608.273	334219.941			.100	4	CLASSICAL SURVEY	1961	12611

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/BEROUN_CH_OF_ST_JOSEPH_STEEPLE-QO1581-3NW-02OCT2008.jpg	NW	Oct 2, 2008
Monument:			
Disk:			

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

BEROUN RM 1

Mn/DOT Name: BEROUN RM 1 **NGS Name:** BEROUN RM 1

County: PINE, MN (Sheet 1)

NGS ACRN: CJ3854 Get Map
NGS Quad / Sta Num : 45092444/1017
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	32	40 N	21 W	455439.08	925957.98		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2008	GOOD	Horz=NO Vert=YES	YES		FLUSH	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description: (2008) **Stamping:** BEROUN NO 1 1961

2.0 MILES WEST OF BEROUN, 1.6 MILES WEST ON COUNTY ROAD 14 FROM THE JUNCTION OF COUNTY ROAD 14 AND INTERSTATE HIGHWAY 35 IN BEROUN, THEN 0.5 MILE NORTH ON SUNNY HILL ROAD, THEN 0.1 MILE EAST ON THE ENTRANCE TO FIRE NUMBER 24936, 9.5 FEET WEST-NORTHWEST OF THE NORTHEAST CORNER OF A BARN, 4.6 FEET NORTH OF A BARN FOUNDATION.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.843 12B = -90.833 09 = -90.738 03 = -90.600

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/BEROUN_RM_1-CJ3854-3S-29NOV2007.jpg	S	Nov 29, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/BEROUN_RM_1-CJ3854-2-29NOV2007.jpg		Nov 29, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/BEROUN_RM_1-CJ3854-1-29NOV2007.jpg		Nov 29, 2007

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

BEROUN RM 2

Mn/DOT Name: BEROUN RM 2 **NGS Name:** BEROUN RM 2

County: PINE, MN (Sheet 1)

NGS ACRN: CJ3855 Get Map
NGS Quad / Sta Num : 45092444/1017
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	32	40 N	21 W	455439.27	930000.10		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2008	GOOD	Horz=NO Vert=YES	YES		PROJECTS 3 IN.	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description: (2008) **Stamping:** BEROUN NO 2 1961

2.0 MILES WEST OF BEROUN, 1.67 MILES WEST ALONG COUNTY ROAD 14 FROM THE JUNCTION OF COUNTY ROAD 14 AND INTERSTATE HIGHWAY 35 IN BEROUN, THEN 0.5 MILE NORTH ON SUNNY HILL ROAD, THEN 0.1 MILE EAST ON THE ENTRANCE TO FIRE NUMBER 24936, 62.07 FEET NORTH OF A POWER POLE, 1.4 FEET NORTHWEST OF THE NORTHWEST CORNER OF A SHED, 1.5 FEET EAST OF A WITNESS POST.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.846 12B = -90.836 09 = -90.741 03 = -90.603

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/BEROUN_RM_2-CJ3855-3S-29NOV2007.jpg	S	Nov 29, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/BEROUN_RM_2-CJ3855-2-29NOV2007.jpg		Nov 29, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/BEROUN_RM_2-CJ3855-1-29NOV2007.jpg		Nov 29, 2007

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

BLUEHAIR

Mn/DOT Name: BLUEHAIR **NGS Name:** BLUEHAIR

County: PINE, MN (Sheet 1)

NGS ACRN: DL4728 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	25	41 N	21 W	460013.73	925609.01	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2008	2012	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 35 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2009) **Stamping:** BLUEHAIR 2008

0.5 MILE SOUTH OF HINCKLEY, 0.5 MILE SOUTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 48 IN HINCKLEY, AT INTERSTATE HIGHWAY 35 MILEPOINT 182.5, 37.1 FEET EAST-NORTHWEST OF SOUTHBOUND INTERSTATE HIGHWAY 35, 61.7 FEET SOUTHEAST OF A FENCE LINE, 1.9 FEET NORTHEAST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1017.498	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1017.495	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
1017.495	.016	2/1				VERTICAL CONTROL SURVEY	2009	VMOOSE

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
1017.485			927.301	.006	2011	HORIZONTAL ADJUSTMENT	2015	GPS3071
1017.485			927.298	.006	2011	GPS - STATIC	2015	HCLVR
1017.485	.131		927.429	.066	2007	GPS - STATIC	2012	HCLVR
1017.485	.131		927.544	.066	1996	GPS - STATIC	2012	HCLVR
1017.459	.262		927.393	.197	2007	GPS - RTRN	2012	RTRN2012
			927.301	.006	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1017.400	.262		927.334	.197	2007	GPS - RTRN	2012	RTRN2012
1017.485	.131		927.410	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2566
1017.485	.131		927.547	.066	1996	GPS - STATIC	2009	HMOOSE
1017.485	.131		927.410	.066	2007	GPS - STATIC	2009	HMOOSE

Geoid Separations(ft): GEOID18 = -90.187 12B = -90.184 09 = -90.065 03 = -89.951

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 13.73425	92 56 09.01137	490892.597	199856.558	.007		ADJUSTMENT	2015	GPS3071
46 00 13.73429	92 56 09.01145	490892.592	199856.562	.007	C	GPS - STATIC	2015	HCLVR
46 00 13.73425	92 56 09.01137	490892.597	199856.558	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 13.73418	92 56 09.01188	490892.561	199856.551	.033	C	GPS - STATIC	2012	HCLVR
46 00 13.73400	92 56 09.01206	490892.548	199856.533	.131	3	GPS - RTRN	2012	RTRN2012
46 00 13.73363	92 56 09.01321	490892.467	199856.495	.131	3	GPS - RTRN	2012	RTRN2012
46 00 13.73418	92 56 09.01188	490892.561	199856.551	.033	C	ADJUSTMENT	2009	GPS2566
46 00 13.73418	92 56 09.01188	490892.561	199856.551	.033	C	GPS - STATIC	2009	HMOOSE

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 13.73413	92 56 09.01146	490892.591	199856.546	.033	C	GPS - STATIC	2012	HCLVR
46 00 13.73413	92 56 09.01146	490892.591	199856.546	.033	C	GPS - STATIC	2009	HMOOSE

BLUEHAIR

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2958594.894	696896.216	1656715.805	16714118.060	.007		ADJUSTMENT	2015	GPS3071
2958594.889	696896.220	1656715.800	16714118.064	.007	C	GPS - STATIC	2015	HCLVR
2958594.894	696896.216	1656715.805	16714118.060	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2958594.858	696896.209	1656715.769	16714118.053	.033	C	GPS - STATIC	2012	HCLVR
2958594.846	696896.190	1656715.757	16714118.035	.131	3	GPS - RTRN	2012	RTRN2012
2958594.765	696896.151	1656715.675	16714117.997	.131	3	GPS - RTRN	2012	RTRN2012
2958594.858	696896.209	1656715.769	16714118.053	.033	C	ADJUSTMENT	2009	GPS2566
2958594.858	696896.209	1656715.769	16714118.053	.033	C	GPS - STATIC	2009	HMOOSE

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2958594.888	696896.204	1656715.799	16714118.048	.033	C	GPS - STATIC	2012	HCLVR
2958594.888	696896.204	1656715.799	16714118.048	.033	C	GPS - STATIC	2009	HMOOSE

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/BLUEHAIR-DL4728-3W-01MAY2012.jpg	W	May 1, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/BLUEHAIR-DL4728-2-01MAY2012.jpg		May 1, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/BLUEHAIR-DL4728-1-01MAY2012.jpg		May 1, 2012

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

BORK MNDT

Mn/DOT Name: BORK MNDT **NGS Name:** BORK

County: PINE, MN (Sheet 1)

NGS ACRN: DE5983 Get Map
NGS Quad / Sta Num : 46092323/
USGS Quad: CLOVERDALE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	22	41 N	19 W	460042.51	924321.44	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1996	2012	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 31 FT)	SURVEY DISK	MNDT

Description: (1996) **Stamping:** BORK 1996

10.0 MILES EAST OF HINCKLEY, 10.1 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND INTERSTATE HIGHWAY 35 IN HINCKLEY, AT TRUNK HIGHWAY 48 MILEPOINT 10.1, 45.5 FEET NORTH OF TRUNK HIGHWAY 48, 2.8 FEET WEST OF A FENCE CORNER, 1.0 FOOT SOUTHEAST OF A FENCE, 2.5 FEET WEST 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
982.731	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
982.826	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
982.826	.016	2/1				VERTICAL ADJUSTMENT	2006	00000497
982.862	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
982.587	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

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
982.826			894.582	.008	2011	HORIZONTAL ADJUSTMENT	2015	GPS3071
982.826			894.578	.008	2011	GPS - STATIC	2015	HCLVR
982.872	.131		894.749	.066	2007	GPS - STATIC	2012	HCLVR
982.872	.131		894.834	.066	1996	GPS - STATIC	2012	HCLVR
			894.582	.008	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
982.839	.262		894.723	.197	2007	GPS - RTRN	2012	RTRN2012
			894.687	.009	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
982.872	.131		894.828	.066	1996	HORIZONTAL ADJUSTMENT	2002	GPS1700
982.872	.131		894.828	.066	1996	GPS - STATIC	2001	HCLOV

Geoid Separations(ft): GEOID18 = -88.133 12B = -88.195 09 = -88.113 03 = -88.028

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 42.50595	92 43 21.43521	545072.180	202819.372	.007		ADJUSTMENT	2015	GPS3071
46 00 42.50598	92 43 21.43515	545072.184	202819.375	.007	C	GPS - STATIC	2015	HCLVR
46 00 42.50595	92 43 21.43521	545072.180	202819.372	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 42.50601	92 43 21.43587	545072.133	202819.378	.033	C	GPS - STATIC	2012	HCLVR
46 00 42.50550	92 43 21.43612	545072.116	202819.326	.131	3	GPS - RTRN	2012	RTRN2012
46 00 42.50601	92 43 21.43587	545072.133	202819.378	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 42.50601	92 43 21.43548	545072.161	202819.378	.033	C	GPS - STATIC	2012	HCLVR
46 00 42.50601	92 43 21.43548	545072.161	202819.378	.033	C	ADJUSTMENT	2002	GPS1700
46 00 42.50601	92 43 21.43548	545072.161	202819.378	.033	C	GPS - STATIC	2001	HCLOV

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 42.49936	92 43 21.42926	545072.601	202818.705	.033	C	GPS - STATIC	1997	HCLOV

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3012710.418	700781.817	1710867.754	16717147.514	.007		ADJUSTMENT	2015	GPS3071
3012710.422	700781.821	1710867.758	16717147.517	.007	C	GPS - STATIC	2015	HCLVR
3012710.418	700781.817	1710867.754	16717147.514	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3012710.372	700781.823	1710867.708	16717147.520	.033	C	GPS - STATIC	2012	HCLVR
3012710.355	700781.771	1710867.690	16717147.468	.131	3	GPS - RTRN	2012	RTRN2012
3012710.372	700781.823	1710867.708	16717147.520	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3012710.399	700781.823	1710867.735	16717147.520	.033	C	GPS - STATIC	2012	HCLVR
3012710.399	700781.823	1710867.735	16717147.520	.033	C	ADJUSTMENT	2002	GPS1700
3012710.399	700781.823	1710867.735	16717147.520	.033	C	GPS - STATIC	2001	HCLOV

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3012710.851	700781.158	1710868.176	16717146.848	.033	C	GPS - STATIC	1997	HCLOV

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/BORK-DE5983-3N-02MAY2012.jpg	N	May 2, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/BORK-DE5983-2-02MAY2012.jpg		May 2, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/BORK-DE5983-1-02MAY2012.jpg		May 2, 2012

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

BR 58819 SE

Mn/DOT Name: BR 58819 SE
NGS Name: BR 58819 SE
County: PINE, MN (Sheet 1)

NGS ACRN: DO8714 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	3	40 N	21 W	455835.60	925719.50	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2010	2013	GOOD	Horz=NO Vert=NO	YES	58819	FLUSH	NO MAG MATERIAL

Monument Type	Disk Type	Mon. Agency
BRIDGE RAILING	SURVEY DISK	MNDT

Description: (2012) **Stamping:** BR58819SE 2010

2.7 MILES SOUTH OF HINCKLEY, 25.0 FEET SOUTH OF TRUNK HIGHWAY 23, IN THE SOUTHEAST CORNER OF TRUNK HIGHWAY 23 BRIDGE NUMBER 58819 OVER THE INTERSTATE HIGHWAY 35, AT INTERSTATE HIGHWAY 35 MILEPOINT 180.4.

Station Notes

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

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1025.657	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1025.657	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

Geoid Separations(ft): GEOID18 = -90.341 12B = -90.334 09 = -90.229 03 = -90.102

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

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/BR_58819_SE-DO8714-3SE-11OCT2012.jpg	SE	Oct 11, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/BR_58819_SE-DO8714-2-11OCT2012.jpg		Oct 11, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/BR_58819_SE-DO8714-1-11OCT2012.jpg		Oct 11, 2012

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

BROOK

Mn/DOT Name: BROOK
NGS Name: BROOK
County: PINE, MN (Sheet 1)

NGS ACRN: DM4944 Get Map
NGS Quad / Sta Num : 45093111/
USGS Quad: BROOK PARK

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	21	40 N	22 W	455630.81	930552.66	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2010	2025	GOOD	Horz=YES Vert=YES	YES		FLUSH	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: (2010) **Stamping:** BROOK 2010

1.0 MILE SOUTHWEST OF BROOK PARK, AT THE JUNCTION OF TRUNK HIGHWAY 23 AND TRUNK HIGHWAY 107 SOUTHWEST OF BROOK PARK, AT TRUNK HIGHWAY 23 MILEPOINT 266.55, 68.7 FEET NORTHWEST OF TRUNK HIGHWAY 23, 13.3 FEET SOUTHEAST OF A SNOWMOBILE TRAIL, 2.0 FEET SOUTHWEST 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
1023.876	.016	2/1				VERTICAL ADJUSTMENT	2021	00000963
1023.876	.016	2/1				VERTICAL CONTROL SURVEY	2019	V18KBEC
1023.876	.016	2/1				VERTICAL ADJUSTMENT	2012	00000745
1023.863	.016	2/1				VERTICAL CONTROL SURVEY	2011	VMORA
1023.863	.016	2/1				VERTICAL CONTROL SURVEY	2010	VBRAH

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
1024.010	.262		932.833	.197	2011	GPS - RTRN	2025	RTRN2025
			932.711	.006	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1023.850	.131		932.793	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2747
1023.850	.131		932.793	.066	2007	GPS - STATIC	2010	HBRAH
1023.850	.131		932.941	.066	1996	GPS - STATIC	2010	HBRAH

Geoid Separations(ft): GEOID18 = -91.178 12B = -91.161 09 = -91.073 03 = -90.915

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 56 30.81145	93 05 52.66383	449634.206	177334.892	.131	3	GPS - RTRN	2025	RTRN2025
45 56 30.81218	93 05 52.66508	449634.118	177334.967	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 56 30.81236	93 05 52.66596	449634.056	177334.985	.033	C	ADJUSTMENT	2011	GPS2747
45 56 30.81236	93 05 52.66596	449634.056	177334.985	.033	C	GPS - STATIC	2010	HBRAH

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 56 30.81210	93 05 52.66533	449634.100	177334.958	.033	C	GPS - STATIC	2010	HBRAH

BROOK

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2917730.372	673677.264	1615504.071	16691554.544	.131	3	GPS - RTRN	2025	RTRN2025
2917730.283	673677.336	1615503.983	16691554.618	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2917730.220	673677.354	1615503.921	16691554.637	.033	C	ADJUSTMENT	2011	GPS2747
2917730.220	673677.354	1615503.921	16691554.637	.033	C	GPS - STATIC	2010	HBRAH

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2917730.265	673677.328	1615503.965	16691554.610	.033	C	GPS - STATIC	2010	HBRAH

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/BROOK-DM4944-3NW-15SEP2025.jpg	NW	Sep 15, 2025
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/BROOK-DM4944-2-15SEP2025.jpg		Sep 15, 2025
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/BROOK-DM4944-1-15SEP2025.jpg		Sep 15, 2025

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

BUBALO MNDT

Mn/DOT Name: BUBALO MNDT
NGS Name: BUBALO RESET
County: PINE, MN (Sheet 1)

NGS ACRN: RN0605 Get Map
NGS Quad / Sta Num : 46092333/1037
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	25	41 N	21 W	460039.72	925557.61	2	2

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1964	2008	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	TRAVERSE STATION DISK	MNDT

Description: (1994) **Stamping:** BUBALO 1964

IN HINCKLEY, AT THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 48, 23.3 FEET SOUTH OF TRUNK HIGHWAY 48, 95.5 FEET WEST-SOUTHWEST OF THE SOUTHWEST CORNER OF TRUNK HIGHWAY 48 BRIDGE NUMBER 9785 OVER INTERSTATE HIGHWAY 35, 3.2 FEET SOUTH OF A GUARDRAIL, 57.48 FEET EAST-NORTHEAST OF BUBALO MNDT RM 1, 84.11 FEET SOUTHEAST OF BUBALO MNDT RM 2, STATION 5880 W WAS USED AS AN AZIMUTH MARK, 3.8 FEET WEST-NORTHWEST OF A WITNESS POST.

Station Notes

ON 4-9-92 PINE COUNTY REPORTED THAT BRIDGE NUMBER 9788 HAS BEEN REPLACED AND THE STATION COULD NOT BE FOUND, THE GEODETIC UNIT COULD NOT FIND THE STATION IN 1993-

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1036.356	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1036.074	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
1036.097	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
1036.140	.016	2				VERTICAL CONTROL SURVEY	1975	L23805

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
1036.350	.197		946.422	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -90.164 12B = -90.161 09 = -90.046 03 = -89.928

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 39.72353	92 55 57.61004	491698.542	202488.962	.066	2	ADJUSTMENT	1999	17648
46 00 39.71861	92 55 57.60471	491698.918	202488.464	.066	2	ADJUSTMENT	1991	17497

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 39.71811	92 55 57.60477	491698.913	202488.413	.066	2	ADJUSTMENT	1986	17289

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 39.89700	92 55 56.86600			.100	2	CLASSICAL SURVEY	1982	17020
46 00 39.89680	92 55 56.86597			.100	2	CLASSICAL SURVEY	1950	UNK

BUBALO MNDT

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2959355.781	699541.696	1657518.087	16716750.309	.066	2	ADJUSTMENT	1999	17648
2959356.165	699541.204	1657518.463	16716749.811	.066	2	ADJUSTMENT	1991	17497

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2959356.162	699541.153	1657518.459	16716749.760	.066	2	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2334751.428	371474.290			.100	2	CLASSICAL SURVEY	1982	17020
2334751.430	371474.270			.100	2	CLASSICAL SURVEY	1950	UNK

BUBALO MNDT RM 1

Mn/DOT Name: BUBALO MNDT RM 1

NGS Name: BUBALO RM 1

County: PINE, MN (Sheet 1)

NGS ACRN: CJ2292 Get Map
NGS Quad / Sta Num : 46092333/1037
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	25	41 N	21 W	460039.00	925600.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1964	1971	DESTROYED	Horz=NO Vert=NO	NO		PROJECTS 1 IN.	SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	MNDT

Description:

Stamping: BUBALO NO 1 1964

IN HINCKLEY, AT THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 48 (FIRE MONUMENT ROAD), 0.5 MILE EAST OF THE JUNCTION OF FIRE MONUMENT ROAD AND LAWLER AVENUE SOUTH (OLD TRUNK HIGHWAY 61), 38.3 FEET SOUTH OF THE CENTERLINE OF TRUNK HIGHWAY 48, 17.7 FEET SOUTH-SOUTHWEST OF THE END GUARD RAIL POST, 3.0 FEET EAST OF THE BACK EDGE OF A CONCRETE CURBING.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.170 12B = -90.167 09 = -90.049 03 = -89.934

BUBALO MNDT RM 2

Mn/DOT Name: BUBALO MNDT RM 2

NGS Name: BUBALO RM 2

County: PINE, MN (Sheet 1)

NGS ACRN: CJ2293 Get Map
NGS Quad / Sta Num : 46092333/1037
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	25	41 N	21 W	460042.00	925600.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1964	1971	DESTROYED	Horz=NO Vert=NO	NO		PROJECTS 1 IN.	SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	MNDT

Description:

Stamping: BUBALO NO 2 1964

IN HINCKLEY, AT THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 48, 156.9 FEET WEST-NORTHWEST OF THE NORTHWEST BRIDGE ABUTMENT (BRIDGE NUMBER 9788), 46.0 FEET NORTH OF THE CENTERLINE OF TRUNK HIGHWAY 48, 1.7 FEET EAST OF A BACK EDGE OF A CONCRETE CURBING.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.170 12B = -90.167 09 = -90.049 03 = -89.934

BUBALO MNDT RM 3

Mn/DOT Name: BUBALO MNDT RM 3

NGS Name: BUBALO RM 3

County: PINE, MN (Sheet 1)

NGS ACRN: RN0606 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	24	41 N	21 W	460041.00	925557.00	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1974	2008	DESTROYED	Horz=NO Vert=NO	NO	9785		SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
BRIDGE WALKWAY	SURVEY DISK	MNDT

Description: (2008) **Stamping:** BUBALO NO 3 1974

IN HINCKLEY, IN THE NORTHWEST CORNER OF TRUNK HIGHWAY 23 BRIDGE NUMBER 9785 OVER INTERSTATE HIGHWAY 35, IN THE BRIDGE WALKWAY.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1038.426	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1038.144	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
1038.210	.016	2				VERTICAL CONTROL SURVEY	1975	L23805

Geoid Separations(ft): GEOID18 = -90.170 12B = -90.167 09 = -90.049 03 = -89.934

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

BUBALO MNDT RM 4

Mn/DOT Name: BUBALO MNDT RM 4 **NGS Name:** BUBALO RM 4

County: PINE, MN (Sheet 1)

NGS ACRN: RN0607 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	25	41 N	21 W	460039.36	925559.86	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1974	2012	GOOD	Horz=NO Vert=YES	YES		FLUSH	NO MAG MATERIAL

Monument Type	Disk Type	Mon. Agency
CONCRETE FOOTING - SMALL	REFERENCE MARK DISK	MNDT

Description: (2012) **Stamping:** BUBALO NO 4 1974

AT HINCKLEY, 200.0 FEET WEST OF THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 48, 59.0 FEET SOUTH OF THE FIRE MONUMENT ROAD, IN THE NORTHEAST CORNER OF A SIGN BASE.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1031.697	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1031.697	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
1031.697	.016	2/1				VERTICAL CONTROL SURVEY	2009	VMOOSE
1031.697	.016	2/1				VERTICAL ADJUSTMENT	2006	00000497
1031.697	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV
1031.697	.016	2/1				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1031.415	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV
1031.415	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
1031.415	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
1031.481	.016	2				VERTICAL CONTROL SURVEY	1975	L23805

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
1031.563	.262		941.514	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -90.170 12B = -90.167 09 = -90.049 03 = -89.931

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 39.36337	92 55 59.86260	491539.530	202452.544	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2959197.430	699502.577	1657359.192	16716713.706	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/BUBALO_RM_4-RN0607-3E-01MAY2012.jpg	E	May 1, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/BUBALO_RM_4-RN0607-2-01MAY2012.jpg		May 1, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/BUBALO_RM_4-RN0607-1-01MAY2012.jpg		May 1, 2012

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

BURNETT PINE

Mn/DOT Name: BURNETT PINE
NGS Name: BURNETT PINE
County: PINE, MN (Sheet 1)

NGS ACRN: DN5322 Get Map
NGS Quad / Sta Num : 46092233/
USGS Quad: DANBURY WEST

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	25	41 N	17 W	460045.33	922639.39	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2009	2015	GOOD	Horz=YES Vert=YES	YES	B 7 6 84	FLUSH	NO MAG MATERIAL

Monument Type	Disk Type	Mon. Agency
BRIDGE DECK	SURVEY DISK	WIDT

Description: (2009)
Stamping: BURNETT PINE 2009

3.7 MILES WEST OF DANBURY, 3.6 MILES WEST ALONG TRUNK HIGHWAY 77 WEST (MAIN STREET EAST) FROM THE JUNCTION OF TRUNK HIGHWAY 77 WEST (MAIN STREET EAST) AND SOUTH 2ND AVENUE IN DANBURY, THEN 223.0 FEET WEST ALONG TRUNK HIGHWAY 48 WEST, STATION BURNETT PINE IS IN THE SOUTHWEST CORNER OF THE BRIDGE DECK OF BRIDGE NUMBER B 7 6 84 OVER THE ST. CROIX RIVER.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
881.626	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
881.809	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
881.596	.016	2/1				VERTICAL ADJUSTMENT	2012	00000712

Geoid Separations(ft): GEOID18 = -86.650 12B = -86.716 09 = -86.739 03 = -86.601

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

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/BURNETT_PINE-DN5322-3E-22FEB2007.jpg	E	Feb 22, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/BURNETT_PINE-DN5322-2-22FEB2007.jpg		Feb 22, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/BURNETT_PINE-DN5322-1-22FEB2007.jpg		Feb 22, 2007

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

Mn/DOT Name: C 60 **NGS Name:** C 60

County: PINE, MN (Sheet 1)

NGS ACRN: RN0471 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	24	41 N	21 W	460041.00	925640.00	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1934	2008	DESTROYED	Horz=NO Vert=NO	NO		PROJECTS 6 IN.	SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	NGS

Description: (1934) **Stamping:** C 60 1934

AT HINCKLEY, 0.05 MILE NORTH ON COUNTY ROAD 61 SOUTH FROM THE JUNCTION OF FIRE MOUNTAIN ROAD AND TRUNK HIGHWAY 23(INTERSTATE HIGHWAY 35), 187.0 FEET WEST OF THE OLD HIGHWAY 61 SOUTH, 68.8 FEET WEST OF THE RAILROAD JUNCTION, 34.5 FEET NORTHWEST OF THE NORTHWEST RAIL OF THE SOUTHWEST-NORTHEAST RAILROAD TRACK, 150.0 FEET WEST OF PBM 17 MRC, 1.0 FOOT EAST OF A WITNESS POST.

Station Notes

G=980 640.51 +/-? MGAL
GRAVITY VALUE: G=980 626.04 +/-0.1 MGAL
NOAA 07-01-1973.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1031.461	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1031.215	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
1031.166	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
1031.232	.016	2				VERTICAL CONTROL SURVEY	1975	L23805
1030.992	.007	1				VERTICAL CONTROL SURVEY	1974	L3440
1031.166	.033	3				VERTICAL CONTROL SURVEY	1966	USGS-VERT
1030.992	.007	1				VERTICAL CONTROL SURVEY	1934	L53 MINN

Geoid Separations(ft): GEOID18 = -90.243 12B = -90.243 09 = -90.124 03 = -900000

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

CASINO MNDT

Mn/DOT Name: CASINO MNDT **NGS Name:** CASINO

County: PINE, MN (Sheet 1)

NGS ACRN: AG9985 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	29	41 N	20 W	460013.18	925354.80	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1993	2012	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	MARKER W/BAR MAGNET

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

Description: (1993) **Stamping:** CASINO 1993

1.75 MILES EAST OF HINCKLEY, 1.75 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 48 IN HINCKLEY, THEN 0.5 MILE SOUTH ALONG COUNTY ROAD 15, 48.0 FEET WEST OF COUNTY ROAD 15, 13.0 FEET SOUTH OF AN ENTRANCE, 28.2 FEET SOUTH-SOUTHEAST OF A FENCE CORNER, 3.5 FEET EAST OF A FENCE, 3.2 FEET EAST 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
1014.145	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1014.161	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
1014.161	.016	2/1				VERTICAL ADJUSTMENT	2006	00000497
1014.145	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1013.869	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

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
1014.161			924.234	.007	2011	HORIZONTAL ADJUSTMENT	2015	GPS3071
1014.161			924.234	.007	2011	GPS - STATIC	2015	HCLVR
1014.138	.131		924.362	.066	2007	GPS - STATIC	2012	HCLVR
1014.138	.131		924.457	.066	1996	GPS - STATIC	2012	HCLVR
			924.234	.006	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1014.069	.262		924.286	.197	2007	GPS - RTRN	2012	RTRN2012
1014.007	.262		924.319	.197	1996	GPS - RTRN	2008	RTRN2008
			924.342	.008	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
1014.138	.131		924.473	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1839
1014.138	.131		924.473	.066	1996	GPS - STATIC	2002	HPINE
1014.138	.131		924.473	.066	1996	HORIZONTAL ADJUSTMENT	2002	GPS1700
1014.138	.131		924.473	.066	1996	GPS - STATIC	2001	HCLOV
1014.138	.131		924.493	.066	1996	HORIZONTAL ADJUSTMENT	1998	GPS917

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1013.909						GPS - STATIC	1994	HORZ

Geoid Separations(ft): GEOID18 = -89.901 12B = -89.885 09 = -89.783 03 = -89.901

CASINO MNDT

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 13.18076	92 53 54.80457	500366.766	199798.441	.010		ADJUSTMENT	2015	GPS3071
46 00 13.18073	92 53 54.80445	500366.775	199798.438	.010	C	GPS - STATIC	2015	HCLVR
46 00 13.18076	92 53 54.80457	500366.766	199798.441	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 13.18059	92 53 54.80512	500366.727	199798.424	.033	C	GPS - STATIC	2012	HCLVR
46 00 13.18033	92 53 54.80537	500366.710	199798.397	.131	3	GPS - RTRN	2012	RTRN2012
46 00 13.18059	92 53 54.80512	500366.727	199798.424	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 13.18074	92 53 54.80485	500366.746	199798.439	.033	C	GPS - STATIC	2012	HCLVR
46 00 13.18068	92 53 54.80479	500366.751	199798.432	.131	3	GPS - RTRN	2008	RTRN2008
46 00 13.18074	92 53 54.80485	500366.746	199798.439	.033	C	ADJUSTMENT	2003	GPS1839
46 00 13.18074	92 53 54.80485	500366.745	199798.439	.033	C	GPS - STATIC	2002	HPINE
46 00 13.18074	92 53 54.80485	500366.746	199798.439	.033	C	ADJUSTMENT	2002	GPS1700
46 00 13.18074	92 53 54.80485	500366.746	199798.439	.033	C	GPS - STATIC	2001	HCLOV
46 00 13.18043	92 53 54.80468	500366.758	199798.407	.033	1	ADJUSTMENT	1998	GPS917

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 13.17421	92 53 54.79949	500367.126	199797.776	.033	C	GPS - STATIC	1994	HI35N

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2968067.687	696999.562	1666185.846	16714071.861	.010		ADJUSTMENT	2015	GPS3071
2968067.695	696999.559	1666185.854	16714071.858	.010	C	GPS - STATIC	2015	HCLVR
2968067.687	696999.562	1666185.846	16714071.861	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2968067.648	696999.544	1666185.807	16714071.844	.033	C	GPS - STATIC	2012	HCLVR
2968067.631	696999.517	1666185.789	16714071.818	.131	3	GPS - RTRN	2012	RTRN2012
2968067.648	696999.544	1666185.807	16714071.844	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2968067.667	696999.559	1666185.826	16714071.859	.033	C	GPS - STATIC	2012	HCLVR
2968067.671	696999.553	1666185.830	16714071.853	.131	3	GPS - RTRN	2008	RTRN2008
2968067.667	696999.559	1666185.826	16714071.859	.033	C	ADJUSTMENT	2003	GPS1839
2968067.667	696999.559	1666185.826	16714071.859	.033	C	GPS - STATIC	2002	HPINE
2968067.667	696999.559	1666185.826	16714071.859	.033	C	ADJUSTMENT	2002	GPS1700
2968067.667	696999.559	1666185.826	16714071.859	.033	C	GPS - STATIC	2001	HCLOV
2968067.680	696999.528	1666185.838	16714071.828	.033	1	ADJUSTMENT	1998	GPS917

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2968068.057	696998.905	1666186.205	16714071.198	.033	C	GPS - STATIC	1994	HI35N

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CASINO-AG9985-3W-02MAY2012.jpg	W	May 2, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CASINO-AG9985-2-02MAY2012.jpg		May 2, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CASINO-AG9985-1-02MAY2012.jpg		May 2, 2012

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

CATTAIL MNDT

Mn/DOT Name: CATTAIL MNDT **NGS Name:** CATTAIL

County: PINE, MN (Sheet 1)

NGS ACRN: AG9986 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	6	41 N	20 W	460343.78	925429.36	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1993	2012	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 19 FT)	SURVEY DISK	MNDT

Description: (1993) **Stamping:** CATTAIL 1993

3.7 MILES NORTH-NORTHEAST OF HINCKLEY, 3.7 MILES NORTH-NORTHEAST ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 48, AT INTERSTATE HIGHWAY 35 MILEPOINT 186.8, 26.8 FEET WEST-NORTHWEST OF THE NORTHBOUND INTERSTATE HIGHWAY 35, 23.0 FEET NORTHEAST OF THE WEST END OF THE NORTHERN MOST 30.0 INCH DIAMETER CONCRETE CULVERT, 11.3 FEET EAST-SOUTHEAST 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
1071.107	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1071.104	.016	2/1				VERTICAL CONTROL SURVEY	2009	VMOOSE

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
			981.038	.007	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1071.021	.262		981.077	.197	2007	GPS - RTRN	2012	RTRN2012
1071.094	.131		981.107	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2566
1071.094	.131		981.232	.066	1996	GPS - STATIC	2009	HMOOSE
1071.094	.131		981.107	.066	2007	GPS - STATIC	2009	HMOOSE
1070.923	.262		981.100	.197	1996	GPS - RTRN	2008	RTRN2008
			981.107	.009	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
1071.061	.131		981.232	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1839
1071.061	.131		981.232	.066	1996	GPS - STATIC	2002	HPINE
1071.044	.131		981.238	.066	1996	HORIZONTAL ADJUSTMENT	1998	GPS917

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1070.798						GPS - STATIC	1994	HORZ

Geoid Separations(ft): GEOID18 = -90.056 12B = -90.059 09 = -89.941 03 = -90.056

CATTAIL MNDT

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 03 43.77531	92 54 29.35875	497929.635	221132.160	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 03 43.77501	92 54 29.35915	497929.607	221132.130	.131	3	GPS - RTRN	2012	RTRN2012
46 03 43.77509	92 54 29.35926	497929.600	221132.138	.033	C	ADJUSTMENT	2009	GPS2566
46 03 43.77509	92 54 29.35926	497929.600	221132.138	.033	C	GPS - STATIC	2009	HMOOSE
46 03 43.77509	92 54 29.35926	497929.600	221132.138	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 03 43.77497	92 54 29.35885	497929.628	221132.126	.033	C	GPS - STATIC	2009	HMOOSE
46 03 43.77539	92 54 29.35951	497929.582	221132.169	.131	3	GPS - RTRN	2008	RTRN2008
46 03 43.77497	92 54 29.35885	497929.628	221132.126	.033	C	ADJUSTMENT	2003	GPS1839
46 03 43.77497	92 54 29.35885	497929.627	221132.127	.033	C	GPS - STATIC	2002	HPINE
46 03 43.77497	92 54 29.35885	497929.628	221132.126	.033	1	ADJUSTMENT	1998	GPS917

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 03 43.76903	92 54 29.35319	497930.028	221131.523	.033	C	GPS - STATIC	1994	HI35N

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2965267.610	718286.371	1663723.007	16735393.073	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2965267.582	718286.340	1663722.979	16735393.043	.131	3	GPS - RTRN	2012	RTRN2012
2965267.574	718286.348	1663722.971	16735393.051	.033	C	ADJUSTMENT	2009	GPS2566
2965267.574	718286.348	1663722.971	16735393.051	.033	C	GPS - STATIC	2009	HMOOSE
2965267.574	718286.348	1663722.971	16735393.051	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2965267.604	718286.336	1663723.000	16735393.039	.033	C	GPS - STATIC	2009	HMOOSE
2965267.556	718286.378	1663722.953	16735393.081	.131	3	GPS - RTRN	2008	RTRN2008
2965267.604	718286.336	1663723.000	16735393.039	.033	C	ADJUSTMENT	2003	GPS1839
2965267.604	718286.336	1663723.000	16735393.039	.033	C	GPS - STATIC	2002	HPINE
2965267.604	718286.336	1663723.000	16735393.039	.033	1	ADJUSTMENT	1998	GPS917

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2965268.013	718285.741	1663723.399	16735392.438	.033	C	GPS - STATIC	1994	HI35N

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CATTAIL-AG9986-3W-01MAY2012.jpg	W	May 1, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CATTAIL-AG9986-2-01MAY2012.jpg		May 1, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CATTAIL-AG9986-1-01MAY2012.jpg		May 1, 2012

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

Mn/DOT Name: CEDAR **NGS Name:** CEDAR

County: PINE, MN (Sheet 1)

NGS ACRN: QO0326 Get Map
NGS Quad / Sta Num : 45092444/1016
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	27	40 N	21 W	455507.91	925727.65	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2019	GOOD	Horz=NO Vert=NO	YES		FLUSH	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	NGS

Description: (2010) **Stamping:** CEDAR 1961

6.2 MILES NORTH OF THE SNAKE RIVER IN PINE CITY, 3.8 MILES NORTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND COUNTY ROAD 11 TO THE JUNCTION WITH COUNTY ROAD 14, THEN 0.2 MILE EAST ALONG COUNTY ROAD 14 TO THE JUNCTION WITH COUNTY ROAD 130 (BEROUN CROSSING), THEN 0.2 MILE NORTH ALONG COUNTY ROAD 130, 0.5 MILE NORTH ON COUNTY ROAD 61 FROM BEROUN, 21.0 FEET WEST OF THE WEST RAIL OF THE RAILROAD TRACKS, 59.0 FEET EAST OF COUNTY ROAD 61, 186.0 FEET NORTHEAST OF THE JUNCTION OF COUNTY ROAD 61 AND A GRAVEL CROSSROAD (COUNTY ROAD 130), 173.5 FEET NORTH OF COUNTY ROAD 130, 138.9 FEET NORTH-NORTHEAST OF A POWER POLE, 3.0 FEET WEST OF A WITNESS POST, 43.89 FEET SOUTHEAST OF CEDAR RM 2, 90.44 FEET NORTH-NORTHEAST OF CEDAR RM 1.

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

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
976.553	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
976.291	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
976.291	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
976.373	.016	2				VERTICAL CONTROL SURVEY	1974	L23306

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
976.438	.262		886.042	.197	2007	GPS - RTRN	2012	RTRN2012
			886.028	.006	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
976.540	.131		886.150	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2747
976.540	.131		886.150	.066	2007	GPS - STATIC	2010	HBRAH
976.540	.131		886.317	.066	1996	GPS - STATIC	2010	HBRAH
			886.150	.009	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
976.540	.131		886.317	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1839
976.540	.131		886.317	.066	1996	GPS - STATIC	2002	HPINE
976.540	.131		886.311	.066	1996	HORIZONTAL ADJUSTMENT	1999	17648
976.553	.131		886.304	.066	1996	HORIZONTAL ADJUSTMENT	1998	GPS917

Geoid Separations(ft): GEOID18 = -90.485 12B = -90.466 09 = -90.397 03 = -90.485

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 55 07.90793	92 57 27.65151	485318.628	168879.394	.003		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 55 07.90734	92 57 27.65211	485318.585	168879.334	.131	3	GPS - RTRN	2012	RTRN2012
45 55 07.90796	92 57 27.65233	485318.570	168879.397	.033	C	ADJUSTMENT	2011	GPS2747
45 55 07.90796	92 57 27.65233	485318.570	168879.397	.033	C	GPS - STATIC	2010	HBRAH
45 55 07.90796	92 57 27.65233	485318.570	168879.397	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 55 07.90781	92 57 27.65167	485318.617	168879.382	.033	C	GPS - STATIC	2010	HBRAH
45 55 07.90781	92 57 27.65167	485318.617	168879.382	.033	C	ADJUSTMENT	2003	GPS1839
45 55 07.90781	92 57 27.65167	485318.616	168879.383	.033	C	GPS - STATIC	2002	HPINE
45 55 07.90781	92 57 27.65167	485318.617	168879.382	.033	C	ADJUSTMENT	1999	17648
45 55 07.90781	92 57 27.65167	485318.617	168879.382	.033	1	ADJUSTMENT	1998	GPS917
45 55 07.90288	92 57 27.64601	485319.017	168878.882	.131	3	ADJUSTMENT	1991	17497

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 55 07.90224	92 57 27.64685	485318.957	168878.817	.131	3	ADJUSTMENT	1986	17289

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 55 08.06340	92 57 26.90610			.100	3	CLASSICAL SURVEY	1961	12611

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2953550.128	665831.709	1651183.202	16683147.685	.003		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2953550.087	665831.649	1651183.159	16683147.626	.131	3	GPS - RTRN	2012	RTRN2012
2953550.070	665831.711	1651183.143	16683147.688	.033	C	ADJUSTMENT	2011	GPS2747
2953550.070	665831.711	1651183.143	16683147.688	.033	C	GPS - STATIC	2010	HBRAH
2953550.070	665831.711	1651183.143	16683147.688	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2953550.117	665831.697	1651183.190	16683147.673	.033	C	GPS - STATIC	2010	HBRAH
2953550.117	665831.697	1651183.190	16683147.673	.033	C	ADJUSTMENT	2003	GPS1839
2953550.117	665831.697	1651183.190	16683147.673	.033	C	GPS - STATIC	2002	HPINE
2953550.117	665831.697	1651183.190	16683147.673	.033	C	ADJUSTMENT	1999	17648
2953550.117	665831.697	1651183.190	16683147.673	.033	1	ADJUSTMENT	1998	GPS917
2953550.525	665831.204	1651183.590	16683147.174	.131	3	ADJUSTMENT	1991	17497

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2953550.467	665831.138	1651183.531	16683147.109	.131	3	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2328945.800	337762.670			.100	3	CLASSICAL SURVEY	1961	12611

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CEDAR-QO0326-3E-26APR2010.jpg	E	Apr 26, 2010
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CEDAR-QO0326-2-26APR2010.jpg		Apr 26, 2010
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CEDAR-QO0326-1-26APR2010.jpg		Apr 26, 2010

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

CEDAR AZ MK

Mn/DOT Name: CEDAR AZ MK
NGS Name: CEDAR AZ MK
County: PINE, MN (Sheet 1)

NGS ACRN: QO0324 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	34	40 N	21 W	455448.35	925732.46	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2008	GOOD	Horz=NO Vert=YES	YES		RECESSED 0 IN.	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	NGS

Description: (2012) **Stamping:** CEDAR 1961

5.9 MILES NORTH OF THE SNAKE RIVER AT PINE CITY, 0.7 MILE NORTH ALONG COUNTY ROAD 61 FROM THE JUNCTION OF COUNTY ROAD 61 AND COUNTY ROAD 14, 0.2 MILE NORTH OF BEROUN, 76.7 FEET WEST OF COUNTY ROAD 61, 78.5 FEET NORTH OF THE NORTHEAST CORNER OF HOUSE NUMBER 25307, 23.0 FEET WEST OF A SERVICE ROAD, 2.5 FEET NORTH OF A POWER POLE, 8.0 FEET WEST-SOUTHWEST OF A WITNESS POST, 0.6 FOOT WEST OF A TELEPHONE PEDESTAL.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
976.038	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
975.776	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
975.776	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
975.858	.016	2				VERTICAL CONTROL SURVEY	1974	L23306

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
975.897	.262		885.474	.197	2007	GPS - RTRN	2012	RTRN2012
975.881	.262		885.589	.197	1996	GPS - RTRN	2008	RTRN2008

Geoid Separations(ft): GEOID18 = -90.512 12B = -90.495 09 = -90.423 03 = -90.292

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 54 48.34875	92 57 32.45925	484977.241	166898.296	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 54 48.34966	92 57 32.45949	484977.225	166898.389	.131	3	GPS - RTRN	2008	RTRN2008

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2953242.580	663845.276	1650844.454	16681167.045	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2953242.562	663845.368	1650844.437	16681167.137	.131	3	GPS - RTRN	2008	RTRN2008

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CEDAR_AZ_MK-QO0324-3W-15OCT2012.jpg	W	Oct 15, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CEDAR_AZ_MK-QO0324-2-15OCT2012.jpg		Oct 15, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CEDAR_AZ_MK-QO0324-1-15OCT2012.jpg		Oct 15, 2012

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

CEDAR RM 1

Mn/DOT Name: CEDAR RM 1 **NGS Name:** CEDAR RM 1

County: PINE, MN (Sheet 1)

NGS ACRN: QO0325 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	27	40 N	21 W	455507.05	925728.01	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2008	GOOD	Horz=YES Vert=YES	YES		FLUSH	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description: (1961) **Stamping:** CEDAR NO 1 1961

6.2 MILES NORTH OF THE SNAKE RIVER IN PINE CITY, 1.1 MILES NORTH ON COUNTY ROAD 61 FROM THE JUNCTION OF COUNTY ROAD 61 AND COUNTY ROAD 14, 0.5 MILE NORTH OF BEROUN, 43.0 FEET EAST OF COUNTY ROAD 61, 37.4 FEET WEST OF THE WEST RAIL OF THE RAILROAD TRACKS, 86.0 FEET NORTH OF COUNTY ROAD 130, 90.4 FEET SOUTHWEST OF STATION CEDAR, 127.5 FEET SOUTH OF CEDAR RM 2.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
976.478	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
976.215	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
976.215	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
976.297	.016	2				VERTICAL CONTROL SURVEY	1974	L23306

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
976.360	.262		885.963	.197	2007	GPS - RTRN	2012	RTRN2012
976.261	.262		885.992	.197	1996	GPS - RTRN	2008	RTRN2008

Geoid Separations(ft): GEOID18 = -90.489 12B = -90.469 09 = -90.397 03 = -90.266

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 55 07.05024	92 57 28.00856	485293.321	168792.528	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 55 07.05060	92 57 28.00861	485293.317	168792.565	.131	3	GPS - RTRN	2008	RTRN2008

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2953526.307	665744.433	1651158.015	16683060.827	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2953526.303	665744.470	1651158.011	16683060.863	.131	3	GPS - RTRN	2008	RTRN2008

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CEDAR_RM_1-QO0325-3E-04DEC2007.jpg	E	Dec 4, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CEDAR_RM_1-QO0325-2-04DEC2007.jpg		Dec 4, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CEDAR_RM_1-QO0325-1-04DEC2007.jpg		Dec 4, 2007

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

CEDAR RM 2

Mn/DOT Name: CEDAR RM 2 **NGS Name:** CEDAR RM 2

County: PINE, MN (Sheet 1)

NGS ACRN: QO0327 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	27	40 N	21 W	455508.31	925727.89	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2008	GOOD	Horz=YES Vert=YES	YES		FLUSH	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description: (2008) **Stamping:** CEDAR NO 2 1961

6.2 MILES NORTH OF THE SNAKE RIVER IN PINE CITY, 1.1 MILES NORTH ALONG COUNTY ROAD 61 FROM THE JUNCTION OF COUNTY ROAD 61 AND COUNTY ROAD 14, 0.5 MILE NORTH OF BEROUN, 38.2 FEET EAST OF COUNTY ROAD 61, 44.0 FEET NORTHWEST OF STATION CEDAR, 42.2 FEET WEST OF THE WEST RAIL OF THE RAILROAD TRACKS, 127.5 FEET NORTH OF CEDAR RM 1, 1.0 FOOT WEST 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
974.168	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
973.906	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
973.906	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
973.988	.016	2				VERTICAL CONTROL SURVEY	1974	L23306

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
974.070	.262		883.676	.197	2007	GPS - RTRN	2012	RTRN2012
974.037	.262		883.771	.197	1996	GPS - RTRN	2008	RTRN2008

Geoid Separations(ft): GEOID18 = -90.485 12B = -90.466 09 = -90.397 03 = -90.266

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 55 08.30621	92 57 27.89295	485301.587	168919.752	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 55 08.30668	92 57 27.89247	485301.621	168919.800	.131	3	GPS - RTRN	2008	RTRN2008

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2953532.404	665871.767	1651166.117	16683188.004	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2953532.437	665871.816	1651166.151	16683188.052	.131	3	GPS - RTRN	2008	RTRN2008

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CEDAR_RM_2-QO0327-3E-04DEC2007.jpg	E	Dec 4, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CEDAR_RM_2-QO0327-2-04DEC2007.jpg		Dec 4, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CEDAR_RM_2-QO0327-1-04DEC2007.jpg		Dec 4, 2007

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

CEN OF A PAVED RD DRIVEWAY S

Mn/DOT Name: CEN OF A PAVED RD DRIVEWAY S

NGS Name: CEN OF A PAVED RD DRIVEWAY S

County: PINE, MN (Sheet 1)

NGS ACRN: CJ2329 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	22	41 N	21 W	460106.47	925829.38		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
	2010	UNKNOWN	Horz=? Vert=?	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
UNKNOWN	UNSPECIFIC DISK TYPE (SEE TEXT)	UNK

Description:

2.0 MILES WEST OF HINCKLEY, 1.5 MILES WEST ALONG COUNTY ROAD 18/2ND STREET NORTHWEST FROM THE JUNCTION OF COUNTY ROAD 18/2ND STREET NORTHWEST AND COUNTY ROAD 61 IN HINCKLEY, 144.0 FEET EAST OF STATION HINCK.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.426 12B = -90.420 09 = -90.305 03 = -90.164

Mn/DOT Name: CENT MNDT **NGS Name:** CENT

County: PINE, MN (Sheet 1)

NGS ACRN: QO2493 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	16	38 N	21 W	454711.60	925813.67	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1984	2007	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	MARKER W/BAR MAGNET

Monument Type
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 18 FT)

Disk Type
SURVEY DISK

Mon. Agency
MNDT

Description: (1984) **Stamping:** CENT 1984

2.75 MILES SOUTH ON TRUNK HIGHWAY 361 FROM PINE CITY, AT TRUNK HIGHWAY 361 MILEPOINT 8.75, 22.0 FEET EAST OF TRUNK HIGHWAY 361, 48.8 FEET WEST-NORTHWEST OF A POWER POLE, 57.9 FEET SOUTHWEST OF A WITNESS POST, 58.63 FEET SOUTHWEST OF CENT MNDT RM 1, 65.52 FEET NORTHWEST OF CENT MNDT RM 2.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
982.314	.197	2				VERTICAL ADJUSTMENT	1994	17352

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
			891.183	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			891.278	.010	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
			891.439	.066	1996	GPS - STATIC	1999	GPS917
982.314	.131		891.439	.066	1996	HORIZONTAL ADJUSTMENT	1999	17648
982.314						RECIPROCAL VERTICAL ANGLE	1994	HORZ

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
982.085						GPS - STATIC	1994	HORZ
982.085						RECIPROCAL VERTICAL ANGLE	1984	HORZ

Geoid Separations(ft): GEOID18 = -91.112 12B = -91.092 09 = -91.037 03 = -90.902

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 47 11.60189	92 58 13.67105	482022.218	120632.523	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 47 11.60196	92 58 13.67173	482022.169	120632.530	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 47 11.60202	92 58 13.67117	482022.209	120632.534	.033	C	GPS - STATIC	1999	GPS917
45 47 11.60202	92 58 13.67117	482022.209	120632.536	.033	C	ADJUSTMENT	1999	17648

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 47 11.59927	92 58 13.67204	482022.146	120632.255	.066	2	CLASSICAL SURVEY	1994	G17352
45 47 11.59784	92 58 13.66745	482022.471	120632.111	.033	C	GPS - STATIC	1994	HI35N
45 47 11.59927	92 58 13.67204	482022.147	120632.257	.066	2	ADJUSTMENT	1994	17352

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 47 11.75590	92 58 12.91950			.100	C	CLASSICAL SURVEY	1984	3306-09

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951076.557	617540.150	1647948.820	16634918.429	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951076.509	617540.156	1647948.771	16634918.436	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951076.549	617540.163	1647948.811	16634918.442	.033	C	GPS - STATIC	1999	GPS917
2951076.549	617540.163	1647948.811	16634918.442	.033	C	ADJUSTMENT	1999	17648

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951076.491	617539.883	1647948.749	16634918.163	.066	2	CLASSICAL SURVEY	1994	G17352
2951076.819	617539.744	1647949.075	16634918.019	.033	C	GPS - STATIC	1994	HI35N
2951076.492	617539.883	1647948.750	16634918.163	.066	2	ADJUSTMENT	1994	17352

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2326472.692	289471.270			.100	C	CLASSICAL SURVEY	1984	3306-09

CENT MNDT RM 1

Mn/DOT Name: CENT MNDT RM 1 **NGS Name:** CENT RM 1

County: PINE, MN (Sheet 1)

NGS ACRN: CS8958 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	16	38 N	21 W	454711.96	925813.02	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1984	2012	GOOD	Horz=NO Vert=NO	YES		FLUSH	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 18 FT)	REFERENCE MARK DISK	MNDT

Description: (2007) **Stamping:** CENT NO 1 1984

2.75 MILES SOUTH OF PINE CITY, 2.2 MILES SOUTH ON TRUNK HIGHWAY 361 FROM THE JUNCTION OF TRUNK HIGHWAY 361 AND HILLSIDE AVENUE, 68.0 FEET EAST OF CENTERLINE OF TRUNK HIGHWAY 361, 42.9 FEET NORTH-NORTHWEST OF A POWER POLE, 0.8 FOOT EAST-NORTHEAST OF A WITNESS POST.

Station Notes

FOUND CAP LOOSE. USE WITH CAUTION.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
978.217	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
978.233	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
978.233	.016	2/1				VERTICAL CONTROL SURVEY	2009	VCHEN

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
			887.098	.010	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			887.187	.011	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
978.180	.131		887.324	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1839
978.180	.131		887.324	.066	1996	GPS - STATIC	2002	HPINE

Geoid Separations(ft): GEOID18 = -91.109 12B = -91.089 09 = -91.037 03 = -90.899

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 47 11.95610	92 58 13.01668	482068.625	120668.362	.016		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 47 11.95618	92 58 13.01741	482068.573	120668.371	.016		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 47 11.95611	92 58 13.01685	482068.613	120668.364	.033	C	ADJUSTMENT	2003	GPS1839
45 47 11.95611	92 58 13.01685	482068.613	120668.364	.033	C	GPS - STATIC	2002	HPINE

CENT MNDT RM 1

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951122.343	617576.772	1647995.161	16634954.310	.016		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951122.291	617576.779	1647995.109	16634954.319	.016		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951122.331	617576.773	1647995.149	16634954.311	.033	C	ADJUSTMENT	2003	GPS1839
2951122.331	617576.773	1647995.149	16634954.311	.033	C	GPS - STATIC	2002	HPINE

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CENT_RM_1-CS8958-3E-08MAY2007.jpg	E	May 8, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CENT_RM_1-CS8958-2-08MAY2007.jpg		May 8, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CENT_RM_1-CS8958-1-08MAY2007.jpg		May 8, 2007

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

CENT MNDT RM 2

Mn/DOT Name: CENT MNDT RM 2 **NGS Name:** CENT RM 2

County: PINE, MN (Sheet 1)

NGS ACRN: CS8959 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	16	38 N	21 W	454711.00	925813.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1984	2007	DESTROYED	Horz=NO Vert=NO	NO		PROJECTS 1 IN.	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE)	REFERENCE MARK DISK	MNDT

Description:

Stamping: CENT NO 2 1984

2.75 MILES SOUTH OF PINE CITY, 2.2 MILES SOUTH ON TRUNK HIGHWAY 361 FROM THE JUNCTION OF TRUNK HIGHWAY 361 AND HILLSIDE AVENUE, 67.5 FEET EAST OF THE CENTERLINE OF TRUNK HIGHWAY 361, 39.4 FEET SOUTH-SOUTHWEST OF A POWER POLE, 81.9 FEET SOUTH OF A STEEL WITNESS POST.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -91.112 12B = -91.092 09 = -91.037 03 = -90.902

CHENG MNDT

Mn/DOT Name: CHENG MNDT **NGS Name:** CHENG

County: PINE, MN (Sheet 1)

NGS ACRN: AC4962 Get Map
NGS Quad / Sta Num : 45092442/
USGS Quad: BASS CREEK

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	24	38 N	20 W	454623.87	924656.04	2	B

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1995	2023	DESTROYED	Horz=YES Vert=YES	YES		RECESSED 4 IN.	MARKER IS STEEL ROD

Monument Type	Disk Type	Mon. Agency
STEEL ROD (NO SLEEVE) (DEPTH 21 FT)	METAL ROD	MNDT

Description: (2015) **Stamping:** CHENG 1995

10.0 MILES EAST-SOUTHEAST OF PINE CITY, 10.45 MILES EAST ALONG TRUNK HIGHWAY 70 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 70 3.9 MILES SOUTH OF PINE CITY, AT TRUNK HIGHWAY 70 MILEPOINT 29.2, 26.0 FEET SOUTH OF TRUNK HIGHWAY 70, 55.7 FEET WEST-SOUTHWEST OF THE SOUTHWEST CORNER OF TRUNK HIGHWAY 70 BRIDGE NUMBER 58004 OVER THE ST. CROIX RIVER, 5.5 FEET SOUTH OF A GUARDRAIL, 4.1 FEET SOUTH 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
809.723	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
809.893	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
809.710	.016	2/1				VERTICAL ADJUSTMENT	2012	00000712
809.893	.016	2/1				VERTICAL CONTROL SURVEY	2009	VCHEN

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
809.723			720.694	.010	2011	HORIZONTAL ADJUSTMENT	2018	GPS3119
809.864	.131		720.940	.066	1996	GPS - STATIC	2017	HMNCORS07
809.723			720.694	.010	2011	GPS - STATIC	2017	HMNPH
809.677	.262		720.583	.197	2011	GPS - RTRN	2015	RTRN2015
			720.940	.066	1996	GPS - STATIC	2014	HMNCORS06
			720.694	.010	2011	HORIZONTAL ADJUSTMENT	2013	GPS2829-E
809.710	.131		720.615	.066	2011	HORIZONTAL ADJUSTMENT	2012	GPS2829-D
809.765	.262		720.714	.197	2007	GPS - RTRN	2012	RTRN2012
			720.694	.010	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			720.789	.033	2007	HORIZONTAL ADJUSTMENT	2012	GPS2829-B
			720.789	.010	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
809.874	.098		720.940	.049	1996	GPS - STATIC	2005	GPS2036
809.907	.131		720.940	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1839
809.907	.131		720.940	.066	1996	GPS - STATIC	2002	HPINE
809.867	.098		720.940	.049	1996	GPS - STATIC	1997	GPS805-B
809.867	.131		720.940	.066	1996	GPS - STATIC	1997	GPS805-C

Geoid Separations(ft): GEOID18 = -89.081 12B = -89.094 09 = -89.048 03 = -88.940

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 46 23.86691	92 46 56.03867	530053.483	115811.317	.007		ADJUSTMENT	2018	GPS3119
45 46 23.86691	92 46 56.03867	530053.483	115811.317	.007	C	GPS - STATIC	2017	HMNPH
45 46 23.86637	92 46 56.03930	530053.439	115811.262	.131	3	GPS - RTRN	2015	RTRN2015
45 46 23.86691	92 46 56.03871	530053.481	115811.317	.007		ADJUSTMENT	2013	GPS2829-E
45 46 23.86691	92 46 56.03867	530053.483	115811.317	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 46 23.86661	92 46 56.03958	530053.419	115811.287	.131	3	GPS - RTRN	2012	RTRN2012
45 46 23.86696	92 46 56.03937	530053.434	115811.322	.033	C	ADJUSTMENT	2012	GPS2829-B
45 46 23.86696	92 46 56.03937	530053.434	115811.322	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 46 23.86695	92 46 56.03889	530053.468	115811.321	.033	C	GPS - STATIC	2017	HMNCORS07
45 46 23.86695	92 46 56.03889	530053.468	115811.321	.033	C	GPS - STATIC	2014	HMNCORS06
45 46 23.86695	92 46 56.03889	530053.468	115811.321	.016	B	GPS - STATIC	2005	GPS2036
45 46 23.86695	92 46 56.03889	530053.468	115811.321	.033	C	ADJUSTMENT	2003	GPS1839
45 46 23.86695	92 46 56.03889	530053.468	115811.321	.033	C	GPS - STATIC	2002	HPINE
45 46 23.86695	92 46 56.03889	530053.468	115811.321	.016	B	GPS - STATIC	1997	GPS805-B
45 46 23.86695	92 46 56.03889	530053.468	115811.321	.033	C	GPS - STATIC	1997	GPS805-C

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2999178.836	613538.681	1695964.249	16630159.395	.007		ADJUSTMENT	2018	GPS3119
2999178.836	613538.681	1695964.249	16630159.395	.007	C	GPS - STATIC	2017	HMNPH
2999178.792	613538.626	1695964.205	16630159.340	.131	3	GPS - RTRN	2015	RTRN2015
2999178.833	613538.681	1695964.247	16630159.395	.007		ADJUSTMENT	2013	GPS2829-E
2999178.836	613538.681	1695964.249	16630159.395	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2999178.772	613538.650	1695964.185	16630159.365	.131	3	GPS - RTRN	2012	RTRN2012
2999178.786	613538.685	1695964.200	16630159.400	.033	C	ADJUSTMENT	2012	GPS2829-B
2999178.786	613538.685	1695964.200	16630159.400	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2999178.820	613538.685	1695964.234	16630159.399	.033	C	GPS - STATIC	2017	HMNCORS07
2999178.820	613538.685	1695964.234	16630159.399	.033	C	GPS - STATIC	2014	HMNCORS06
2999178.820	613538.685	1695964.234	16630159.399	.016	B	GPS - STATIC	2005	GPS2036
2999178.820	613538.685	1695964.234	16630159.399	.033	C	ADJUSTMENT	2003	GPS1839
2999178.820	613538.685	1695964.234	16630159.399	.033	C	GPS - STATIC	2002	HPINE
2999178.820	613538.685	1695964.234	16630159.399	.016	B	GPS - STATIC	1997	GPS805-B
2999178.820	613538.685	1695964.234	16630159.399	.033	C	GPS - STATIC	1997	GPS805-C

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CHENG-AC4962-3S-24JUL2023.jpg	S	Jul 24, 2023
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CHENG-AC4962-2-10NOV2008.jpg		Nov 10, 2008
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CHENG-AC4962-1-10NOV2008.jpg		Nov 10, 2008

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

CHENGWATANA

Mn/DOT Name: CHENGWATANA **NGS Name:** CHENGWATANA

County: PINE, MN (Sheet 1)

NGS ACRN: QO1583 Get Map
NGS Quad / Sta Num : 45092444/1018
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	6	39 N	20 W	455323.79	925243.28		3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2007	GOOD	Horz=NO Vert=YES	YES		PROJECTS 18 IN.	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	NGS

Description: (2007) **Stamping:** CHENGWATANA 1961

4.0 MILES SOUTHEAST OF BEROUN, 3.8 MILES EAST ALONG COUNTY ROAD 14 FROM THE JUNCTION OF COUNTY ROAD 14 AND COUNTY ROAD 61 IN BEROUN, THEN 0.9 MILE SOUTH ON A TRACK ROAD, 0.05 MILE NORTH OF HOLLY ROAD, 95.03 FEET EAST OF CHENGWATANA RM 2, 86.76 FEET NORTH OF CHENGWATANA RM 1, 29.0 FEET WEST OF CEDAR CREEK ROAD, 5.0 FEET EAST OF A NORTH-SOUTH FENCE, 2.0 FEET NORTH OF A WHITE PINE TREE, 3.3 FEET EAST OF A WITNESS POST.

*** No Leveling-Derived Orthometric Heights in the Database ***

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
974.407	.262		884.969	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
974.407						RECIPROCAL VERTICAL ANGLE	1961	HORZ

Geoid Separations(ft): GEOID18 = -89.636 12B = -89.659 09 = -89.590 03 = -89.458

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 53 23.79395	92 52 43.27526	505427.417	158328.054	.131	3	ADJUSTMENT	1999	17648
45 53 23.78947	92 52 43.27173	505427.667	158327.601	.131	3	ADJUSTMENT	1991	17497

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 53 23.78819	92 52 43.27162	505427.675	158327.471	.131	3	ADJUSTMENT	1986	17289

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 53 23.95280	92 52 42.53480			.100	3	CLASSICAL SURVEY	1961	12611

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2973833.856	655625.596	1671296.226	16672626.270	.131	3	ADJUSTMENT	1999	17648
2973834.113	655625.147	1671296.476	16672625.817	.131	3	ADJUSTMENT	1991	17497

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2973834.124	655625.017	1671296.484	16672625.687	.131	3	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2349229.787	327557.022			.100	3	CLASSICAL SURVEY	1961	12611

CHENGWATANA

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CHENGWATANA-QO1583-3N-22MAY2007.jpg	N	May 22, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CHENGWATANA-QO1583-2-22MAY2007.jpg		May 22, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CHENGWATANA-QO1583-1-22MAY2007.jpg		May 22, 2007

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

CHENGWATANA AZ MK

Mn/DOT Name: CHENGWATANA AZ MK

NGS Name: CHENGWATANA AZ MK

County: PINE, MN (Sheet 1)

NGS ACRN: CJ3954 Get Map
NGS Quad / Sta Num : 45092444/1018
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	6	39 N	20 W	455326.00	925243.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2008	NOT FOUND	Horz=? Vert=YES	NO		FLUSH	SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	NGS

Description:

Stamping: CHENGWATANA 1961

4.0 MILES SOUTHEAST OF BEROUN, 3.8 MILES EAST ALONG COUNTY ROAD 14 FROM THE JUNCTION OF COUNTY ROAD 14 AND COUNTY ROAD 61 IN BEROUN, THEN 0.9 MILE SOUTH ON A TRACK ROAD, 48.0 FEET WEST OF THE CENTERLINE OF A TRACK ROAD, 51.0 FEET SOUTHEAST OF THE SOUTHEAST CORNER OF A BARN, 6.0 INCHES NORTH OF A WIRE FENCE, 1.0 FOOT WEST OF A WITNESS POST.

Station Notes

THE BARN WAS REMOVED.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -89.632 12B = -89.655 09 = -89.586 03 = -89.458

CHENGWATANA RM 1

Mn/DOT Name: CHENGWATANA RM 1

NGS Name: CHENGWATANA RM 1

County: PINE, MN (Sheet 1)

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	6	39 N	20 W	455323.00	925243.74		

NGS ACRN: CJ3955 Get Map
NGS Quad / Sta Num : 45092444/1018
USGS Quad: BEROUN

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2008	NOT FOUND	Horz=? Vert=YES	NO		FLUSH	SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description: (1961) **Stamping:** CHENGWATANA NO 1 1961

4.0 MILES SOUTHEAST OF BEROUN, 3.8 MILES EAST ALONG COUNTY ROAD 14 FROM THE JUNCTION OF COUNTY ROAD 14 AND COUNTY ROAD 61 IN BEROUN, THEN 0.9 MILE SOUTH ON A TRACK ROAD, 63.0 FEET WEST OF THE CENTERLINE OF THE TRACK ROAD, 2.0 FEET NORTHWEST OF THE NORTHEAST CORNER OF A SCHOOLHOUSE, 6.0 INCHES NORTH OF THE NORTH SIDE OF A SCHOOLHOUSE FOUNDATION.

Station Notes

THE SCHOOLHOUSE WAS REMOVED.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -89.636 12B = -89.655 09 = -89.590 03 = -89.458

CHENGWATANA RM 2

Mn/DOT Name: CHENGWATANA RM 2 **NGS Name:** CHENGWATANA RM 2

County: PINE, MN (Sheet 1)

NGS ACRN: CJ3956 Get Map
NGS Quad / Sta Num : 45092444/1018
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	6	39 N	20 W	455323.87	925244.62		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2008	GOOD	Horz=YES Vert=YES	YES		FLUSH	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description: (2008) **Stamping:** CHENGWATANA NO 2 1961

4.0 MILES SOUTHEAST OF BEROUN, 0.6 MILE EAST ALONG COUNTY ROAD 55 FROM THE JUNCTION OF COUNTY ROAD 55 AND COUNTY ROAD 61 IN BEROUN, THEN 1.9 MILES EAST-NORTHEAST ON COUNTY ROAD 125, THEN 2.0 MILES EAST ON HOLLY ROAD, THEN 0.05 MILE NORTH ON CEDAR ROAD, 124.0 FEET WEST OF CEDAR CREEK ROAD, 0.05 FOOT NORTH OF HOLLY ROAD, 33.0 FEET EAST-SOUTHEAST OF A VENT PIPE ON A MOUND SYSTEM.

Station Notes
THERE WAS NO WITNESS POST IN THE YARD.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -89.639 12B = -89.662 09 = -89.593 03 = -89.465

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CHENGWATANA_RM_2-CJ3956-3W-22MAY2007.jpg	W	May 22, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CHENGWATANA_RM_2-CJ3956-2-22MAY2007.jpg		May 22, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CHENGWATANA_RM_2-CJ3956-1-22MAY2007.jpg		May 22, 2007

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

Mn/DOT Name: CHIPS
NGS Name: CHIPS
County: PINE, MN (Sheet 1)

NGS ACRN: DM4945 Get Map
NGS Quad / Sta Num : 45093111/
USGS Quad: BROOK PARK

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	13	40 N	22 W	455744.06	930134.10	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2010	2025	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

Monument Type: ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 28 FT)
Disk Type: METAL ROD (WITH REMOVABLE ID DISK)
Mon. Agency: MNDT

Description: (2010)
Stamping: CHIPS 2010

5.7 MILES SOUTHWEST OF HINCKLEY, 3.5 MILES SOUTHWEST ALONG TRUNK HIGHWAY 23 FROM THE JUNCTION OF TRUNK HIGHWAY 23 AND INTERSTATE HIGHWAY 35 SOUTH OF HINCKLEY, AT TRUNK HIGHWAY 23 MILEPOINT 270.35, 72.5 FEET SOUTHEAST OF TRUNK HIGHWAY 23, 23.4 FEET SOUTHWEST OF THE CROSS PARK ROAD, 3.5 FEET NORTHEAST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1015.441	.016	2/1				VERTICAL ADJUSTMENT	2012	00000745
1015.428	.016	2/1				VERTICAL CONTROL SURVEY	2010	VBRAH

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
1015.470	.262		924.673	.197	2011	GPS - RTRN	2025	RTRN2025
			924.634	.007	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1015.418	.131		924.709	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2747
1015.418	.131		924.709	.066	2007	GPS - STATIC	2010	HBRAH
1015.418	.131		924.860	.066	1996	GPS - STATIC	2010	HBRAH

Geoid Separations(ft): GEOID18 = -90.797 12B = -90.781 09 = -90.692 03 = -90.548

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 57 44.05558	93 01 34.10058	467919.284	184717.333	.131	3	GPS - RTRN	2025	RTRN2025
45 57 44.05639	93 01 34.09995	467919.329	184717.415	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 57 44.05648	93 01 34.10062	467919.282	184717.425	.033	C	ADJUSTMENT	2011	GPS2747
45 57 44.05648	93 01 34.10062	467919.282	184717.425	.033	C	GPS - STATIC	2010	HBRAH

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 57 44.05629	93 01 34.10000	467919.325	184717.405	.033	C	GPS - STATIC	2010	HBRAH

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2935885.214	681369.342	1633771.721	16698956.704	.131	3	GPS - RTRN	2025	RTRN2025
2935885.257	681369.425	1633771.765	16698956.786	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2935885.210	681369.433	1633771.718	16698956.796	.033	C	ADJUSTMENT	2011	GPS2747
2935885.210	681369.433	1633771.718	16698956.796	.033	C	GPS - STATIC	2010	HBRAH

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2935885.254	681369.414	1633771.762	16698956.776	.033	C	GPS - STATIC	2010	HBRAH

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CHIPS-DM4945-3SW-15SEP2025.jpg	SW	Sep 15, 2025
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CHIPS-DM4945-2-15SEP2025.jpg		Sep 15, 2025
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CHIPS-DM4945-1-15SEP2025.jpg		Sep 15, 2025

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

CORN MNDT

Mn/DOT Name: CORN MNDT **NGS Name:** CORN

County: PINE, MN (Sheet 1)

NGS ACRN: QO2494 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	10	38 N	21 W	454743.13	925717.41	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1984	2005	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 18 FT)	SURVEY DISK	MNDT

Description: (1993) **Stamping:** CORN 1984

2.0 MILES SOUTH-SOUTHEAST OF PINE CITY, 1.6 MILES SOUTH ON TRUNK HIGHWAY 361 FROM THE JUNCTION OF TRUNK HIGHWAY 361 AND TRUNK HIGHWAY 324, THEN 0.75 MILE EAST ON COUNTY ROAD 117, 19.5 FEET SOUTH OF COUNTY ROAD 117, 9.0 FEET EAST OF A FIELD ENTRANCE, 68.0 FEET SOUTHEAST OF A POWER POLE, 46.9 FEET EAST OF A TELEPHONE PEDESTAL, 58.92 FEET SOUTHWEST OF CORN MNDT RM 1, 66.39 FEET SOUTHEAST OF CORN MNDT RM 2, 65.5 FEET SOUTHEAST 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
989.302	.197	2				VERTICAL ADJUSTMENT	1994	17352

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
			898.036	.010	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			898.131	.010	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
			898.289	.066	1996	GPS - STATIC	1999	GPS917
988.942	.131		898.289	.066	1996	HORIZONTAL ADJUSTMENT	1999	17648
989.204						RECIPROCAL VERTICAL ANGLE	1994	HORZ

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
988.810						GPS - STATIC	1994	HORZ
989.204						RECIPROCAL VERTICAL ANGLE	1984	HORZ

Geoid Separations(ft): GEOID18 = -90.882 12B = -90.869 09 = -90.820 03 = -90.676

CORN MNDT

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 47 43.13390	92 57 17.40649	486011.913	123823.535	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 47 43.13398	92 57 17.40717	486011.865	123823.543	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 47 43.13403	92 57 17.40661	486011.905	123823.548	.033	C	GPS - STATIC	1999	GPS917
45 47 43.13403	92 57 17.40661	486011.905	123823.548	.033	C	ADJUSTMENT	1999	17648

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 47 43.12991	92 57 17.40552	486011.981	123823.132	.066	2	CLASSICAL SURVEY	1994	G17352
45 47 43.12984	92 57 17.40286	486012.171	123823.122	.033	C	GPS - STATIC	1994	HI35N
45 47 43.12991	92 57 17.40552	486011.982	123823.130	.066	2	ADJUSTMENT	1994	17352

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 47 43.28690	92 57 16.65350			.100	C	CLASSICAL SURVEY	1984	3306-09

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2955010.953	620798.397	1651932.696	16638112.992	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2955010.904	620798.404	1651932.648	16638113.000	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2955010.944	620798.410	1651932.688	16638113.005	.033	C	GPS - STATIC	1999	GPS917
2955010.944	620798.410	1651932.688	16638113.005	.033	C	ADJUSTMENT	1999	17648

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2955011.028	620797.994	1651932.765	16638112.588	.066	2	CLASSICAL SURVEY	1994	G17352
2955011.217	620797.990	1651932.954	16638112.581	.033	C	GPS - STATIC	1994	HI35N
2955011.028	620797.994	1651932.765	16638112.588	.066	2	ADJUSTMENT	1994	17352

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2330407.299	292729.400			.100	C	CLASSICAL SURVEY	1984	3306-09

CORN MNDT RM 1

Mn/DOT Name: CORN MNDT RM 1 **NGS Name:** CORN RM 1

County: PINE, MN (Sheet 1)

NGS ACRN: CS8960 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	10	38 N	21 W	454743.00	925717.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1984	2007	NOT FOUND	Horz=NO Vert=NO	NO		PROJECTS 2 IN.	MARKER W/BAR MAGNET

Monument Type
ALUMINUM ALLOY ROD (NO SLEEVE)

Disk Type
REFERENCE MARK DISK

Mon. Agency
MNDT

Description:

Stamping: CORN NO 1 1984

2.0 MILES SOUTH-SOUTHEAST OF PINE CITY, 1.6 MILES SOUTH ON TRUNK HIGHWAY 361FROM THE JUNCTION OF TRUNK HIGHWAY 361 AND TRUNK HIGHWAY 324 AT THE SOUTH EDGE OF PINE CITY TO COUNTY ROAD 117 ON THE LEFT, AT A FIELD ENTRANCE ON THE SOUTH RIGHT-OF-WAY OF COUNTY ROAD 117, 24.5 FEET NORTH OF THE CENTER OF COUNTY ROAD 117, 97.9 FEET EAST-NORTHEAST OF A TELEPHONE CABLE PEDESTAL, 80.0 FEET EAST OF A POWER POLE, 78.4 FEET EAST OF A STEEL A WITNESS POST.

Station Notes
THE NEW ROAD IMPROVEMENTS FALL IN DITCH BOTTOM.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.879 12B = -90.869 09 = -90.820 03 = -90.676

CORN MNDT RM 2

Mn/DOT Name: CORN MNDT RM 2 **NGS Name:** CORN RM 2

County: PINE, MN (Sheet 1)

NGS ACRN: CS8961 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	10	38 N	21 W	454743.67	925717.94	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1984	2020	POOR	Horz=YES Vert=YES	YES		PROJECTS 2 IN.	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 18 FT)	REFERENCE MARK DISK	MNDT

Description: (2007) **Stamping:** CORN NO 2 1984

2.0 MILES SOUTH-SOUTHEAST OF PINE CITY, 1.6 MILES SOUTH ON TRUNK HIGHWAY 361 FROM THE JUNCTION OF TRUNK HIGHWAY 361 AND TRUNK HIGHWAY 324 AT THE SOUTH EDGE OF PINE CITY TO COUNTY ROAD 117 ON THE LEFT, AT A FIELD ENTRANCE ON THE SOUTH RIGHT-OF-WAY OF COUNTY ROAD 117, 35.0 FEET NORTH OF COUNTY ROAD 117, 1.6 FEET SOUTHEAST OF A POWER POLE, 1.1 FEET NORTH OF A STEEL A WITNESS POST.

Station Notes
THE SURVEY MARK WAS HIT AND BENT BY FARM EQUIPMENT.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
989.447	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
989.463	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
989.463	.016	2/1				VERTICAL CONTROL SURVEY	2009	VCHEN

Geoid Separations(ft): GEOID18 = -90.882 12B = -90.869 09 = -90.823 03 = -90.676

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

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CORN_RM_2-CS8961-3N-29APR2020.jpg	N	Apr 29, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CORN_RM_2-CS8961-2-29APR2020.jpg		Apr 29, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CORN_RM_2-CS8961-1-29APR2020.jpg		Apr 29, 2020

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

CRNE MNDT

Mn/DOT Name: CRNE MNDT **NGS Name:** CRNE

County: PINE, MN (Sheet 1)

NGS ACRN: AG9989 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	29	41 N	20 W	455954.35	925354.18	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1993	2012	GOOD	Horz=NO Vert=YES	YES		RECESSED 2 IN.	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 51 FT)	SURVEY DISK	MNDT

Description: (1993) **Stamping:** CRNE 1993

1.7 MILES EAST OF HINCKLEY, 1.75 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 48, THEN 0.85 MILE SOUTH ALONG COUNTY ROAD 15, 45.0 FEET WEST OF COUNTY ROAD 15, 0.15 MILE NORTH OF COUNTY ROAD 133, 4.2 FEET EAST OF A FENCE, 4.0 FEET EAST 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
1012.199	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1012.219	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
			922.308	.006	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1012.108	.262		922.334	.197	2007	GPS - RTRN	2012	RTRN2012
1012.236	.131		922.416	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2566
1012.236	.131		922.538	.066	1996	GPS - STATIC	2009	HMOOSE
1012.236	.131		922.416	.066	2007	GPS - STATIC	2009	HMOOSE
1012.078	.262		922.396	.197	1996	GPS - RTRN	2008	RTRN2008
			922.416	.008	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
1012.203	.131		922.547	.066	1996	HORIZONTAL ADJUSTMENT	2002	GPS1700
1012.203	.131		922.547	.066	1996	GPS - STATIC	2001	HCLOV
1012.206	.131		922.567	.066	1996	HORIZONTAL ADJUSTMENT	1998	GPS917

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1012.006						GPS - STATIC	1994	HORZ

Geoid Separations(ft): GEOID18 = -89.892 12B = -89.875 09 = -89.773 03 = -89.892

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 59 54.34982	92 53 54.17842	500411.007	197890.842	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 59 54.34905	92 53 54.17899	500410.967	197890.764	.131	3	GPS - RTRN	2012	RTRN2012
45 59 54.34977	92 53 54.17890	500410.974	197890.837	.033	C	ADJUSTMENT	2009	GPS2566
45 59 54.34977	92 53 54.17890	500410.974	197890.837	.033	C	GPS - STATIC	2009	HMOOSE
45 59 54.34977	92 53 54.17890	500410.974	197890.837	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 59 54.34996	92 53 54.17853	500411.000	197890.857	.033	C	GPS - STATIC	2009	HMOOSE
45 59 54.34988	92 53 54.17869	500410.988	197890.848	.131	3	GPS - RTRN	2008	RTRN2008
45 59 54.34971	92 53 54.17858	500410.996	197890.831	.033	C	ADJUSTMENT	2002	GPS1700
45 59 54.34971	92 53 54.17858	500410.996	197890.831	.033	C	GPS - STATIC	2001	HCLOV
45 59 54.34966	92 53 54.17841	500411.008	197890.826	.033	1	ADJUSTMENT	1998	GPS917

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 59 54.34345	92 53 54.17321	500411.375	197890.198	.033	C	GPS - STATIC	1994	HI35N

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2968144.426	695093.193	1666232.461	16712165.164	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2968144.387	695093.115	1666232.421	16712165.086	.131	3	GPS - RTRN	2012	RTRN2012
2968144.392	695093.188	1666232.427	16712165.159	.033	C	ADJUSTMENT	2009	GPS2566
2968144.392	695093.188	1666232.427	16712165.159	.033	C	GPS - STATIC	2009	HMOOSE
2968144.392	695093.188	1666232.427	16712165.159	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2968144.418	695093.207	1666232.454	16712165.178	.033	C	GPS - STATIC	2009	HMOOSE
2968144.407	695093.199	1666232.442	16712165.170	.131	3	GPS - RTRN	2008	RTRN2008
2968144.415	695093.182	1666232.450	16712165.152	.033	C	ADJUSTMENT	2002	GPS1700
2968144.415	695093.182	1666232.450	16712165.152	.033	C	GPS - STATIC	2001	HCLOV
2968144.427	695093.177	1666232.462	16712165.147	.033	1	ADJUSTMENT	1998	GPS917

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2968144.805	695092.554	1666232.830	16712164.519	.033	C	GPS - STATIC	1994	HI35N

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CRNE-AG9989-3W-02MAY2012.jpg	W	May 2, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CRNE-AG9989-2-02MAY2012.jpg		May 2, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CRNE-AG9989-1-02MAY2012.jpg		May 2, 2012

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

CROCKET

Mn/DOT Name: CROCKET
NGS Name: CROCKET
County: PINE, MN (Sheet 1)

NGS ACRN: DL4738 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	9	40 N	21 W	455828.99	925753.59	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2008	2020	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

Monument Type
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 50 FT)

Disk Type
METAL ROD (WITH REMOVABLE ID DISK)

Mon. Agency
MNDT

Description: (2009)

Stamping: CROCKETT 2008

2.7 MILES SOUTH-SOUTHWEST OF HINCKLEY, 2.5 MILES SOUTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 48 (FIRE MONUMENT ROAD) IN HINCKLEY TO THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 23, THEN 0.35 MILE SOUTHWEST ALONG TRUNK HIGHWAY 23, AT TRUNK HIGHWAY 23 MILEPOINT 273.4, 41.0 FEET SOUTH-SOUTHEAST OF A CABLE PEDESTAL NUMBER 3141, 35.4 FEET NORTH OF TRUNK HIGHWAY 23, 15.3 FEET WEST OF A DRIVE, 10.8 FEET EAST-NORTHEAST OF A FIRE NUMBER 18575 SIGN POST, 7.7 FEET EAST OF A WITNESS POST.

Station Notes
THE STAMPING IS "CROCKETT 2008".

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1002.416	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1002.416	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
1002.416	.016	2/1				VERTICAL ADJUSTMENT	2012	00000745
1002.409	.016	2/1				VERTICAL CONTROL SURVEY	2010	VBRAH
1002.409	.016	2/1				VERTICAL CONTROL SURVEY	2009	VMOOSE

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
1002.400	.262		911.993	.197	2011	GPS - OPUS	2020	GPSBM
1002.478	.262		912.082	.197	2011	GPS - RTRN	2020	RTRN2020
1002.360	.262		912.065	.197	2007	GPS - RTRN	2012	RTRN2012
			912.009	.006	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1002.426	.131		912.104	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2747
1002.393	.131		912.104	.066	2007	GPS - STATIC	2010	HBRAH
1002.426	.131		912.249	.066	1996	GPS - STATIC	2010	HBRAH
1002.426	.131		912.104	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2566
1002.393	.131		912.249	.066	1996	GPS - STATIC	2009	HMOOSE
1002.393	.131		912.104	.066	2007	GPS - STATIC	2009	HMOOSE

Geoid Separations(ft): GEOID18 = -90.407 12B = -90.400 09 = -90.295 03 = -90.167

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 58 28.99038	92 57 53.58938	483501.385	189250.560	.131	3	GPS - OPUS	2020	GPSBM
45 58 28.99067	92 57 53.58933	483501.388	189250.590	.131	3	GPS - RTRN	2020	RTRN2020
45 58 28.99007	92 57 53.58852	483501.445	189250.529	.003		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 58 28.98978	92 57 53.58896	483501.414	189250.500	.131	3	GPS - RTRN	2012	RTRN2012
45 58 28.98975	92 57 53.58888	483501.420	189250.497	.033	C	ADJUSTMENT	2011	GPS2747
45 58 28.98975	92 57 53.58888	483501.420	189250.497	.033	C	GPS - STATIC	2010	HBRAH
45 58 28.98975	92 57 53.58888	483501.420	189250.497	.033	C	ADJUSTMENT	2009	GPS2566
45 58 28.98975	92 57 53.58888	483501.420	189250.497	.033	C	GPS - STATIC	2009	HMOOSE

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 58 28.98965	92 57 53.58831	483501.460	189250.487	.033	C	GPS - STATIC	2010	HBRAH
45 58 28.98965	92 57 53.58831	483501.460	189250.487	.033	C	GPS - STATIC	2009	HMOOSE

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951386.236	686166.916	1649341.193	16703507.493	.131	3	GPS - OPUS	2020	GPSBM
2951386.239	686166.946	1649341.196	16703507.522	.131	3	GPS - RTRN	2020	RTRN2020
2951386.297	686166.886	1649341.253	16703507.461	.003		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951386.266	686166.856	1649341.223	16703507.432	.131	3	GPS - RTRN	2012	RTRN2012
2951386.272	686166.853	1649341.228	16703507.429	.033	C	ADJUSTMENT	2011	GPS2747
2951386.272	686166.853	1649341.228	16703507.429	.033	C	GPS - STATIC	2010	HBRAH
2951386.272	686166.853	1649341.228	16703507.429	.033	C	ADJUSTMENT	2009	GPS2566
2951386.272	686166.853	1649341.228	16703507.429	.033	C	GPS - STATIC	2009	HMOOSE

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951386.312	686166.844	1649341.268	16703507.419	.033	C	GPS - STATIC	2010	HBRAH
2951386.312	686166.844	1649341.268	16703507.419	.033	C	GPS - STATIC	2009	HMOOSE

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CROCKET-DL4738-3N-30APR2020.jpg	N	Apr 30, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CROCKET-DL4738-2-30APR2020.jpg		Apr 30, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CROCKET-DL4738-1-30APR2020.jpg		Apr 30, 2020

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

Mn/DOT Name: CROIX **NGS Name:** CROIX

County: PINE, MN (Sheet 1)

NGS ACRN: DP7035 Get Map
NGS Quad / Sta Num : 45092411/
USGS Quad: MONSON LAKE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	16	40 N	18 W	455645.81	923620.44		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2012	GOOD	Horz=YES Vert=YES	NO		RECESSED 1 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 55 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) **Stamping:** CROIX 2012

7.7 MILES SOUTHEAST OF CLOVERDALE, 5.85 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND COUNTY ROAD 21 IN CLOVERDALE, TO TRUNK HIGHWAY 48 MILEPOINT 15.15, THEN 4.65 MILES SOUTH ON COUNTY ROAD 22/SAINT CROIX PARK ROAD, 39.7 FEET EAST OF COUNTY ROAD 22/SAINT CROIX PARK ROAD, 49.2 FEET SOUTH OF THE ROAD TO THE TRAIL CENTER, 40.1 FEET SOUTH-SOUTHWEST OF A MONUMENT 86 RC, 1.5 FEET NORTH OF A WITNESS POST.

*** No Leveling-Derived Orthometric Heights in the Database ***

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
897.813			810.320	.019	2011	HORIZONTAL ADJUSTMENT	2015	GPS3071
897.813			810.320	.019	2011	GPS - STATIC	2015	HCLVR
897.833	.131		810.464	.066	2007	GPS - STATIC	2012	HCLVR
897.800	.131		810.569	.066	1996	GPS - STATIC	2012	HCLVR

Geoid Separations(ft): GEOID18 = -87.333 12B = -87.411 09 = -87.372 03 = -87.241

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 56 45.81115	92 36 20.43685	574876.350	178930.217	.023		ADJUSTMENT	2015	GPS3071
45 56 45.81115	92 36 20.43685	574876.350	178930.217	.023	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 56 45.81134	92 36 20.43739	574876.312	178930.236	.033	C	GPS - STATIC	2012	HCLVR

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 56 45.81131	92 36 20.43700	574876.339	178930.233	.033	C	GPS - STATIC	2012	HCLVR

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3042914.619	677406.892	1740688.773	16693306.023	.023		ADJUSTMENT	2015	GPS3071
3042914.619	677406.892	1740688.773	16693306.023	.023	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3042914.580	677406.910	1740688.735	16693306.042	.033	C	GPS - STATIC	2012	HCLVR

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3042914.607	677406.908	1740688.762	16693306.040	.033	C	GPS - STATIC	2012	HCLVR

CROSBY

Mn/DOT Name: CROSBY
NGS Name: CROSBY
County: PINE, MN (Sheet 1)

NGS ACRN: QO1570 Get Map
NGS Quad / Sta Num : 45092441/1027
USGS Quad: CEDAR LAKE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	18	40 N	19 W	455739.84	924550.97		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1934	2020	GOOD	Horz=YES Vert=YES	YES		FLUSH	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	HORIZONTAL CONTROL DISK	NGS

Description: (2012) **Stamping:** CROSBY 1934

10.0 MILES SOUTHEAST OF HINCKLEY, 5.0 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 48, THEN 2.0 MILES SOUTH ON COUNTY ROAD 20, THEN 3.0 MILES EAST-SOUTH AND EAST ON COUNTY ROAD 19 THEN, 1.0 MILE SOUTH ON EDDY ROAD (TOWNSHIP ROAD), THEN 0.5 MILE EAST ON CROSBY DRIVE ROAD/TOWNSHIP ROAD, THEN ABOUT 260.0 FEET EAST OF A DRIVEWAY, 16.0 FEET SOUTH OF A TRACK ROAD, 91.37 FEET SOUTHWEST OF CROSBY RM 1, 82.63 FEET SOUTHEAST OF CROSBY RM 2, CROSBY RM 1 AND CROSBY RM 2 WERE NOT SEARCHED FOR IN 1995, 25.3 FEET SOUTH OF A WITNESS POST.

Station Notes
STOP AT THE MAILBOX AND WALK ABOUT 200 FEET EAST TO THE SURVEY MARK.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
975.152	.033	3				VERTICAL CONTROL SURVEY	1967	USGS-VERT

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
975.313	.262		886.872	.197	2011	GPS - OPUS	2020	GPSBM
975.310	.262		886.868	.197	2011	GPS - OPUS	2020	GPSBM
975.366	.262		886.885	.197	2011	GPS - RTRN	2020	RTRN2020
975.392			886.862	.010	2011	HORIZONTAL ADJUSTMENT	2015	GPS3071
975.392			886.865	.010	2011	GPS - STATIC	2015	HCLVR
975.392	.131		887.000	.066	2007	GPS - STATIC	2012	HCLVR
975.425	.131		887.095	.066	1996	GPS - STATIC	2012	HCLVR
			886.862	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
975.313	.262		886.908	.197	2007	GPS - RTRN	2012	RTRN2012
			886.957	.010	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
975.392	.131		887.147	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1839
975.425	.131		887.147	.066	1996	GPS - STATIC	2002	HPINE
975.425	.131		887.124	.066	1996	HORIZONTAL ADJUSTMENT	1999	17648
975.431	.131		887.147	.066	1996	GPS - STATIC	1997	GPS805-C

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
975.195						GPS - STATIC	1994	HORZ

Geoid Separations(ft): GEOID18 = -88.441 12B = -88.478 09 = -88.405 03 = -88.323

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 57 39.83911	92 45 50.96880	534549.176	184294.266	.131	3	GPS - OPUS	2020	GPSBM
45 57 39.83908	92 45 50.96941	534549.133	184294.263	.131	3	GPS - OPUS	2020	GPSBM
45 57 39.83912	92 45 50.96941	534549.133	184294.267	.131	3	GPS - RTRN	2020	RTRN2020
45 57 39.83957	92 45 50.96896	534549.165	184294.313	.013		ADJUSTMENT	2015	GPS3071
45 57 39.83947	92 45 50.96884	534549.174	184294.302	.013	C	GPS - STATIC	2015	HCLVR
45 57 39.83957	92 45 50.96896	534549.165	184294.313	.013		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 57 39.83963	92 45 50.96998	534549.093	184294.318	.033	C	GPS - STATIC	2012	HCLVR
45 57 39.83928	92 45 50.96972	534549.111	184294.283	.131	3	GPS - RTRN	2012	RTRN2012
45 57 39.83963	92 45 50.96998	534549.093	184294.318	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 57 39.83949	92 45 50.96925	534549.144	184294.304	.033	C	GPS - STATIC	2012	HCLVR
45 57 39.83949	92 45 50.96925	534549.144	184294.304	.033	C	ADJUSTMENT	2003	GPS1839
45 57 39.83949	92 45 50.96925	534549.144	184294.304	.033	C	GPS - STATIC	2002	HPINE
45 57 39.83949	92 45 50.96925	534549.144	184294.304	.033	C	ADJUSTMENT	1999	17648
45 57 39.83949	92 45 50.96925	534549.144	184294.304	.033	C	GPS - STATIC	1997	GPS805-C
45 57 39.83539	92 45 50.96513	534549.436	184293.890	.033	1	ADJUSTMENT	1991	17497

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 57 39.83230	92 45 50.96549	534549.412	184293.576	.033	1	ADJUSTMENT	1986	17289

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 57 40.00600	92 45 50.24700			.100	1	CLASSICAL SURVEY	1961	12611

CROSBY

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3002505.892	682081.895	1700372.565	16698617.378	.131	3	GPS - OPUS	2020	GPSBM
3002505.849	682081.891	1700372.522	16698617.375	.131	3	GPS - OPUS	2020	GPSBM
3002505.849	682081.895	1700372.522	16698617.379	.131	3	GPS - RTRN	2020	RTRN2020
3002505.879	682081.941	1700372.554	16698617.425	.013		ADJUSTMENT	2015	GPS3071
3002505.888	682081.931	1700372.562	16698617.415	.013	C	GPS - STATIC	2015	HCLVR
3002505.879	682081.941	1700372.554	16698617.425	.013		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3002505.807	682081.946	1700372.481	16698617.431	.033	C	GPS - STATIC	2012	HCLVR
3002505.826	682081.911	1700372.500	16698617.395	.131	3	GPS - RTRN	2012	RTRN2012
3002505.807	682081.946	1700372.481	16698617.431	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3002505.859	682081.933	1700372.533	16698617.417	.033	C	GPS - STATIC	2012	HCLVR
3002505.859	682081.933	1700372.533	16698617.417	.033	C	ADJUSTMENT	2003	GPS1839
3002505.859	682081.933	1700372.533	16698617.417	.033	C	GPS - STATIC	2002	HPINE
3002505.859	682081.933	1700372.533	16698617.417	.033	C	ADJUSTMENT	1999	17648
3002505.859	682081.933	1700372.533	16698617.417	.033	C	GPS - STATIC	1997	GPS805-C
3002506.158	682081.523	1700372.825	16698617.003	.033	1	ADJUSTMENT	1991	17497

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3002506.138	682081.210	1700372.801	16698616.690	.033	1	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2377901.278	354014.039			.100	1	CLASSICAL SURVEY	1961	12611

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CROSBY-QO1570-3E-30APR2020.jpg	E	Apr 30, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CROSBY-QO1570-2-30APR2020.jpg		Apr 30, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CROSBY-QO1570-1-30APR2020.jpg		Apr 30, 2020

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

CROSBY AZ MK

Mn/DOT Name: CROSBY AZ MK

NGS Name: CROSBY AZ MK

County: PINE, MN (Sheet 1)

NGS ACRN: CJ3994 Get Map
NGS Quad / Sta Num : 45092441/1027
USGS Quad: CEDAR LAKE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	18	40 N	19 W	455740.00	924554.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1934	2008	NOT FOUND	Horz=? Vert=YES	NO		FLUSH	SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	MNDT

Description:

Stamping: CROSBY 1934

10.0 MILES SOUTHEAST OF HINCKLEY, 5.0 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 48, THEN 2.0 MILES SOUTH ON COUNTY ROAD 20, THEN 3.0 MILES SOUTH-EAST ON COUNTY ROAD 19, 15.0 FEET SOUTH OF THE CENTERLINE OF A TRACK ROAD, 4.0 FEET EAST OF A WHITE WITNESS POST, 3.0 FEET NORTH OF A POWER POLE, 2.0 FEET EAST OF A METAL WITNESS POST.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -88.448 12B = -88.487 09 = -88.412 03 = -88.330

CROSBY AZ MK RESET

Mn/DOT Name: CROSBY AZ MK RESET

NGS Name: CROSBY AZ MK RESET

County: PINE, MN (Sheet 1)

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	18	40 N	19 W	455739.00	924622.00		

NGS ACRN: Get Map
NGS Quad / Sta Num : 45092441/1027
USGS Quad: CEDAR LAKE

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1952	2008	DESTROYED	Horz=NO Vert=NO	NO		PROJECTS 2 IN.	SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	NGS

Description: (2010)

Stamping: CROSBY AZ MK 1934 RESET 1952

10.0 MILES SOUTHEAST OF HINCKLEY, 5.0 MILES EAST ON TRUNK HIGHWAY 48 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 48, THEN 2.0 MILES SOUTH ON COUNTY ROAD 20, THEN 3.0 MILES SOUTH EAST ON COUNTY ROAD 19 THEN, 1.0 MILE SOUTH ON EDDY ROAD (TOWNSHIP ROAD), THEN 0.5 MILE EAST ON CROSBY ROAD (TOWNSHIP ROAD), 39.0 FEET WEST OF STATION CROSBY, IN THE NORTH RIGHT-OF-WAY LINE OF A ROAD, 390.0 FEET EAST OF A NORTH-SOUTH ROAD, 15.0 FEET SOUTH AND 310.0 FEET EAST OF A TEE-ROAD EAST.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
962.721	.033	3				VERTICAL CONTROL SURVEY	1967	USGS-VERT

Geoid Separations(ft): GEOID18 = -88.514 12B = -88.553 09 = -88.478 03 = -88.392

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

CROSBY RM 1

Mn/DOT Name: CROSBY RM 1 **NGS Name:** CROSBY RM 1

County: PINE, MN (Sheet 1)

NGS ACRN: CJ3995 Get Map
NGS Quad / Sta Num : 45092441/1027
USGS Quad: CEDAR LAKE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	18	40 N	19 W	455740.26	924549.82		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1934	2008	GOOD	Horz=NO Vert=YES	YES		FLUSH	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description: (2008) **Stamping:** CROSBY NO 1 1934

10.0 MILES SOUTHEAST OF HINCKLEY, 5.0 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 48 IN HINCKLEY, THEN 2.0 MILES SOUTH ON COUNTY ROAD 20, THEN 3.0 MILES EAST-SOUTH AND EAST ON COUNTY ROAD 19, THEN 1.0 MILE SOUTH ON EDDY ROAD, THEN 0.5 MILE EAST ON CROSBY DRIVE, 27.6 FEET NORTH OF A FIELD ROAD, 12.6 FEET NORTHEAST OF A 28.0 INCH DIAMETER NORWAY PINE TREE, 2.0 FEET SOUTH OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
972.925	.033	3				VERTICAL CONTROL SURVEY	1967	USGS-VERT

Geoid Separations(ft): GEOID18 = -88.438 12B = -88.478 09 = -88.402 03 = -88.320

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

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CROSBY_RM_1-CJ3995-3N-22MAY2007.jpg	N	May 22, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CROSBY_RM_1-CJ3995-2-22MAY2007.jpg		May 22, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CROSBY_RM_1-CJ3995-1-22MAY2007.jpg		May 22, 2007

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

CROSBY RM 2

Mn/DOT Name: CROSBY RM 2 **NGS Name:** CROSBY RM 2

County: PINE, MN (Sheet 1)

NGS ACRN: CJ3996 Get Map
NGS Quad / Sta Num : 45092441/1027
USGS Quad: CEDAR LAKE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	18	40 N	19 W	455740.24	924551.99		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1934	2008	GOOD	Horz=NO Vert=YES	YES		FLUSH	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description: (2008) **Stamping:** CROSBY NO 2 1934

10.0 MILES SOUTHEAST OF HINCKLEY, 5.0 MILES EAST ON TRUNK HIGHWAY 48 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 48 IN HINCKLEY, TO COUNTY ROAD 20, THEN 2.0 MILES SOUTH ON COUNTY ROAD 20, THEN 3.0 MILES SOUTH EAST ON COUNTY ROAD 19, THEN 1.0 MILE SOUTH ON EDDY ROAD, THEN 0.5 MILE EAST ON CROSBY DRIVE, 28.0 FEET NORTH OF A FIELD ROAD, 28.6 FEET SOUTH OF AN EAST-WEST FENCE, 2.0 FEET SOUTH OF A WITNESS POST.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -88.441 12B = -88.481 09 = -88.409 03 = -88.323

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CROSBY_RM_2-CJ3996-3N-22MAY2007.jpg	N	May 22, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CROSBY_RM_2-CJ3996-2-22MAY2007.jpg		May 22, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/CROSBY_RM_2-CJ3996-1-22MAY2007.jpg		May 22, 2007

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

CROW MNDT TEMP

Mn/DOT Name: CROW MNDT TEMP
NGS Name: CROW TEMP
County: PINE, MN (Sheet 1)

NGS ACRN: RN1633 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	7	41 N	20 W	460227.48	925523.70		2

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1964	2007	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	SURVEY DISK	MNDT

Description: (1971)

Stamping:

1.5 MILES NORTH-NORTHEAST OF HINCKLEY, 2.0 MILES NORTH ON INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 48, 47.6 FEET EAST-SOUTHEAST OF A 20.0 INCH DIAMETER OAK TREE, 57.7 FEET SOUTH-SOUTHEAST OF A 15.0 INCH DIAMETER OAK TREE, 97.3 FEET WEST-SOUTHWEST OF A RIGHT-OF-WAY FENCE POST, 183.2 FEET SOUTHWEST OF THE WEST POST OF THE HINCKLEY EXIT SIGN, 90.0 FEET WEST OF A RIGHT-OF-WAY FENCE, 101.0 FEET WEST-NORTHWEST OF A RIGHT-OF-WAY FENCE POST, 88.5 FEET WEST OF SOUTHBOUND INTERSTATE HIGHWAY 35, AT INTERSTATE HIGHWAY 35 STATION 125+00.

*** 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
1073.489	.197		983.597	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1073.193						RECIPROCAL VERTICAL ANGLE	1964	HORZ

Geoid Separations(ft): GEOID18 = -90.121 12B = -90.124 09 = -90.003 03 = -89.882

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 02 27.47883	92 55 23.69575	494095.558	213403.919	.066	2	ADJUSTMENT	1999	17648

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 02 27.47143	92 55 23.68610	494096.239	213403.169	.066	2	ADJUSTMENT	1986	17289

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 02 27.65300	92 55 22.95200			.100	2	CLASSICAL SURVEY	1982	17020

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2961566.201	710494.753	1659900.335	16727663.438	.066	2	ADJUSTMENT	1999	17648

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2961566.894	710494.015	1659901.016	16727662.689	.066	2	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2336961.869	382427.359			.100	2	CLASSICAL SURVEY	1982	17020

Mn/DOT Name: D 60 **NGS Name:** D 60

County: PINE, MN (Sheet 1)

NGS ACRN: RN0473 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	24	41 N	21 W	460106.00	925623.00	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1934	1956	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	NGS

Description: (1956) **Stamping:** D 60 1934

IN HINCKLEY, 42.0 FEET NORTHWEST OF THE NORTHWEST CORNER OF THE SCHOOL AUDITORIUM, 3.0 FEET SOUTH OF A WALK, 1.5 FEET EAST OF THE ENTRANCE WALK TO A SCHOOL.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1035.050	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

Geoid Separations(ft): GEOID18 = -90.213 12B = -90.213 09 = -90.092 03 = -89.970

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

DAVEY

Mn/DOT Name: DAVEY
NGS Name: DAVEY
County: PINE, MN (Sheet 1)

NGS ACRN: DL4741 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	10	40 N	21 W	455834.20	925729.24	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2008	2012	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 40 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2009) **Stamping:** DAVEY 2008

2.7 MILES SOUTH-SOUTHWEST OF HINCKLEY, 2.5 MILES SOUTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 48 (FIRE MONUMENT ROAD) IN HINCKLEY TO THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 23, THEN 0.05 MILE SOUTHWEST ALONG TRUNK HIGHWAY 23, AT TRUNK HIGHWAY 23 MILEPOINT 273.7, 71.5 FEET NORTH OF TRUNK HIGHWAY 23, 27.5 FEET WEST OF COUNTY ROAD 61, 25.4 FEET NORTHEAST OF THE NORTHEAST CORNER OF AN ELECTRICAL BOX, 26.5 FEET NORTH-NORTHEAST OF THE EAST LEG OF A STOP SIGN, 4.2 FEET EAST 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
1012.026	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1012.026	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
1012.026	.016	2/1				VERTICAL ADJUSTMENT	2012	00000745
1012.016	.016	2/1				VERTICAL CONTROL SURVEY	2010	VBRAH
1012.016	.016	2/1				VERTICAL CONTROL SURVEY	2009	VMOOSE

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
1011.940	.262		921.691	.197	2007	GPS - RTRN	2012	RTRN2012
			921.671	.006	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1012.006	.131		921.770	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2747
1012.006	.131		921.770	.066	2007	GPS - STATIC	2010	HBRAH
1012.006	.131		921.917	.066	1996	GPS - STATIC	2010	HBRAH
1012.006	.131		921.770	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2566
1012.006	.131		921.917	.066	1996	GPS - STATIC	2009	HMOOSE
1012.006	.131		921.770	.066	2007	GPS - STATIC	2009	HMOOSE

Geoid Separations(ft): GEOID18 = -90.361 12B = -90.351 09 = -90.249 03 = -90.121

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 58 34.19641	92 57 29.23787	485221.737	189776.606	.003		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 58 34.19598	92 57 29.23910	485221.651	189776.563	.131	3	GPS - RTRN	2012	RTRN2012
45 58 34.19623	92 57 29.23819	485221.715	189776.588	.033	C	ADJUSTMENT	2011	GPS2747
45 58 34.19623	92 57 29.23819	485221.715	189776.588	.033	C	GPS - STATIC	2010	HBRAH
45 58 34.19623	92 57 29.23819	485221.715	189776.588	.033	C	ADJUSTMENT	2009	GPS2566
45 58 34.19623	92 57 29.23819	485221.715	189776.588	.033	C	GPS - STATIC	2009	HMOOSE

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 58 34.19612	92 57 29.23758	485221.758	189776.577	.033	C	GPS - STATIC	2010	HBRAH
45 58 34.19612	92 57 29.23758	485221.758	189776.577	.033	C	GPS - STATIC	2009	HMOOSE

DAVEY

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2953097.199	686722.144	1651060.120	16704035.465	.003		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2953097.113	686722.099	1651060.033	16704035.421	.131	3	GPS - RTRN	2012	RTRN2012
2953097.177	686722.126	1651060.097	16704035.447	.033	C	ADJUSTMENT	2011	GPS2747
2953097.177	686722.126	1651060.097	16704035.447	.033	C	GPS - STATIC	2010	HBRAH
2953097.177	686722.126	1651060.097	16704035.447	.033	C	ADJUSTMENT	2009	GPS2566
2953097.177	686722.126	1651060.097	16704035.447	.033	C	GPS - STATIC	2009	HMOOSE

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2953097.220	686722.115	1651060.140	16704035.435	.033	C	GPS - STATIC	2010	HBRAH
2953097.220	686722.115	1651060.140	16704035.435	.033	C	GPS - STATIC	2009	HMOOSE

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/DAVEY-DL4741-3W-15APR2010.jpg	W	Apr 15, 2010
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/DAVEY-DL4741-2-15APR2010.jpg		Apr 15, 2010
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/DAVEY-DL4741-1-15APR2010.jpg		Apr 15, 2010

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

DESTRUC

Mn/DOT Name: DESTRUC **NGS Name:** DESTRUC

County: PINE, MN (Sheet 1)

NGS ACRN: DL4744 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	6	41 N	20 W	460329.01	925435.64	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2008	2019	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 11 FT)	SURVEY DISK	MNDT

Description: (2009) **Stamping:** DESTRUC 2008

3.5 MILES NORTHEAST OF HINCKLEY, 3.5 MILES NORTH-NORTHEAST ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 48, AT INTERSTATE HIGHWAY 35 MILEPOINT 186.5, 50.0 FEET SOUTHEAST OF NORTHBOUND INTERSTATE HIGHWAY 35, 48.4 FEET NORTHWEST OF A FENCE LINE, 2.4 FEET NORTHWEST 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
1068.292	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1068.289	.016	2/1				VERTICAL CONTROL SURVEY	2009	VMOOSE

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
1068.203	.262		978.144	.197	2011	GPS - OPUS	2020	GPSBM
			978.249	.008	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1068.305	.131		978.335	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2566
1068.305	.131		978.453	.066	1996	GPS - STATIC	2009	HMOOSE
1068.305	.131		978.335	.066	2007	GPS - STATIC	2009	HMOOSE

Geoid Separations(ft): GEOID18 = -90.059 12B = -90.062 09 = -89.944 03 = -89.826

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 03 29.01424	92 54 35.63647	497486.748	219636.880	.131	3	GPS - OPUS	2020	GPSBM
46 03 29.01429	92 54 35.63663	497486.736	219636.885	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 03 29.01410	92 54 35.63719	497486.697	219636.866	.033	C	ADJUSTMENT	2009	GPS2566
46 03 29.01410	92 54 35.63719	497486.697	219636.866	.033	C	GPS - STATIC	2009	HMOOSE

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 03 29.01400	92 54 35.63679	497486.725	219636.856	.033	C	GPS - STATIC	2009	HMOOSE

DESTRUC

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2964850.316	716783.923	1663282.193	16733897.899	.131	3	GPS - OPUS	2020	GPSBM
2964850.305	716783.928	1663282.182	16733897.904	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2964850.266	716783.908	1663282.143	16733897.884	.033	C	ADJUSTMENT	2009	GPS2566
2964850.266	716783.908	1663282.143	16733897.884	.033	C	GPS - STATIC	2009	HMOOSE

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2964850.294	716783.899	1663282.171	16733897.874	.033	C	GPS - STATIC	2009	HMOOSE

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/DESTRUC-DL4744-3SE-12DEC2019.jpg	SE	Dec 12, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/DESTRUC-DL4744-2-12DEC2019.jpg		Dec 12, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/DESTRUC-DL4744-1-12DEC2019.jpg		Dec 12, 2019

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

DOW MNDT TEMP

Mn/DOT Name: DOW MNDT TEMP
NGS Name: DOW TEMP
County: PINE, MN (Sheet 1)

NGS ACRN: QO2496 Get Map
NGS Quad / Sta Num : 45093112/
USGS Quad: HENRIETTE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	28	38 N	22 W	454535.32	930559.63		2

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1984	2007	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description: (1984) **Stamping:** DOW 1984

6.0 MILES SOUTHWEST OF PINE CITY, 3.7 MILES SOUTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF HILLSIDE AVENUE AND INTERSTATE HIGHWAY 35 IN PINE CITY TO ITS JUNCTION WITH TRUNK HIGHWAY 70, THEN 3.7 MILES EAST ON TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 70 AND INTERSTATE HIGHWAY 35, 2.0 MILES NORTH OF A MNDT NAIL AND A DISK, BRAHAM, 14.5 FEET SOUTH OF TRUNK HIGHWAY 70, AT TRUNK HIGHWAY 70 MILEPOINT 13.25, 95.3 FEET SOUTHEAST OF A MINNESOTA DEPARTMENT OF TRANSPORTATION NAIL AND A DISK IN A POWER POLE, ON THE EAST SIDE OF AN ENTRANCE OR A ROAD SOUTH, OPPOSITE AN ENTRANCE OR A ROAD NORTH, 53.6 FEET SOUTHEAST OF SOME KIND OF TIE ON THE NORTH SIDE OF TRUNK HIGHWAY 70 AND THE WEST SIDE OF AN ENTRANCE OR A ROAD NORTH.

*** 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
1004.329	.197		912.433	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648
1004.296						RECIPROCAL VERTICAL ANGLE	1994	HORZ

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1004.001						RECIPROCAL VERTICAL ANGLE	1984	HORZ

Geoid Separations(ft): GEOID18 = -92.172 12B = -92.175 09 = -92.073 03 = -91.922

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 35.32073	93 05 59.62632	448975.295	110935.523	.066	2	ADJUSTMENT	1999	17648

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 35.31711	93 05 59.62642	448975.286	110935.155	.066	2	CLASSICAL SURVEY	1994	G17352
45 45 35.31711	93 05 59.62642	448975.287	110935.156	.066	2	ADJUSTMENT	1994	17352

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 35.46060	93 05 58.85200			.100	2	CLASSICAL SURVEY	1984	3306-09

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2918202.474	607282.451	1614929.201	16625184.259	.066	2	ADJUSTMENT	1999	17648

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2918202.473	607282.084	1614929.193	16625183.893	.066	2	CLASSICAL SURVEY	1994	G17352
2918202.473	607282.084	1614929.193	16625183.893	.066	2	ADJUSTMENT	1994	17352

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2293599.307	279212.124			.100	2	CLASSICAL SURVEY	1984	3306-09

Mn/DOT Name: E 60 **NGS Name:** E 60

County: PINE, MN (Sheet 1)

NGS ACRN: QO0231 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	33	41 N	21 W	455928.34	925934.91	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1934	2007	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	NGS

Description: (2010) **Stamping:** E 60 1934

3.0 MILES SOUTHWEST ON A RAILROAD FROM THE HINCKLEY RAILROAD STATION IN HINCKLEY, 2.4 MILES WEST ALONG COUNTY ROAD 18 FROM THE JUNCTION OF COUNTY ROAD 18 AND OLD TRUNK HIGHWAY 61 TO THE JUNCTION OF COUNTY ROAD 18 AND COUNTY ROAD 17, THEN 1.9 MILES SOUTH ALONG COUNTY ROAD 17 (FOX ROAD), 7.0 RAILS WEST OF RAILROAD MILEPOST 75, 96.0 FEET WEST OF A ROAD, 21.0 FEET NORTH OF THE MAIN RAILROAD TRACK.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1025.956	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1025.480	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
1025.480	.007	1				VERTICAL CONTROL SURVEY	1974	L3440
1025.484	.033	3				VERTICAL CONTROL SURVEY	1966	USGS-VERT
1025.484	.007	1				VERTICAL CONTROL SURVEY	1934	L53 MINN

Geoid Separations(ft): GEOID18 = -90.548 12B = -90.538 09 = -90.436 03 = -90.292

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

ELMER

Mn/DOT Name: ELMER
NGS Name: ELMER
County: PINE, MN (Sheet 1)

NGS ACRN: DM4947 Get Map
NGS Quad / Sta Num : 45093114/
USGS Quad: QUAMBA

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	18	39 N	22 W	455231.08	930749.44	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2010	2010	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 15 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2010) **Stamping:** ELMER 2010

0.5 MILE NORTHWEST OF HENRIETTE, 0.25 MILE NORTH ALONG TRUNK HIGHWAY 107 FROM THE NORTH JUNCTION OF TRUNK HIGHWAY 107 AND COUNTY ROAD 11 IN HENRIETTE TO TRUNK HIGHWAY 107 MILEPOINT 12.5, THEN 0.25 MILE WEST ON MEMORY ROAD, 32.7 FEET SOUTH OF MEMORY ROAD, 4.6 FEET EAST OF A POWER POLE NUMBER ECE50588, 4.5 FEET EAST 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
988.039	.016	2/1				VERTICAL ADJUSTMENT	2012	00000745
988.033	.016	2/1				VERTICAL CONTROL SURVEY	2010	VBRAH

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
			896.406	.007	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
988.023	.131		896.484	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2747
988.023	.131		896.484	.066	2007	GPS - STATIC	2010	HBRAH
988.023	.131		896.596	.066	1996	GPS - STATIC	2010	HBRAH

Geoid Separations(ft): GEOID18 = -91.637 12B = -91.627 09 = -91.539 03 = -91.388

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 52 31.07629	93 07 49.44132	441310.923	153072.035	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 52 31.07639	93 07 49.44200	441310.875	153072.045	.033	C	ADJUSTMENT	2011	GPS2747
45 52 31.07639	93 07 49.44200	441310.875	153072.045	.033	C	GPS - STATIC	2010	HBRAH

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 52 31.07619	93 07 49.44156	441310.906	153072.025	.033	C	GPS - STATIC	2010	HBRAH

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2909822.307	649278.534	1607215.090	16667292.028	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2909822.258	649278.543	1607215.042	16667292.038	.033	C	ADJUSTMENT	2011	GPS2747
2909822.258	649278.543	1607215.042	16667292.038	.033	C	GPS - STATIC	2010	HBRAH

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2909822.290	649278.523	1607215.073	16667292.018	.033	C	GPS - STATIC	2010	HBRAH

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ELMER-DM4947-3S-27APR2010.jpg	S	Apr 27, 2010
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ELMER-DM4947-2-27APR2010.jpg		Apr 27, 2010
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ELMER-DM4947-1-27APR2010.jpg		Apr 27, 2010

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

Mn/DOT Name: F 60 **NGS Name:** F 60

County: PINE, MN (Sheet 1)

NGS ACRN: QO0377 Get Map
NGS Quad / Sta Num : 45093111/
USGS Quad: BROOK PARK

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	12	40 N	22 W	455826.58	930148.45	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1934	2010	DESTROYED	Horz=NO Vert=NO	YES		PROJECTS 3 IN.	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	NGS

Description: (1943) **Stamping:** F 60 1934

5.2 MILES SOUTHWEST OF HINCKLEY, 1.0 MILE NORTH ALONG OLD TRUNK HIGHWAY 23 FROM THE JUNCTION OF TRUNK HIGHWAY 23 AND ASPEN ROAD TO THE JUNCTION OF ASPEN ROAD AND THE RAILROAD TRACKS, THEN 2116.18 FEET TO THE RAILROAD MILEPOST 77, THEN 961.37 FEET TO THE CENTER OF THE TRACKS PERPENDICULAR TO A STATION SOUTH OF THE TRACKS, 35.0 FEET SOUTH OF THE TRACKS.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1030.867	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1030.375	.016	2				VERTICAL CONTROL SURVEY	1974	L3440
1030.382	.033	3				VERTICAL CONTROL SURVEY	1966	USGS-VERT
1030.382	.007	1				VERTICAL CONTROL SURVEY	1934	L53 MINN

Geoid Separations(ft): GEOID18 = -90.781 12B = -90.764 09 = -90.679 03 = -90.528

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

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/F_60-QO0377-3S-30OCT2008.jpg	S	Oct 30, 2008
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/F_60-QO0377-2-30OCT2008.jpg		Oct 30, 2008
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/F_60-QO0377-1-30OCT2008.jpg		Oct 30, 2008

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

Mn/DOT Name: FEDDER **NGS Name:** FEDDER

County: PINE, MN (Sheet 1)

NGS ACRN: QO1587 Get Map
NGS Quad / Sta Num : 45093112/1001
USGS Quad: HENRIETTE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	18	39 N	21 W	455155.80	930029.03		3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2007	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	NGS

Description: (1993) **Stamping:** FEDDER 1961

3.0 MILES NORTHWEST OF PINE CITY, 2.4 MILES NORTHWEST ON COUNTY ROAD 11 FROM THE JUNCTION OF COUNTY ROAD 11 AND COUNTY ROAD 61 (OLD TRUNK HIGHWAY 61), 57.0 FEET NORTH OF COUNTY ROAD 11, 110.0 FEET NORTHWEST OF A WITNESS POST, 61.5 FEET NORTHEAST OF A DRIVEWAY NORTH AT COUNTY ROAD 11, 28.0 FEET EAST OF A DRIVEWAY, 107.67 FEET NORTHWEST OF FEDDER RM 1, 93.87 FEET NORTHEAST OF STATION 60 RC.

Station Notes

IN 1993 THE GEODETIC UNIT COULD NOT FIND STATION FEDDER OR FEDDER RM 1 AND STATION 60 RC, COUNTY ROAD 11 HAS BEEN WIDENED.

*** 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
964.565	.262		873.709	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
964.598						RECIPROCAL VERTICAL ANGLE	1961	HORZ

Geoid Separations(ft): GEOID18 = -91.115 12B = -91.105 09 = -91.010 03 = -90.879

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 51 55.79836	93 00 29.02954	472468.413	149432.105	.131	3	ADJUSTMENT	1999	17648
45 51 55.79448	93 00 29.02274	472468.894	149431.711	.131	3	ADJUSTMENT	1991	17497

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 51 55.79359	93 00 29.02409	472468.798	149431.621	.131	3	ADJUSTMENT	1986	17289

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 51 55.94710	93 00 28.27380			.100	3	CLASSICAL SURVEY	1961	12611

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2941034.342	646170.172	1638363.170	16663692.976	.131	3	ADJUSTMENT	1999	17648
2941034.829	646169.786	1638363.651	16663692.583	.131	3	ADJUSTMENT	1991	17497

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2941034.735	646169.695	1638363.556	16663692.493	.131	3	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2316430.429	318100.545			.100	3	CLASSICAL SURVEY	1961	12611

FEDDER AZ MK

Mn/DOT Name: FEDDER AZ MK

NGS Name: FEDDER AZ MK

County: PINE, MN (Sheet 1)

NGS ACRN: CJ4100 Get Map
NGS Quad / Sta Num : 45092443/1001
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	20	39 N	21 W	455138.00	925957.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2008	NOT FOUND	Horz=? Vert=YES	NO		PROJECTS 3 IN.	SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	NGS

Description: (1961) **Stamping:** FEDDER 1961

3.0 MILES NORTHWEST OF PINE CITY, 2.4 MILES NORTHWEST ON COUNTY ROAD 11 FROM THE JUNCTION OF COUNTY ROAD 11 AND COUNTY ROAD 61 (OLD TRUNK HIGHWAY 61), 33.0 FEET SOUTHEAST OF THE INTERSECTION OF HIGHWAY 11 AND A GRADED SIDE ROAD SOUTHWEST, 9.0 FEET NORTH OF A FENCE, 1.0 FOOT SOUTHWEST OF A POWER POLE, 2.0 FEET SOUTHWEST OF A WITNESS POST.

Station Notes

IN 10-02-2008 REPORTED THAT ROAD HAS BEEN WIDENED.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -91.069 12B = -91.060 09 = -90.971 03 = -90.840

FEDDER RM 1

Mn/DOT Name: FEDDER RM 1 **NGS Name:** FEDDER RM 1

County: PINE, MN (Sheet 1)

NGS ACRN: CJ4101 Get Map
NGS Quad / Sta Num : 45093112/1001
USGS Quad: HENRIETTE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	18	39 N	21 W	455155.37	930027.64		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2008	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	NGS

Description: (2008) **Stamping:** FEDDER NO 1 1961

3.0 MILES NORTHWEST OF PINE CITY, 2.4 MILES NORTHWEST ON COUNTY ROAD 11 FROM THE JUNCTION OF COUNTY ROAD 11 AND COUNTY ROAD 61 (OLD TRUNK HIGHWAY 61), 24.0 FEET NORTH OF THE CENTERLINE OF A HIGHWAY, 1.0 FOOT NORTH OF A TELEPHONE POLE, 2.0 FEET NORTHEAST OF A WITNESS POST.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -91.115 12B = -91.109 09 = -91.014 03 = -90.882

FENCE CORNER

Mn/DOT Name: FENCE CORNER

NGS Name: FENCE CORNER

County: PINE, MN (Sheet 1)

NGS ACRN: CJ4102 Get Map
NGS Quad / Sta Num : 45092441/
USGS Quad: CEDAR LAKE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	18	40 N	19 W	455740.00	924551.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
	2008	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
SEE DESCRIPTIVE TEXT	SEE DESCRIPTION	UNK

Description:

4.0 MILES SOUTH OF CLOVERDALE, 2.5 MILES SOUTH ALONG CLOVERDALE ROAD/COUNTY ROAD 21 FROM THE JUNCTION OF CLOVERDALE ROAD/COUNTY ROAD 21 AND TRUNK HIGHWAY 48 IN CLOVERDALE, THEN 1.5 MILES WEST ON COUNTY ROAD 19, THEN 1.0 MILE SOUTH FROM A TEE-ROAD.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -88.441 12B = -88.478 09 = -88.405 03 = -88.323

FIREHOUSE

Mn/DOT Name: FIREHOUSE
NGS Name: FIREHOUSE
County: PINE, MN (Sheet 1)

NGS ACRN: DL4746 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	35	41 N	21 W	455858.84	925706.09	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2008	2012	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: (2009) **Stamping:** FIREHOUSE 2008

2.0 MILES SOUTH OF HINCKLEY, 2.2 MILES SOUTH AND SOUTHWEST ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 48, AT INTERSTATE HIGHWAY 35 MILEPOINT 180.9, 43.3 FEET NORTHWEST OF NORTHBOUND INTERSTATE HIGHWAY 35, 41.4 FEET SOUTHEAST OF SOUTHBOUND INTERSTATE HIGHWAY 35, 26.0 FEET SOUTHWEST OF A U-TURN CROSSING, 2.7 FEET SOUTHEAST 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
1011.812	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1011.809	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
1011.809	.016	2/1				VERTICAL CONTROL SURVEY	2009	VMOOSE

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
1011.734	.262		921.543	.197	2007	GPS - RTRN	2012	RTRN2012
			921.511	.006	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1011.809	.131		921.606	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2566
1011.809	.131		921.750	.066	1996	GPS - STATIC	2009	HMOOSE
1011.809	.131		921.606	.066	2007	GPS - STATIC	2009	HMOOSE

Geoid Separations(ft): GEOID18 = -90.308 12B = -90.302 09 = -90.193 03 = -90.069

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 58 58.84401	92 57 06.09224	486858.113	192272.304	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 58 58.84333	92 57 06.09264	486858.084	192272.235	.131	3	GPS - RTRN	2012	RTRN2012
45 58 58.84388	92 57 06.09263	486858.085	192272.291	.033	C	ADJUSTMENT	2009	GPS2566
45 58 58.84388	92 57 06.09263	486858.085	192272.291	.033	C	GPS - STATIC	2009	HMOOSE

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 58 58.84379	92 57 06.09206	486858.125	192272.282	.033	C	GPS - STATIC	2009	HMOOSE

FIREHOUSE

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2954690.645	689245.105	1652692.634	16706532.108	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2954690.618	689245.036	1652692.606	16706532.039	.131	3	GPS - RTRN	2012	RTRN2012
2954690.618	689245.092	1652692.607	16706532.095	.033	C	ADJUSTMENT	2009	GPS2566
2954690.618	689245.092	1652692.607	16706532.095	.033	C	GPS - STATIC	2009	HMOOSE

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2954690.658	689245.083	1652692.647	16706532.086	.033	C	GPS - STATIC	2009	HMOOSE

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/FIREHOUSE-DL4746-3NW-10OCT2012.jpg	NW	Oct 10, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/FIREHOUSE-DL4746-2-10OCT2012.jpg		Oct 10, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/FIREHOUSE-DL4746-1-10OCT2012.jpg		Oct 10, 2012

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

FLEA MNDT

Mn/DOT Name: FLEA MNDT **NGS Name:** FLEA

County: PINE, MN (Sheet 1)

NGS ACRN: AC4964 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	21	39 N	21 W	455048.11	925829.72	2	B

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1993	2016	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 43 FT)	SURVEY DISK	MNDT

Description: (2008) **Stamping:** FLEA 1993

1.75 MILES NORTH OF PINE CITY, AT THE JUNCTION OF INTERSTATE HIGHWAY 35 AND COUNTY ROAD 11, AT INTERSTATE HIGHWAY 35 MILEPOINT 171.4, 30.8 FEET SOUTH-SOUTHWEST OF COUNTY ROAD 11, 118.5 FEET EAST-SOUTHEAST OF THE SOUTHEAST CORNER OF COUNTY ROAD 11 BRIDGE NUMBER 58818 OVER INTERSTATE HIGHWAY 35, 7.3 FEET SOUTHEAST OF THE END OF A GUARDRAIL, 6.0 FEET SOUTHEAST 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
967.856	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
967.856	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
967.856	.016	2/1				VERTICAL ADJUSTMENT	2009	00000425-36
967.856	.016	2/1				VERTICAL CONTROL SURVEY	2008	VFLEA

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
967.839	.262		876.924	.197	2011	GPS - RTRN	2022	RTRN2022P
967.797	.262		876.881	.197	2011	GPS - RTRN	2022	RTRN2022T
967.856			876.957	.012	2011	HORIZONTAL ADJUSTMENT	2018	GPS3119
967.856	.131		877.203	.066	1996	GPS - STATIC	2017	HMNCORS07
967.856			876.957	.012	2011	GPS - STATIC	2017	HMNPH
967.770	.262		876.878	.197	2011	GPS - RTRN	2015	RTRN2015
			876.960	.012	2011	HORIZONTAL ADJUSTMENT	2014	GPS3063
			877.203	.066	1996	GPS - STATIC	2014	HMNCORS06
967.856	.131		876.967	.066	2011	HORIZONTAL ADJUSTMENT	2012	GPS2829-C
967.806	.262		876.986	.197	2007	GPS - RTRN	2012	RTRN2012
			876.957	.007	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			876.990	.049	2007	HORIZONTAL ADJUSTMENT	2011	GPS2829
			877.052	.049	2007	HORIZONTAL ADJUSTMENT	2011	GPS2302-C
967.846	.098		877.052	.049	2007	HORIZONTAL ADJUSTMENT	2010	GPS2697
967.846	.098		877.052	.049	2007	GPS - STATIC	2010	HBMN2
			877.052	.008	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
967.911	.328		877.196	.328	1996	HORIZONTAL ADJUSTMENT	2006	GPS2302
967.944	.098		877.203	.049	1996	GPS - STATIC	2005	GPS2036
967.846	.098		877.203	.049	1996	GPS - STATIC	2004	GPS1954
967.846	.131		877.203	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1839
967.879	.131		877.203	.066	1996	GPS - STATIC	2002	HPINE
967.856	.098		877.203	.049	1996	GPS - STATIC	1997	GPS805-B
967.856	.131		877.203	.066	1996	GPS - STATIC	1997	GPS805-C

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
967.715						GPS - STATIC	1994	HORZ

Geoid Separations(ft): GEOID18 = -90.915 12B = -90.889 09 = -90.820 03 = -90.699

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 50 48.11429	92 58 29.71461	480905.860	142566.040	.131	3	GPS - RTRN	2022	RTRN2022P
45 50 48.11425	92 58 29.71474	480905.851	142566.036	.131	3	GPS - RTRN	2022	RTRN2022T
45 50 48.11464	92 58 29.71547	480905.799	142566.076	.007		ADJUSTMENT	2018	GPS3119
45 50 48.11464	92 58 29.71547	480905.799	142566.076	.007	C	GPS - STATIC	2017	HMNPH
45 50 48.11429	92 58 29.71582	480905.774	142566.040	.131	3	GPS - RTRN	2015	RTRN2015
45 50 48.11464	92 58 29.71546	480905.800	142566.076	.010		ADJUSTMENT	2014	GPS3063
45 50 48.11464	92 58 29.71547	480905.799	142566.076	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 50 48.11437	92 58 29.71634	480905.737	142566.049	.131	3	GPS - RTRN	2012	RTRN2012
45 50 48.11467	92 58 29.71604	480905.759	142566.079	.016	B	ADJUSTMENT	2011	GPS2829
45 50 48.11468	92 58 29.71604	480905.759	142566.080	.016	B	ADJUSTMENT	2011	GPS2302-C
45 50 48.11467	92 58 29.71604	480905.759	142566.079	.016	B	ADJUSTMENT	2010	GPS2697
45 50 48.11467	92 58 29.71604	480905.759	142566.079	.016	B	GPS - STATIC	2010	HBMN2
45 50 48.11467	92 58 29.71604	480905.759	142566.079	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 50 48.11449	92 58 29.71560	480905.790	142566.061	.033	C	GPS - STATIC	2017	HMNCORS07
45 50 48.11449	92 58 29.71560	480905.790	142566.061	.033	C	GPS - STATIC	2014	HMNCORS06
45 50 48.11450	92 58 29.71561	480905.789	142566.062	.328		ADJUSTMENT	2006	GPS2302
45 50 48.11449	92 58 29.71560	480905.790	142566.061	.016	B	GPS - STATIC	2005	GPS2036
45 50 48.11449	92 58 29.71560	480905.790	142566.061	.016	B	GPS - STATIC	2004	GPS1954
45 50 48.11449	92 58 29.71560	480905.790	142566.061	.033	C	ADJUSTMENT	2003	GPS1839
45 50 48.11449	92 58 29.71560	480905.790	142566.061	.033	C	GPS - STATIC	2002	HPINE
45 50 48.11449	92 58 29.71560	480905.790	142566.061	.016	B	GPS - STATIC	1997	GPS805-B
45 50 48.11449	92 58 29.71560	480905.790	142566.061	.033	C	GPS - STATIC	1997	GPS805-C

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 50 48.11036	92 58 29.71134	480906.092	142565.643	.033	C	GPS - STATIC	1994	HI35N

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2949586.757	639449.491	1646805.441	16656840.603	.131	3	GPS - RTRN	2022	RTRN2022P
2949586.747	639449.487	1646805.432	16656840.598	.131	3	GPS - RTRN	2022	RTRN2022T
2949586.695	639449.526	1646805.380	16656840.638	.007		ADJUSTMENT	2018	GPS3119
2949586.695	639449.526	1646805.380	16656840.638	.007	C	GPS - STATIC	2017	HMNPH
2949586.671	639449.490	1646805.356	16656840.603	.131	3	GPS - RTRN	2015	RTRN2015
2949586.696	639449.526	1646805.381	16656840.638	.010		ADJUSTMENT	2014	GPS3063
2949586.695	639449.526	1646805.380	16656840.638	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2949586.634	639449.497	1646805.319	16656840.610	.131	3	GPS - RTRN	2012	RTRN2012
2949586.655	639449.528	1646805.340	16656840.641	.016	B	ADJUSTMENT	2011	GPS2829
2949586.655	639449.529	1646805.340	16656840.642	.016	B	ADJUSTMENT	2011	GPS2302-C
2949586.655	639449.528	1646805.340	16656840.641	.016	B	ADJUSTMENT	2010	GPS2697
2949586.655	639449.528	1646805.340	16656840.641	.016	B	GPS - STATIC	2010	HBMN2
2949586.655	639449.528	1646805.340	16656840.641	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2949586.686	639449.510	1646805.371	16656840.623	.033	C	GPS - STATIC	2017	HMNCORS07
2949586.686	639449.510	1646805.371	16656840.623	.033	C	GPS - STATIC	2014	HMNCORS06
2949586.685	639449.511	1646805.370	16656840.624	.328		ADJUSTMENT	2006	GPS2302
2949586.686	639449.510	1646805.371	16656840.623	.016	B	GPS - STATIC	2005	GPS2036
2949586.686	639449.510	1646805.371	16656840.623	.016	B	GPS - STATIC	2004	GPS1954
2949586.686	639449.510	1646805.371	16656840.623	.033	C	ADJUSTMENT	2003	GPS1839
2949586.686	639449.510	1646805.371	16656840.623	.033	C	GPS - STATIC	2002	HPINE
2949586.686	639449.510	1646805.371	16656840.623	.016	B	GPS - STATIC	1997	GPS805-B
2949586.686	639449.510	1646805.371	16656840.623	.033	C	GPS - STATIC	1997	GPS805-C

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2949586.994	639449.097	1646805.673	16656840.205	.033	C	GPS - STATIC	1994	HI35N

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/FLEA-AC4964-3S-15OCT2012.jpg	S	Oct 15, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/FLEA-AC4964-2-15OCT2012.jpg		Oct 15, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/FLEA-AC4964-1-15OCT2012.jpg		Oct 15, 2012

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

FOUNTAIN

Mn/DOT Name: FOUNTAIN
NGS Name: FOUNTAIN
County: PINE, MN (Sheet 1)

NGS ACRN: DM4949 Get Map
NGS Quad / Sta Num : 45093112/
USGS Quad: HENRIETTE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	29	39 N	22 W	455007.66	930723.67	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2010	2010	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 35 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2010) **Stamping:** FOUNTAIN 2010

2.6 MILES SOUTH OF HENRIETTE, 2.55 MILES SOUTH ALONG TRUNK HIGHWAY 107 FROM THE NORTH JUNCTION OF TRUNK HIGHWAY 107 AND COUNTY ROAD 11 IN HENRIETTE TO TRUNK HIGHWAY 107 MILEPOINT 9.65, THEN 0.35 MILE EAST ON A PADDLE ROAD, 17.5 FEET SOUTH OF A PADDLE ROAD, 64.2 FEET WEST OF DRIVEWAY NUMBER 3169 EXIT, 32.3 FEET WEST OF A CABLE BOX, 14.7 FEET EAST OF A FIELD ENTRANCE, 9.1 FEET WEST 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
976.740	.016	2/1				VERTICAL ADJUSTMENT	2012	00000745
976.737	.016	2/1				VERTICAL CONTROL SURVEY	2010	VBRAH

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
			884.906	.007	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
976.737	.131		884.982	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2747
976.737	.131		884.982	.066	2007	GPS - STATIC	2010	HBRAH
976.737	.131		885.097	.066	1996	GPS - STATIC	2010	HBRAH

Geoid Separations(ft): GEOID18 = -91.837 12B = -91.834 09 = -91.742 03 = -91.598

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 50 07.65563	93 07 23.67067	443093.610	138538.466	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 50 07.65574	93 07 23.67131	443093.565	138538.477	.033	C	ADJUSTMENT	2011	GPS2747
45 50 07.65574	93 07 23.67131	443093.565	138538.477	.033	C	GPS - STATIC	2010	HBRAH

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 50 07.65559	93 07 23.67089	443093.595	138538.462	.033	C	GPS - STATIC	2010	HBRAH

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2911852.070	634778.782	1609015.323	16652767.241	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2911852.025	634778.792	1609015.278	16652767.252	.033	C	ADJUSTMENT	2011	GPS2747
2911852.025	634778.792	1609015.278	16652767.252	.033	C	GPS - STATIC	2010	HBRAH

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2911852.055	634778.778	1609015.308	16652767.237	.033	C	GPS - STATIC	2010	HBRAH

FOUNTAIN

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/FOUNTAIN-DM4949-3S-27APR2010.jpg	S	Apr 27, 2010
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/FOUNTAIN-DM4949-2-27APR2010.jpg		Apr 27, 2010
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/FOUNTAIN-DM4949-1-27APR2010.jpg		Apr 27, 2010

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

FRIES MNDT

Mn/DOT Name: FRIES MNDT **NGS Name:** FRIES

County: PINE, MN (Sheet 1)

NGS ACRN: DE5984 Get Map
NGS Quad / Sta Num : 46092332/
USGS Quad: SANDSTONE SOUTH

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	19	41 N	19 W	460043.12	924753.62	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1996	2012	DESTROYED	Horz=NO Vert=NO	YES		RECESSED 1 IN.	BAR MAG IMBED IN MON

Monument Type	Disk Type	Mon. Agency
PIPE (CAPPED) DRIVEN IN GROUND (<10 FT)	SURVEY DISK	MNDT

Description: (1996) **Stamping:** FRIES 1996

6.5 MILES EAST OF HINCKLEY, 6.4 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND INTERSTATE HIGHWAY 35 IN HINCKLEY, AT TRUNK HIGHWAY 48 MILEPOINT 6.45, 68.0 FEET NORTH OF TRUNK HIGHWAY 48, 7.2 FEET SOUTH-SOUTHEAST OF A POWER POLE, 2.0 FEET SOUTH 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
1011.619	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1011.665	.016	2/1				VERTICAL ADJUSTMENT	2006	00000497
1011.681	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1011.405	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

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
			922.797	.014	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			922.905	.015	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
1011.678	.131		923.039	.066	1996	HORIZONTAL ADJUSTMENT	2002	GPS1700
1011.678	.131		923.039	.066	1996	GPS - STATIC	2001	HCLOV

Geoid Separations(ft): GEOID18 = -88.829 12B = -88.894 09 = -88.773 03 = -88.661

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 43.11901	92 47 53.61977	525860.358	202847.768	.016		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 43.11899	92 47 53.62039	525860.314	202847.765	.020		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 43.11904	92 47 53.62003	525860.340	202847.770	.033	C	ADJUSTMENT	2002	GPS1700
46 00 43.11904	92 47 53.62003	525860.340	202847.770	.033	C	GPS - STATIC	2001	HCLOV

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 43.11245	92 47 53.61414	525860.756	202847.104	.033	C	GPS - STATIC	1997	HCLOV

FRIES MNDT

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2993502.926	700482.655	1691664.341	16717151.818	.016		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2993502.883	700482.652	1691664.297	16717151.816	.020		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2993502.908	700482.657	1691664.323	16717151.821	.033	C	ADJUSTMENT	2002	GPS1700
2993502.908	700482.657	1691664.323	16717151.821	.033	C	GPS - STATIC	2001	HCLOV

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2993503.336	700481.998	1691664.740	16717151.155	.033	C	GPS - STATIC	1997	HCLOV

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/FRIES-DE5984-3N-07MAY2012.jpg	N	May 7, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/FRIES-DE5984-2-07MAY2012.jpg		May 7, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/FRIES-DE5984-1-07MAY2012.jpg		May 7, 2012

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

FRIES MNDT RESET

Mn/DOT Name: FRIES MNDT RESET
NGS Name: FRIES RESET
County: PINE, MN (Sheet 1)

NGS ACRN: DO8686 Get Map
NGS Quad / Sta Num : 46092332/
USGS Quad: SANDSTONE SOUTH

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	19	41 N	19 W	460043.12	924753.62	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2012	GOOD	Horz=YES Vert=YES	YES		RECESSED 10 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 10 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) **Stamping:** FRIES 1996 2012

6.5 MILES EAST OF HINCKLEY, 6.4 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND INTERSTATE HIGHWAY 35 IN HINCKLEY, AT TRUNK HIGHWAY 48 MILEPOINT 6.45, 68.0 FEET NORTH OF TRUNK HIGHWAY 48, 36.0 FEET EAST-SOUTHEAST OF A POWER POLE, 2.0 FEET SOUTH 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
1011.054	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1011.100	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
1011.120			922.242	.012	2011	HORIZONTAL ADJUSTMENT	2015	GPS3071
1011.120			922.242	.012	2011	GPS - STATIC	2015	HCLVR
1011.153	.131		922.373	.066	2007	GPS - STATIC	2012	HCLVR
1011.153	.131		922.475	.066	1996	GPS - STATIC	2012	HCLVR
1011.074	.262		922.305	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -88.829 12B = -88.894 09 = -88.773 03 = -88.661

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 43.11840	92 47 53.62054	525860.304	202847.706	.016		ADJUSTMENT	2015	GPS3071
46 00 43.11840	92 47 53.62054	525860.304	202847.706	.016	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 43.11847	92 47 53.62125	525860.254	202847.712	.033	C	GPS - STATIC	2012	HCLVR
46 00 43.11816	92 47 53.62155	525860.232	202847.681	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 43.11844	92 47 53.62081	525860.285	202847.709	.033	C	GPS - STATIC	2012	HCLVR

FRIES MNDT RESET

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2993502.873	700482.592	1691664.287	16717151.756	.016		ADJUSTMENT	2015	GPS3071
2993502.873	700482.592	1691664.287	16717151.756	.016	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2993502.823	700482.598	1691664.237	16717151.763	.033	C	GPS - STATIC	2012	HCLVR
2993502.802	700482.566	1691664.216	16717151.732	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2993502.854	700482.596	1691664.268	16717151.760	.033	C	GPS - STATIC	2012	HCLVR

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/FRIES_RESET-DO8686-3N-20AUG2012.jpg	N	Aug 20, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/FRIES_RESET-DO8686-2-20AUG2012.jpg		Aug 20, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/FRIES_RESET-DO8686-1-20AUG2012.jpg		Aug 20, 2012

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

Mn/DOT Name: G 60 **NGS Name:** G 60

County: PINE, MN (Sheet 1)

NGS ACRN: QO0378 Get Map
NGS Quad / Sta Num : 45093111/
USGS Quad: BROOK PARK

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	14	40 N	22 W	455725.00	930343.00	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1934	2010	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
UNKNOWN	BENCH MARK DISK	NGS

Description: (1954) **Stamping:** G 60 1934

0.8 MILE NORTHEAST OF BROOK PARK, 0.6 MILE NORTHEAST ON A RAILROAD FROM THE JUNCTION OF TRUNK HIGHWAY 23 AND COUNTY ROAD 63 IN BROOK PARK, 70.13 FEET FROM RAILROAD MILEPOST 79, 27.0 FEET EAST OF A PRIVATE ROAD CROSSING, 20.0 FEET NORTH OF THE MAIN RAILROAD TRACK.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1029.926	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1029.427	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
1029.427	.016	2				VERTICAL CONTROL SURVEY	1974	L3440
1029.434	.007	1				VERTICAL CONTROL SURVEY	1934	L53 MINN

Geoid Separations(ft): GEOID18 = -90.984 12B = -90.964 09 = -90.879 03 = -90.725

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

GADE MNDT

Mn/DOT Name: GADE MNDT **NGS Name:** GADE

County: PINE, MN (Sheet 1)

NGS ACRN: DE5985 Get Map
NGS Quad / Sta Num : 46092322/
USGS Quad: WILBUR LAKE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	22	41 N	18 W	460056.76	923544.01	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1996	2012	DESTROYED	Horz=NO Vert=NO	YES		PROJECTS 3 IN.	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
UNKNOWN	SURVEY DISK	MNDT

Description: (1996) **Stamping:** GADE 1996

16.25 MILES EAST OF HINCKLEY, 16.2 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND INTERSTATE HIGHWAY 35 IN HINCKLEY, TO TRUNK HIGHWAY 48 MILEPOINT 16.2, THEN 0.25 MILE NORTH ON A TOWNSHIP ROAD, STATION ON THE WEST SIDE OF A ROAD, 2.4 FEET EAST OF A WITNESS POST.

Station Notes
THE DISK WAS TURNED IN TO THE OFFICE.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height Height	Acc	Order (/Class)	Ellipsoid (NAD83) Height	Acc	Adj	Determination Method	Project Info Year	Reference
987.547	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
987.682	.016	2/1				VERTICAL ADJUSTMENT	2006	00000497
987.731	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

NGVD29

Orthometric Height Height	Acc	Order (/Class)	Ellipsoid (NAD83) Height	Acc	Adj	Determination Method	Project Info Year	Reference
987.455	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

Orthometric Height Height	Acc	Order (/Class)	Ellipsoid (NAD83) Height	Acc	Adj	Determination Method	Project Info Year	Reference
			900.284	.008	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			900.392	.009	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
987.728	.131		900.549	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1839
987.728	.131		900.549	.066	1996	GPS - STATIC	2002	HPINE
987.728	.131		900.549	.066	1996	HORIZONTAL ADJUSTMENT	2002	GPS1700
987.728	.131		900.549	.066	1996	GPS - STATIC	2001	HCLOV

Geoid Separations(ft): GEOID18 = -87.250 12B = -87.346 09 = -87.283 03 = -87.178

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position Latitude	Longitude	Pine County X	Y	Acc	Order	Determination Method	Project Info Year	Reference
46 00 56.76442	92 35 44.01439	577352.920	204361.543	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position Latitude	Longitude	Pine County X	Y	Acc	Order	Determination Method	Project Info Year	Reference
46 00 56.76450	92 35 44.01507	577352.872	204361.551	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position Latitude	Longitude	Pine County X	Y	Acc	Order	Determination Method	Project Info Year	Reference
46 00 56.76436	92 35 44.01478	577352.893	204361.536	.033	C	ADJUSTMENT	2003	GPS1839
46 00 56.76436	92 35 44.01478	577352.894	204361.537	.033	C	GPS - STATIC	2002	HPINE
46 00 56.76436	92 35 44.01478	577352.893	204361.536	.033	C	ADJUSTMENT	2002	GPS1700
46 00 56.76436	92 35 44.01478	577352.893	204361.536	.033	C	GPS - STATIC	2001	HCLOV

NAD83(1986)

Geodetic Position Latitude	Longitude	Pine County X	Y	Acc	Order	Determination Method	Project Info Year	Reference
46 00 56.75765	92 35 44.00824	577353.356	204360.858	.033	C	GPS - STATIC	1997	HCLOV

GADE MNDT

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3044956.760	702874.149	1743132.517	16718729.434	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3044956.712	702874.157	1743132.469	16718729.441	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3044956.733	702874.143	1743132.490	16718729.427	.033	C	ADJUSTMENT	2003	GPS1839
3044956.733	702874.143	1743132.490	16718729.428	.033	C	GPS - STATIC	2002	HPINE
3044956.733	702874.143	1743132.490	16718729.427	.033	C	ADJUSTMENT	2002	GPS1700
3044956.733	702874.143	1743132.490	16718729.427	.033	C	GPS - STATIC	2001	HCLOV

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3044957.209	702873.473	1743132.955	16718728.750	.033	C	GPS - STATIC	1997	HCLOV

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/GADE-DE5985-3W-01JUN2009.jpg	W	Jun 1, 2009
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/GADE-DE5985-2-01JUN2009.jpg		Jun 1, 2009
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/GADE-DE5985-1-17MAR2008.jpg		Mar 17, 2008

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

GADE MNDT RESET

Mn/DOT Name: GADE MNDT RESET
NGS Name: GADE RESET
County: PINE, MN (Sheet 1)

NGS ACRN: DO8703 Get Map
NGS Quad / Sta Num : 46092322/
USGS Quad: WILBUR LAKE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	22	41 N	18 W	460056.76	923544.01	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2012	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 13 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) **Stamping:** GADE 1996 2012

7.0 MILES EAST OF CLOVERDALE, 7.0 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND COUNTY ROAD 21 IN CLOVERDALE, TO TRUNK HIGHWAY 48 MILEPOINT 16.2, THEN 0.25 MILE NORTH ON WILBUR WAY, 27.0 FEET WEST OF WILBUR WAY, 1.0 F00T SOUTHEAST 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
987.367	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
987.501	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
987.524			900.123	.010	2011	HORIZONTAL ADJUSTMENT	2015	GPS3071
987.524			900.123	.010	2011	GPS - STATIC	2015	HCLVR
987.564	.131		900.280	.066	2007	GPS - STATIC	2012	HCLVR
987.564	.131		900.385	.066	1996	GPS - STATIC	2012	HCLVR
987.426	.262		900.146	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -87.250 12B = -87.346 09 = -87.283 03 = -87.178

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 56.76440	92 35 44.01429	577352.927	204361.541	.013		ADJUSTMENT	2015	GPS3071
46 00 56.76440	92 35 44.01429	577352.927	204361.541	.013	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 56.76439	92 35 44.01505	577352.874	204361.540	.033	C	GPS - STATIC	2012	HCLVR
46 00 56.76420	92 35 44.01549	577352.843	204361.520	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 56.76432	92 35 44.01473	577352.896	204361.533	.033	C	GPS - STATIC	2012	HCLVR

GADE MNDT RESET

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3044956.767	702874.147	1743132.525	16718729.432	.013		ADJUSTMENT	2015	GPS3071
3044956.767	702874.147	1743132.525	16718729.432	.013	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3044956.714	702874.145	1743132.471	16718729.430	.033	C	GPS - STATIC	2012	HCLVR
3044956.683	702874.125	1743132.440	16718729.411	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3044956.736	702874.139	1743132.493	16718729.423	.033	C	GPS - STATIC	2012	HCLVR

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/GADE_RESET-DO8703-3W-08MAY2012.jpg	W	May 8, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/GADE_RESET-DO8703-2-08MAY2012.jpg		May 8, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/GADE_RESET-DO8703-1-08MAY2012.jpg		May 8, 2012

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

GAMBLE

Mn/DOT Name: GAMBLE
NGS Name: GAMBLE
County: PINE, MN (Sheet 1)

NGS ACRN: DL4748 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	36	41 N	21 W	455916.09	925643.04	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2008	2020	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: (2008)
Stamping: GAMBLE 2008

2.0 MILES SOUTH OF HINCKLEY, 1.75 MILES SOUTH AND SOUTHWEST ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 48, AT INTERSTATE HIGHWAY 35 MILEPOINT 181.35, 54.8 FEET NORTHWEST OF SOUTHBOUND INTERSTATE HIGHWAY 35, 63.4 FEET SOUTHEAST OF COUNTY ROAD 61, 12.7 FEET NORTHWEST OF A FENCE LINE, 1.7 FEET SOUTHEAST 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
1028.666	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1028.666	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
1028.666	.016	2/1				VERTICAL CONTROL SURVEY	2009	VMOOSE

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
1028.610	.262		938.351	.197	2011	GPS - OPUS	2020	GPSBM
1028.705	.262		938.453	.197	2011	GPS - RTRN	2020	RTRN2020
1028.617	.262		938.476	.197	2007	GPS - RTRN	2012	RTRN2012
			938.410	.006	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1028.672	.131		938.505	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2566
1028.672	.131		938.650	.066	1996	GPS - STATIC	2009	HMOOSE
1028.672	.131		938.505	.066	2007	GPS - STATIC	2009	HMOOSE

Geoid Separations(ft): GEOID18 = -90.259 12B = -90.252 09 = -90.141 03 = -90.020

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 59 16.09476	92 56 43.04224	488486.905	194018.831	.131	3	GPS - OPUS	2020	GPSBM
45 59 16.09477	92 56 43.04272	488486.871	194018.832	.131	3	GPS - RTRN	2020	RTRN2020
45 59 16.09495	92 56 43.04242	488486.892	194018.851	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 59 16.09441	92 56 43.04255	488486.883	194018.796	.131	3	GPS - RTRN	2012	RTRN2012
45 59 16.09483	92 56 43.04280	488486.865	194018.839	.033	C	ADJUSTMENT	2009	GPS2566
45 59 16.09483	92 56 43.04280	488486.865	194018.839	.033	C	GPS - STATIC	2009	HMOOSE

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 59 16.09474	92 56 43.04224	488486.905	194018.829	.033	C	GPS - STATIC	2009	HMOOSE

GAMBLE

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2956289.274	691018.952	1654318.510	16708279.904	.131	3	GPS - OPUS	2020	GPSBM
2956289.240	691018.953	1654318.476	16708279.905	.131	3	GPS - RTRN	2020	RTRN2020
2956289.261	691018.971	1654318.497	16708279.924	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2956289.252	691018.916	1654318.488	16708279.869	.131	3	GPS - RTRN	2012	RTRN2012
2956289.234	691018.959	1654318.471	16708279.911	.033	C	ADJUSTMENT	2009	GPS2566
2956289.234	691018.959	1654318.471	16708279.911	.033	C	GPS - STATIC	2009	HMOOSE

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2956289.274	691018.950	1654318.510	16708279.902	.033	C	GPS - STATIC	2009	HMOOSE

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/GAMBLE-DL4748-3NW-30APR2020.jpg	NW	Apr 30, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/GAMBLE-DL4748-2-30APR2020.jpg		Apr 30, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/GAMBLE-DL4748-1-30APR2020.jpg		Apr 30, 2020

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

GOULD MNDT

Mn/DOT Name: GOULD MNDT **NGS Name:** GOULD

County: PINE, MN (Sheet 1)

NGS ACRN: QO0356 Get Map
NGS Quad / Sta Num : 45092443/1039
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	20	38 N	21 W	454559.91	925923.82	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1964	2024	DESTROYED	Horz=NO Vert=NO	YES		RECESSED 4 IN.	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	TRAVERSE STATION DISK	MNDT

Description: (2008) **Stamping:** GOULD 1964

IN ROCK CREEK, AT THE JUNCTION OF TRUNK HIGHWAY 70 AND INTERSTATE HIGHWAY 35 IN ROCK CREEK, AT TRUNK HIGHWAY 70 MILEPOINT 18.75, 5.8 FEET WEST OF THE SOUTHWEST CORNER OF A BRIDGE, 20.0 FEET SOUTH OF TRUNK HIGHWAY 70, 178.78 FEET WEST OF STATION 5880 A, 40.2 FEET SOUTH OF GOULD MNDT RM 1, 3.0 FEET SOUTH OF A WITNESS POST.

Station Pair: KDWB - PINE, MN

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
984.473	.016	2/1				VERTICAL ADJUSTMENT	2021	00000963
984.473	.016	2/1				VERTICAL CONTROL SURVEY	2017	VRCRK
984.473	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
984.473	.016	2/1				VERTICAL CONTROL SURVEY	2014	VPCTY
984.473	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
984.480	.016	2/1				VERTICAL CONTROL SURVEY	2009	VCHEN
984.542	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
984.319	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
984.309	.016	2				VERTICAL CONTROL SURVEY	1980	L24425
984.319	.016	2				VERTICAL CONTROL SURVEY	1976	L24016
984.319	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
984.319	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
984.417	.016	2				VERTICAL CONTROL SURVEY	1975	L23805
984.417	.016	2				VERTICAL CONTROL SURVEY	1971	L30 MINN
984.417	.016	2				VERTICAL CONTROL SURVEY	1971	L22190-3

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
984.437	.262		893.040	.197	2011	GPS - RTRN	2017	RTRN2017
984.411	.262		893.013	.197	2011	GPS - RTRN	2014	RTRN2014
984.427	.262		893.092	.197	2007	GPS - RTRN	2012	RTRN2012
			893.036	.010	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			893.128	.010	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
			893.368	.066	1996	GPS - STATIC	1999	GPS917
984.545	.131		893.368	.066	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -91.427 12B = -91.397 09 = -91.335 03 = -91.204

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 59.90548	92 59 23.81928	477042.570	113374.792	.131	3	GPS - RTRN	2017	RTRN2017
45 45 59.90483	92 59 23.82028	477042.499	113374.726	.131	3	GPS - RTRN	2014	RTRN2014
45 45 59.90571	92 59 23.82081	477042.462	113374.816	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 59.90503	92 59 23.82155	477042.409	113374.747	.131	3	GPS - RTRN	2012	RTRN2012
45 45 59.90576	92 59 23.82151	477042.412	113374.821	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 59.90578	92 59 23.82094	477042.451	113374.822	.033	C	GPS - STATIC	1999	GPS917
45 45 59.90578	92 59 23.82094	477042.453	113374.823	.033	C	ADJUSTMENT	1999	17648
45 45 59.90760	92 59 23.82506	477042.161	113375.008	.066	2	ADJUSTMENT	1991	17497

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 59.90152	92 59 23.81723	477042.714	113374.389	.033	C	GPS - STATIC	1994	HI35N
45 45 59.90683	92 59 23.82645	477042.062	113374.929	.066	2	ADJUSTMENT	1986	17289

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 46 00.05813	92 59 23.06953			.100	2	CLASSICAL SURVEY	1973	14930

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2946221.720	610199.261	1642980.557	16627657.762	.131	3	GPS - RTRN	2017	RTRN2017
2946221.650	610199.194	1642980.486	16627657.696	.131	3	GPS - RTRN	2014	RTRN2014
2946221.611	610199.283	1642980.448	16627657.785	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2946221.560	610199.213	1642980.396	16627657.716	.131	3	GPS - RTRN	2012	RTRN2012
2946221.562	610199.287	1642980.399	16627657.791	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2946221.602	610199.289	1642980.439	16627657.792	.033	C	GPS - STATIC	1999	GPS917
2946221.602	610199.289	1642980.439	16627657.793	.033	C	ADJUSTMENT	1999	17648
2946221.307	610199.469	1642980.147	16627657.977	.066	2	ADJUSTMENT	1991	17497

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2946221.872	610198.862	1642980.702	16627657.361	.033	C	GPS - STATIC	1994	HI35N
2946221.210	610199.390	1642980.049	16627657.899	.066	2	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2321617.603	282130.270			.100	2	CLASSICAL SURVEY	1973	14930

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/GOULD-QO0356-3S-23MAY2017.jpg	S	May 23, 2017
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/GOULD-QO0356-2-23MAY2017.jpg		May 23, 2017
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/GOULD-QO0356-1-23MAY2017.jpg		May 23, 2017

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

GOULD MNDT RM 1

Mn/DOT Name: GOULD MNDT RM 1 **NGS Name:** GOULD RM 1

County: PINE, MN (Sheet 1)

NGS ACRN: QO0355 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	20	38 N	21 W	454600.30	925923.79	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1964	2017	GOOD	Horz=YES Vert=YES	YES		RECESSED 4 IN.	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	MNDT

Description: (2007) **Stamping:** GOULD NO 1 1964

IN ROCK CREEK, AT THE JUNCTION OF TRUNK HIGHWAY 70 AND INTERSTATE HIGHWAY 35 IN ROCK CREEK, AT TRUNK HIGHWAY 70 MILEPOINT 18.75, 20.0 FEET NORTH OF TRUNK HIGHWAY 70, 4.0 FEET WEST-NORTHWEST OF THE NORTHWEST CORNER OF TRUNK HIGHWAY 70 BRIDGE NUMBER 58801 OVER INTERSTATE HIGHWAY 35, 40.2 FEET NORTH OF STATION GOULD MNDT, 2.2 FEET NORTH OF A GUARDRAIL POST, 4.0 FEET SOUTH 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
984.309	.016	2/1				VERTICAL ADJUSTMENT	2021	00000963
984.316	.016	2/1				VERTICAL CONTROL SURVEY	2017	VRCRK
984.316	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
984.316	.016	2/1				VERTICAL CONTROL SURVEY	2014	VPCTY
984.316	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
984.329	.016	2/1				VERTICAL CONTROL SURVEY	2009	VCHEN
984.447	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
984.234	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
984.211	.016	2				VERTICAL CONTROL SURVEY	1980	L24425
984.234	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
984.234	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
984.234	.016	2				VERTICAL CONTROL SURVEY	1976	L24016
984.335	.016	2				VERTICAL CONTROL SURVEY	1975	L23805
984.378	.016	2				VERTICAL CONTROL SURVEY	1971	L30 MINN
984.378	.016	2				VERTICAL CONTROL SURVEY	1971	L22190-3

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
984.211	.262		892.813	.197	2011	GPS - RTRN	2017	RTRN2017
984.257	.262		892.921	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -91.424 12B = -91.397 09 = -91.335 03 = -91.204

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 46 00.30418	92 59 23.78573	477044.994	113415.177	.131	3	GPS - RTRN	2017	RTRN2017

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 46 00.30344	92 59 23.78717	477044.892	113415.102	.131	3	GPS - RTRN	2012	RTRN2012

GOULD MNDT RM 1

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2946223.456	610239.678	1642982.929	16627698.132	.131	3	GPS - RTRN	2017	RTRN2017

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2946223.355	610239.601	1642982.827	16627698.057	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/GOULD_RM_1-QO0355-3N-23MAY2017.jpg	N	May 23, 2017
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/GOULD_RM_1-QO0355-2-23MAY2017.jpg		May 23, 2017
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/GOULD_RM_1-QO0355-1-23MAY2017.jpg		May 23, 2017

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

GOULD MNDT RM 2

Mn/DOT Name: GOULD MNDT RM 2 **NGS Name:** GOULD RM 2

County: PINE, MN (Sheet 1)

NGS ACRN: Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	20	38 N	21 W	454600.00	925916.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1964	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
SEE DESCRIPTIVE TEXT	SEE DESCRIPTION	MNHD

Description: (2010)

Stamping:

4.5 MILES SOUTH-SOUTHWEST OF PINE CITY, 3.7 MILES SOUTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION WITH TRUNK HIGHWAY 324 IN PINE CITY, 3.7 MILES SOUTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION WITH TRUNK HIGHWAY 324 IN PINE CITY, AT THE SOUTHEAST CORNER OF THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 70, THEN 0.2 MILE EAST ALONG TRUNK HIGHWAY 70.

Station Notes

CANNOT LOCATE MONUMENT WITHOUT DESCRIPTION, NATIONAL GEODETIC SURVEY (NGS) RECORDS SHOW THE MARK AT THE SOUTHEAST CORNER OF A BRIDGE, BUT THE MONUMENT IS IN THE SOUTHEAST CORNER OF A BRIDGE STAMPED 5830 A.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -91.404 12B = -91.374 09 = -91.315 03 = -91.184

GREELY MNDT

Mn/DOT Name: GREELY MNDT **NGS Name:** GREELY

County: PINE, MN (Sheet 1)

NGS ACRN: QO0241 Get Map
NGS Quad / Sta Num : 45092434/1038
USGS Quad: RUSH CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	29	38 N	21 W	454441.95	925921.89	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1964	2014	GOOD	Horz=YES Vert=YES	YES		FLUSH	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	TRAVERSE STATION DISK	MNDT

Description: (2005) **Stamping:** GREELY 1964

4.25 MILES NORTH OF RUSH CITY, 4.25 MILES NORTH ALONG TRUNK HIGHWAY 361 FROM THE JUNCTION OF TRUNK HIGHWAY 361 AND WEST 4TH STREET IN RUSH CITY, TO TRUNK HIGHWAY 361 MILEPOINT 5.65, THEN 1.4 MILES WEST ON 550TH STREET, THEN ABOUT 100.0 FEET WEST ON A TRAIL, 25.0 FEET NORTH OF A TRAIL, 6.2 FEET WEST-SOUTHWEST OF A POWER POLE, 49.5 FEET EAST OF INTERSTATE HIGHWAY 35, 53.75 FEET NORTH OF GREELY MNDT RM 2, 52.61 FEET WEST OF GREELY MNDT RM 1, 3.9 FEET SOUTHEAST 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
953.492	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
953.302	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
953.302	.016	2				VERTICAL CONTROL SURVEY	1971	L30 MINN
953.302	.016	2				VERTICAL CONTROL SURVEY	1971	L22190-3

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
953.525	.262		862.023	.197	2011	GPS - RTRN	2014	RTRN2014
			861.852	.022	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			861.967	.049	2007	HORIZONTAL ADJUSTMENT	2011	GPS2302-C
953.476	.131		861.967	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2523
953.476	.131		861.967	.066	2007	GPS - STATIC	2008	HCHIS
953.476	.131		862.108	.066	1996	GPS - STATIC	2008	HCHIS
			861.967	.013	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
953.492	.328		862.042	.328	1996	HORIZONTAL ADJUSTMENT	2006	GPS2302
953.312	.197		862.029	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -91.532 12B = -91.502 09 = -91.443 03 = -91.315

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 44 41.94674	92 59 21.88621	477170.741	105477.543	.131	3	GPS - RTRN	2014	RTRN2014
45 44 41.94711	92 59 21.88696	477170.687	105477.581	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 44 41.94710	92 59 21.88769	477170.636	105477.580	.016	B	ADJUSTMENT	2011	GPS2302-C
45 44 41.94710	92 59 21.88771	477170.634	105477.580	.033	C	ADJUSTMENT	2009	GPS2523
45 44 41.94710	92 59 21.88771	477170.634	105477.580	.033	C	GPS - STATIC	2008	HCHIS
45 44 41.94710	92 59 21.88771	477170.634	105477.580	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 44 41.94709	92 59 21.88711	477170.677	105477.579	.033	C	GPS - STATIC	2008	HCHIS
45 44 41.94709	92 59 21.88739	477170.657	105477.579	.328		ADJUSTMENT	2006	GPS2302
45 44 41.94650	92 59 21.88254	477171.001	105477.519	.033	C	GPS - STATIC	1999	GPS917
45 44 41.94650	92 59 21.88254	477171.001	105477.519	.066	2	ADJUSTMENT	1999	17648
45 44 41.94818	92 59 21.88595	477170.759	105477.689	.066	2	ADJUSTMENT	1991	17497

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 44 41.94269	92 59 21.88347	477170.935	105477.132	.033	C	GPS - STATIC	1994	HI35N
45 44 41.94739	92 59 21.88737	477170.659	105477.609	.066	2	ADJUSTMENT	1986	17289

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 44 42.09874	92 59 21.12631			.100	2	CLASSICAL SURVEY	1973	14930

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2946484.408	602306.014	1643118.586	16619764.296	.131	3	GPS - RTRN	2014	RTRN2014
2946484.354	602306.051	1643118.532	16619764.334	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2946484.303	602306.049	1643118.481	16619764.333	.016	B	ADJUSTMENT	2011	GPS2302-C
2946484.301	602306.049	1643118.479	16619764.333	.033	C	ADJUSTMENT	2009	GPS2523
2946484.301	602306.049	1643118.479	16619764.333	.033	C	GPS - STATIC	2008	HCHIS
2946484.301	602306.049	1643118.479	16619764.333	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2946484.344	602306.049	1643118.522	16619764.332	.033	C	GPS - STATIC	2008	HCHIS
2946484.324	602306.048	1643118.502	16619764.332	.328		ADJUSTMENT	2006	GPS2302
2946484.669	602305.994	1643118.846	16619764.272	.033	C	GPS - STATIC	1999	GPS917
2946484.669	602305.994	1643118.846	16619764.272	.066	2	ADJUSTMENT	1999	17648
2946484.424	602306.161	1643118.604	16619764.442	.066	2	ADJUSTMENT	1991	17497

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2946484.609	602305.607	1643118.780	16619763.886	.033	C	GPS - STATIC	1994	HI35N
2946484.325	602306.079	1643118.503	16619764.362	.066	2	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2321881.036	274237.022			.100	2	CLASSICAL SURVEY	1973	14930

GREELY MNDT

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/GREELY-QO0241-3S-12MAR2011.jpg	S	Mar 12, 2011
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/GREELY-QO0241-2-12MAR2011.jpg		Mar 12, 2011
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/GREELY-QO0241-1-12MAR2011.jpg		Mar 12, 2011

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

GREELY MNDT RM 1

Mn/DOT Name: GREELY MNDT RM 1 **NGS Name:** GREELY RM 1

County: PINE, MN (Sheet 1)

NGS ACRN: QO0242 Get Map
NGS Quad / Sta Num : 45092434/
USGS Quad: RUSH CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	29	38 N	21 W	454441.94	925921.15	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1964	2014	GOOD	Horz=YES Vert=YES	YES		FLUSH	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	MNDT

Description: (2007) **Stamping:** GREELY NO 1 1964

4.25 MILES NORTHWEST OF RUSH CITY, 4.25 MILES NORTH ON TRUNK HIGHWAY 361 FROM WEST 4TH STREET IN RUSH CITY, THEN 1.4 MILES WEST ON 550TH STREET, 25.0 FEET NORTH OF 550TH STREET, 46.2 FEET EAST OF A POWER POLE, 52.6 FEET EAST OF STATION GREELY MNDT, 2.0 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
954.257	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
954.066	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
954.066	.016	2				VERTICAL CONTROL SURVEY	1971	L30 MINN
954.066	.016	2				VERTICAL CONTROL SURVEY	1971	L22190-3

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
954.326	.262		862.830	.197	2011	GPS - RTRN	2014	RTRN2014

Geoid Separations(ft): GEOID18 = -91.529 12B = -91.499 09 = -91.440 03 = -91.312

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 44 41.93986	92 59 21.14514	477223.299	105476.787	.131	3	GPS - RTRN	2014	RTRN2014

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2946536.967	602306.154	1643171.121	16619763.607	.131	3	GPS - RTRN	2014	RTRN2014

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/GREELY_RM_1-QO0242-3S-12MAR2011.jpg	S	Mar 12, 2011
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/GREELY_RM_1-QO0242-2-12MAR2011.jpg		Mar 12, 2011
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/GREELY_RM_1-QO0242-1-12MAR2011.jpg		Mar 12, 2011

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

GREELY MNDT RM 2

Mn/DOT Name: GREELY MNDT RM 2 **NGS Name:** GREELY RM 2

County: PINE, MN (Sheet 1)

NGS ACRN: QO0243 Get Map
NGS Quad / Sta Num : 45092434/
USGS Quad: RUSH CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	32	38 N	21 W	454441.42	925921.90	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1964	2014	DESTROYED	Horz=NO Vert=NO	NO		PROJECTS 3 IN.	SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
UNKNOWN	SURVEY DISK	MNDT

Description: (1975) **Stamping:** GREELY NO. 2 1964

4.25 MILES NORTH ON TRUNK HIGHWAY 361 FROM MAIN STREET IN RUSH CITY, THEN 1.4 MILES WEST ON A TRAIL, 53.8 FEET SOUTH OF STATION GREELY MNDT, 24.0 FEET SOUTH OF A TRAIL, 56.6 FEET SOUTH OF A POWER POLE.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
954.572	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
954.381	.016	2				VERTICAL CONTROL SURVEY	1971	L30 MINN
954.381	.016	2				VERTICAL CONTROL SURVEY	1971	L22190-3

Geoid Separations(ft): GEOID18 = -91.532 12B = -91.502 09 = -91.443 03 = -91.315

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

GRINDSTONE MNDT

Mn/DOT Name: GRINDSTONE MNDT **NGS Name:** GRINDSTONE

County: PINE, MN (Sheet 1)

NGS ACRN: RN0611 Get Map
NGS Quad / Sta Num : 46092333/1038
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	13	41 N	21 W	460135.39	925618.99	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1964	2012	GOOD	Horz=YES Vert=YES	YES		FLUSH	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	TRAVERSE STATION DISK	MNDT

Description: (2008) **Stamping:** GRINDSTONE 1964

0.5 MILE NORTH OF HINCKLEY, 0.5 MILE WEST ALONG TRUNK HIGHWAY 23 FROM THE JUNCTION OF TRUNK HIGHWAY 23 AND INTERSTATE HIGHWAY 35, THEN 1.1 MILES NORTH ON COUNTY ROAD 61, 0.45 MILE NORTH OF GRINDSTONE RIVER, 83.81 FEET SOUTHEAST OF GRINDSTONE MNDT RM 2, 41.4 FEET EAST OF COUNTY ROAD 61, 8.9 FEET SOUTH-SOUTHWEST OF A FIELD ENTRANCE, 47.87 FEET SOUTHWEST OF GRINDSTONE MNDT RM 1, 2.0 FEET WEST 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
1038.348	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1038.059	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
1038.125	.016	2				VERTICAL CONTROL SURVEY	1974	L23306

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
			948.131	.007	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1038.351	.131		948.259	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2566
1038.351	.131		948.371	.066	1996	GPS - STATIC	2009	HMOOSE
1038.351	.131		948.259	.066	2007	GPS - STATIC	2009	HMOOSE
1038.164	.262		948.200	.197	1996	GPS - RTRN	2008	RTRN2008
			948.259	.010	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
			948.371	.066	1996	GPS - STATIC	1999	GPS917
1038.351	.131		948.371	.066	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -90.210 12B = -90.213 09 = -90.088 03 = -89.964

GRINDSTONE MNDT

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 01 35.39506	92 56 18.98838	490192.297	208129.254	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 01 35.39486	92 56 18.98876	490192.270	208129.233	.033	C	ADJUSTMENT	2009	GPS2566
46 01 35.39486	92 56 18.98876	490192.270	208129.233	.033	C	GPS - STATIC	2009	HMOOSE
46 01 35.39486	92 56 18.98876	490192.270	208129.233	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 01 35.39483	92 56 18.98839	490192.296	208129.230	.033	C	GPS - STATIC	2009	HMOOSE
46 01 35.39494	92 56 18.98855	490192.285	208129.242	.131	3	GPS - RTRN	2008	RTRN2008
46 01 35.39483	92 56 18.98839	490192.297	208129.229	.033	C	GPS - STATIC	1999	GPS917
46 01 35.39483	92 56 18.98839	490192.296	208129.230	.033	C	ADJUSTMENT	1999	17648
46 01 35.39185	92 56 18.98259	490192.705	208128.928	.066	2	ADJUSTMENT	1991	17497

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 01 35.38884	92 56 18.98283	490192.688	208128.622	.033	C	GPS - STATIC	1994	HI35N
46 01 35.39170	92 56 18.98273	490192.695	208128.913	.066	2	ADJUSTMENT	1986	17289

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 01 35.57200	92 56 18.24500			.100	2	CLASSICAL SURVEY	1982	17020
46 01 35.57157	92 56 18.24544			.100	C	CLASSICAL SURVEY	1950	UNK

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2957753.805	705154.905	1656005.427	16722386.207	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2957753.778	705154.885	1656005.401	16722386.187	.033	C	ADJUSTMENT	2009	GPS2566
2957753.778	705154.885	1656005.401	16722386.187	.033	C	GPS - STATIC	2009	HMOOSE
2957753.778	705154.885	1656005.401	16722386.187	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2957753.804	705154.882	1656005.427	16722386.184	.033	C	GPS - STATIC	2009	HMOOSE
2957753.793	705154.893	1656005.416	16722386.195	.131	3	GPS - RTRN	2008	RTRN2008
2957753.804	705154.882	1656005.427	16722386.184	.033	C	GPS - STATIC	1999	GPS917
2957753.804	705154.882	1656005.427	16722386.184	.033	C	ADJUSTMENT	1999	17648
2957754.219	705154.587	1656005.836	16722385.883	.066	2	ADJUSTMENT	1991	17497

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2957754.207	705154.282	1656005.820	16722385.578	.033	C	GPS - STATIC	1994	HI35N
2957754.209	705154.572	1656005.826	16722385.867	.066	2	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2333149.341	377087.812			.100	2	CLASSICAL SURVEY	1982	17020
2333149.310	377087.770			.100	C	CLASSICAL SURVEY	1950	UNK

GRINDSTONE MNDT

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/GRINDSTONE-RN0611-3E-12NOV2008.jpg	E	Nov 12, 2008
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/GRINDSTONE-RN0611-2-12NOV2008.jpg		Nov 12, 2008
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/GRINDSTONE-RN0611-1-12NOV2008.jpg		Nov 12, 2008

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

GRINDSTONE MNDT RM 1

Mn/DOT Name: GRINDSTONE MNDT RM 1 **NGS Name:** GRINDSTONE RM 1

County: PINE, MN (Sheet 1)

NGS ACRN: CJ2589 Get Map
NGS Quad / Sta Num : 46092333/1038
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	13	41 N	21 W	460135.83	925618.71		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1964	2007	NOT FOUND	Horz=NO Vert=NO	NO		PROJECTS 2 IN.	SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	MNDT

Description: (1964) **Stamping:** GRINDSTONE NO 1 1964

0.5 MILE NORTH OF HINCKLEY, 0.5 MILE WEST ALONG TRUNK HIGHWAY 23 FROM THE JUNCTION OF TRUNK HIGHWAY 23 AND INTERSTATE HIGHWAY 35, THEN 1.05 MILES NORTH ON COUNTY ROAD 61, 0.45 MILE NORTH OF GRINDSTONE RIVER, 42.9 FEET EAST-SOUTHEAST OF THE CENTERLINE OF TRUNK HIGHWAY 61, 38.9 FEET NORTH-NORTHEAST OF THE CENTERLINE OF A FIELD ENTRANCE, 5.4 FEET WEST OF A FENCE.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.210 12B = -90.213 09 = -90.088 03 = -89.964

GRINDSTONE MNDT RM 2

Mn/DOT Name: GRINDSTONE MNDT RM 2 **NGS Name:** GRINDSTONE RM 2

County: PINE, MN (Sheet 1)

NGS ACRN: CJ2590 Get Map
NGS Quad / Sta Num : 46092333/1038
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	13	41 N	21 W	460135.71	925620.09		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1964	2007	NOT FOUND	Horz=? Vert=YES	NO		FLUSH	SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	MNDT

Description: (1964) **Stamping:** GRINDSTONE NO 2 1964

0.5 MILE NORTH OF HINCKLEY, 0.5 MILE WEST ALONG TRUNK HIGHWAY 23 FROM THE JUNCTION OF TRUNK HIGHWAY 23 AND INTERSTATE HIGHWAY 35, THEN 1.05 MILES NORTH ON COUNTY ROAD 61, 0.45 MILE NORTH OF GRINDSTONE RIVER, 42.3 FEET WEST-NORTHWEST OF THE CENTERLINE OF TRUNK HIGHWAY 61, 12.1 FEET SOUTH OF THE CENTERLINE OF A DRIVEWAY, 59.0 FEET SOUTHEAST OF A 30.0 INCH DIAMETER ELM TREE.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.216 12B = -90.220 09 = -90.095 03 = -89.970

H 60

Mn/DOT Name: H 60 **NGS Name:** H 60

County: PINE, MN (Sheet 1)

NGS ACRN: QO0379 Get Map
NGS Quad / Sta Num : 45093111/
USGS Quad: BROOK PARK

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	15	40 N	22 W	455654.00	930446.00	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1934	1954	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	NGS

Description: (1934) **Stamping:**

IN BROOK PARK, 175.5 FEET WEST OF THE WEST SIDE OF THE BROOK PARK DEPOT, 24.0 FEET SOUTH OF THE SOUTH TRACK OF THE GREAT NORTHERN RAILROAD, 9.0 FEET NORTH OF A TELEPHONE POLE.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1030.887	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

Geoid Separations(ft): GEOID18 = -91.082 12B = -91.066 09 = -90.981 03 = -90.827

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

HEIDEL

Mn/DOT Name: HEIDEL **NGS Name:** HEIDEL

County: PINE, MN (Sheet 1)

NGS ACRN: DQ7340 Get Map
NGS Quad / Sta Num : 45093112/
USGS Quad: HENRIETTE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	23	38 N	22 W	454535.34	930254.37	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2017	2017	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: (2017) **Stamping:** HEIDEL 2017

4.3 MILES WEST OF ROCK CREEK, 2.95 MILES WEST ALONG TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 70 AND INTERSTATE HIGHWAY 35 IN ROCK CREEK, AT TRUNK HIGHWAY 70 MILEPOINT 15.75, 62.8 FEET NORTH OF TRUNK HIGHWAY 70, 23.1 FEET EAST SOUTHEAST OF A POWER POLE, 12.3 FEET SOUTH OF A FENCE LINE, 11.6 FEET SOUTH OF A WITNESS POST.

Station Pair: ROYAL MNDT RM 2 - PINE, MN

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
980.192	.016	2/1				VERTICAL ADJUSTMENT	2021	00000963
980.192	.016	2/1				VERTICAL CONTROL SURVEY	2017	VRCRK

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
980.201	.262		888.276	.197	2011	GPS - RTRN	2017	RTRN2017

Geoid Separations(ft): GEOID18 = -91.936 12B = -91.926 09 = -91.837 03 = -91.689

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 35.34228	93 02 54.37201	462110.635	110908.947	.131	3	GPS - RTRN	2017	RTRN2017

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2931335.239	607479.610	1628058.560	16625174.265	.131	3	GPS - RTRN	2017	RTRN2017

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/HEIDEL-DQ7340-3N-30NOV1999.jpg	N	Nov 30, 1999
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/HEIDEL-DQ7340-2-30NOV1999.jpg		Nov 30, 1999
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/HEIDEL-DQ7340-1-30NOV1999.jpg		Nov 30, 1999

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

HENRIETTE

Mn/DOT Name: HENRIETTE **NGS Name:** HENRIETTE

County: PINE, MN (Sheet 1)

NGS ACRN: QO1584 Get Map
NGS Quad / Sta Num : 45093112/1002
USGS Quad: HENRIETTE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	17	39 N	22 W	455216.70	930702.59	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2010	GOOD	Horz=YES Vert=YES	YES		FLUSH	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	NGS

Description: (2008) **Stamping:** HENRIETTE 1961

AT THE NORTH EDGE OF VILLAGE PARK IN HENRIETTE, 0.35 MILE EAST ALONG COUNTY ROAD 11 (POKEGAMA AVENUE) FROM THE JUNCTION OF COUNTY ROAD 11 AND TRUNK HIGHWAY 107 IN HENRIETTE, TO TRUNK HIGHWAY 107 MILEPOINT 12.25, THEN 0.05 MILE SOUTH ON COUNTY ROAD 12 (MAIN STREET), 72.5 FEET EAST OF COUNTY ROAD 12, 54.0 FEET WEST OF THE WEST RAIL OF THE MAIN RAILROAD TRACKS, 47.21 FEET SOUTHEAST OF HENRIETTE RM 1, 2.0 FEET WEST 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
997.016	.016	2/1				VERTICAL ADJUSTMENT	2012	00000745
997.009	.016	2/1				VERTICAL CONTROL SURVEY	2010	VBRAH

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
			905.395	.006	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
997.012	.131		905.471	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2747
997.012	.131		905.471	.066	2007	GPS - STATIC	2010	HBRAH
997.012	.131		905.582	.066	1996	GPS - STATIC	2010	HBRAH
			905.471	.009	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
996.947	.131		905.582	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1924
996.980	.131		905.582	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1839
996.947	.131		905.582	.066	1996	GPS - STATIC	2003	HKANA
996.980	.131		905.582	.066	1996	GPS - STATIC	2002	HPINE
997.373	.262		905.992	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
997.406						RECIPROCAL VERTICAL ANGLE	1961	HORZ

Geoid Separations(ft): GEOID18 = -91.624 12B = -91.617 09 = -91.525 03 = -91.378

HENRIETTE

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 52 16.69742	93 07 02.58930	444622.060	151606.136	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 52 16.69741	93 07 02.58985	444622.021	151606.135	.033	C	ADJUSTMENT	2011	GPS2747
45 52 16.69741	93 07 02.58985	444622.021	151606.135	.033	C	GPS - STATIC	2010	HBRAH
45 52 16.69741	93 07 02.58985	444622.021	151606.135	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 52 16.69731	93 07 02.58950	444622.045	151606.125	.033	C	GPS - STATIC	2010	HBRAH
45 52 16.69731	93 07 02.58950	444622.045	151606.125	.033	C	ADJUSTMENT	2003	GPS1924
45 52 16.69731	93 07 02.58950	444622.045	151606.125	.033	C	ADJUSTMENT	2003	GPS1839
45 52 16.69731	93 07 02.58950	444622.045	151606.125	.033	C	GPS - STATIC	2003	HKANA
45 52 16.69731	93 07 02.58950	444622.045	151606.125	.033	C	GPS - STATIC	2002	HPINE
45 52 16.69708	93 07 02.59156	444621.899	151606.102	.131	3	ADJUSTMENT	1999	17648

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 52 16.69112	93 07 02.58745	444622.189	151605.497	.131	3	ADJUSTMENT	1986	17289

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 52 16.85040	93 07 01.81180			.100	3	CLASSICAL SURVEY	1961	12611

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2913157.614	647869.374	1610526.592	16665830.965	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2913157.575	647869.372	1610526.553	16665830.964	.033	C	ADJUSTMENT	2011	GPS2747
2913157.575	647869.372	1610526.553	16665830.964	.033	C	GPS - STATIC	2010	HBRAH
2913157.575	647869.372	1610526.553	16665830.964	.013		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2913157.600	647869.362	1610526.577	16665830.953	.033	C	GPS - STATIC	2010	HBRAH
2913157.600	647869.362	1610526.577	16665830.953	.033	C	ADJUSTMENT	2003	GPS1924
2913157.600	647869.362	1610526.577	16665830.953	.033	C	ADJUSTMENT	2003	GPS1839
2913157.600	647869.362	1610526.578	16665830.953	.033	C	GPS - STATIC	2003	HKANA
2913157.600	647869.362	1610526.577	16665830.953	.033	C	GPS - STATIC	2002	HPINE
2913157.455	647869.337	1610526.432	16665830.930	.131	3	ADJUSTMENT	1999	17648

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2913157.754	647868.737	1610526.722	16665830.326	.131	3	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2288554.414	319800.099			.100	3	CLASSICAL SURVEY	1961	12611

HENRIETTE

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/HENRIETTE-QO1584-3E-10APR2007.jpg	E	Apr 10, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/HENRIETTE-QO1584-2-10APR2007.jpg		Apr 10, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/HENRIETTE-QO1584-1-15APR2010.jpg		Apr 15, 2010

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

HENRIETTE AZ MK

Mn/DOT Name: HENRIETTE AZ MK

NGS Name: HENRIETTE AZ MK

County: PINE, MN (Sheet 1)

NGS ACRN: CJ3580 Get Map
NGS Quad / Sta Num : 45093112/1002
USGS Quad: HENRIETTE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	17	39 N	22 W	455219.10	930656.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2010	NOT FOUND	Horz=? Vert=YES	NO		FLUSH	SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
UNKNOWN	AZIMUTH MARK DISK	MNDT

Description:

Stamping: HENRIETTE 1961

AT THE NORTH EDGE OF VILLAGE PARK IN HENRIETTE, 492.0 FEET EAST ALONG COUNTY ROAD 11 (POKEGAMA AVENUE) FROM THE JUNCTION OF COUNTY ROAD 11 AND MAIN STREET IN HENRIETTE, 43.0 FEET NORTH OF THE CENTERLINE OF COUNTY ROAD 11, 30.0 FEET WEST OF THE CENTERLINE OF A DRIVEWAY.

Station Notes

IN 10-02-2008 COULD NOT FIND TIES.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -91.614 12B = -91.607 09 = -91.516 03 = -91.368

HENRIETTE RM 1

Mn/DOT Name: HENRIETTE RM 1 **NGS Name:** HENRIETTE RM 1

County: PINE, MN (Sheet 1)

NGS ACRN: CJ3581 Get Map
NGS Quad / Sta Num : 45093112/1002
USGS Quad: HENRIETTE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	17	39 N	22 W	455216.99	930703.11	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2010	GOOD	Horz=NO Vert=YES	YES		RECESSED 3 IN.	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description: (2008) **Stamping:** HENRIETTE NO 1 1961

AT NORTH EDGE OF VILLAGE PARK IN HENRIETTE, 0.35 MILE EAST ALONG COUNTY ROAD 11 (POKEGAMA AVENUE) FROM THE JUNCTION OF COUNTY ROAD 11 AND TRUNK HIGHWAY 107 IN HENRIETTE TO TRUNK HIGHWAY 107 MILEPOINT 12.25, THEN 0.05 MILE SOUTH ON COUNTY ROAD 12 (MAIN STREET), 97.0 FEET WEST OF THE WEST RAIL OF MAIN RAILROAD TRACKS, 47.21 FEET NORTHWEST OF STATION HENRIETTE, 29.0 FEET EAST OF COUNTY ROAD 12, 7.0 FEET SOUTH 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
997.154	.016	2/1				VERTICAL ADJUSTMENT	2012	00000745
997.150	.016	2/1				VERTICAL CONTROL SURVEY	2010	VBRAH

Geoid Separations(ft): GEOID18 = -91.624 12B = -91.617 09 = -91.525 03 = -91.378

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

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/HENRIETTE_RM_1-CJ3581-3N-28APR2010.jpg	N	Apr 28, 2010
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/HENRIETTE_RM_1-CJ3581-2-28APR2010.jpg		Apr 28, 2010
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/HENRIETTE_RM_1-CJ3581-1-28APR2010.jpg		Apr 28, 2010

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

Mn/DOT Name: HERE
NGS Name: HERE
County: PINE, MN (Sheet 1)

NGS ACRN: DL4752 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	25	41 N	21 W	455953.55	925617.81	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2008	2012	GOOD	Horz=NO Vert=NO	YES		FLUSH	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 35 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2008) **Stamping:** HERE 2008

1.0 MILE SOUTHEAST OF HINCKLEY, 0.9 MILE SOUTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 48 IN HINCKLEY, AT INTERSTATE HIGHWAY 35 MILEPOINT 182.15, 47.5 FEET NORTHWEST OF NORTHBOUND INTERSTATE HIGHWAY 35, 38.4 FEET SOUTHEAST OF SOUTHBOUND INTERSTATE HIGHWAY 35, 2.7 FEET NORTHEAST OF A WITNESS POST.

Station Notes
FOUND CAP LOOSE. USE WITH CAUTION.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1012.715	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1012.711	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
1012.711	.016	2/1				VERTICAL CONTROL SURVEY	2009	VMOOSE

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
1012.728			922.498	.006	2011	HORIZONTAL ADJUSTMENT	2015	GPS3071
1012.728			922.508	.006	2011	GPS - STATIC	2015	HCLVR
1012.728	.131		922.626	.066	2007	GPS - STATIC	2012	HCLVR
1012.728	.131		922.744	.066	1996	GPS - STATIC	2012	HCLVR
1012.610	.262		922.521	.197	2007	GPS - RTRN	2012	RTRN2012
			922.498	.006	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1012.685	.262		922.600	.197	2007	GPS - RTRN	2012	RTRN2012
1012.728	.131		922.606	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2566
1012.695	.131		922.747	.066	1996	GPS - STATIC	2009	HMOOSE
1012.695	.131		922.606	.066	2007	GPS - STATIC	2009	HMOOSE

Geoid Separations(ft): GEOID18 = -90.207 12B = -90.200 09 = -90.085 03 = -89.967

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 59 53.55478	92 56 17.80572	490270.787	197812.640	.007		ADJUSTMENT	2015	GPS3071
45 59 53.55475	92 56 17.80590	490270.774	197812.637	.007	C	GPS - STATIC	2015	HCLVR
45 59 53.55478	92 56 17.80572	490270.787	197812.640	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 59 53.55471	92 56 17.80619	490270.754	197812.633	.033	C	GPS - STATIC	2012	HCLVR
45 59 53.55442	92 56 17.80739	490270.669	197812.604	.131	3	GPS - RTRN	2012	RTRN2012
45 59 53.55409	92 56 17.80702	490270.695	197812.571	.131	3	GPS - RTRN	2012	RTRN2012
45 59 53.55471	92 56 17.80619	490270.754	197812.633	.033	C	ADJUSTMENT	2009	GPS2566
45 59 53.55471	92 56 17.80619	490270.754	197812.633	.033	C	GPS - STATIC	2009	HMOOSE

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 59 53.55465	92 56 17.80575	490270.785	197812.627	.033	C	GPS - STATIC	2012	HCLVR
45 59 53.55465	92 56 17.80575	490270.785	197812.627	.033	C	GPS - STATIC	2009	HMOOSE

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2958008.067	694842.213	1656096.837	16712074.268	.007		ADJUSTMENT	2015	GPS3071
2958008.054	694842.210	1656096.825	16712074.265	.007	C	GPS - STATIC	2015	HCLVR
2958008.067	694842.213	1656096.837	16712074.268	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2958008.034	694842.205	1656096.804	16712074.261	.033	C	GPS - STATIC	2012	HCLVR
2958007.950	694842.175	1656096.719	16712074.232	.131	3	GPS - RTRN	2012	RTRN2012
2958007.976	694842.142	1656096.746	16712074.198	.131	3	GPS - RTRN	2012	RTRN2012
2958008.034	694842.205	1656096.804	16712074.261	.033	C	ADJUSTMENT	2009	GPS2566
2958008.034	694842.205	1656096.804	16712074.261	.033	C	GPS - STATIC	2009	HMOOSE

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2958008.065	694842.200	1656096.835	16712074.255	.033	C	GPS - STATIC	2012	HCLVR
2958008.065	694842.200	1656096.835	16712074.255	.033	C	GPS - STATIC	2009	HMOOSE

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/HERE-DL4752-3S-01MAY2012.jpg	S	May 1, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/HERE-DL4752-2-01MAY2012.jpg		May 1, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/HERE-DL4752-1-01MAY2012.jpg		May 1, 2012

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

HINC VRS

Mn/DOT Name: HINC VRS
NGS Name: HINC VRS
County: PINE, MN (Sheet 1)

NGS ACRN: DI9514 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	36	41 N	21 W	455905.66	925653.94	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2004	2012	GOOD	Horz=NO Vert=YES	YES		FLUSH	NO MAG MATERIAL

Monument Type	Disk Type	Mon. Agency
BRIDGE PILLAR/PIER	SURVEY DISK	MNDT

Description: (2008) **Stamping:** HINC VRS 2004

1.8 MILES SOUTH OF HINCKLEY, 0.15 MILE EAST ALONG COUNTY ROAD 61 FROM THE JUNCTION OF COUNTY ROAD 61 AND INTERSTATE HIGHWAY 35 IN HINCKLEY, THEN 0.43 MILE NORTH AND EAST ALONG COUNTY ROAD 61, THEN 0.15 MILE NORTH ALONG SEASONAL SERVICE ROAD, AT INTERSTATE HIGHWAY 35 MILEPOINT 181.0, 68.0 FEET EAST OF INTERSTATE HIGHWAY 35 NORTHBOUND LANE, 37.6 FEET WEST OF A FENCE CORNER, 31.5 FEET SOUTH OF THE SOUTHEAST CORNER OF ELECTRICAL BOX NUMBER 240120.

Station Notes
THE MARK IS LOCATED AT THE BASE OF THE MNCORS STATION.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1031.373	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1031.373	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
1031.373	.016	2/1				VERTICAL CONTROL SURVEY	2009	VMOOSE
1031.373	.016	2/1				VERTICAL ADJUSTMENT	2008	00000561
1031.373	.016	2/1				VERTICAL CONTROL SURVEY	2005	VHINC

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
1031.241	.262		941.196	.197	1996	GPS - RTRN	2008	RTRN2008

Geoid Separations(ft): GEOID18 = -90.282 12B = -90.275 09 = -90.167 03 = -90.042

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 59 05.66398	92 56 53.94203	487716.583	192962.635	.131	3	GPS - RTRN	2008	RTRN2008

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2955537.140	689949.892	1653549.857	16707223.210	.131	3	GPS - RTRN	2008	RTRN2008

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/HINC_VRS-DI9514-3NE-10NOV2008.jpg	NE	Nov 10, 2008
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/HINC_VRS-DI9514-2-10NOV2008.jpg		Nov 10, 2008
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/HINC_VRS-DI9514-1-10NOV2008.jpg		Nov 10, 2008

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

HINCK

Mn/DOT Name: HINCK
NGS Name: HINCK
County: PINE, MN (Sheet 1)

NGS ACRN: RN1629 Get Map
NGS Quad / Sta Num : 46092333/1007
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	22	41 N	21 W	460106.30	925830.12		3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2008	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	NGS

Description: (1971) **Stamping:** HINCK 1961

2.0 MILES WEST OF HINCKLEY, 1.6 MILES WEST ALONG COUNTY ROAD 18 FROM THE JUNCTION OF COUNTY ROAD 18 AND COUNTY ROAD 61 HINCKLEY, 144.0 FEET WEST OF COUNTY ROAD 18 AND A DRIVEWAY, 134.4 FEET WEST OF HINCK RM 1, 79.47 FEET NORTHWEST OF HINCK RM 2, 37.0 FEET NORTH OF COUNTY ROAD 18, 11.0 FEET NORTH OF A POWER POLE, 12.0 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
1059.709	.262		969.522	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -90.426 12B = -90.423 09 = -90.305 03 = -90.164

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 01 06.29717	92 58 30.11649	480936.475	205188.199	.131	3	ADJUSTMENT	1999	17648

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 01 06.29117	92 58 30.11089	480936.870	205187.591	.131	3	ADJUSTMENT	1986	17289

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 01 06.46560	92 58 29.37720			.100	3	CLASSICAL SURVEY	1961	12611

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2948550.420	702056.883	1646757.405	16719434.832	.131	3	ADJUSTMENT	1999	17648

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2948550.825	702056.281	1646757.800	16719434.224	.131	3	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2323945.418	373988.912			.100	3	CLASSICAL SURVEY	1961	12611

HINCK AZ MK

Mn/DOT Name: HINCK AZ MK

NGS Name: HINCK AZ MK

County: PINE, MN (Sheet 1)

NGS ACRN: CJ3073 Get Map
NGS Quad / Sta Num : 46092333/1007
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	23	41 N	21 W	460106.00	925741.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2008	NOT FOUND	Horz=? Vert=YES	NO		PROJECTS 6 IN.	SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	NGS

Description: (1961) **Stamping:** HINCK 1961

1.0 MILE WEST OF HINCKLEY, 0.2 MILE NORTH ON COUNTY ROAD 61 FROM A RAILROAD DEPOT, THEN 0.9 MILE WEST ON COUNTY ROAD 18, 34.0 FEET SOUTH OF THE CENTERLINE OF A PAVED ROAD, 1.0 FOOT SOUTH OF A WITNESS POST.

Station Notes

IN 10-02-2008 NOTED THAT THE ROAD HAS BEEN WIDENED.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.344 12B = -90.348 09 = -90.226 03 = -90.092

HINCK RM 1

Mn/DOT Name: HINCK RM 1 **NGS Name:** HINCK RM 1

County: PINE, MN (Sheet 1)

NGS ACRN: CJ3074 Get Map
NGS Quad / Sta Num : 46092333/1007
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	22	41 N	21 W	460106.00	925824.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2008	NOT FOUND	Horz=? Vert=YES	NO		FLUSH	SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description: (1961) **Stamping:** HINCK NO 1 1961

1.5 MILES NORTHWEST OF HINCKLEY, 1.5 MILES WEST ALONG COUNTY ROAD 18 FROM THE JUNCTION OF COUNTY ROAD 18 AND COUNTY ROAD 61 IN HINCKLEY, 36.0 FEET NORTH OF THE CENTERLINE OF A PAVED ROAD, 10.0 FEET NORTHEAST OF THE WEST END OF A ROUND CONCRETE CULVERT, 134.0 FEET EAST OF A WITNESS POST.

Station Notes

IN 10-02-2008 NOTES THAT THE ROAD HAS BEEN WIDENED.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.416 12B = -90.413 09 = -90.295 03 = -90.154

HINCK RM 2

Mn/DOT Name: HINCK RM 2 **NGS Name:** HINCK RM 2

County: PINE, MN (Sheet 1)

NGS ACRN: CJ3075 Get Map
NGS Quad / Sta Num : 46092333/1007
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	22	41 N	21 W	460106.00	925830.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2008	NOT FOUND	Horz=? Vert=YES	NO		FLUSH	SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description: (1961) **Stamping:** HINCK NO 2 1961

1.5 MILES NORTHWEST OF HINCKLEY, 1.5 MILES WEST ALONG COUNTY ROAD 18 FROM THE JUNCTION OF COUNTY ROAD 18 AND COUNTY ROAD 61 IN HINCKLEY, 112.0 FEET WEST OF THE CENTERLINE OF A DRIVEWAY, 40.0 FEET SOUTH OF THE CENTERLINE OF THE PAVED ROAD, 68.0 FEET SOUTHEAST OF A WITNESS POST.

Station Notes

IN 10-02-2008 NOTED THAT THE ROAD HAS BEEN WIDENED.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.426 12B = -90.420 09 = -90.305 03 = -90.164

HINCKLEY

Mn/DOT Name: HINCKLEY
NGS Name: HINCKLEY
County: PINE, MN (Sheet 1)

NGS ACRN: RN1632 Get Map
NGS Quad / Sta Num : 46092333/1006
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	7	41 N	20 W	460233.37	925545.42		2

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	1971	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	NGS

Description: (1971) **Stamping:** HINCKLEY 1961

2.27 MILES NORTHEAST OF HINCKLEY, 1.3 MILES NORTHEAST ALONG COUNTY ROAD 61 FROM THE JUNCTION OF COUNTY ROAD 61 AND 7TH STREET NORTHWEST IN HINCKLEY.

*** 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
1101.048	.197		1011.117	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1100.687						RECIPROCAL VERTICAL ANGLE	1961	HORZ

Geoid Separations(ft): GEOID18 = -90.161 12B = -90.170 09 = -90.046 03 = -89.921

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 02 33.36853	92 55 45.41786	492563.360	214001.063	.066	2	ADJUSTMENT	1999	17648

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 02 33.36231	92 55 45.41228	492563.753	214000.433	.066	2	ADJUSTMENT	1986	17289

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 02 33.54340	92 55 44.67770			.100	2	CLASSICAL SURVEY	1961	12611

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2960024.214	711065.637	1658368.064	16728258.393	.066	2	ADJUSTMENT	1999	17648

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2960024.618	711065.014	1658368.459	16728257.764	.066	2	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2335419.581	382998.302			.100	2	CLASSICAL SURVEY	1961	12611

HINCKLEY AZ MK

Mn/DOT Name: HINCKLEY AZ MK
NGS Name: HINCKLEY AZ MK
County: PINE, MN (Sheet 1)

NGS ACRN: CJ3076 Get Map
NGS Quad / Sta Num : 46092333/1006
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	7	41 N	20 W	460231.00	925547.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2008	NOT FOUND	Horz=? Vert=YES	NO		PROJECTS 4 IN.	SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	NGS

Description: (2008) **Stamping:** HINCKLEY 1961

2.3 MILES NORTH-NORTHEAST OF HINCKLEY, 1.8 MILES NORTH-NORTHEAST ALONG COUNTY ROAD 61 FROM THE JUNCTION OF COUNTY ROAD 61 AND COUNTY ROAD 18 IN HINCKLEY, 47.0 FEET EAST OF THE CENTERLINE OF COUNTY ROAD 61, 1.0 FOOT WEST OF A WIRE FENCE, 2.0 FEET NORTH OF A WITNESS POST.

Station Notes

IN 10-02-2008 DETERMINED THAT NATIONAL GEODETIC SURVEY (NGS) DISTANCES TO HINCKLEY AZ MK SHOULD BE CHECKED FROM HINCKLEY RM1, HINCKLEY RM 2 AND STATION HINCKLEY.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.164 12B = -90.170 09 = -90.046 03 = -89.921

HINCKLEY MUNICIPAL TANK

Mn/DOT Name: HINCKLEY MUNICIPAL TANK
NGS Name: HINCKLEY MUNICIPAL TANK
County: PINE, MN (Sheet 1)

NGS ACRN: RN1630 Get Map
NGS Quad / Sta Num : 46092333/1025
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	24	41 N	21 W	460050.96	925630.24		4

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1934	2008	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
SEE DESCRIPTIVE TEXT	ELEVATED TANK	NGS

Description: (1961)

Stamping:

IN HINCKLEY, 230.0 FEET NORTH ALONG LAWLER AVENUE S FROM THE JUNCTION OF LAWLER AVENUE SOUTH AND 2ND STREET SOUTHEAST IN HINCKLEY.

*** No Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.223 12B = -90.226 09 = -90.105 03 = -89.983

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 50.96190	92 56 30.24166	489395.849	203628.504	.328	4	ADJUSTMENT	1999	17648
46 00 50.95651	92 56 30.23669	489396.199	203627.957	.328	4	ADJUSTMENT	1991	17497

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 50.95633	92 56 30.23713	489396.169	203627.939	.328	4	ADJUSTMENT	1986	17289

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 51.13700	92 56 29.50900			.100	3	CLASSICAL SURVEY	1965	USGS-HORZ
46 00 51.13000	92 56 29.50200			.100	4	CLASSICAL SURVEY	1961	12611

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2957034.248	700641.714	1655214.985	16717886.453	.328	4	ADJUSTMENT	1999	17648
2957034.607	700641.174	1655215.336	16717885.907	.328	4	ADJUSTMENT	1991	17497

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2957034.576	700641.155	1655215.305	16717885.889	.328	4	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2332429.019	372574.446			.100	3	CLASSICAL SURVEY	1965	USGS-HORZ
2332429.524	372573.745			.100	4	CLASSICAL SURVEY	1961	12611

HINCKLEY RM 1

Mn/DOT Name: HINCKLEY RM 1 **NGS Name:** HINCKLEY RM 1

County: PINE, MN (Sheet 1)

NGS ACRN: CJ3077 Get Map
NGS Quad / Sta Num : 46092333/1006
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	7	41 N	20 W	460232.60	925544.75		3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2008	GOOD	Horz=YES Vert=YES	YES		PROJECTS 6 IN.	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description: (2008) **Stamping:** HINCKLEY NO 1 1961

2.23 MILES NORTH-NORTHEAST OF HINCKLEY, 1.2 MILES NORTH ALONG COUNTY ROAD 61 FROM THE JUNCTION OF COUNTY ROAD 61 AND 7TH STREET NORTHWEST IN HINCKLEY, 160.0 FEET EAST-SOUTHEAST OF COUNTY ROAD 61, 115.0 FEET WEST OF A FENCE LINE, 30.0 FEET SOUTH OF A FENCE CORNER, 86.0 FEET EAST OF A WITNESS POST.

Station Notes

NOTE: THE STATION IS IN A "FENCED IN" AREA FOR A HOUSE (FIRE NUMBER 43358). THERE WAS NO 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
1095.014	.262		1005.096	.197	1996	GPS - RTRN	2008	RTRN2008

Geoid Separations(ft): GEOID18 = -90.161 12B = -90.167 09 = -90.042 03 = -89.918

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 02 32.60466	92 55 44.75197	492610.306	213923.665	.131	3	GPS - RTRN	2008	RTRN2008

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2960072.468	710989.058	1658415.088	16728181.088	.131	3	GPS - RTRN	2008	RTRN2008

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/HINCKLEY_RM_1-CJ3077-3N-02OCT2008.jpg	N	Oct 2, 2008
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/HINCKLEY_RM_1-CJ3077-2-02OCT2008.jpg		Oct 2, 2008
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/HINCKLEY_RM_1-CJ3077-1-02OCT2008.jpg		Oct 2, 2008

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

HINCKLEY RM 2

Mn/DOT Name: HINCKLEY RM 2 **NGS Name:** HINCKLEY RM 2

County: PINE, MN (Sheet 1)

NGS ACRN: CJ3078 Get Map
NGS Quad / Sta Num : 46092333/1006
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	7	41 N	20 W	460232.62	925545.95		3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2008	GOOD	Horz=YES Vert=YES	YES		PROJECTS 4 IN.	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description: (2008) **Stamping:** HINCKLEY NO 2 1961

2.2 MILES NORTH-NORTHEAST OF HINCKLEY, 1.2 MILES NORTH-NORTHEAST ALONG COUNTY ROAD 61 FROM THE JUNCTION OF COUNTY ROAD 61 AND 7TH STREET NORTHWEST IN HINCKLEY, 85.0 FEET WEST OF HINCKLEY RM 1, 72.0 FEET EAST OF THE CENTERLINE OF A HIGHWAY, 70.2 FEET SOUTHEAST OF A FENCE CORNER, 52.1 FEET SOUTHWEST OF THE SOUTHWEST CORNER OF A SHED, 30.5 FEET NORTHEAST OF 24.0 INCH DIAMETER PINE TREE, 24.0 FEET EAST OF A FENCE LINE, 2.0 FEET SOUTHEAST OF A WITNESS POST.

Station Notes

NOTE: STATION IS IN A "FENCED IN" AREA FOR A HOUSE (FIRE NUMBER 43358).

*** 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
1096.395	.262		1006.474	.197	1996	GPS - RTRN	2008	RTRN2008

Geoid Separations(ft): GEOID18 = -90.164 12B = -90.170 09 = -90.046 03 = -89.921

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 02 32.61690	92 55 45.95366	492525.534	213924.936	.131	3	GPS - RTRN	2008	RTRN2008

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2959987.695	710988.884	1658330.351	16728182.252	.131	3	GPS - RTRN	2008	RTRN2008

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/HINCKLEY_RM_2-CJ3078-3N-12NOV2008.jpg	N	Nov 12, 2008
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/HINCKLEY_RM_2-CJ3078-2-12NOV2008.jpg		Nov 12, 2008
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/HINCKLEY_RM_2-CJ3078-1-02OCT2008.jpg		Oct 2, 2008

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

HULT MNDT

Mn/DOT Name: HULT MNDT **NGS Name:** HULT

County: PINE, MN (Sheet 1)

NGS ACRN: QO1580 Get Map
NGS Quad / Sta Num : 45092443/1040
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	5	38 N	21 W	454833.46	925924.22		2

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1964	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
UNKNOWN	UNSPECIFIC DISK TYPE (SEE TEXT)	MNDT

Description: (1984) **Stamping:** HULT 1964

1.5 MILES SOUTHWEST OF PINE CITY, 0.1 MILE WEST OF INTERSTATE HIGHWAY 35, 0.7 MILE WEST AND SOUTH ON COUNTY ROAD 7 FROM THE JUNCTION OF COUNTY ROAD 7 WEST-TRUNK HIGHWAY 324 EAST AND INTERSTATE HIGHWAY 35, THEN 0.65 MILE SOUTH ON COUNTY ROAD 23, THEN 250.0 FEET EAST ON A GRAVEL ROAD, 87.49 FEET WEST OF HULT MNDT RM 1, 69.91 FEET EAST-SOUTHEAST OF HULT MNDT RM 2, 20.5 FEET SOUTH OF A ROAD, 8.5 FEET NORTH OF A WITNESS POST.

*** No Leveling-Derived Orthometric Heights in the Database ***

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
997.045	.197		906.078	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
997.012						RECIPROCAL VERTICAL ANGLE	1964	HORZ

Geoid Separations(ft): GEOID18 = -91.224 12B = -91.201 09 = -91.128 03 = -910000

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 48 33.46074	92 59 24.22086	477031.710	128929.766	.066	2	ADJUSTMENT	1999	17648
45 48 33.46152	92 59 24.22434	477031.464	128929.845	.066	2	ADJUSTMENT	1991	17497

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 48 33.46077	92 59 24.22567	477031.370	128929.770	.066	2	ADJUSTMENT	1986	17289

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 48 33.61335	92 59 23.47638			.100	2	CLASSICAL SURVEY	1973	14930

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2945945.850	625750.429	1642950.167	16643205.634	.066	2	ADJUSTMENT	1999	17648
2945945.602	625750.503	1642949.920	16643205.713	.066	2	ADJUSTMENT	1991	17497

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2945945.509	625750.426	1642949.826	16643205.637	.066	2	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2321341.320	297681.327			.100	2	CLASSICAL SURVEY	1973	14930

HULT MNDT RM 1

Mn/DOT Name: HULT MNDT RM 1 **NGS Name:** HULT RM 1

County: PINE, MN (Sheet 1)

NGS ACRN: CJ3608 Get Map
NGS Quad / Sta Num : 45092443/1040
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	5	38 N	21 W	454833.59	925923.00	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1964	2012	GOOD	Horz=YES Vert=YES	YES		PROJECTS 8 IN.	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	MNDT

Description: (2013) **Stamping:** HULT NO 1 1964

1.5 MILES SOUTHWEST OF PINE CITY, 0.1 MILE WEST OF INTERSTATE HIGHWAY 35, 0.7 MILE WEST AND SOUTH ON COUNTY ROAD 7 FROM THE JUNCTION OF COUNTY ROAD 7 WEST AND TRUNK HIGHWAY 324 EAST AND INTERSTATE HIGHWAY 35 IN PINE CITY, THEN 0.65 MILE SOUTH ON COUNTY ROAD 23, 250.0 FEET EAST OF FAIRFAX AVENUE, 32.5 FEET SOUTH OF IMPERIAL DRIVE SOUTHWEST, 55.0 FEET EAST OF DRIVEWAY NUMBER 16104, 2.0 FEET SOUTH 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
1002.990	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1002.990	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
1002.895	.262		911.767	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -91.220 12B = -91.197 09 = -91.125 03 = -90.997

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 48 33.59383	92 59 23.00120	477118.128	128943.150	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2946032.019	625765.282	1643036.528	16643219.120	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/HULT_RM_1-CJ3608-3S-16OCT2012.jpg	S	Oct 16, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/HULT_RM_1-CJ3608-2-16OCT2012.jpg		Oct 16, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/HULT_RM_1-CJ3608-1-16OCT2012.jpg		Oct 16, 2012

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

HULT MNDT RM 2

Mn/DOT Name: HULT MNDT RM 2 **NGS Name:** HULT RM 2

County: PINE, MN (Sheet 1)

NGS ACRN: CJ3609 Get Map
NGS Quad / Sta Num : 45092443/1040
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	5	38 N	21 W	454833.69	925925.15		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1964	2012	DESTROYED	Horz=NO Vert=NO	NO		PROJECTS 2 IN.	SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
UNKNOWN	REFERENCE MARK DISK	MNDT

Description: (1964) **Stamping:** HULT NO 2 1964

1.5 MILES SOUTHEAST OF PINE CITY, 0.1 MILE WEST OF INTERSTATE HIGHWAY 35, 0.7 MILE WEST AND SOUTH ON COUNTY ROAD 7 FROM THE JUNCTION OF COUNTY ROAD 7 WEST-TRUNK HIGHWAY 324 EAST AND INTERSTATE HIGHWAY 35, THEN 0.65 MILE SOUTH ON COUNTY ROAD 23, 71.1 FEET NORTH-NORTHEAST OF A TELEPHONE POLE, 20.0 FEET NORTH OF THE CENTERLINE OF A ROAD, 3.4 FEET SOUTHEAST OF A POWER POLE.

Station Notes

THE MARK FALLS IN A PLOWED FIELD.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -91.230 12B = -91.210 09 = -91.135 03 = -91.007

INTER OF A GRAVEL RD A FIELD

Mn/DOT Name: INTER OF A GRAVEL RD A FIELD

NGS Name: INTER OF A GRAVEL RD A FIELD

County: PINE, MN (Sheet 1)

NGS ACRN: CJ3619 Get Map
NGS Quad / Sta Num : 45092434/
USGS Quad: RUSH CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	27	38 N	21 W	454439.69	925621.65		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
	2010	UNKNOWN	Horz=? Vert=?	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
SEE DESCRIPTIVE TEXT	UNSPECIFIC DISK TYPE (SEE TEXT)	UNK

Description:

5.0 MILES NORTHEAST OF RUSH CITY, 1.0 MILE EAST ALONG 550TH STREET FROM THE JUNCTION OF 550TH STREET AND TRUNK HIGHWAY 361 IN RUSH CITY.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.902 12B = -90.922 09 = -90.869 03 = -90.692

INTER OF A GRAVELED RD DRIVE

Mn/DOT Name: INTER OF A GRAVELED RD DRIVE

NGS Name: INTER OF A GRAVELED RD DRIVE

County: PINE, MN (Sheet 1)

NGS ACRN: CJ3118 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	29	41 N	20 W	460008.00	925353.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
	2012	DESTROYED	Horz=NO Vert=NO	YES			NO MAG MATERIAL

Monument Type	Disk Type	Mon. Agency
SEE DESCRIPTIVE TEXT	SEE DESCRIPTION	UNK

Description: (2008)

Stamping:

2.3 MILES EAST-SOUTHEAST OF HINCKLEY, THEN 0.7 MILE SOUTH ALONG COUNTY ROAD 15 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND COUNTY ROAD 15 TO A DRIVEWAY EAST (FIRE NUMBER 37788).

Station Notes

IN 10-02-2008 NOTED THAT LOCATION IS AN INTERSECTION.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -89.895 12B = -89.878 09 = -89.777 03 = -89.682

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/INTER_OF_A_GRAVELED_RD_DRIVE-CJ3118-3E-02OCT2008.jpg	E	Oct 2, 2008
Monument:			
Disk:			

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

INTER OF GRADED RD DRIVEWAY

Mn/DOT Name: INTER OF GRADED RD DRIVEWAY
NGS Name: INTER OF GRADED RD DRIVEWAY
County: PINE, MN (Sheet 1)

NGS ACRN: CJ3625 Get Map
NGS Quad / Sta Num : 45092414/
USGS Quad: LAKE CLAYTON

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	33	40 N	19 W	455414.00	924348.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
	2008	GOOD	Horz=? Vert=?	YES			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
SEE DESCRIPTIVE TEXT	SEE DESCRIPTION	UNK

Description: (2008)
Stamping:

THE ENTRANCE TO KETTLE RIVER OVERLOOK IN SAINT CROIX STATE PARK.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -88.222 12B = -88.268 09 = -88.199 03 = -88.100

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/INTER_OF_GRADED_RD_DRIVEWAY-CJ3625-3SE-21OCT2008.jpg	SE	Oct 21, 2008
Monument:			
Disk:			

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

INTER OF GRAVELED RD

Mn/DOT Name: INTER OF GRAVELED RD

NGS Name: INTER OF GRAVELED RD

County: PINE, MN (Sheet 1)

NGS ACRN: CJ3119 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	29	41 N	20 W	460008.86	925352.78		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
	2010	UNKNOWN	Horz=? Vert=?	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
SEE DESCRIPTIVE TEXT	UNSPECIFIC DISK TYPE (SEE TEXT)	UNK

Description:

3.0 MILES SOUTHEAST OF HINCKLEY, 0.7 MILE SOUTH ALONG COUNTY ROAD 15 FROM THE JUNCTION OF COUNTY ROAD 15 AND TRUNK HIGHWAY 48 IN HINCKLEY, 39.0 FEET SOUTHWEST OF STATION BARRY.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -89.895 12B = -89.878 09 = -89.777 03 = -89.682

INTER OF HWY 11 DRIVEWAY N

Mn/DOT Name: INTER OF HWY 11 DRIVEWAY N
NGS Name: INTER OF HWY 11 DRIVEWAY N
County: PINE, MN (Sheet 1)

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	18	39 N	21 W	455155.00	930029.00		

NGS ACRN: CJ3626 Get Map
NGS Quad / Sta Num : 45093112/
USGS Quad: HENRIETTE

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
	2008	GOOD	Horz=YES Vert=?	YES			NO MAG MATERIAL

Monument Type	Disk Type	Mon. Agency
SEE DESCRIPTIVE TEXT	SEE DESCRIPTION	UNK

Description: (2008)
Stamping:

3.3 MILES NORTHWEST OF PINE CITY, 2.4 MILES NORTHWEST ALONG COUNTY ROAD 11 FROM THE JUNCTION OF COUNTY ROAD 11 AND COUNTY ROAD 61 (OLD HIGHWAY 61), AT THE INTERSECTION OF COUNTY ROAD 11 AND A DRIVEWAY ENTRANCE NORTH (FIRE NUMBER 14245).

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -91.115 12B = -91.109 09 = -91.014 03 = -90.882

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/INTER_OF_HWY_11_DRIVEWAY_N-CJ3626-3N-02OCT2008.jpg	N	Oct 2, 2008
Monument:			
Disk:			

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

INTER OF HWY 61 GR CROSSROAD

Mn/DOT Name: INTER OF HWY 61 GR CROSSROAD
NGS Name: INTER OF HWY 61 GR CROSSROAD
County: PINE, MN (Sheet 1)

NGS ACRN: CJ3627 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	27	40 N	21 W	455507.00	925727.00		

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

Monument Type	Disk Type	Mon. Agency
SEE DESCRIPTIVE TEXT	UNSPECIFIC DISK TYPE (SEE TEXT)	UNK

Description:

5.8 MILES NORTH OF PINE CITY, AT THE EAST JUNCTION OF BLUEBERRY ISLAND ROAD/COUNTY ROAD 130 FROM THE JUNCTION OF BLUEBERRY ISLAND ROAD/COUNTY ROAD 130 AND COUNTY ROAD 61, 186.0 FEET SOUTHWEST OF STATION CEDAR.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.485 12B = -90.466 09 = -90.397 03 = -90.262

INTER OF US HWY 61 SOUTH AVE

Mn/DOT Name: INTER OF US HWY 61 SOUTH AVE

NGS Name: INTER OF US HWY 61 SOUTH AVE

County: PINE, MN (Sheet 1)

NGS ACRN: CJ3630 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	4	38 N	21 W	454848.50	925814.14		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
	2010	UNKNOWN	Horz=? Vert=?	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
SEE DESCRIPTIVE TEXT	UNSPECIFIC DISK TYPE (SEE TEXT)	UNK

Description:

1.5 MILES SOUTH OF PINE CITY, AT THE JUNCTION OF 6TH STREET SOUTHWEST/MAIN STREET SOUTH AND GOLF AVENUE SOUTHWEST IN PINE CITY, 123.0 FEET NORTHEAST OF STATION PINE CITY.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -910000 12B = -90.978 09 = -90.918 03 = -90.787

Mn/DOT Name: J 60 **NGS Name:** J 60

County: PINE, MN (Sheet 1)

NGS ACRN: QO0380 Get Map
NGS Quad / Sta Num : 45093111/
USGS Quad: BROOK PARK

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	20	40 N	22 W	455613.00	930647.00	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1934	1954	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	NGS

Description: (1954) **Stamping:** J 60 1934

1.4 MILES WEST-SOUTHWEST OF BROOK PARK TOWNSHIP ALONG TRUNK HIGHWAY 23, THEN 85.0 FEET NORTH ALONG HORNED OWL LANE FROM THE JUNCTION OF TRUNK HIGHWAY 23 AND HORNED OWL LANE.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1023.702	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1023.190	.007	1				VERTICAL CONTROL SURVEY	1974	L3440
1023.200	.007	1				VERTICAL CONTROL SURVEY	1934	L53 MINN

Geoid Separations(ft): GEOID18 = -91.243 12B = -91.233 09 = -91.142 03 = -90.981

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

JAKE

Mn/DOT Name: JAKE
NGS Name: JAKE
County: PINE, MN (Sheet 1)

NGS ACRN: DO8684 Get Map
NGS Quad / Sta Num : 46092332/
USGS Quad: SANDSTONE SOUTH

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	26	41 N	20 W	460040.51	925014.95	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2020	GOOD	Horz=YES Vert=YES	YES		RECESSED 1 IN.	BAR MAG IN DRILL HOLE

Monument Type: ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 55 FT)
Disk Type: METAL ROD (WITH REMOVABLE ID DISK)
Mon. Agency: MNDT

Description: (2012)
Stamping: JAKE 2012

4.55 MILES EAST OF HINCKLEY, 4.55 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND INTERSTATE HIGHWAY 35 IN HINCKLEY, AT TRUNK HIGHWAY 48 MILEPOINT 4.5, 36.8 FEET SOUTH OF TRUNK HIGHWAY 48, 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
928.053	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
928.085	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
928.000	.262		838.729	.197	2011	GPS - OPUS	2020	GPSBM
928.079	.262		838.775	.197	2011	GPS - RTRN	2020	RTRN2020
928.095			838.784	.015	2011	HORIZONTAL ADJUSTMENT	2015	GPS3071
928.095			838.784	.015	2011	GPS - STATIC	2015	HCLVR
928.115	.131		838.942	.066	2007	GPS - STATIC	2012	HCLVR
928.115	.131		839.037	.066	1996	GPS - STATIC	2012	HCLVR

Geoid Separations(ft): GEOID18 = -89.271 12B = -89.304 09 = -89.189 03 = -89.088

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 40.50806	92 50 14.95176	515884.878	202572.973	.131	3	GPS - OPUS	2020	GPSBM
46 00 40.50789	92 50 14.95177	515884.877	202572.956	.131	3	GPS - RTRN	2020	RTRN2020
46 00 40.50825	92 50 14.95153	515884.894	202572.993	.023		ADJUSTMENT	2015	GPS3071
46 00 40.50825	92 50 14.95153	515884.894	202572.993	.023	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 40.50835	92 50 14.95189	515884.869	202573.003	.033	C	GPS - STATIC	2012	HCLVR

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 40.50832	92 50 14.95143	515884.901	202573.000	.033	C	GPS - STATIC	2012	HCLVR

JAKE

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2983534.629	700037.884	1681693.608	16716864.635	.131	3	GPS - OPUS	2020	GPSBM
2983534.629	700037.867	1681693.607	16716864.618	.131	3	GPS - RTRN	2020	RTRN2020
2983534.645	700037.904	1681693.624	16716864.655	.023		ADJUSTMENT	2015	GPS3071
2983534.645	700037.904	1681693.624	16716864.655	.023	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2983534.620	700037.914	1681693.599	16716864.665	.033	C	GPS - STATIC	2012	HCLVR

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2983534.652	700037.911	1681693.631	16716864.662	.033	C	GPS - STATIC	2012	HCLVR

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/JAKE-DO8684-3S-30APR2020.jpg	S	Apr 30, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/JAKE-DO8684-2-30APR2020.jpg		Apr 30, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/JAKE-DO8684-1-30APR2020.jpg		Apr 30, 2020

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

Mn/DOT Name: JENNIFER
NGS Name: JENNIFER
County: PINE, MN (Sheet 1)

NGS ACRN: DO8696 Get Map
NGS Quad / Sta Num : 46092323/
USGS Quad: CLOVERDALE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	20	41 N	18 W	460043.36	923924.86	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2012	GOOD	Horz=YES Vert=YES	YES		RECESSED 1 IN.	BAR MAG IN DRILL HOLE

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

Description: (2012)
Stamping: JENNIFER 2012

4.1 MILES EAST OF CLOVERDALE, 4.0 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND COUNTY ROAD 21 IN CLOVERDALE, AT TRUNK HIGHWAY 48 MILEPOINT 13.25, 91.7 FEET NORTH OF TRUNK HIGHWAY 48, 112.3 FEET EAST OF LITTLE SAND ROAD, 2.6 FEET SOUTH OF A FENCE LINE, 1.5 FEET SOUTH 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
976.622	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
976.737	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
976.760			888.968	.012	2011	HORIZONTAL ADJUSTMENT	2015	GPS3071
976.760			888.968	.012	2011	GPS - STATIC	2015	HCLVR
976.803	.131		889.162	.066	2007	GPS - STATIC	2012	HCLVR
976.803	.131		889.263	.066	1996	GPS - STATIC	2012	HCLVR

Geoid Separations(ft): GEOID18 = -87.638 12B = -87.720 09 = -87.644 03 = -87.556

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 43.36484	92 39 24.86117	561770.108	202950.509	.016		ADJUSTMENT	2015	GPS3071
46 00 43.36484	92 39 24.86117	561770.108	202950.509	.016	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 43.36493	92 39 24.86180	561770.064	202950.518	.033	C	GPS - STATIC	2012	HCLVR

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 43.36490	92 39 24.86143	561770.090	202950.515	.033	C	GPS - STATIC	2012	HCLVR

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3029401.925	701197.677	1727558.226	16717299.506	.016		ADJUSTMENT	2015	GPS3071
3029401.925	701197.677	1727558.226	16717299.506	.016	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3029401.881	701197.685	1727558.182	16717299.515	.033	C	GPS - STATIC	2012	HCLVR

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3029401.907	701197.682	1727558.208	16717299.512	.033	C	GPS - STATIC	2012	HCLVR

JENNIFER

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/JENNIFER-DO8696-3N-05JUN2012.jpg	N	Jun 5, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/JENNIFER-DO8696-2-05JUN2012.jpg		Jun 5, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/JENNIFER-DO8696-1-05JUN2012.jpg		Jun 5, 2012

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

Mn/DOT Name: JILL
NGS Name: JILL
County: PINE, MN (Sheet 1)

NGS ACRN: DO8702 Get Map
NGS Quad / Sta Num : 46092322/
USGS Quad: WILBUR LAKE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	22	41 N	18 W	460044.24	923545.20	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2012	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 55 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) **Stamping:** JILL 2012

6.65 MILES EAST OF CLOVERDALE, 6.95 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND COUNTY ROAD 21 IN CLOVERDALE, AT TRUNK HIGHWAY 48 MILEPOINT 16.2, 52.4 FEET NORTH OF TRUNK HIGHWAY 48, 153.7 FEET WEST OF WILBUR WAY, 3.5 FEET SOUTH OF A FENCE LINE, 1.5 FEET SOUTH 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
990.339	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
990.474	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
990.497			903.102	.011	2011	HORIZONTAL ADJUSTMENT	2015	GPS3071
990.497			903.102	.011	2011	GPS - STATIC	2015	HCLVR
990.549	.131		903.256	.066	2007	GPS - STATIC	2012	HCLVR
990.549	.131		903.361	.066	1996	GPS - STATIC	2012	HCLVR

Geoid Separations(ft): GEOID18 = -87.247 12B = -87.346 09 = -87.280 03 = -87.178

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 44.23845	92 35 45.19891	577274.170	203092.332	.016		ADJUSTMENT	2015	GPS3071
46 00 44.23845	92 35 45.19891	577274.170	203092.332	.016	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 44.23853	92 35 45.19970	577274.114	203092.340	.033	C	GPS - STATIC	2012	HCLVR

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 44.23846	92 35 45.19938	577274.137	203092.333	.033	C	GPS - STATIC	2012	HCLVR

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3044899.681	701603.914	1743055.389	16717460.673	.016		ADJUSTMENT	2015	GPS3071
3044899.681	701603.914	1743055.389	16717460.673	.016	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3044899.624	701603.921	1743055.333	16717460.680	.033	C	GPS - STATIC	2012	HCLVR

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3044899.647	701603.914	1743055.356	16717460.673	.033	C	GPS - STATIC	2012	HCLVR

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/JILL-DO8702-3N-05JUN2012.jpg	N	Jun 5, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/JILL-DO8702-2-05JUN2012.jpg		Jun 5, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/JILL-DO8702-1-05JUN2012.jpg		Jun 5, 2012

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

JOSHUA

Mn/DOT Name: JOSHUA
NGS Name: JOSHUA
County: PINE, MN (Sheet 1)

NGS ACRN: DO8736 Get Map
NGS Quad / Sta Num : 45092442/
USGS Quad: BASS CREEK

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	13	38 N	20 W	454624.90	924714.70	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2012	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 13 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) **Stamping:** JOSHUA 2012

IN ROCK CREEK, 9.1 MILES EAST ALONG TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 70 AND COUNTY ROAD 61 IN ROCK CREEK, AT TRUNK HIGHWAY 70 MILEPOINT 29.05, 38.4 FEET NORTH OF TRUNK HIGHWAY 70, 16.9 FEET SOUTHEAST OF DRIVEWAY NUMBER 15795, 1.5 FEET WEST 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
855.641	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
855.812	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
855.684	.262		766.590	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -89.130 12B = -89.144 09 = -89.094 03 = -88.986

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 46 24.89976	92 47 14.70387	528730.210	115914.028	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2997854.118	613618.808	1694641.449	16630260.415	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/JOSHUA-DO8736-3N-20NOV2012.jpg	N	Nov 20, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/JOSHUA-DO8736-2-20NOV2012.jpg		Nov 20, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/JOSHUA-DO8736-1-20NOV2012.jpg		Nov 20, 2012

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

JULIE

Mn/DOT Name: JULIE
NGS Name: JULIE
County: PINE, MN (Sheet 1)

NGS ACRN: DO8688 Get Map
NGS Quad / Sta Num : 46092332/
USGS Quad: SANDSTONE SOUTH

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	29	41 N	19 W	460043.33	924614.51	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2012	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 50 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) **Stamping:** JULIE 2012

1.4 MILES WEST OF CLOVERDALE, 1.45 MILES WEST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND COUNTY ROAD 21 IN CLOVERDALE, AT TRUNK HIGHWAY 48 MILEPOINT 7.75, 45.0 FEET SOUTH OF TRUNK HIGHWAY 48, 9.1 FEET NORTH OF A FENCE LINE, 149.9 FEET WEST OF DRIVEWAY NUMBER 36180, 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
1001.504	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1001.573	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
1001.579			912.957	.013	2011	HORIZONTAL ADJUSTMENT	2015	GPS3071
1001.579			912.957	.013	2011	GPS - STATIC	2015	HCLVR
1001.606	.131		913.095	.066	2007	GPS - STATIC	2012	HCLVR
1001.606	.131		913.194	.066	1996	GPS - STATIC	2012	HCLVR

Geoid Separations(ft): GEOID18 = -88.553 12B = -88.622 09 = -88.507 03 = -88.409

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 43.33293	92 46 14.51487	532855.477	202879.598	.016		ADJUSTMENT	2015	GPS3071
46 00 43.33293	92 46 14.51487	532855.477	202879.598	.016	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 43.33299	92 46 14.51543	532855.438	202879.603	.033	C	GPS - STATIC	2012	HCLVR

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 43.33296	92 46 14.51499	532855.468	202879.600	.033	C	GPS - STATIC	2012	HCLVR

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3000495.750	700633.731	1698656.340	16717192.403	.016		ADJUSTMENT	2015	GPS3071
3000495.750	700633.731	1698656.340	16717192.403	.016	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3000495.710	700633.736	1698656.300	16717192.409	.033	C	GPS - STATIC	2012	HCLVR

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3000495.741	700633.733	1698656.331	16717192.406	.033	C	GPS - STATIC	2012	HCLVR

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/JULIE-DO8688-3S-05JUN2012.jpg	S	Jun 5, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/JULIE-DO8688-2-05JUN2012.jpg		Jun 5, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/JULIE-DO8688-1-05JUN2012.jpg		Jun 5, 2012

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

KARI MNDT

Mn/DOT Name: KARI MNDT
NGS Name: KARI
County: PINE, MN (Sheet 1)

NGS ACRN: QO2500 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	11	38 N	21 W	454801.27	925544.77		2

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1984	2007	GOOD	Horz=YES Vert=YES	YES		RECESSED 0 IN.	MARKER W/BAR MAGNET

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

Description: (1984) **Stamping:** KARI 1984

2.6 MILES SOUTHEAST OF PINE CITY, 1.2 MILES SOUTH ALONG GOVERNMENT ROAD FROM THE JUNCTION OF GOVERNMENT ROAD AND COUNTY ROAD 8, 186.0 FEET SOUTH-SOUTHWEST OF A POWER POLE WITH GUY WIRES, 79.2 FEET NORTHWEST OF A POWER POLE, 77.23 FEET NORTHWEST OF KARI MNDT RM 1, 54.44 FEET NORTH-NORTHEAST OF KARI MNDT RM 2, 38.0 FEET NORTH OF AN ENTRANCE, 77.6 FEET NORTHWEST 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
980.641	.197		890.343	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648
980.608						RECIPROCAL VERTICAL ANGLE	1994	HORZ

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
980.608						RECIPROCAL VERTICAL ANGLE	1984	HORZ

Geoid Separations(ft): GEOID18 = -90.528 12B = -90.538 09 = -90.482 03 = -90.318

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 48 01.26753	92 55 44.77478	492576.404	125656.987	.066	2	ADJUSTMENT	1999	17648

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 48 01.26261	92 55 44.77302	492576.528	125656.488	.066	2	CLASSICAL SURVEY	1994	G17352
45 48 01.26261	92 55 44.77302	492576.528	125656.488	.066	2	ADJUSTMENT	1994	17352

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 48 01.41890	92 55 44.02110			.100	2	CLASSICAL SURVEY	1984	3306-09

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2961542.667	622743.278	1658491.905	16639953.836	.066	2	ADJUSTMENT	1999	17648

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2961542.800	622742.782	1658492.030	16639953.338	.066	2	CLASSICAL SURVEY	1994	G17352
2961542.801	622742.782	1658492.030	16639953.338	.066	2	ADJUSTMENT	1994	17352

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2336939.253	294674.134			.100	2	CLASSICAL SURVEY	1984	3306-09

KARI MNDT

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/KARI-QO2500-3W-26APR2010.jpg	W	Apr 26, 2010
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/KARI-QO2500-2-26APR2010.jpg		Apr 26, 2010
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/KARI-QO2500-1-26APR2010.jpg		Apr 26, 2010

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

KARI MNDT RM 1

Mn/DOT Name: KARI MNDT RM 1 **NGS Name:** KARI RM 1

County: PINE, MN (Sheet 1)

NGS ACRN: CS8964 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	11	38 N	21 W	454800.79	925543.92		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1984	2007	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE)	REFERENCE MARK DISK	MNDT

Description: (2007) **Stamping:** KARI NO 1 1984

2.6 MILES SOUTHEAST OF PINE CITY, 1.2 MILES SOUTH ALONG A GOVERNMENT ROAD FROM THE JUNCTION OF A GOVERNMENT ROAD AND COUNTY ROAD 8, 77.23 FEET SOUTHEAST OF STATION KARI MNDT, 0.6 FOOT WEST OF A WITNESS POST.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.525 12B = -90.535 09 = -90.479 03 = -90.318

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/KARI_RM_1-CS8964-3E-28NOV2007.jpg	E	Nov 28, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/KARI_RM_1-CS8964-2-28NOV2007.jpg		Nov 28, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/KARI_RM_1-CS8964-1-28NOV2007.jpg		Nov 28, 2007

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

KARI MNDT RM 2

Mn/DOT Name: KARI MNDT RM 2 **NGS Name:** KARI RM 2

County: PINE, MN (Sheet 1)

NGS ACRN: CS8965 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	11	38 N	21 W	454800.76	925545.05		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1984	2007	GOOD	Horz=YES Vert=YES	YES		RECESSED 1 IN.	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE)	REFERENCE MARK DISK	MNDT

Description: (2007) **Stamping:** KARI NO 2 1984

2.6 MILES SOUTHEAST OF PINE CITY, 1.2 MILES SOUTH ALONG A GOVERNMENT ROAD FROM THE JUNCTION OF A GOVERNMENT ROAD AND COUNTY ROAD 8, 55.4 FEET SOUTH-SOUTHWEST OF STATION KARI MNDT, 15.0 FEET SOUTH OF ENTRANCE NUMBER 9711.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.528 12B = -90.538 09 = -90.482 03 = -90.321

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/KARI_RM_2-CS8965-3W-28NOV2007.jpg	W	Nov 28, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/KARI_RM_2-CS8965-2-28NOV2007.jpg		Nov 28, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/KARI_RM_2-CS8965-1-28NOV2007.jpg		Nov 28, 2007

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

Mn/DOT Name: KDWB **NGS Name:** KDWB

County: PINE, MN (Sheet 1)

NGS ACRN: DO8727 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	20	38 N	21 W	454615.28	925921.69	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2020	GOOD	Horz=YES Vert=YES	YES		RECESSED 1 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 25 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) **Stamping:** KDWB 2012

IN ROCK CREEK, 0.3 MILE NORTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 70 IN ROCK CREEK, AT INTERSTATE HIGHWAY 35 MILEPOINT 165.95, 96.2 FEET EAST OF NORTHBOUND INTERSTATE HIGHWAY 35, 3.3 FEET WEST OF A RIGHT-OF WAY FENCE LINE, 1.5 FEET WEST OF A WITNESS POST.

Station Pair: GOULD MNDT - PINE, MN

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
974.919	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
974.919	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
974.857	.262		883.460	.197	2011	GPS - OPUS	2020	GPSBM
974.978	.262		883.607	.197	2011	GPS - RTRN	2020	RTRN2020
974.880	.262		883.509	.197	2011	GPS - RTRN	2017	RTRN2017
974.847	.262		883.538	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -91.397 12B = -91.371 09 = -91.309 03 = -91.178

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 46 15.27643	92 59 21.68772	477195.438	114931.676	.131	3	GPS - OPUS	2020	GPSBM
45 46 15.27634	92 59 21.68701	477195.488	114931.667	.131	3	GPS - RTRN	2020	RTRN2020
45 46 15.27684	92 59 21.68671	477195.510	114931.717	.131	3	GPS - RTRN	2017	RTRN2017

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 46 15.27482	92 59 21.68858	477195.377	114931.513	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2946348.028	611758.389	1643131.399	16629214.126	.131	3	GPS - OPUS	2020	GPSBM
2946348.078	611758.380	1643131.450	16629214.117	.131	3	GPS - RTRN	2020	RTRN2020
2946348.098	611758.432	1643131.471	16629214.167	.131	3	GPS - RTRN	2017	RTRN2017

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2946347.969	611758.225	1643131.338	16629213.963	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/KDWB-DO8727-3E-29APR2020.jpg	E	Apr 29, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/KDWB-DO8727-2-29APR2020.jpg		Apr 29, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/KDWB-DO8727-1-29APR2020.jpg		Apr 29, 2020

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

Mn/DOT Name: KQRS **NGS Name:** KQRS

County: PINE, MN (Sheet 1)

NGS ACRN: DO8726 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	8	38 N	21 W	454728.29	925923.44	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2012	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 35 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) **Stamping:** KQRS 2012

1.5 MILES SOUTH OF PINE CITY, 2.2 MILES SOUTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND COUNTY ROAD 7 IN PINE CITY, AT INTERSTATE HIGHWAY 35 MILEPOINT 167.40, 89.4 FEET EAST OF NORTHBOUND INTERSTATE HIGHWAY 35, 9.9 FEET WEST OF A RIGHT-OF-WAY FENCE LINE, 1.5 FEET WEST 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
965.461	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
965.461	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
965.352	.262		874.139	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -91.302 12B = -91.279 09 = -91.214 03 = -91.082

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 47 28.29462	92 59 23.43802	477079.713	122328.456	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2946106.308	619151.479	1643006.437	16636607.385	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/KQRS-DO8726-3E-20NOV2012.jpg	E	Nov 20, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/KQRS-DO8726-2-20NOV2012.jpg		Nov 20, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/KQRS-DO8726-1-20NOV2012.jpg		Nov 20, 2012

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

LUCHT

Mn/DOT Name: LUCHT **NGS Name:** LUCHT

County: PINE, MN (Sheet 1)

NGS ACRN: QO1595 Get Map
NGS Quad / Sta Num : 45093121/1003
USGS Quad: RUSH LAKE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	29	38 N	22 W	454447.47	930637.76		2

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2007	GOOD	Horz=NO Vert=NO	YES		RECESSED 0 IN.	SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	TRAVERSE STATION DISK	NGS

Description: (1984) **Stamping:** LUCHT 1961

3.8 MILES SOUTHEAST OF GRASSTON, 3.0 MILES NORTHEAST OF BRAHAM, 1.5 MILES EAST ON TRUNK HIGHWAY 70 FROM THE SOUTH JUNCTION OF TRUNK HIGHWAY 70 AND TRUNK HIGHWAY 107, THEN 1.0 MILE SOUTH ON COUNTY ROAD 101, THEN 0.7 MILE EAST ON COUNTY ROAD 102, THEN NORTH 0.05 MILE ON A FARM DRIVE NORTH, 95.23 FEET SOUTHEAST OF LUCHT RM 2, 87.20 FEET NORTH OF LUCHT RM 1, 47.0 FEET NORTHWEST OF THE SOUTHWEST CORNER OF A BARN, 22.8 FEET SOUTH-SOUTHEAST OF THE END OF A POLE SHED, 17.0 FEET NORTHWEST OF THE NORTHWEST CORNER OF A BARN, 10.4 FEET WEST OF A TIN SHED.

Station Notes

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

*** No Leveling-Derived Orthometric Heights in the Database ***

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1018.568	.197		926.553	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648
1018.699						RECIPROCAL VERTICAL ANGLE	1994	HORZ

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1018.403						RECIPROCAL VERTICAL ANGLE	1984	HORZ

Geoid Separations(ft): GEOID18 = -92.287 12B = -92.290 09 = -92.188 03 = -92.037

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 44 47.46547	93 06 37.75541	446258.952	106094.851	.066	2	ADJUSTMENT	1999	17648

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 44 47.46111	93 06 37.75301	446259.122	106094.409	.066	2	ADJUSTMENT	1986	17289

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 44 47.60300	93 06 36.97560			.100	2	CLASSICAL SURVEY	1961	12611

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2915569.197	602396.630	1612220.220	16620342.372	.066	2	ADJUSTMENT	1999	17648

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2915569.374	602396.191	1612220.389	16620341.930	.066	2	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2290966.354	274326.093			.100	2	CLASSICAL SURVEY	1961	12611

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/LUCHT-QO1595-3N-08MAY2007.jpg	N	May 8, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/LUCHT-QO1595-2-08MAY2007.jpg		May 8, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/LUCHT-QO1595-1-08MAY2007.jpg		May 8, 2007

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

LUCHT AZ MK

Mn/DOT Name: LUCHT AZ MK

NGS Name: LUCHT AZ MK

County: PINE, MN (Sheet 1)

NGS ACRN: CJ3712 Get Map
NGS Quad / Sta Num : 45093121/1003
USGS Quad: RUSH LAKE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	29	38 N	22 W	454447.00	930640.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2017	DESTROYED	Horz=NO Vert=NO	NO		PROJECTS 5 IN.	SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	MNDT

Description: (1961) **Stamping:** LUCHT 1961

3.8 MILES SOUTHEAST OF GRASSTON, 3.0 MILES NORTHEAST OF BRAHAM, 1.5 MILES EAST ON TRUNK HIGHWAY 70 FROM THE SOUTH JUNCTION OF TRUNK HIGHWAY 70 AND TRUNK HIGHWAY 107, THEN 1.0 MILE SOUTH ON COUNTY ROAD 101, 30.0 FEET NORTH OF THE CENTERLINE OF CLINT ROAD, 20.0 FEET EAST OF THE CENTERLINE OF A FARM DRIVEWAY, 1.0 FOOT SOUTH OF AN EAST-WEST FENCE LINE, 2.0 FEET NORTH OF A WITNESS POST.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -92.290 12B = -92.290 09 = -92.188 03 = -92.040

LUCHT RM 1

Mn/DOT Name: LUCHT RM 1 **NGS Name:** LUCHT RM 1

County: PINE, MN (Sheet 1)

NGS ACRN: CJ3713 Get Map
NGS Quad / Sta Num : 45093121/1003
USGS Quad: RUSH LAKE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	29	38 N	22 W	454446.62	930637.52		3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2008	GOOD	Horz=NO Vert=NO	YES		RECESSED 3 IN.	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description: (1984) **Stamping:** LUCHT NO 1 1961

3.8 MILES SOUTHEAST OF GRASSTON, 3.0 MILES NORTHEAST OF BRAHAM, 1.5 MILES EAST ON TRUNK HIGHWAY 70 FROM THE SOUTH JUNCTION OF TRUNK HIGHWAY 70 AND TRUNK HIGHWAY 107, THEN 1.0 MILE SOUTH ON COUNTY ROAD 101, THEN 0.7 MILE EAST ON COUNTY ROAD 102, THEN NORTH 0.05 MILE ON A FARM DRIVE NORTH (FIRE NUMBER 4435), 40.5 FEET SOUTH-SOUTHEAST OF THE SOUTHWEST CORNER OF A BARN, 29.0 FEET SOUTHWEST OF THE SOUTHWEST SIDE OF A SILO, 8.0 FEET NORTHWEST OF THE NORTHEAST CORNER OF A SHED, 3.0 FEET NORTH OF THE NORTH SIDE OF A SHED.

Station Notes

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

*** No Leveling-Derived Orthometric Heights in the Database ***

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1017.662	.262		925.625	.197	1996	GPS - RTRN	2008	RTRN2008

Geoid Separations(ft): GEOID18 = -92.290 12B = -92.290 09 = -92.188 03 = -92.037

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 44 46.62005	93 06 37.52368	446275.161	106009.168	.131	3	GPS - RTRN	2008	RTRN2008

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2915586.861	602311.243	1612236.528	16620256.749	.131	3	GPS - RTRN	2008	RTRN2008

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/LUCHT_RM_1-CJ3713-3S-30SEP2008.jpg	S	Sep 30, 2008
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/LUCHT_RM_1-CJ3713-2-30SEP2008.jpg		Sep 30, 2008
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/LUCHT_RM_1-CJ3713-1-30SEP2008.jpg		Sep 30, 2008

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

LUCHT RM 2

Mn/DOT Name: LUCHT RM 2 **NGS Name:** LUCHT RM 2

County: PINE, MN (Sheet 1)

NGS ACRN: CJ3714 Get Map
NGS Quad / Sta Num : 45093121/1003
USGS Quad: RUSH LAKE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	29	38 N	22 W	454448.14	930638.69		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2007	GOOD	Horz=NO Vert=NO	YES		RECESSED 1 IN.	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description: (2007) **Stamping:** LUCHT NO 2 1961

3.8 MILES SOUTHEAST OF GRASSTON, 3.0 MILES NORTHEAST OF BRAHAM, 1.5 MILES EAST ON TRUNK HIGHWAY 70 FROM THE SOUTH JUNCTION OF TRUNK HIGHWAY 70 AND TRUNK HIGHWAY 107, THEN 1.0 MILE SOUTH ON COUNTY ROAD 101, THEN 0.7 MILE EAST ON COUNTY ROAD 102, THEN 0.05 MILE NORTH ON A FARM DRIVE NORTH, 77.2 FEET NORTHWEST OF THE END POLE OF A POLE SHED, 38.5 FEET EAST OF A TELEPHONE CABLE MARKER POST, 9.0 FEET NORTHEAST OF THE CENTER OF A FIELD ROAD.

Station Notes

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

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -92.287 12B = -92.287 09 = -92.185 03 = -92.037

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/LUCHT_RM_2-CJ3714-3W-08MAY2007.jpg	W	May 8, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/LUCHT_RM_2-CJ3714-2-08MAY2007.jpg		May 8, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/LUCHT_RM_2-CJ3714-1-08MAY2007.jpg		May 8, 2007

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

MACKIE MNDT

Mn/DOT Name: MACKIE MNDT **NGS Name:** MACKIE

County: PINE, MN (Sheet 1)

NGS ACRN: DE5986 Get Map
NGS Quad / Sta Num : 46092322/
USGS Quad: WILBUR LAKE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	20	41 N	17 W	460044.48	923044.57	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1996	2012	GOOD	Horz=YES Vert=YES	YES		PROJECTS 2 IN.	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 23 FT)	SURVEY DISK	MNDT

Description: (2012) **Stamping:** MACKIE 1996

10.9 MILES EAST OF CLOVERDALE, 10.9 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND COUNTY ROAD 21 IN CLOVERDALE, AT TRUNK HIGHWAY 48 MILEPOINT 20.2, 65.0 FEET NORTH OF TRUNK HIGHWAY 48, 6.3 FEET SOUTH OF A POWER POLE, 2.8 FEET SOUTH 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
976.606	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
976.780	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
976.780	.016	2/1				VERTICAL ADJUSTMENT	2006	00000497
976.835	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
976.560	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

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
976.780			889.769	.010	2011	HORIZONTAL ADJUSTMENT	2015	GPS3071
976.780			889.772	.010	2011	GPS - STATIC	2015	HCLVR
976.835	.131		889.929	.066	2007	GPS - STATIC	2012	HCLVR
976.835	.131		890.051	.066	1996	GPS - STATIC	2012	HCLVR
			889.769	.010	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
976.711	.262		889.805	.197	2007	GPS - RTRN	2012	RTRN2012
976.701	.262		889.916	.197	1996	GPS - RTRN	2008	RTRN2008
			889.880	.010	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
976.835	.131		890.038	.066	1996	HORIZONTAL ADJUSTMENT	2002	GPS1700
976.835	.131		890.038	.066	1996	GPS - STATIC	2001	HCLOV

Geoid Separations(ft): GEOID18 = -86.837 12B = -86.926 09 = -86.906 03 = -86.785

MACKIE MNDT

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 44.47976	92 30 44.57237	598492.976	203209.033	.013		ADJUSTMENT	2015	GPS3071
46 00 44.47983	92 30 44.57234	598492.978	203209.040	.013	C	GPS - STATIC	2015	HCLVR
46 00 44.47976	92 30 44.57237	598492.976	203209.033	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 44.47987	92 30 44.57308	598492.926	203209.044	.033	C	GPS - STATIC	2012	HCLVR
46 00 44.48010	92 30 44.57303	598492.929	203209.067	.131	3	GPS - RTRN	2012	RTRN2012
46 00 44.47987	92 30 44.57308	598492.926	203209.044	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 44.47970	92 30 44.57283	598492.943	203209.027	.033	C	GPS - STATIC	2012	HCLVR
46 00 44.48056	92 30 44.57275	598492.949	203209.114	.131	3	GPS - RTRN	2008	RTRN2008
46 00 44.47970	92 30 44.57283	598492.943	203209.027	.033	C	ADJUSTMENT	2002	GPS1700
46 00 44.47970	92 30 44.57283	598492.943	203209.027	.033	C	GPS - STATIC	2001	HCLOV

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 44.47275	92 30 44.56535	598493.475	203208.324	.033	C	GPS - STATIC	1997	HCLOV

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3066111.174	702082.594	1764264.944	16717603.861	.013		ADJUSTMENT	2015	GPS3071
3066111.176	702082.601	1764264.946	16717603.868	.013	C	GPS - STATIC	2015	HCLVR
3066111.174	702082.594	1764264.944	16717603.861	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3066111.123	702082.604	1764264.894	16717603.871	.033	C	GPS - STATIC	2012	HCLVR
3066111.126	702082.627	1764264.897	16717603.895	.131	3	GPS - RTRN	2012	RTRN2012
3066111.123	702082.604	1764264.894	16717603.871	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3066111.141	702082.587	1764264.912	16717603.854	.033	C	GPS - STATIC	2012	HCLVR
3066111.145	702082.674	1764264.917	16717603.942	.131	3	GPS - RTRN	2008	RTRN2008
3066111.141	702082.587	1764264.912	16717603.854	.033	C	ADJUSTMENT	2002	GPS1700
3066111.141	702082.587	1764264.912	16717603.854	.033	C	GPS - STATIC	2001	HCLOV

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3066111.684	702081.895	1764265.444	16717603.154	.033	C	GPS - STATIC	1997	HCLOV

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/MACKIE-DE5986-3N-08MAY2012.jpg	N	May 8, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/MACKIE-DE5986-2-08MAY2012.jpg		May 8, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/MACKIE-DE5986-1-08MAY2012.jpg		May 8, 2012

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

Mn/DOT Name: MANS **NGS Name:** MANS

County: PINE, MN (Sheet 1)

NGS ACRN: DO8682 Get Map
NGS Quad / Sta Num : 46092332/
USGS Quad: SANDSTONE SOUTH

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	26	41 N	20 W	460039.29	925039.16	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2020	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
ROCK OUTCROP (OVER 3 METERS)	SURVEY DISK	MNDT

Description: (2012) **Stamping:** MANS 2012

4.25 MILES EAST OF HINCKLEY, 4.2 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND INTERSTATE HIGHWAY 35 IN HINCKLEY, AT TRUNK HIGHWAY 48 MILEPOINT 4.25, 59.1 FEET SOUTHEAST OF TRUNK HIGHWAY 48, 80.0 FEET SOUTHWEST OF DRIVEWAY NUMBER 29192, 16.0 FEET SOUTH 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
953.640	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
953.669	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
953.709	.262		864.336	.197	2011	GPS - RTRN	2020	RTRN2020
953.679			864.290	.016	2011	HORIZONTAL ADJUSTMENT	2015	GPS3071
953.679			864.290	.016	2011	GPS - STATIC	2015	HCLVR
953.705	.131		864.441	.066	2007	GPS - STATIC	2012	HCLVR
953.705	.131		864.536	.066	1996	GPS - STATIC	2012	HCLVR

Geoid Separations(ft): GEOID18 = -89.347 12B = -89.376 09 = -89.262 03 = -89.163

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 39.28983	92 50 39.15630	514176.503	202448.295	.131	3	GPS - RTRN	2020	RTRN2020
46 00 39.29004	92 50 39.15698	514176.456	202448.316	.023		ADJUSTMENT	2015	GPS3071
46 00 39.29004	92 50 39.15698	514176.456	202448.316	.023	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 39.29005	92 50 39.15722	514176.439	202448.317	.033	C	GPS - STATIC	2012	HCLVR

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 39.29001	92 50 39.15675	514176.472	202448.313	.033	C	GPS - STATIC	2012	HCLVR

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2981828.808	699884.118	1679986.145	16716737.869	.131	3	GPS - RTRN	2020	RTRN2020
2981828.760	699884.138	1679986.097	16716737.890	.023		ADJUSTMENT	2015	GPS3071
2981828.760	699884.138	1679986.097	16716737.890	.023	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2981828.743	699884.139	1679986.080	16716737.891	.033	C	GPS - STATIC	2012	HCLVR

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2981828.776	699884.135	1679986.113	16716737.887	.033	C	GPS - STATIC	2012	HCLVR

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/MANS-DO8682-3SE-30APR2020.jpg	SE	Apr 30, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/MANS-DO8682-2-30APR2020.jpg		Apr 30, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/MANS-DO8682-1-30APR2020.jpg		Apr 30, 2020

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

MARTINEZ MNDT

Mn/DOT Name: MARTINEZ MNDT **NGS Name:** MARTINEZ

County: PINE, MN (Sheet 1)

NGS ACRN: RN0593 Get Map
NGS Quad / Sta Num : 46092333/1039
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	7	41 N	20 W	460259.17	925452.03	2	2

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1964	2008	GOOD	Horz=NO Vert=YES	YES		FLUSH	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	TRAVERSE STATION DISK	MNDT

Description: (1995) **Stamping:** MARTINEZ 1964

3.0 MILES NORTH-NORTHEAST OF HINCKLEY, 2.9 MILES NORTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 48, AT INTERSTATE HIGHWAY 35 MILEPOINT 185.9, 75.2 FEET EAST OF NORTHBOUND INTERSTATE HIGHWAY 35, 40.08 FEET SOUTHWEST OF MARTINEZ MNDT RM 1, 28.48 FEET NORTHWEST OF MARTINEZ MNDT RM 2, 3.2 FEET WEST OF A WITNESS POST.

Station Notes
MARTINEZ MNDT RM 1 AND MARTINEZ MNDT RM 2 WERE NOT SEARCHED FOR IN 1995.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1096.163	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1096.163	.016	2/1				VERTICAL CONTROL SURVEY	2009	VMOOSE
1096.163	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1095.864	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
1095.864	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
1095.864	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
1095.923	.016	2				VERTICAL CONTROL SURVEY	1975	L23805

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
1096.159	.197		1006.314	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -90.072 12B = -90.079 09 = -89.960 03 = -89.839

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 02 59.16848	92 54 52.03393	496329.772	216613.616	.066	2	ADJUSTMENT	1999	17648

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 02 59.16120	92 54 52.02438	496330.446	216612.879	.066	2	ADJUSTMENT	1986	17289

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 02 59.34300	92 54 51.29200			.100	2	CLASSICAL SURVEY	1982	17020
46 02 59.34332	92 54 51.29180			.100	2	CLASSICAL SURVEY	1950	UNK

MARTINEZ MNDT

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2963745.154	713741.710	1662129.527	16730874.520	.066	2	ADJUSTMENT	1999	17648

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2963745.840	713740.984	1662130.202	16730873.783	.066	2	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2339140.750	385674.338			.100	2	CLASSICAL SURVEY	1982	17020
2339140.760	385674.370			.100	2	CLASSICAL SURVEY	1950	UNK

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/MARTINEZ-RN0593-3E-12NOV2008.jpg	E	Nov 12, 2008
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/MARTINEZ-RN0593-2-12NOV2008.jpg		Nov 12, 2008
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/MARTINEZ-RN0593-1-12NOV2008.jpg		Nov 12, 2008

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

MARTINEZ MNDT RM 1

Mn/DOT Name: MARTINEZ MNDT RM 1 **NGS Name:** MARTINEZ RM 1

County: PINE, MN (Sheet 1)

NGS ACRN: RN0592 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	7	41 N	20 W	460259.36	925451.53	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1964	2008	GOOD	Horz=NO Vert=YES	YES		FLUSH	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	MNDT

Description: (2008) **Stamping:** MARTINEZ NO 1 1964

3.0 MILES NORTH-NORTHEAST OF HINCKLEY, 2.9 MILES NORTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 48 AT HINCKLEY, 97.0 FEET EAST OF NORTHBOUND INTERSTATE HIGHWAY 35, AT INTERSTATE HIGHWAY 35 MILEPOINT 185.9, 52.2 FEET NORTH OF MARTINEZ RM 2, 40.08 FEET NORTHEAST OF STATION MARTINEZ MNDT, 31.0 FEET NORTH OF THE PINE COUNTY WITNESS POST, 2.5 FEET WEST OF A FENCE, 2.0 FEET WEST 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
1094.870	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1094.870	.016	2/1				VERTICAL CONTROL SURVEY	2009	VMOOSE
1094.870	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1094.571	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
1094.571	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
1094.571	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
1094.630	.016	2				VERTICAL CONTROL SURVEY	1975	L23805

Geoid Separations(ft): GEOID18 = -90.072 12B = -90.075 09 = -89.960 03 = -89.839

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

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/MARTINEZ_RM_1-RN0592-3E-12NOV2008.jpg	E	Nov 12, 2008
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/MARTINEZ_RM_1-RN0592-2-12NOV2008.jpg		Nov 12, 2008
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/MARTINEZ_RM_1-RN0592-1-12NOV2008.jpg		Nov 12, 2008

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

MARTINEZ MNDT RM 2

Mn/DOT Name: MARTINEZ MNDT RM 2 **NGS Name:** MARTINEZ RM 2

County: PINE, MN (Sheet 1)

NGS ACRN: RN0594 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	7	41 N	20 W	460258.91	925451.89	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1964	2008	GOOD	Horz=NO Vert=YES	YES		FLUSH	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	MNDT

Description: (1964) **Stamping:** MARTINEZ NO 2 1964

3.0 MILES NORTH-NORTHEAST OF HINCKLEY, 2.9 MILES NORTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 48 AT HINCKLEY, AT INTERSTATE HIGHWAY 35 MILEPOINT 185.9, 97.0 FEET EAST OF NORTHBOUND INTERSTATE HIGHWAY 35, 52.2 FEET SOUTH OF MARTINEZ MNDT RM 1, 28.48 FEET SOUTHEAST OF STATION MARTINEZ MNDT, 20.8 FEET SOUTH OF A STEEL POST, 2.2 FEET WEST OF A FENCE, 2.0 FEET WEST 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
1095.119	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1095.119	.016	2/1				VERTICAL CONTROL SURVEY	2009	VMOOSE
1095.119	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1094.817	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
1094.817	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
1094.817	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
1094.876	.016	2				VERTICAL CONTROL SURVEY	1975	L23805

Geoid Separations(ft): GEOID18 = -90.072 12B = -90.079 09 = -89.960 03 = -89.839

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

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/MARTINEZ_RM_2-RN0594-3E-12NOV2008.jpg	E	Nov 12, 2008
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/MARTINEZ_RM_2-RN0594-2-12NOV2008.jpg		Nov 12, 2008
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/MARTINEZ_RM_2-RN0594-1-12NOV2008.jpg		Nov 12, 2008

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

MEAD MNDT

Mn/DOT Name: MEAD MNDT **NGS Name:** MEAD

County: PINE, MN (Sheet 1)

NGS ACRN: DE5987 Get Map
NGS Quad / Sta Num : 46092322/
USGS Quad: WILBUR LAKE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	20	41 N	17 W	460044.66	923109.21	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1996	2012	DESTROYED	Horz=NO Vert=NO	YES		PROJECTS 2 IN.	MARKER W/BAR MAGNET

Monument Type: UNKNOWN
Disk Type: SURVEY DISK
Mon. Agency: MNDT

Description: (1996) **Stamping:** MEAD 1996

20.4 MILES EAST OF HINCKLEY, 19.8 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND INTERSTATE HIGHWAY 35 IN HINCKLEY, 1.55 MILES WEST OF COUNTY ROAD 137, AT TRUNK HIGHWAY 48 MILEPOINT 19.9, THE STATION IS ON THE NORTH SIDE OF TRUNK HIGHWAY 48, 2.6 FEET NORTH 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
963.528	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
963.699	.016	2/1				VERTICAL ADJUSTMENT	2006	00000497
963.755	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
963.479	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
			876.662	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			876.773	.010	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
963.745	.131		876.927	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1839
963.745	.131		876.927	.066	1996	GPS - STATIC	2002	HPINE
963.745	.131		876.927	.066	1996	HORIZONTAL ADJUSTMENT	2002	GPS1700
963.745	.131		876.927	.066	1996	GPS - STATIC	2001	HCLOV

Geoid Separations(ft): GEOID18 = -86.863 12B = -86.955 09 = -86.932 03 = -86.811

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 44.65501	92 31 09.21163	596753.800	203218.387	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 44.65512	92 31 09.21234	596753.750	203218.397	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 44.65499	92 31 09.21211	596753.766	203218.385	.033	C	ADJUSTMENT	2003	GPS1839
46 00 44.65499	92 31 09.21211	596753.767	203218.383	.033	C	GPS - STATIC	2002	HPINE
46 00 44.65499	92 31 09.21211	596753.766	203218.385	.033	C	ADJUSTMENT	2002	GPS1700
46 00 44.65499	92 31 09.21211	596753.766	203218.385	.033	C	GPS - STATIC	2001	HCLOV

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 44.64801	92 31 09.20459	596754.302	203217.681	.033	C	GPS - STATIC	1997	HCLOV

MEAD MNDT

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3064372.274	702062.270	1762526.499	16717611.036	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3064372.224	702062.280	1762526.448	16717611.047	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3064372.241	702062.267	1762526.464	16717611.034	.033	C	ADJUSTMENT	2003	GPS1839
3064372.241	702062.267	1762526.464	16717611.034	.033	C	GPS - STATIC	2002	HPINE
3064372.241	702062.267	1762526.464	16717611.034	.033	C	ADJUSTMENT	2002	GPS1700
3064372.241	702062.267	1762526.464	16717611.034	.033	C	GPS - STATIC	2001	HCLOV

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3064372.787	702061.572	1762527.000	16717610.330	.033	C	GPS - STATIC	1997	HCLOV

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/MEAD-DE5987-3N-07MAY2008.jpg	N	May 7, 2008
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/MEAD-DE5987-2-07MAY2008.jpg		May 7, 2008
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/MEAD-DE5987-1-07MAY2008.jpg		May 7, 2008

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

MEAD MNDT RESET

Mn/DOT Name: MEAD MNDT RESET
NGS Name: MEAD RESET
County: PINE, MN (Sheet 1)

NGS ACRN: DO8708 Get Map
NGS Quad / Sta Num : 46092322/
USGS Quad: WILBUR LAKE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	20	41 N	17 W	460044.66	923109.21	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2012	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 25 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) **Stamping:** MEAD 1996 2012

10.6 MILES EAST OF CLOVERDALE, 10.6 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND COUNTY ROAD 21 IN CLOVERDALE, AT TRUNK HIGHWAY 48 MILEPOINT 19.9, 72.0 FEET NORTH OF TRUNK HIGHWAY 48, 2.6 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
963.341	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
963.509	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
963.515			876.481	.011	2011	HORIZONTAL ADJUSTMENT	2015	GPS3071
963.515			876.481	.011	2011	GPS - STATIC	2015	HCLVR
963.581	.131		876.635	.066	2007	GPS - STATIC	2012	HCLVR
963.581	.131		876.757	.066	1996	GPS - STATIC	2012	HCLVR
963.453	.262		876.521	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -86.863 12B = -86.955 09 = -86.932 03 = -86. 811

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 44.65504	92 31 09.21136	596753.819	203218.390	.016		ADJUSTMENT	2015	GPS3071
46 00 44.65504	92 31 09.21136	596753.819	203218.390	.016	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 44.65528	92 31 09.21213	596753.764	203218.414	.033	C	GPS - STATIC	2012	HCLVR
46 00 44.65444	92 31 09.21099	596753.846	203218.329	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 44.65516	92 31 09.21186	596753.784	203218.402	.033	C	GPS - STATIC	2012	HCLVR

MEAD MNDT RESET

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3064372.293	702062.273	1762526.518	16717611.039	.016		ADJUSTMENT	2015	GPS3071
3064372.293	702062.273	1762526.518	16717611.039	.016	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3064372.239	702062.296	1762526.463	16717611.063	.033	C	GPS - STATIC	2012	HCLVR
3064372.321	702062.213	1762526.544	16717610.979	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3064372.258	702062.285	1762526.482	16717611.051	.033	C	GPS - STATIC	2012	HCLVR

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/MEAD_RESET-DO8708-3N-08MAY2012.jpg	N	May 8, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/MEAD_RESET-DO8708-2-08MAY2012.jpg		May 8, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/MEAD_RESET-DO8708-1-08MAY2012.jpg		May 8, 2012

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

MHD 19 ADJ

Mn/DOT Name: MHD 19 ADJ
NGS Name: MHD 19 ADJ
County: PINE, MN (Sheet 1)

NGS ACRN: Get Map
NGS Quad / Sta Num : 45092442/
USGS Quad: BASS CREEK

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	24	38 N	20 W	454624.00	924656.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
	2007	DESTROYED	Horz=NO Vert=NO	NO	4813		SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
BRIDGE ABUTMENT	SURVEY DISK	MNDT

Description: (1954)

Stamping:

8.7 MILES EAST-NORTHEAST OF ROCK CREEK, 4.3 MILES WEST OF GRANTSBURG WISCONSIN, NEAR THE STATE LINE, 12.0 FEET SOUTH OF TRUNK HIGHWAY 70, IN THE WEST END OF TRUNK HIGHWAY 70 BRIDGE NUMBER 4813 OVER THE ST. CROIX RIVER, IN LINE WITH AN EAST ABUTMENT.

Station Notes

THE YEAR SET IS UNKNOWN. THE NEW BRIDGE IS IN PLACE.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
813.063	.033	3				VERTICAL CONTROL SURVEY	1966	USGS-VERT

Geoid Separations(ft): GEOID18 = -89.081 12B = -89.094 09 = -89.048 03 = -88.940

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

Mn/DOT Name: MISSION
NGS Name: MISSION
County: PINE, MN (Sheet 1)

NGS ACRN: QO0313 Get Map
NGS Quad / Sta Num : 45092444/1015
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	10	40 N	21 W	455816.12	925713.42	2	2

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2012	GOOD	Horz=NO Vert=YES	YES		PROJECTS 2 IN.	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	NGS

Description: (1971) **Stamping:** MISSION 1961

2.8 MILES SOUTH-SOUTHWEST OF HINCKLEY, 0.4 MILE SOUTH ALONG COUNTY ROAD 61 FROM THE JUNCTION OF COUNTY ROAD 61 AND TRUNK HIGHWAY 23 WEST IN THE SOUTHEAST CORNER OF HINCKLEY, 106.0 FEET SOUTH OF THE SOUTH GATE POST, 85.0 FEET WEST OF COUNTY ROAD 61, 191.71 FEET SOUTHWEST OF MISSION RM 1, 69.8 FEET SOUTH OF MISSION RM 2, 7.0 FEET EAST OF A USCGS WITNESS POST AND A FENCE, 2.0 FEET EAST OF A MINNESOTA DEPARTMENT OF TRANSPORTATION 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
1022.947	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1022.947	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
1022.947	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1022.662	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
1022.662	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
1022.734	.016	2				VERTICAL CONTROL SURVEY	1974	L23306

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
1023.010	.262		932.784	.197	2007	GPS - RTRN	2012	RTRN2012
1022.964	.197		932.849	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -90.338 12B = -90.328 09 = -90.229 03 = -90.102

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 58 16.11810	92 57 13.41997	486337.703	187944.472	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 58 16.11698	92 57 13.41995	486337.704	187944.358	.066	2	ADJUSTMENT	1999	17648
45 58 16.11161	92 57 13.41427	486338.105	187943.814	.066	2	ADJUSTMENT	1991	17497

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 58 16.11080	92 57 13.41457	486338.084	187943.732	.066	2	ADJUSTMENT	1986	17289

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 58 16.27760	92 57 12.67710			.100	2	CLASSICAL SURVEY	1961	12611

MISSION

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2954244.106	684909.478	1652177.890	16702205.546	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2954244.110	684909.364	1652177.891	16702205.433	.066	2	ADJUSTMENT	1999	17648
2954244.520	684908.827	1652178.292	16702204.889	.066	2	ADJUSTMENT	1991	17497

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2954244.500	684908.744	1652178.271	16702204.807	.066	2	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2329639.574	356840.728			.100	2	CLASSICAL SURVEY	1961	12611

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/MISSION-QO0313-3N-13NOV2011.jpg	N	Nov 13, 2011
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/MISSION-QO0313-2-13NOV2011.jpg		Nov 13, 2011
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/MISSION-QO0313-1-13NOV2011.jpg		Nov 13, 2011

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

MISSION AZ MK

Mn/DOT Name: MISSION AZ MK
NGS Name: MISSION AZ MK
County: PINE, MN (Sheet 1)

NGS ACRN: QO0310 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	3	40 N	21 W	455848.45	925703.26	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2012	GOOD	Horz=NO Vert=YES	YES		FLUSH	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	NGS

Description: (2008) **Stamping:** MISSION 1961

2.2 MILES SOUTH OF HINCKLEY, 0.15 MILE NORTHEAST ALONG COUNTY ROAD 61 FROM THE JUNCTION OF COUNTY ROAD 61 AND TRUNK HIGHWAY 23 IN MISSION CREEK, THEN 0.25 MILE NORTH ALONG OLD COUNTY ROAD 61, 74.0 FEET EAST OF COUNTY ROAD 61, 35.0 FEET NORTHEAST OF A CULVERT UNDER A FIELD ENTRANCE EAST, 1.0 FOOT WEST 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
999.486	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
999.486	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
999.486	.016	2/1				VERTICAL CONTROL SURVEY	2009	VMOOSE
999.486	.016	2/1				VERTICAL ADJUSTMENT	2008	00000561
999.483	.016	2/1				VERTICAL CONTROL SURVEY	2005	VHINC
999.506	.016	2				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
999.220	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
999.220	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
999.293	.016	2				VERTICAL CONTROL SURVEY	1974	L23306

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
999.588	.262		909.398	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -90.305 12B = -90.298 09 = -90.190 03 = -90.069

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 58 48.44525	92 57 03.25902	487057.521	191218.770	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2954907.956	688195.230	1652893.277	16705479.292	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/MISSION_AZ_MK-QO0310-3E-10NOV2008.jpg	E	Nov 10, 2008
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/MISSION_AZ_MK-QO0310-2-10NOV2008.jpg		Nov 10, 2008
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/MISSION_AZ_MK-QO0310-1-10NOV2008.jpg		Nov 10, 2008

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

MISSION RM 1

Mn/DOT Name: MISSION RM 1 **NGS Name:** MISSION RM 1

County: PINE, MN (Sheet 1)

NGS ACRN: QO0311 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	10	40 N	21 W	455816.94	925710.97	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
UNKNOWN	BENCH MARK DISK	NGS

Description: (1961) **Stamping:** MISSION 1961 NO. 1

2.8 MILES SOUTH OF HINCKLEY, 0.4 MILE SOUTH ALONG COUNTY ROAD 61 FROM THE JUNCTION OF COUNTY ROAD 61 AND TRUNK HIGHWAY 23 WEST, 191.7 FEET NORTHEAST OF STATION MISSION, 167.6 FEET EAST-NORTHEAST OF MISSION RM 2, 73.0 FEET EAST OF COUNTY ROAD 6, 45.0 FEET NORTH-NORTHEAST OF A 9.0 INCH DIAMETER SPRUCE TREE, 30.0 FEET NORTH OF A FIELD ENTRANCE EAST, 2.4 FEET WEST OF A FENCE, 198.0 FEET NORTHWEST 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
1020.326	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1020.041	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
1020.113	.016	2				VERTICAL CONTROL SURVEY	1974	L23306

Geoid Separations(ft): GEOID18 = -90.331 12B = -90.325 09 = -90.223 03 = -90.098

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

MISSION RM 2

Mn/DOT Name: MISSION RM 2 **NGS Name:** MISSION RM 2

County: PINE, MN (Sheet 1)

NGS ACRN: QO0312 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	10	40 N	21 W	455816.71	925713.38	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2012	GOOD	Horz=NO Vert=YES	YES		RECESSED 2 IN.	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description: (1961) **Stamping:** MISSION NO 2 1961

2.8 MILES SOUTH-SOUTHWEST OF HINCKLEY, 0.4 MILE SOUTH ALONG COUNTY ROAD 61 FROM THE JUNCTION OF COUNTY ROAD 61 AND TRUNK HIGHWAY 23 WEST, 190.0 FEET WEST OF COUNTY ROAD 61, 37.0 FEET SOUTH OF THE SOUTH GATE POST AT A FIELD ENTRANCE WEST, 4.0 FEET SOUTH-SOUTHEAST OF A 20.0 INCH DIAMETER BIRCH TREE, 1.0 FOOT EAST OF A FENCE, 167.6 FEET WEST-SOUTHWEST OF MISSION RM 1, 69.8 FEET NORTH OF STATION MISSION, 1.0 FOOT EAST 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
1021.848	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1021.848	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
1021.848	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1021.563	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
1021.563	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
1021.635	.016	2				VERTICAL CONTROL SURVEY	1974	L23306

Geoid Separations(ft): GEOID18 = -90.338 12B = -90.328 09 = -90.229 03 = -90.102

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

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/MISSION_RM_2-QO0312-3W-13NOV2011.jpg	W	Nov 13, 2011
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/MISSION_RM_2-QO0312-2-13NOV2011.jpg		Nov 13, 2011
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/MISSION_RM_2-QO0312-1-13NOV2011.jpg		Nov 13, 2011

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

MNCORS HINC HINCKLEY ARP

Mn/DOT Name: MNCORS HINC HINCKLEY ARP **NGS Name:** HINCKLEY CORS ARP

County: PINE, MN (Sheet 1)

NGS ACRN: DM3509 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	36	41 N	21 W	455905.66	925653.93	2	A

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2004	2015	GOOD	Horz=YES Vert=YES	YES		FLUSH	NO MAG MATERIAL

Monument Type	Disk Type	Mon. Agency
UNKNOWN	SEE DESCRIPTION	MNDT

Description: (2012)

Stamping:

1.8 MILES SOUTH OF HINCKLEY, 0.15 MILE NORTHEAST ON COUNTY ROAD 61 FROM THE SOUTH JUNCTION OF COUNTY ROAD 61, TRUNK HIGHWAY 23 AND INTERSTATE HIGHWAY 35 (2.0 MILES SOUTH OF HINCKLEY) THEN 0.6 MILE NORTH AND NORTHEAST ON A ROAD AND A TRACK ROAD, 68.0 FEET EAST OF NORTHBOUND INTERSTATE HIGHWAY 35 AT MILEPOINT 181.0, 37.6 FEET WEST OF A FENCE CORNER, 31.5 FEET SOUTH OF THE SOUTHEAST CORNER OF ELECTRICAL BOX NUMBER 240120.

Station Notes

THE NATIONAL GEODETIC SURVEY (NGS) SITE ID IS MNHN, THE FORMER PID DI9515 HAS BEEN COMBINED INTO THE CURRENT PID DM3509.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1036.566	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1036.566	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
1036.524	.016	2/1				VERTICAL ADJUSTMENT	2008	00000561
1036.524	.016	2/1				VERTICAL CONTROL SURVEY	2005	VHINC

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
1036.566			946.320	.010	2011	HORIZONTAL ADJUSTMENT	2026	GPS3893
1036.566			946.320	.010	2011	GPS - STATIC	2026	HBLAI
1036.566			946.310	.006	2011	HORIZONTAL ADJUSTMENT	2025	GPS3849
1036.566			946.310	.008	2011	HORIZONTAL ADJUSTMENT	2025	GPS3843
1036.566			946.310	.006	2011	GPS - STATIC	2025	H23KBEC1
1036.566			946.310	.008	2011	GPS - STATIC	2025	HMNARP9
1036.566			946.310	.011	2011	HORIZONTAL ADJUSTMENT	2025	GPS3823
1036.566			946.310	.006	2011	HORIZONTAL ADJUSTMENT	2025	GPS3802
1036.566			946.310	.011	2011	GPS - STATIC	2025	HMNARP8
1036.566	.131		946.461	.066	1996	GPS - STATIC	2024	H23KBEC2
1036.566			946.310	.006	2011	GPS - STATIC	2024	H23KBEC2
1036.566			946.310	.010	2011	HORIZONTAL ADJUSTMENT	2024	GPS3776
1036.566			946.310	.008	2011	HORIZONTAL ADJUSTMENT	2024	GPS3778
1036.566	.131		946.461	.066	1996	GPS - STATIC	2024	H23TODD3
1036.566			946.310	.008	2011	GPS - STATIC	2024	H23TODD3
1036.566	.131		946.461	.066	1996	GPS - STATIC	2024	H23TODD2
1036.566			946.310	.010	2011	GPS - STATIC	2024	H23TODD2
1036.566			946.310	.008	2011	HORIZONTAL ADJUSTMENT	2024	GPS3754
1036.566	.131		946.461	.066	1996	GPS - STATIC	2024	HJOBE
1036.566			946.310	.008	2011	GPS - STATIC	2024	HJOBE
1036.566			946.310	.008	2011	HORIZONTAL ADJUSTMENT	2024	GPS3704
1036.566	.131		946.461	.066	1996	GPS - STATIC	2024	HTH371
1036.566			946.310	.008	2011	GPS - STATIC	2024	HTH371
1036.566			946.310	.009	2011	HORIZONTAL ADJUSTMENT	2024	GPS3668
1036.566	.131		946.461	.066	1996	GPS - STATIC	2023	HWIK
1036.566			946.310	.009	2011	GPS - STATIC	2023	HWIK
1036.566			946.310	.015	2011	HORIZONTAL ADJUSTMENT	2023	GPS3567
1036.320	.131		946.461	.066	1996	GPS - STATIC	2023	HHOYLE
1036.566			946.310	.015	2011	GPS - STATIC	2023	HHOYLE
1036.566			946.310	.013	2011	HORIZONTAL ADJUSTMENT	2022	GPS3553
1036.566	.131		946.461	.066	1996	GPS - STATIC	2022	HSPLIT
1036.566			946.310	.013	2011	GPS - STATIC	2022	HSPLIT
1036.566			946.310	.007	2011	HORIZONTAL ADJUSTMENT	2022	GPS3522
1036.566	.131		946.461	.066	1996	GPS - STATIC	2022	H21MORRNE
1036.566			946.310	.007	2011	GPS - STATIC	2022	H21MORRNE
1036.566			946.310	.013	2011	HORIZONTAL ADJUSTMENT	2022	GPS3507
1036.566	.131		946.461	.066	1996	GPS - STATIC	2022	H21MORRSE
1036.566			946.310	.013	2011	GPS - STATIC	2022	H21MORRSE
1036.566			946.310	.010	2011	HORIZONTAL ADJUSTMENT	2022	GPS3504
1036.566	.131		946.461	.066	1996	GPS - STATIC	2022	H21MORRSW
1036.566			946.310	.010	2011	GPS - STATIC	2022	H21MORRSW
1036.566			946.310	.010	2011	HORIZONTAL ADJUSTMENT	2022	GPS3493
1036.566	.131		946.461	.066	1996	GPS - STATIC	2022	H21MORRNW
1036.566			946.310	.010	2011	GPS - STATIC	2022	H21MORRNW
1036.566			946.310	.008	2011	HORIZONTAL ADJUSTMENT	2021	GPS3451
1036.566			946.310	.010	2011	HORIZONTAL ADJUSTMENT	2021	GPS3446
1036.566	.131		946.461	.066	1996	GPS - STATIC	2021	H19STRN2
1036.566			946.310	.008	2011	GPS - STATIC	2021	H19STRN2
1036.566	.131		946.461	.066	1996	GPS - STATIC	2021	HALME
1036.566			946.310	.010	2011	GPS - STATIC	2021	HALME
1036.566			946.310	.010	2011	HORIZONTAL ADJUSTMENT	2021	GPS3424
1036.566	.131		946.461	.066	1996	GPS - STATIC	2021	HOTSE
1036.566			946.310	.010	2011	GPS - STATIC	2021	HOTSE
1036.566	.131		946.461	.066	1996	GPS - STATIC	2021	H18WRIG2
1036.566	.131		946.461	.066	1996	GPS - STATIC	2021	H18WRIG1
1036.566	.131		946.461	.066	1996	GPS - STATIC	2021	HRCOE2
1036.566			946.310	.010	2011	HORIZONTAL ADJUSTMENT	2020	GPS3404
1036.566			946.310	.010	2011	GPS - STATIC	2020	H18WRIG1

1036.566		946.310	.010	2011	HORIZONTAL ADJUSTMENT	2020	GPS3398
1036.566		946.310	.010	2011	GPS - STATIC	2020	H18WRIG2
1036.566		946.310	.009	2011	HORIZONTAL ADJUSTMENT	2020	GPS3414
1036.566		946.310	.009	2011	GPS - STATIC	2020	HRCOE2
1036.566		946.310	.004	2011	HORIZONTAL ADJUSTMENT	2020	GPS3361
1036.566	.131	946.461	.066	1996	GPS - STATIC	2020	HTH169
1036.566		946.310	.004	2011	GPS - STATIC	2020	HTH169
1036.556		946.310	.013	2011	GPS - STATIC	2019	HTH24
		946.307	.010	2011	HORIZONTAL ADJUSTMENT	2019	CORS-MYCS2
1036.556		946.310	.013	2011	HORIZONTAL ADJUSTMENT	2019	GPS3330
1036.566	.131	946.461	.066	1996	GPS - STATIC	2019	HTH24
1036.566		946.274	.008	2011	HORIZONTAL ADJUSTMENT	2019	GPS3322
1036.566		946.274	.011	2011	HORIZONTAL ADJUSTMENT	2019	GPS3304
1036.566	.131	946.461	.066	1996	GPS - STATIC	2019	HCARL
1036.566		946.274	.008	2011	GPS - STATIC	2019	HCARL
1036.566		946.274	.008	2011	HORIZONTAL ADJUSTMENT	2019	GPS3278
1036.566		946.274	.012	2011	HORIZONTAL ADJUSTMENT	2018	GPS3277
1036.566	.131	946.461	.066	1996	GPS - STATIC	2018	HTH47
1036.566		946.274	.008	2011	GPS - STATIC	2018	HTH47
1036.566	.131	946.461	.066	1996	GPS - STATIC	2018	HTH65
1036.566		946.274	.012	2011	GPS - STATIC	2018	HTH65
1036.566	.131	946.461	.066	1996	GPS - STATIC	2018	HBENT
1036.566		946.274	.011	2011	GPS - STATIC	2018	HBENT
1036.566		946.274	.009	2011	HORIZONTAL ADJUSTMENT	2018	GPS3228
1036.566	.131	946.461	.066	1996	GPS - STATIC	2018	HMLAC
1036.566		946.274	.009	2011	GPS - STATIC	2018	HMLAC
1036.566		946.274	.006	2011	HORIZONTAL ADJUSTMENT	2018	GPS3119
1036.487	.131	946.461	.066	1996	GPS - STATIC	2017	HMNCORS07
1036.566		946.274	.006	2011	GPS - STATIC	2017	HMNPH
		946.284	.002	2011	GPS - STATIC	2015	HMNCORS15
		946.274	.009	2011	HORIZONTAL ADJUSTMENT	2015	GPS3100
1036.514	.131	946.461	.066	1996	GPS - STATIC	2015	HSFRAN
1036.461		946.258	.009	2011	GPS - STATIC	2015	HSFRAN
1036.524		946.274	.015	2011	HORIZONTAL ADJUSTMENT	2015	GPS3071
1036.524		946.258	.015	2011	GPS - STATIC	2015	HCLVR
1036.524		946.274	.008	2011	HORIZONTAL ADJUSTMENT	2014	GPS3044
1036.524	.131	946.461	.066	1996	GPS - STATIC	2014	HPCTY
1036.524		946.255	.008	2011	GPS - STATIC	2014	HPCTY
1036.524		946.274	.013	2011	HORIZONTAL ADJUSTMENT	2014	GPS3016
1036.524	.131	946.461	.066	1996	GPS - STATIC	2014	HTFAL
1036.524		946.258	.013	2011	GPS - STATIC	2014	HTFAL
		946.461	.066	1996	GPS - STATIC	2014	HMNCORS06
1036.524		946.274	.010	2011	HORIZONTAL ADJUSTMENT	2013	GPS2920
1036.524		946.274	.011	2011	GPS - STATIC	2013	HCHMP
1036.546	.098	946.274	.049	2011	GPS - STATIC	2012	HMNCORS05
		946.274	.000	2011	HORIZONTAL ADJUSTMENT	2012	CORS-MYCS
		946.274	.000	2011	HORIZONTAL ADJUSTMENT	2011	CORS3429
		946.271	.000	2007	HORIZONTAL ADJUSTMENT	2010	CORS2765
1036.514	.098	946.333	.049	1996	GPS - STATIC	2006	HMNCORS02

Geoid Separations(ft): GEOID18 = -90.282 12B = -90.275 09 = -90.167 03 = -90.042

MNCORS HINC HINCKLEY ARP

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 59 05.66038	92 56 53.93118	487717.349	192962.270	.003		ADJUSTMENT	2026	GPS3893
45 59 05.66038	92 56 53.93118	487717.349	192962.270	.003	C	GPS - STATIC	2026	HBLAI
45 59 05.66054	92 56 53.93124	487717.345	192962.286	.003		ADJUSTMENT	2025	GPS3849
45 59 05.66054	92 56 53.93124	487717.345	192962.286	.003		ADJUSTMENT	2025	GPS3843
45 59 05.66054	92 56 53.93124	487717.345	192962.286	.003	C	GPS - STATIC	2025	H23KBEC1
45 59 05.66054	92 56 53.93124	487717.345	192962.286	.003	C	GPS - STATIC	2025	HMNARP9
45 59 05.66054	92 56 53.93124	487717.345	192962.286	.007		ADJUSTMENT	2025	GPS3823
45 59 05.66054	92 56 53.93124	487717.345	192962.286	.003		ADJUSTMENT	2025	GPS3802
45 59 05.66054	92 56 53.93124	487717.345	192962.286	.007	C	GPS - STATIC	2025	HMNARP8
45 59 05.66054	92 56 53.93124	487717.345	192962.286	.003	C	GPS - STATIC	2024	H23KBEC2
45 59 05.66054	92 56 53.93124	487717.345	192962.286	.007		ADJUSTMENT	2024	GPS3776
45 59 05.66054	92 56 53.93124	487717.345	192962.286	.003		ADJUSTMENT	2024	GPS3778
45 59 05.66054	92 56 53.93124	487717.345	192962.286	.003	C	GPS - STATIC	2024	H23TODD3
45 59 05.66054	92 56 53.93124	487717.345	192962.286	.007	C	GPS - STATIC	2024	H23TODD2
45 59 05.66054	92 56 53.93124	487717.345	192962.286	.003		ADJUSTMENT	2024	GPS3754
45 59 05.66054	92 56 53.93124	487717.345	192962.286	.003	C	GPS - STATIC	2024	HJOBE
45 59 05.66054	92 56 53.93124	487717.345	192962.286	.003		ADJUSTMENT	2024	GPS3704
45 59 05.66054	92 56 53.93124	487717.345	192962.286	.003	C	GPS - STATIC	2024	HTH371
45 59 05.66054	92 56 53.93124	487717.345	192962.286	.007		ADJUSTMENT	2024	GPS3668
45 59 05.66054	92 56 53.93124	487717.345	192962.286	.007	C	GPS - STATIC	2023	HWIK
45 59 05.66054	92 56 53.93124	487717.345	192962.286	.007		ADJUSTMENT	2023	GPS3567
45 59 05.66054	92 56 53.93124	487717.345	192962.286	.007	C	GPS - STATIC	2023	HHOYLE
45 59 05.66054	92 56 53.93124	487717.345	192962.286	.007		ADJUSTMENT	2022	GPS3553
45 59 05.66054	92 56 53.93124	487717.345	192962.286	.007	C	GPS - STATIC	2022	HSPLIT
45 59 05.66054	92 56 53.93124	487717.345	192962.286	.007		ADJUSTMENT	2022	GPS3522
45 59 05.66054	92 56 53.93124	487717.345	192962.286	.007	C	GPS - STATIC	2022	H21MORRNE
45 59 05.66054	92 56 53.93124	487717.345	192962.286	.007		ADJUSTMENT	2022	GPS3507
45 59 05.66054	92 56 53.93124	487717.345	192962.286	.007	C	GPS - STATIC	2022	H21MORRSE
45 59 05.66054	92 56 53.93124	487717.345	192962.286	.007		ADJUSTMENT	2022	GPS3504
45 59 05.66054	92 56 53.93124	487717.345	192962.286	.007	C	GPS - STATIC	2022	H21MORRSW
45 59 05.66054	92 56 53.93124	487717.345	192962.286	.007		ADJUSTMENT	2022	GPS3493
45 59 05.66054	92 56 53.93124	487717.345	192962.286	.007	C	GPS - STATIC	2022	H21MORRNW
45 59 05.66054	92 56 53.93124	487717.345	192962.286	.003		ADJUSTMENT	2021	GPS3451
45 59 05.66054	92 56 53.93124	487717.345	192962.286	.003		ADJUSTMENT	2021	GPS3446
45 59 05.66054	92 56 53.93124	487717.345	192962.286	.003	C	GPS - STATIC	2021	H19STRN2
45 59 05.66054	92 56 53.93124	487717.345	192962.286	.003	C	GPS - STATIC	2021	HALME
45 59 05.66054	92 56 53.93124	487717.345	192962.286	.007		ADJUSTMENT	2021	GPS3424
45 59 05.66054	92 56 53.93124	487717.345	192962.286	.007	C	GPS - STATIC	2021	HOTSE
45 59 05.66054	92 56 53.93124	487717.345	192962.286	.003		ADJUSTMENT	2020	GPS3404
45 59 05.66054	92 56 53.93124	487717.345	192962.286	.003	C	GPS - STATIC	2020	H18WRIG1
45 59 05.66054	92 56 53.93124	487717.345	192962.286	.003		ADJUSTMENT	2020	GPS3398
45 59 05.66054	92 56 53.93124	487717.345	192962.286	.003	C	GPS - STATIC	2020	H18WRIG2
45 59 05.66054	92 56 53.93124	487717.345	192962.286	.007		ADJUSTMENT	2020	GPS3414
45 59 05.66054	92 56 53.93124	487717.345	192962.286	.007	C	GPS - STATIC	2020	HRCOE2
45 59 05.66054	92 56 53.93124	487717.345	192962.286	.003		ADJUSTMENT	2020	GPS3361
45 59 05.66054	92 56 53.93124	487717.345	192962.286	.003	C	GPS - STATIC	2020	HTH169
45 59 05.66054	92 56 53.93124	487717.345	192962.286	.010	C	GPS - STATIC	2019	HTH24
45 59 05.66054	92 56 53.93122	487717.346	192962.286	.003		ADJUSTMENT	2019	CORS-MYCS2
45 59 05.66054	92 56 53.93124	487717.345	192962.286	.010		ADJUSTMENT	2019	GPS3330
45 59 05.66054	92 56 53.93117	487717.350	192962.286	.007		ADJUSTMENT	2019	GPS3322
45 59 05.66054	92 56 53.93117	487717.350	192962.286	.007		ADJUSTMENT	2019	GPS3304
45 59 05.66054	92 56 53.93117	487717.350	192962.286	.007	C	GPS - STATIC	2019	HCARL
45 59 05.66054	92 56 53.93117	487717.350	192962.286	.003		ADJUSTMENT	2019	GPS3278
45 59 05.66054	92 56 53.93117	487717.350	192962.286	.007		ADJUSTMENT	2018	GPS3277
45 59 05.66054	92 56 53.93117	487717.350	192962.286	.003	C	GPS - STATIC	2018	HTH47
45 59 05.66054	92 56 53.93117	487717.350	192962.286	.007	C	GPS - STATIC	2018	HTH65
45 59 05.66054	92 56 53.93117	487717.350	192962.286	.007	C	GPS - STATIC	2018	HBENT
45 59 05.66054	92 56 53.93117	487717.350	192962.286	.007		ADJUSTMENT	2018	GPS3228

45 59 05.66054	92 56 53.93117	487717.350	192962.286	.007	C	GPS - STATIC	2018	HMLAC
45 59 05.66054	92 56 53.93117	487717.350	192962.286	.003		ADJUSTMENT	2018	GPS3119
45 59 05.66054	92 56 53.93117	487717.350	192962.286	.003	C	GPS - STATIC	2017	HMNPH
45 59 05.66054	92 56 53.93120	487717.348	192962.286	.003	A	GPS - STATIC	2015	HMNCORS15
45 59 05.66054	92 56 53.93117	487717.350	192962.286	.003		ADJUSTMENT	2015	GPS3100
45 59 05.66047	92 56 53.93117	487717.350	192962.279	.003	C	GPS - STATIC	2015	HSFRAN
45 59 05.66054	92 56 53.93117	487717.350	192962.286	.010		ADJUSTMENT	2015	GPS3071
45 59 05.66051	92 56 53.93126	487717.343	192962.283	.010	C	GPS - STATIC	2015	HCLVR
45 59 05.66054	92 56 53.93117	487717.350	192962.286	.003		ADJUSTMENT	2014	GPS3044
45 59 05.66044	92 56 53.93119	487717.348	192962.276	.003	C	GPS - STATIC	2014	HPCTY
45 59 05.66054	92 56 53.93117	487717.350	192962.286	.003		ADJUSTMENT	2014	GPS3016
45 59 05.66042	92 56 53.93117	487717.350	192962.274	.003	C	GPS - STATIC	2014	HTFAL
45 59 05.66054	92 56 53.93117	487717.350	192962.286	.007		ADJUSTMENT	2013	GPS2920
45 59 05.66055	92 56 53.93111	487717.354	192962.287	.007	C	GPS - STATIC	2013	HCHMP
45 59 05.66054	92 56 53.93117	487717.350	192962.286	.016	B	GPS - STATIC	2012	HMNCORS05
45 59 05.66054	92 56 53.93117	487717.350	192962.286	.003		ADJUSTMENT	2012	CORS-MYCS
45 59 05.66054	92 56 53.93117	487717.350	192962.286	.003	A	ADJUSTMENT	2011	CORS3429

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 59 05.66047	92 56 53.93200	487717.291	192962.279	.003	A	ADJUSTMENT	2010	CORS2765

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 59 05.66010	92 56 53.93096	487717.365	192962.241	.066		NCAT	2026	HBLAI
45 59 05.66026	92 56 53.93102	487717.361	192962.258	.066		NCAT	2025	H23KBEC1
45 59 05.66038	92 56 53.93140	487717.334	192962.270	.033	C	GPS - STATIC	2024	H23KBEC2
45 59 05.66038	92 56 53.93140	487717.334	192962.270	.033	C	GPS - STATIC	2024	H23TODD3
45 59 05.66038	92 56 53.93140	487717.334	192962.270	.033	C	GPS - STATIC	2024	H23TODD2
45 59 05.66038	92 56 53.93140	487717.334	192962.270	.033	C	GPS - STATIC	2024	HJOBE
45 59 05.66038	92 56 53.93140	487717.334	192962.270	.033	C	GPS - STATIC	2024	HTH371
45 59 05.66038	92 56 53.93140	487717.334	192962.270	.033	C	GPS - STATIC	2023	HWIK
45 59 05.66038	92 56 53.93140	487717.334	192962.270	.033	C	GPS - STATIC	2023	HHOYLE
45 59 05.66038	92 56 53.93140	487717.334	192962.270	.033	C	GPS - STATIC	2022	HSPLIT
45 59 05.66038	92 56 53.93140	487717.334	192962.270	.033	C	GPS - STATIC	2022	H21MORRNE
45 59 05.66038	92 56 53.93140	487717.334	192962.270	.033	C	GPS - STATIC	2022	H21MORRSE
45 59 05.66038	92 56 53.93140	487717.334	192962.270	.033	C	GPS - STATIC	2022	H21MORRSW
45 59 05.66038	92 56 53.93140	487717.334	192962.270	.033	C	GPS - STATIC	2022	H21MORRNW
45 59 05.66038	92 56 53.93140	487717.334	192962.270	.033	C	GPS - STATIC	2021	H19STRN2
45 59 05.66038	92 56 53.93140	487717.334	192962.270	.033	C	GPS - STATIC	2021	HALME
45 59 05.66038	92 56 53.93140	487717.334	192962.270	.033	C	GPS - STATIC	2021	HOTSE
45 59 05.66038	92 56 53.93140	487717.334	192962.270	.033	C	GPS - STATIC	2021	H18WRIG2
45 59 05.66038	92 56 53.93140	487717.334	192962.270	.033	C	GPS - STATIC	2021	H18WRIG1
45 59 05.66038	92 56 53.93140	487717.334	192962.270	.033	C	GPS - STATIC	2021	HRCOE2
45 59 05.66038	92 56 53.93140	487717.334	192962.270	.033	C	GPS - STATIC	2020	HTH169
45 59 05.66038	92 56 53.93140	487717.334	192962.270	.033	C	GPS - STATIC	2019	HTH24
45 59 05.66038	92 56 53.93140	487717.334	192962.270	.033	C	GPS - STATIC	2019	HCARL
45 59 05.66038	92 56 53.93140	487717.334	192962.270	.033	C	GPS - STATIC	2018	HTH47
45 59 05.66038	92 56 53.93140	487717.334	192962.270	.033	C	GPS - STATIC	2018	HTH65
45 59 05.66038	92 56 53.93140	487717.334	192962.270	.033	C	GPS - STATIC	2018	HBENT
45 59 05.66038	92 56 53.93140	487717.334	192962.270	.033	C	GPS - STATIC	2018	HMLAC
45 59 05.66038	92 56 53.93140	487717.334	192962.270	.033	C	GPS - STATIC	2017	HMNCORS07
45 59 05.66038	92 56 53.93140	487717.334	192962.270	.033	C	GPS - STATIC	2015	HSFRAN
45 59 05.66038	92 56 53.93140	487717.334	192962.270	.033	C	GPS - STATIC	2014	HPCTY
45 59 05.66038	92 56 53.93140	487717.334	192962.270	.033	C	GPS - STATIC	2014	HTFAL
45 59 05.66038	92 56 53.93140	487717.334	192962.270	.033	C	GPS - STATIC	2014	HMNCORS06
45 59 05.66069	92 56 53.93189	487717.299	192962.301	.016	B	GPS - STATIC	2006	HMNCORS02

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2955537.912	689949.540	1653550.623	16707222.846	.003		ADJUSTMENT	2026	GPS3893
2955537.912	689949.540	1653550.623	16707222.846	.003	C	GPS - STATIC	2026	HBLAI
2955537.908	689949.556	1653550.619	16707222.862	.003		ADJUSTMENT	2025	GPS3849
2955537.908	689949.556	1653550.619	16707222.862	.003		ADJUSTMENT	2025	GPS3843
2955537.908	689949.556	1653550.619	16707222.862	.003	C	GPS - STATIC	2025	H23KBEC1
2955537.908	689949.556	1653550.619	16707222.862	.003	C	GPS - STATIC	2025	HMNARP9
2955537.908	689949.556	1653550.619	16707222.862	.007		ADJUSTMENT	2025	GPS3823
2955537.908	689949.556	1653550.619	16707222.862	.003		ADJUSTMENT	2025	GPS3802
2955537.908	689949.556	1653550.619	16707222.862	.007	C	GPS - STATIC	2025	HMNARP8
2955537.908	689949.556	1653550.619	16707222.862	.003	C	GPS - STATIC	2024	H23KBEC2
2955537.908	689949.556	1653550.619	16707222.862	.007		ADJUSTMENT	2024	GPS3776
2955537.908	689949.556	1653550.619	16707222.862	.003		ADJUSTMENT	2024	GPS3778
2955537.908	689949.556	1653550.619	16707222.862	.003	C	GPS - STATIC	2024	H23TODD3
2955537.908	689949.556	1653550.619	16707222.862	.007	C	GPS - STATIC	2024	H23TODD2
2955537.908	689949.556	1653550.619	16707222.862	.003		ADJUSTMENT	2024	GPS3754
2955537.908	689949.556	1653550.619	16707222.862	.003	C	GPS - STATIC	2024	HJOBE
2955537.908	689949.556	1653550.619	16707222.862	.003		ADJUSTMENT	2024	GPS3704
2955537.908	689949.556	1653550.619	16707222.862	.003	C	GPS - STATIC	2024	HTH371
2955537.908	689949.556	1653550.619	16707222.862	.007		ADJUSTMENT	2024	GPS3668
2955537.908	689949.556	1653550.619	16707222.862	.007	C	GPS - STATIC	2023	HWIK
2955537.908	689949.556	1653550.619	16707222.862	.007		ADJUSTMENT	2023	GPS3567
2955537.908	689949.556	1653550.619	16707222.862	.007	C	GPS - STATIC	2023	HHOYLE
2955537.908	689949.556	1653550.619	16707222.862	.007		ADJUSTMENT	2022	GPS3553
2955537.908	689949.556	1653550.619	16707222.862	.007	C	GPS - STATIC	2022	HSPLIT
2955537.908	689949.556	1653550.619	16707222.862	.007		ADJUSTMENT	2022	GPS3522
2955537.908	689949.556	1653550.619	16707222.862	.007	C	GPS - STATIC	2022	H21MORRNE
2955537.908	689949.556	1653550.619	16707222.862	.007		ADJUSTMENT	2022	GPS3507
2955537.908	689949.556	1653550.619	16707222.862	.007	C	GPS - STATIC	2022	H21MORRSE
2955537.908	689949.556	1653550.619	16707222.862	.007		ADJUSTMENT	2022	GPS3504
2955537.908	689949.556	1653550.619	16707222.862	.007	C	GPS - STATIC	2022	H21MORRSW
2955537.908	689949.556	1653550.619	16707222.862	.007		ADJUSTMENT	2022	GPS3493
2955537.908	689949.556	1653550.619	16707222.862	.007	C	GPS - STATIC	2022	H21MORRNW
2955537.908	689949.556	1653550.619	16707222.862	.003		ADJUSTMENT	2021	GPS3451
2955537.908	689949.556	1653550.619	16707222.862	.003		ADJUSTMENT	2021	GPS3446
2955537.908	689949.556	1653550.619	16707222.862	.003	C	GPS - STATIC	2021	H19STRN2
2955537.908	689949.556	1653550.619	16707222.862	.003	C	GPS - STATIC	2021	HALME
2955537.908	689949.556	1653550.619	16707222.862	.007		ADJUSTMENT	2021	GPS3424
2955537.908	689949.556	1653550.619	16707222.862	.007	C	GPS - STATIC	2021	HOTSE
2955537.908	689949.556	1653550.619	16707222.862	.003		ADJUSTMENT	2020	GPS3404
2955537.908	689949.556	1653550.619	16707222.862	.003	C	GPS - STATIC	2020	H18WRIG1
2955537.908	689949.556	1653550.619	16707222.862	.003		ADJUSTMENT	2020	GPS3398
2955537.908	689949.556	1653550.619	16707222.862	.003	C	GPS - STATIC	2020	H18WRIG2
2955537.908	689949.556	1653550.619	16707222.862	.007		ADJUSTMENT	2020	GPS3414
2955537.908	689949.556	1653550.619	16707222.862	.007	C	GPS - STATIC	2020	HRCOE2
2955537.908	689949.556	1653550.619	16707222.862	.003		ADJUSTMENT	2020	GPS3361
2955537.908	689949.556	1653550.619	16707222.862	.003	C	GPS - STATIC	2020	HTH169
2955537.908	689949.556	1653550.619	16707222.862	.010	C	GPS - STATIC	2019	HTH24
2955537.909	689949.556	1653550.620	16707222.862	.003		ADJUSTMENT	2019	CORS-MYCS2
2955537.908	689949.556	1653550.619	16707222.862	.010		ADJUSTMENT	2019	GPS3330
2955537.913	689949.556	1653550.624	16707222.862	.007		ADJUSTMENT	2019	GPS3322
2955537.913	689949.556	1653550.624	16707222.862	.007		ADJUSTMENT	2019	GPS3304
2955537.913	689949.556	1653550.624	16707222.862	.007	C	GPS - STATIC	2019	HCARL
2955537.913	689949.556	1653550.624	16707222.862	.003		ADJUSTMENT	2019	GPS3278
2955537.913	689949.556	1653550.624	16707222.862	.007		ADJUSTMENT	2018	GPS3277
2955537.913	689949.556	1653550.624	16707222.862	.003	C	GPS - STATIC	2018	HTH47
2955537.913	689949.556	1653550.624	16707222.862	.007	C	GPS - STATIC	2018	HTH65
2955537.913	689949.556	1653550.624	16707222.862	.007	C	GPS - STATIC	2018	HBENT

2955537.913	689949.556	1653550.624	16707222.862	.007		ADJUSTMENT	2018	GPS3228
2955537.913	689949.556	1653550.624	16707222.862	.007	C	GPS - STATIC	2018	HMLAC
2955537.913	689949.556	1653550.624	16707222.862	.003		ADJUSTMENT	2018	GPS3119
2955537.913	689949.556	1653550.624	16707222.862	.003	C	GPS - STATIC	2017	HMNPH
2955537.911	689949.556	1653550.622	16707222.862	.003	A	GPS - STATIC	2015	HMNCORS15
2955537.913	689949.556	1653550.624	16707222.862	.003		ADJUSTMENT	2015	GPS3100
2955537.913	689949.549	1653550.624	16707222.855	.003	C	GPS - STATIC	2015	HSFRAN
2955537.913	689949.556	1653550.624	16707222.862	.010		ADJUSTMENT	2015	GPS3071
2955537.906	689949.553	1653550.617	16707222.859	.010	C	GPS - STATIC	2015	HCLVR
2955537.913	689949.556	1653550.624	16707222.862	.003		ADJUSTMENT	2014	GPS3044
2955537.911	689949.546	1653550.622	16707222.852	.003	C	GPS - STATIC	2014	HPCTY
2955537.913	689949.556	1653550.624	16707222.862	.003		ADJUSTMENT	2014	GPS3016
2955537.913	689949.544	1653550.624	16707222.850	.003	C	GPS - STATIC	2014	HTFAL
2955537.913	689949.556	1653550.624	16707222.862	.007		ADJUSTMENT	2013	GPS2920
2955537.917	689949.557	1653550.628	16707222.863	.007	C	GPS - STATIC	2013	HCHMP
2955537.913	689949.556	1653550.624	16707222.862	.016	B	GPS - STATIC	2012	HMNCORS05
2955537.913	689949.556	1653550.624	16707222.862	.003		ADJUSTMENT	2012	CORS-MYCS
2955537.913	689949.556	1653550.624	16707222.862	.003	A	ADJUSTMENT	2011	CORS3429

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2955537.854	689949.548	1653550.565	16707222.855	.003	A	ADJUSTMENT	2010	CORS2765

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2955537.928	689949.512	1653550.638	16707222.817	.066		NCAT	2026	HBLAI
2955537.924	689949.528	1653550.634	16707222.834	.066		NCAT	2025	H23KBEC1
2955537.897	689949.540	1653550.608	16707222.846	.033	C	GPS - STATIC	2024	H23KBEC2
2955537.897	689949.540	1653550.608	16707222.846	.033	C	GPS - STATIC	2024	H23TODD3
2955537.897	689949.540	1653550.608	16707222.846	.033	C	GPS - STATIC	2024	H23TODD2
2955537.897	689949.540	1653550.608	16707222.846	.033	C	GPS - STATIC	2024	HJOBE
2955537.897	689949.540	1653550.608	16707222.846	.033	C	GPS - STATIC	2024	HTH371
2955537.897	689949.540	1653550.608	16707222.846	.033	C	GPS - STATIC	2023	HWIK
2955537.897	689949.540	1653550.608	16707222.846	.033	C	GPS - STATIC	2023	HHOYLE
2955537.897	689949.540	1653550.608	16707222.846	.033	C	GPS - STATIC	2022	HSPLIT
2955537.897	689949.540	1653550.608	16707222.846	.033	C	GPS - STATIC	2022	H21MORRNE
2955537.897	689949.540	1653550.608	16707222.846	.033	C	GPS - STATIC	2022	H21MORRSE
2955537.897	689949.540	1653550.608	16707222.846	.033	C	GPS - STATIC	2022	H21MORRSW
2955537.897	689949.540	1653550.608	16707222.846	.033	C	GPS - STATIC	2022	H21MORRNW
2955537.897	689949.540	1653550.608	16707222.846	.033	C	GPS - STATIC	2021	H19STRN2
2955537.897	689949.540	1653550.608	16707222.846	.033	C	GPS - STATIC	2021	HALME
2955537.897	689949.540	1653550.608	16707222.846	.033	C	GPS - STATIC	2021	HOTSE
2955537.897	689949.540	1653550.608	16707222.846	.033	C	GPS - STATIC	2021	H18WRIG2
2955537.897	689949.540	1653550.608	16707222.846	.033	C	GPS - STATIC	2021	H18WRIG1
2955537.897	689949.540	1653550.608	16707222.846	.033	C	GPS - STATIC	2021	HRCOE2
2955537.897	689949.540	1653550.608	16707222.846	.033	C	GPS - STATIC	2020	HTH169
2955537.897	689949.540	1653550.608	16707222.846	.033	C	GPS - STATIC	2019	HTH24
2955537.897	689949.540	1653550.608	16707222.846	.033	C	GPS - STATIC	2019	HCARL
2955537.897	689949.540	1653550.608	16707222.846	.033	C	GPS - STATIC	2018	HTH47
2955537.897	689949.540	1653550.608	16707222.846	.033	C	GPS - STATIC	2018	HTH65
2955537.897	689949.540	1653550.608	16707222.846	.033	C	GPS - STATIC	2018	HBENT
2955537.897	689949.540	1653550.608	16707222.846	.033	C	GPS - STATIC	2018	HMLAC
2955537.897	689949.540	1653550.608	16707222.846	.033	C	GPS - STATIC	2017	HMNCORS07
2955537.897	689949.540	1653550.608	16707222.846	.033	C	GPS - STATIC	2015	HSFRAN
2955537.897	689949.540	1653550.608	16707222.846	.033	C	GPS - STATIC	2014	HPCTY
2955537.897	689949.540	1653550.608	16707222.846	.033	C	GPS - STATIC	2014	HTFAL
2955537.897	689949.540	1653550.608	16707222.846	.033	C	GPS - STATIC	2014	HMNCORS06
2955537.862	689949.571	1653550.573	16707222.877	.016	B	GPS - STATIC	2006	HMNCORS02

MNCORS HINC HINCKLEY ARP

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/HINCKLEY_CORS_ARP-DM3509-3NW-12SEP2006.jpg	NW	Sep 12, 2006
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/HINCKLEY_CORS_ARP-DM3509-2-12SEP2006.jpg		Sep 12, 2006
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/HINCKLEY_CORS_ARP-DM3509-1-04OCT2006.jpg		Oct 4, 2006

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

MNCORS HINC HINCKLEY L1PC1

Mn/DOT Name: MNCORS HINC HINCKLEY L1PC1 **NGS Name:** HINCKLEY CORS L1 PHASE CENTER

County: PINE, MN (Sheet 1)

NGS ACRN: !90955 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	36	41 N	21 W	455905.66	925653.93		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2005	2007	DESTROYED	Horz=NO Vert=NO	YES			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	MNDT

Description: (2012)

Stamping:

1.8 MILES SOUTH OF HINCKLEY, 0.43 MILE NORTH ALONG COUNTY ROAD 61 FROM THE JUNCTION OF TRUNK HIGHWAY 23 AND COUNTY ROAD 61 NEAR HINCKLEY, 0.15 MILE EAST ON A SEASONAL SERVICE ROAD, AT INTERSTATE HIGHWAY 35 MILEPOINT 181.0, 68.0 FEET EAST OF INTERSTATE HIGHWAY 35 NORTHBOUND LANE, 37.6 FEET WEST OF A FENCE CORNER, 31.5 FEET SOUTH OF THE SOUTHEAST CORNER OF ELECTRICAL BOX NUMBER 240120. THE STATION IS IN A ZEPHYR GEODETIC ANTENNA SERIAL NUMBER 12668828.

Station Notes

THE NATIONAL GEODETIC SURVEY (NGS) SITE ID IS MNHN.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.282 12B = -90.275 09 = -90.167 03 = -90.042

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/HINCKLEY_CORS_L1_PHASE_CENTER-DM3510-3W-12SEP2006.jpg	W	Sep 12, 2006
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/HINCKLEY_CORS_L1_PHASE_CENTER-DM3510-2-12SEP2006.jpg		Sep 12, 2006
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/HINCKLEY_CORS_L1_PHASE_CENTER-!90955-1-23OCT2012.jpg		Oct 23, 2012

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

MNCORS HINC HINCKLEY L1PC2

Mn/DOT Name: MNCORS HINC HINCKLEY L1PC2 **NGS Name:** HINCKLEY CORS L1 PHASE CENTER

County: PINE, MN (Sheet 1)

NGS ACRN: DM3510 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	36	41 N	21 W	455905.66	925653.93		A

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2007	2012	GOOD	Horz=NO Vert=YES	YES			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
UNKNOWN	SEE DESCRIPTION	MNDT

Description: (2012) **Stamping:**

1.8 MILES SOUTH OF HINCKLEY, 0.43 MILE NORTH ALONG COUNTY ROAD 61 FROM THE JUNCTION OF TRUNK HIGHWAY 23 AND COUNTY ROAD 61 NEAR HINCKLEY, 0.15 MILE EAST ALONG A SEASONAL SERVICE ROAD, AT INTERSTATE HIGHWAY 35 MILEPOINT 181.0, 68.0 FEET EAST OF INTERSTATE HIGHWAY 35 NORTHBOUND LANE, 37.6 FEET WEST OF A FENCE CORNER, 31.5 FEET SOUTH OF THE SOUTHEAST CORNER OF ELECTRICAL BOX NUMBER 240120. STATION MNCORS HINC HINCKLEY L1PC2 IS IN A ZEPHYR GEODETIC MODEL 2 ANTENNA SERIAL NUMBER 30473611.

Station Notes

THE NATIONAL GEODETIC SURVEY (NGS) SITE ID IS MNHN.

*** 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
			946.494	.000	2011	HORIZONTAL ADJUSTMENT	2011	CORS3429
			946.491	.000	2007	HORIZONTAL ADJUSTMENT	2010	CORS2765

Geoid Separations(ft): GEOID18 = -90.282 12B = -90.275 09 = -90.167 03 = -90.042

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 59 05.66058	92 56 53.93118	487717.349	192962.290	.003	A	ADJUSTMENT	2011	CORS3429

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 59 05.66052	92 56 53.93201	487717.291	192962.284	.003	A	ADJUSTMENT	2010	CORS2765

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2955537.912	689949.560	1653550.623	16707222.866	.003	A	ADJUSTMENT	2011	CORS3429

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2955537.853	689949.553	1653550.564	16707222.860	.003	A	ADJUSTMENT	2010	CORS2765

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/HINCKLEY_CORS_L1_PHASE_CENTER-DM3510-3W-12SEP2006.jpg	W	Sep 12, 2006
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/HINCKLEY_CORS_L1_PHASE_CENTER-DM3510-2-12SEP2006.jpg		Sep 12, 2006
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/HINCKLEY_CORS_L1_PHASE_CENTER-DM3510-1-29OCT2007.jpg		Oct 29, 2007

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

MUSIC

Mn/DOT Name: MUSIC
NGS Name: MUSIC
County: PINE, MN (Sheet 1)

NGS ACRN: DL4766 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	18	41 N	20 W	460217.77	925526.78	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2008	2009	GOOD	Horz=YES Vert=YES	NO		FLUSH	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 254 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2008) **Stamping:** MUSIC 2008

2.1 MILES NORTHEAST OF HINCKLEY, 1.95 MILES NORTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 48 IN HINCKLEY, AT INTERSTATE HIGHWAY 35 MILEPOINT 185.0, 52.4 FEET EAST-SOUTHEAST OF SOUTHBOUND INTERSTATE HIGHWAY 35, 43.4 FEET WEST-NORTHWEST OF NORTHBOUND INTERSTATE HIGHWAY 35, 17.9 FEET SOUTH-SOUTHWEST OF A CROSSOVER, 4.6 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
1053.731	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1053.741	.016	2/1				VERTICAL CONTROL SURVEY	2009	VMOOSE

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
			963.620	.007	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1053.738	.131		963.732	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2566
1053.738	.131		963.850	.066	1996	GPS - STATIC	2009	HMOOSE
1053.738	.131		963.732	.066	2007	GPS - STATIC	2009	HMOOSE

Geoid Separations(ft): GEOID18 = -90.124 12B = -90.128 09 = -90.006 03 = -89.885

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 02 17.76741	92 55 26.78375	493877.413	212420.198	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 02 17.76729	92 55 26.78427	493877.376	212420.186	.033	C	ADJUSTMENT	2009	GPS2566
46 02 17.76729	92 55 26.78427	493877.376	212420.186	.033	C	GPS - STATIC	2009	HMOOSE

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 02 17.76723	92 55 26.78387	493877.404	212420.180	.033	C	GPS - STATIC	2009	HMOOSE

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2961364.874	709507.563	1659683.521	16726679.879	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2961364.837	709507.550	1659683.485	16726679.866	.033	C	ADJUSTMENT	2009	GPS2566
2961364.837	709507.550	1659683.485	16726679.866	.033	C	GPS - STATIC	2009	HMOOSE

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2961364.866	709507.545	1659683.513	16726679.861	.033	C	GPS - STATIC	2009	HMOOSE

NATH MNDT

Mn/DOT Name: NATH MNDT **NGS Name:** NATH

County: PINE, MN (Sheet 1)

NGS ACRN: DE5988 Get Map
NGS Quad / Sta Num : 46092322/
USGS Quad: WILBUR LAKE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	23	41 N	18 W	460044.51	923542.74	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1996	2012	GOOD	Horz=NO Vert=YES	YES		PROJECTS 1 IN.	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (<10 FT) (DEPTH 8 FT)	SURVEY DISK	MNDT

Description: (2012) **Stamping:** NATH 1996

7.0 MILES EAST OF CLOVERDALE, 7.0 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND COUNTY ROAD 21 IN CLOVERDALE, AT TRUNK HIGHWAY 48 MILEPOINT 16.2, 78.0 FEET NORTH OF TRUNK HIGHWAY 48, 22.0 FEET EAST OF WILBUR WAY, 9.6 FEET WEST OF A FENCE, 3.0 FEET SOUTH 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
991.527	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
991.661	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
991.661	.016	2/1				VERTICAL ADJUSTMENT	2006	00000497
991.711	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
991.435	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

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
991.661			904.267	.009	2011	HORIZONTAL ADJUSTMENT	2015	GPS3071
991.661			904.273	.009	2011	GPS - STATIC	2015	HCLVR
991.697	.131		904.434	.066	2007	GPS - STATIC	2012	HCLVR
991.697	.131		904.536	.066	1996	GPS - STATIC	2012	HCLVR
			904.267	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
991.589	.262		904.312	.197	2007	GPS - RTRN	2012	RTRN2012
			904.375	.010	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
991.697	.131		904.529	.066	1996	HORIZONTAL ADJUSTMENT	2002	GPS1700
991.697	.131		904.529	.066	1996	GPS - STATIC	2001	HCLOV

Geoid Separations(ft): GEOID18 = -87.244 12B = -87.342 09 = -87.277 03 = -87.175

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 44.50618	92 35 42.74156	577447.512	203120.117	.010		ADJUSTMENT	2015	GPS3071
46 00 44.50619	92 35 42.74159	577447.510	203120.118	.010	C	GPS - STATIC	2015	HCLVR
46 00 44.50618	92 35 42.74156	577447.512	203120.117	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 44.50625	92 35 42.74224	577447.464	203120.124	.033	C	GPS - STATIC	2012	HCLVR
46 00 44.50535	92 35 42.74118	577447.539	203120.033	.131	3	GPS - RTRN	2012	RTRN2012
46 00 44.50625	92 35 42.74224	577447.464	203120.124	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 44.50619	92 35 42.74190	577447.488	203120.118	.033	C	GPS - STATIC	2012	HCLVR
46 00 44.50619	92 35 42.74190	577447.488	203120.118	.033	C	ADJUSTMENT	2002	GPS1700
46 00 44.50619	92 35 42.74190	577447.488	203120.118	.033	C	GPS - STATIC	2001	HCLOV

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 44.49950	92 35 42.73545	577447.946	203119.443	.033	C	GPS - STATIC	1997	HCLOV

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3045072.505	701634.649	1743228.622	16717488.662	.010		ADJUSTMENT	2015	GPS3071
3045072.503	701634.650	1743228.620	16717488.663	.010	C	GPS - STATIC	2015	HCLVR
3045072.505	701634.649	1743228.622	16717488.662	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3045072.457	701634.655	1743228.574	16717488.669	.033	C	GPS - STATIC	2012	HCLVR
3045072.534	701634.566	1743228.649	16717488.579	.131	3	GPS - RTRN	2012	RTRN2012
3045072.457	701634.655	1743228.574	16717488.669	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3045072.481	701634.650	1743228.598	16717488.663	.033	C	GPS - STATIC	2012	HCLVR
3045072.481	701634.650	1743228.598	16717488.663	.033	C	ADJUSTMENT	2002	GPS1700
3045072.481	701634.650	1743228.598	16717488.663	.033	C	GPS - STATIC	2001	HCLOV

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3045072.950	701633.981	1743229.056	16717487.988	.033	C	GPS - STATIC	1997	HCLOV

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/NATH-DE5988-3E-08MAY2012.jpg	E	May 8, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/NATH-DE5988-2-08MAY2012.jpg		May 8, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/NATH-DE5988-1-08MAY2012.jpg		May 8, 2012

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

NE COR OF HOLIENS GEN STORE

Mn/DOT Name: NE COR OF HOLIENS GEN STORE
NGS Name: NE COR OF HOLIENS GEN STORE
County: PINE, MN (Sheet 1)

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	17	39 N	22 W	455216.85	930701.81		

NGS ACRN: CJ8036 Get Map
NGS Quad / Sta Num : 45093112/
USGS Quad: HENRIETTE

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
	2010	UNKNOWN	Horz=? Vert=?	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
SEE DESCRIPTIVE TEXT	UNSPECIFIC DISK TYPE (SEE TEXT)	UNK

Description:

IN HENRIETTE, 104.0 FEET WEST OF STATION HENRIETTE.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -91.624 12B = -91.617 09 = -91.525 03 = -91.378

NE CORNER OF SCHOOL BUILDING

Mn/DOT Name: NE CORNER OF SCHOOL BUILDING **NGS Name:** NE CORNER OF SCHOOL BUILDING

County: PINE, MN (Sheet 1)

NGS ACRN: CJ8040 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	6	39 N	20 W	455323.95	925242.53		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
	2010	UNKNOWN	Horz=? Vert=?	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
SEE DESCRIPTIVE TEXT	UNSPECIFIC DISK TYPE (SEE TEXT)	UNK

Description:

4.0 MILES SOUTHEAST OF BEROUN, 88.0 FEET SOUTHWEST OF STATION CHENGWATANA.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -89.636 12B = -89.655 09 = -89.590 03 = -89.458

NE CORNER OF SHED

Mn/DOT Name: NE CORNER OF SHED

NGS Name: NE CORNER OF SHED

County: PINE, MN (Sheet 1)

NGS ACRN: CJ8041 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	32	40 N	21 W	455439.00	925959.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
	2008	GOOD	Horz=NO Vert=?	YES			NO MAG MATERIAL

Monument Type	Disk Type	Mon. Agency
SEE DESCRIPTIVE TEXT	SEE DESCRIPTION	UNK

Description:

4.5 MILES SOUTHEAST OF BROOK PARK, 3.4 MILES EAST ALONG COUNTY ROAD 131 FROM THE JUNCTION OF COUNTY ROAD 13 AND COUNTY ROAD 131, THEN 2.5 MILES SOUTH ALONG SUNNY HILL ROAD, THEN 0.1 MILE EAST ALONG A FARM DRIVE (FIRE NUMBER 24936), 54.0 FEET EAST OF BEROUN RM 2, 40.3 FEET SOUTHWEST OF STATION BEROUN.

Stamping:

Station Notes

THE LOCATION IS THE CORNER OF A SHED.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.846 12B = -90.836 09 = -90.741 03 = -90.603

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/NE_CORNER_OF_SHED-CJ8041-3S-02OCT2008.jpg	S	Oct 2, 2008
Monument:			
Disk:			

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

NICKY

Mn/DOT Name: NICKY
NGS Name: NICKY
County: PINE, MN (Sheet 1)

NGS ACRN: DO8732 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	14	38 N	21 W	454624.60	925552.35	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2012	GOOD	Horz=YES Vert=YES	YES		RECESSED 1 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 25 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) **Stamping:** NICKY 2012

IN ROCK CREEK, 3.65 MILES EAST ALONG TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 70 AND COUNTY ROAD 61 IN ROCK CREEK, AT TRUNK HIGHWAY 70 MILEPOINT 22.10, 33.3 FEET NORTH OF TRUNK HIGHWAY 70, 60.4 FEET EAST OF COUNTY ROAD 4, 1.5 FEET EAST 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
945.910	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
945.969	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
945.897	.262		855.267	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -90.666 12B = -90.682 09 = -90.630 03 = -90.459

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 46 24.60171	92 55 52.35283	492035.635	115865.068	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2961168.884	612944.424	1657963.645	16630165.700	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/NICKY-DO8732-3N-20NOV2012.jpg	N	Nov 20, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/NICKY-DO8732-2-20NOV2012.jpg		Nov 20, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/NICKY-DO8732-1-20NOV2012.jpg		Nov 20, 2012

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

NW CORNER OF A BARN

Mn/DOT Name: NW CORNER OF A BARN

NGS Name: NW CORNER OF A BARN

County: PINE, MN (Sheet 1)

NGS ACRN: CJ4517 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	10	40 N	21 W	455816.00	925713.00		

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

Monument Type	Disk Type	Mon. Agency
SEE DESCRIPTIVE TEXT	UNSPECIFIC DISK TYPE (SEE TEXT)	UNK

Description:

2.8 MILES SOUTH OF HINCKLEY, 311.0 FEET SOUTHEAST OF STATION MISSION.

Stamping:

Station Notes

THERE IS NO BARN, NO FOOTING, JUST A FIELD.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.338 12B = -90.328 09 = -90.226 03 = -90.102

NW CORNER OF BARN

Mn/DOT Name: NW CORNER OF BARN
NGS Name: NW CORNER OF BARN
County: PINE, MN (Sheet 1)

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	32	40 N	21 W	455439.00	925959.00		

NGS ACRN: CJ4520 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
	2008	GOOD	Horz=NO Vert=?	YES			NO MAG MATERIAL

Monument Type	Disk Type	Mon. Agency
SEE DESCRIPTIVE TEXT	SEE DESCRIPTION	UNK

Description:

2.0 MILES WEST OF BEROUN, 1.6 MILES WEST ALONG COUNTY ROAD 14 FROM THE JUNCTION OF COUNTY ROAD 14 AND INTERSTATE HIGHWAY 35, THEN 0.5 MILE NORTH ALONG SUNNY HILL ROAD, THEN 0.1 MILE EAST ALONG A FARM DRIVE (FIRE NUMBER 24936), 54.0 FEET WEST OF BEROUN RM 1, 40.3 FEET SOUTH OF STATION BEROUN.

Stamping:

Station Notes

THE LOCATION IS A BARN.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.846 12B = -90.836 09 = -90.741 03 = -90.603

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/NW_CORNER_OF_BARN-CJ4520-3S-02OCT2008.jpg	S	Oct 2, 2008
Monument:			
Disk:			

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

PADDLE

Mn/DOT Name: PADDLE
NGS Name: PADDLE
County: PINE, MN (Sheet 1)

NGS ACRN: DM4951 Get Map
NGS Quad / Sta Num : 45093113/
USGS Quad: GRASSTON

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	30	39 N	22 W	455007.89	930748.95	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2010	2010	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

Monument Type
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 44 FT)

Disk Type
METAL ROD (WITH REMOVABLE ID DISK)

Mon. Agency
MNDT

Description: (2010)

Stamping: PADDLE 2010

2.6 MILES SOUTH-SOUTHWEST OF HENRIETTE, 2.55 MILES SOUTH ALONG TRUNK HIGHWAY 107 FROM THE NORTH JUNCTION OF TRUNK HIGHWAY 107 AND COUNTY ROAD 11 IN HENRIETTE, AT TRUNK HIGHWAY 107 MILEPOINT 9.65, 76.2 FEET EAST OF TRUNK HIGHWAY 107, 21.0 FEET SOUTH OF A PADDLE ROAD, 46.8 FEET WEST OF THE WEST RAIL OF THE RAILROAD TRACKS, 1.7 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
969.818	.016	2/1				VERTICAL ADJUSTMENT	2012	00000745
969.814	.016	2/1				VERTICAL CONTROL SURVEY	2010	VBRAH

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
			877.958	.007	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
969.814	.131		878.033	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2747
969.814	.131		878.033	.066	2007	GPS - STATIC	2010	HBRAH
969.814	.131		878.148	.066	1996	GPS - STATIC	2010	HBRAH

Geoid Separations(ft): GEOID18 = -91.853 12B = -91.850 09 = -91.762 03 = -91.614

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 50 07.89275	93 07 48.95260	441303.519	138567.589	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 50 07.89285	93 07 48.95323	441303.475	138567.599	.033	C	ADJUSTMENT	2011	GPS2747
45 50 07.89285	93 07 48.95323	441303.475	138567.599	.033	C	GPS - STATIC	2010	HBRAH

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 50 07.89271	93 07 48.95280	441303.505	138567.585	.033	C	GPS - STATIC	2010	HBRAH

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2910061.907	634777.413	1607226.002	16652794.090	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2910061.862	634777.423	1607225.958	16652794.100	.033	C	ADJUSTMENT	2011	GPS2747
2910061.862	634777.423	1607225.958	16652794.100	.033	C	GPS - STATIC	2010	HBRAH

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2910061.892	634777.409	1607225.988	16652794.086	.033	C	GPS - STATIC	2010	HBRAH

PADDLE

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/PADDLE-DM4951-3E-27APR2010.jpg	E	Apr 27, 2010
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/PADDLE-DM4951-2-27APR2010.jpg		Apr 27, 2010
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/PADDLE-DM4951-1-27APR2010.jpg		Apr 27, 2010

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

PARK

Mn/DOT Name: PARK **NGS Name:** PARK

County: PINE, MN (Sheet 1)

NGS ACRN: DM4952 Get Map
NGS Quad / Sta Num : 45093111/
USGS Quad: BROOK PARK

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	21	40 N	22 W	455623.40	930614.00	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2010	2025	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

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

Description: (2010) **Stamping:** PARK 2010

1.4 MILES SOUTHWEST OF BROOK PARK, 0.3 MILE SOUTHWEST ALONG TRUNK HIGHWAY 23 FROM THE JUNCTION OF TRUNK HIGHWAY 23 AND TRUNK HIGHWAY 107 SOUTHWEST OF BROOK PARK, AT TRUNK HIGHWAY 23 MILEPOINT 266.25, 118.4 FEET NORTHWEST OF TRUNK HIGHWAY 23, 11.1 FEET NORTHWEST OF A SNOWMOBILE TRAIL, 6.7 FEET SOUTHWEST OF AN ENTRANCE EXTENSION, 1.4 FEET SOUTHWEST 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
1019.608	.016	2/1				VERTICAL ADJUSTMENT	2021	00000963
1019.608	.016	2/1				VERTICAL CONTROL SURVEY	2019	V18KBEC
1019.608	.016	2/1				VERTICAL ADJUSTMENT	2012	00000745
1019.598	.016	2/1				VERTICAL CONTROL SURVEY	2011	VMORA
1019.598	.016	2/1				VERTICAL CONTROL SURVEY	2010	VBRAH

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
1019.785	.262		928.581	.197	2011	GPS - RTRN	2025	RTRN2025
			928.410	.006	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1019.585	.131		928.522	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2812
1019.585	.131		928.489	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2747
1019.585	.131		928.489	.066	2007	GPS - STATIC	2010	HBRAH
1019.585	.131		928.663	.066	1996	GPS - STATIC	2010	HMORA
1019.585	.131		928.522	.066	2007	GPS - STATIC	2010	HMORA
1019.585	.131		928.637	.066	1996	GPS - STATIC	2010	HBRAH

Geoid Separations(ft): GEOID18 = -91.204 12B = -91.191 09 = -91.099 03 = -90.941

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 56 23.40443	93 06 14.00088	448124.342	176588.369	.131	3	GPS - RTRN	2025	RTRN2025
45 56 23.40505	93 06 14.00096	448124.336	176588.432	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 56 23.40505	93 06 14.00168	448124.285	176588.432	.033	C	ADJUSTMENT	2011	GPS2812
45 56 23.40525	93 06 14.00181	448124.276	176588.452	.033	C	ADJUSTMENT	2011	GPS2747
45 56 23.40525	93 06 14.00181	448124.276	176588.452	.033	C	GPS - STATIC	2010	HBRAH
45 56 23.40505	93 06 14.00168	448124.285	176588.432	.033	C	GPS - STATIC	2010	HMORA

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 56 23.40478	93 06 14.00107	448124.328	176588.404	.033	C	GPS - STATIC	2010	HMORA
45 56 23.40499	93 06 14.00119	448124.320	176588.426	.033	C	GPS - STATIC	2010	HBRAH

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2916233.591	672905.209	1613995.819	16690806.452	.131	3	GPS - RTRN	2025	RTRN2025
2916233.585	672905.271	1613995.814	16690806.515	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2916233.534	672905.271	1613995.763	16690806.515	.033	C	ADJUSTMENT	2011	GPS2812
2916233.524	672905.291	1613995.754	16690806.535	.033	C	ADJUSTMENT	2011	GPS2747
2916233.524	672905.291	1613995.754	16690806.535	.033	C	GPS - STATIC	2010	HBRAH
2916233.534	672905.271	1613995.763	16690806.515	.033	C	GPS - STATIC	2010	HMORA

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2916233.577	672905.244	1613995.806	16690806.487	.033	C	GPS - STATIC	2010	HMORA
2916233.568	672905.265	1613995.797	16690806.509	.033	C	GPS - STATIC	2010	HBRAH

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/PARK-DM4952-3NW-15SEP2025.jpg	NW	Sep 15, 2025
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/PARK-DM4952-2-15SEP2025.jpg		Sep 15, 2025
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/PARK-DM4952-1-15SEP2025.jpg		Sep 15, 2025

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

PATIO MNDT

Mn/DOT Name: PATIO MNDT **NGS Name:** PATIO

County: PINE, MN (Sheet 1)

NGS ACRN: AH1777 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	19	41 N	20 W	460106.02	925542.07	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1993	2005	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	BAR MAG IMBED IN MON

Monument Type
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 23 FT)

Disk Type
HORIZONTAL CONTROL DISK

Mon. Agency
MNDT

Description: (1993)

Stamping: PATIO 1993

0.5 MILE NORTHEAST OF HINCKLEY, 0.5 MILE NORTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 48, AT INTERSTATE HIGHWAY 35 MILEPOINT 183.6, 36.3 FEET WEST-NORTHWEST OF NORTHBOUND INTERSTATE HIGHWAY 35, 27.8 FEET EAST-SOUTHEAST OF SOUTHBOUND INTERSTATE HIGHWAY 35, 18.0 FEET SOUTH-SOUTHWEST OF A CROSSOVER, 47.0 FEET SOUTH-SOUTHWEST OF THE WEST LEG OF A NO U-TURN SIGN, 3.2 FEET NORTH-NORTHEAST OF A WITNESS POST.

Station Notes
THE DISK WAS REPLACED, AND STAMPED PATIO RESET 1993, 2003.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1020.211	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1020.211	.016	2/1				VERTICAL ADJUSTMENT	2006	00000497
1020.195	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1019.919	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
			930.067	.006	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			930.172	.008	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
1020.208	.131		930.307	.066	1996	HORIZONTAL ADJUSTMENT	2002	GPS1700
1020.208	.131		930.307	.066	1996	GPS - STATIC	2001	HCLOV
1020.178	.131		930.307	.066	1996	HORIZONTAL ADJUSTMENT	1998	GPS917

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1020.011						GPS - STATIC	1994	HORZ

Geoid Separations(ft): GEOID18 = -90.138 12B = -90.138 09 = -90.016 03 = -90.138

PATIO MNDT

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 01 06.01945	92 55 42.07009	492796.372	205152.359	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 01 06.01960	92 55 42.07064	492796.333	205152.374	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 01 06.01942	92 55 42.07026	492796.360	205152.356	.033	C	ADJUSTMENT	2002	GPS1700
46 01 06.01942	92 55 42.07026	492796.360	205152.356	.033	C	GPS - STATIC	2001	HCLOV
46 01 06.01976	92 55 42.07029	492796.358	205152.391	.033	1	ADJUSTMENT	1998	GPS917

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 01 06.01361	92 55 42.06490	492796.738	205151.768	.033	C	GPS - STATIC	1994	HI35N

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2960407.952	702223.132	1658612.087	16719413.903	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2960407.913	702223.146	1658612.048	16719413.918	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2960407.940	702223.129	1658612.075	16719413.900	.033	C	ADJUSTMENT	2002	GPS1700
2960407.940	702223.129	1658612.075	16719413.900	.033	C	GPS - STATIC	2001	HCLOV
2960407.937	702223.163	1658612.073	16719413.934	.033	1	ADJUSTMENT	1998	GPS917

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2960408.328	702222.547	1658612.453	16719413.312	.033	C	GPS - STATIC	1994	HI35N

PATIO RESET

Mn/DOT Name: PATIO RESET **NGS Name:** PATIO RESET

County: PINE, MN (Sheet 1)

NGS ACRN: Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	19	41 N	20 W	460106.02	925542.07		3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2003	2008	DESTROYED	Horz=NO Vert=NO	YES		FLUSH	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 23 FT)	SURVEY DISK	MNDT

Description: (2008) **Stamping:** PATIO RESET 1993 2003

0.5 MILE NORTHEAST OF HINCKLEY, 0.5 MILE NORTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 48, AT INTERSTATE HIGHWAY 35 MILEPOINT 183.6, 36.3 FEET WEST-NORTHWEST OF NORTHBOUND INTERSTATE HIGHWAY 35, 27.8 FEET EAST-SOUTHEAST OF SOUTH BOUND INTERSTATE HIGHWAY 35, 18.0 FEET SOUTH-SOUTHWEST OF A CROSSOVER, 47.0 FEET SOUTH-SOUTHWEST OF THE WEST LEG OF A NO U TURN SIGN, 5.2 FEET NORTHEAST OF A WITNESS POST.

Station Notes

STATION PATIO MNDT, DISK WAS REPLACED, AND STAMPED PATIO RESET 1993 2003.
SEE PATIO RESET 2 (11-19-2008).

*** 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
1020.083	.262		930.179	.197	1996	GPS - RTRN	2008	RTRN2008

Geoid Separations(ft): GEOID18 = -90.138 12B = -90.138 09 = -90.016 03 = -89.901

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 01 06.01928	92 55 42.07049	492796.344	205152.342	.131	3	GPS - RTRN	2008	RTRN2008

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2960407.924	702223.114	1658612.058	16719413.886	.131	3	GPS - RTRN	2008	RTRN2008

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/PATIO_RESET-3W-12NOV2008.jpg	W	Nov 12, 2008
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/PATIO_RESET-2-12NOV2008.jpg		Nov 12, 2008
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/PATIO_RESET-1-12NOV2008.jpg		Nov 12, 2008

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

PATIO RESET 2

Mn/DOT Name: PATIO RESET 2 **NGS Name:** PATIO RESET 2

County: PINE, MN (Sheet 1)

NGS ACRN: DL4768 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	19	41 N	20 W	460106.02	925542.07	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2008	2012	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 23 FT)	SURVEY DISK	MNDT

Description: (2012) **Stamping:** PATIO RESET 2 2008

0.5 MILE NORTH OF HINCKLEY, 0.5 MILE NORTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 48 IN HINCKLEY, AT INTERSTATE HIGHWAY 35 MILEPOINT 183.6, 27.8 FEET EAST OF SOUTHBOUND INTERSTATE HIGHWAY 35, 36.3 FEET WEST OF NORTHBOUND INTERSTATE HIGHWAY 35, 47.0 FEET SOUTH-SOUTHWEST OF THE WEST LEG OF A U-TURN SIGN POST, 18.0 FEET SOUTH OF A CROSSOVER, 8.5 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
1020.165	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1020.162	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
1020.162	.016	2/1				VERTICAL CONTROL SURVEY	2009	VMOOSE

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
1020.175			930.015	.006	2011	HORIZONTAL ADJUSTMENT	2015	GPS3071
1020.175			930.015	.006	2011	GPS - STATIC	2015	HCLVR
1020.175	.131		930.146	.066	2007	GPS - STATIC	2012	HCLVR
1020.175	.131		930.261	.066	1996	GPS - STATIC	2012	HCLVR
			930.015	.006	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1020.096	.262		930.080	.197	2007	GPS - RTRN	2012	RTRN2012
1020.175	.131		930.120	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2566
1020.175	.131		930.251	.066	1996	GPS - STATIC	2009	HMOOSE
1020.175	.131		930.120	.066	2007	GPS - STATIC	2009	HMOOSE

Geoid Separations(ft): GEOID18 = -90.138 12B = -90.138 09 = -90.016 03 = -89.901

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 01 06.01935	92 55 42.06951	492796.413	205152.349	.007		ADJUSTMENT	2015	GPS3071
46 01 06.01935	92 55 42.06957	492796.409	205152.349	.007	C	GPS - STATIC	2015	HCLVR
46 01 06.01935	92 55 42.06951	492796.413	205152.349	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 01 06.01929	92 55 42.07005	492796.375	205152.343	.033	C	GPS - STATIC	2012	HCLVR
46 01 06.01857	92 55 42.07073	492796.327	205152.270	.131	3	GPS - RTRN	2012	RTRN2012
46 01 06.01929	92 55 42.07005	492796.375	205152.343	.033	C	ADJUSTMENT	2009	GPS2566
46 01 06.01929	92 55 42.07005	492796.375	205152.343	.033	C	GPS - STATIC	2009	HMOOSE

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 01 06.01924	92 55 42.06966	492796.403	205152.338	.033	C	GPS - STATIC	2012	HCLVR
46 01 06.01924	92 55 42.06966	492796.403	205152.338	.033	C	GPS - STATIC	2009	HMOOSE

PATIO RESET 2

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2960407.993	702223.122	1658612.128	16719413.892	.007		ADJUSTMENT	2015	GPS3071
2960407.989	702223.122	1658612.123	16719413.892	.007	C	GPS - STATIC	2015	HCLVR
2960407.993	702223.122	1658612.128	16719413.892	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2960407.955	702223.116	1658612.090	16719413.887	.033	C	GPS - STATIC	2012	HCLVR
2960407.908	702223.042	1658612.042	16719413.813	.131	3	GPS - RTRN	2012	RTRN2012
2960407.955	702223.116	1658612.090	16719413.887	.033	C	ADJUSTMENT	2009	GPS2566
2960407.955	702223.116	1658612.090	16719413.887	.033	C	GPS - STATIC	2009	HMOOSE

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2960407.982	702223.111	1658612.117	16719413.881	.033	C	GPS - STATIC	2012	HCLVR
2960407.982	702223.111	1658612.117	16719413.881	.033	C	GPS - STATIC	2009	HMOOSE

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/PATIO_RESET_2-DL4768-3S-01MAY2012.jpg	S	May 1, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/PATIO_RESET_2-DL4768-2-01MAY2012.jpg		May 1, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/PATIO_RESET_2-DL4768-1-01MAY2012.jpg		May 1, 2012

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

PBM 16

Mn/DOT Name: PBM 16 **NGS Name:** PBM 16

County: PINE, MN (Sheet 1)

NGS ACRN: Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	24	41 N	21 W	460114.00	925633.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1898	1900	GOOD	Horz=YES Vert=?	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
BRIDGE RAILING	CHISELED CROSS	MRC

Description: (1912) **Stamping:** US + BM

0.3 MILE NORTHWEST OF HINCKLEY, 0.3 MILE WEST ALONG MAIN STREET EAST FROM THE JUNCTION OF MAIN STREET EAST AND STEPHAN AVENUE NORTH IN HINCKLEY, THEN 0.1 MILE NORTH ALONG COUNTY HIGHWAY 61 (OLD HIGHWAY 61 NORTH), THEN 0.1 MILE WEST ALONG 2ND STREET NORTHWEST, THEN 0.2 MILE NORTH ALONG DUNN AVENUE NORTH, STATION PBM 16 IS A CROSS CUT ON THE TOP OF THE GRANITE BRIDGE SEAT OF THE NORTHEAST CORNER OF THE TRUSSED SPAN OF THE ST. PAUL AND DULUTH RAILWAY OVER GRINDSTONE RIVER, 10.0 INCHES FROM THE SOUTHEAST CORNER OF THE BED PLATE UNDER THE INCLINE END POST OF THE BRIDGE, 6.0 INCHES FROM THE SOUTH FACE, 6.0 INCHES FROM THE EAST FACE OF THE STONE.

Station Notes
REFERENCE LATITUDE AND LONGITUDE ARE APPROXIMATED BASED UPON A 1912 DESCRIPTION.

Leveling-Derived Orthometric Heights (Feet)

GA1912

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1029.427	.007	1				VERTICAL ADJUSTMENT	1914	GA1912

Geoid Separations(ft): GEOID18 = -90.229 12B = -90.233 09 = -90.111 03 = -89.987

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

PBM 17

Mn/DOT Name: PBM 17 **NGS Name:** 17 BOLT

County: PINE, MN (Sheet 1)

NGS ACRN: RN0469 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	24	41 N	21 W	460043.00	925637.00	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1891	2008	NOT FOUND	Horz=? Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
PIPE (TILE OR CLAY) FILLED WITH CONCRETE	BOLT	MRC

Description: (1974) **Stamping:**

IN HINCKLEY, 0.3 MILE SOUTH OF THE RAILROAD STATION, 123.0 FEET NORTHEAST OF A RAILROAD CROSSING, 48.0 FEET NORTHWEST OF ONE RAILROAD TRACK, 65.0 FEET EAST OF THE OTHER RAILROAD TRACK.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1029.972	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1029.722	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
1029.742	.016	2				VERTICAL CONTROL SURVEY	1976	L30 MINN
1029.722	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
1029.742	.016	2				VERTICAL CONTROL SURVEY	1974	L23306
1029.673	.007	1				VERTICAL CONTROL SURVEY	1974	L3440
1029.673	.007	1				VERTICAL CONTROL SURVEY	1929	L30 MINN

GA1912

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1030.372	.007	1				VERTICAL ADJUSTMENT	1914	GA1912

Geoid Separations(ft): GEOID18 = -90.246 12B = -90.246 09 = -90.128 03 = -90.003

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

PBM 17 A RESET

Mn/DOT Name: PBM 17 A RESET
NGS Name: 17 CAP
County: PINE, MN (Sheet 1)

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	24	41 N	21 W	460043.00	925637.00	2	

NGS ACRN: RN0468 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1974	1974	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
PIPE (CAPPED) DRIVEN IN GROUND (<10 FT)	CAP OF CAP-AND-BOLT PAIR	MRC

Description: (1974) **Stamping:** MRC PBM 17 RESET 1974

IN HINCKLEY, 0.05 MILE NORTH ON COUNTY ROAD 61 FROM THE JUNCTION OF TRUNK HIGHWAY 23 AND COUNTY ROAD 61 (OLD TRUNK HIGHWAY 61), NEAR A RAILROAD JUNCTION, 68.9 FEET WEST OF COUNTY ROAD 61, 53.2 FEET EAST OF THE EAST RAIL OF A NORTH-SOUTH RAILROAD TRACK, 45.4 FEET NORTHWEST OF THE NORTHWEST RAIL OF A NORTHEAST-SOUTHWEST RAILROAD TRACK, 41.0 FEET NORTHWEST OF A SIGNAL, 0.7 FOOT EAST OF A WITNESS POST.

Station Notes
THERE WAS A REGRADE OF THE RAILROAD PARKING LOT.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1033.462	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1033.167	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
1033.180	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
1033.233	.016	2				VERTICAL CONTROL SURVEY	1975	L23805
1033.876	.007	1				VERTICAL CONTROL SURVEY	1934	L30 MINN

GA1912

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1034.375	.007	1				VERTICAL ADJUSTMENT	1914	GA1912

Geoid Separations(ft): GEOID18 = -90.246 12B = -90.246 09 = -90.128 03 = -900000

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

PBM 18

Mn/DOT Name: PBM 18 **NGS Name:** 18

County: PINE, MN (Sheet 1)

NGS ACRN: QO0232 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	10	40 N	21 W	455748.00	925703.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1891	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
UNKNOWN	PIPE CAP	MRC

Description: (1934) **Stamping:**

0.7 MILE SOUTH OF MISSION CREEK, 1.2 MILES SOUTHEAST ALONG COUNTY ROAD 61 FROM THE JUNCTION OF COUNTY ROAD 61 AND INTERSTATE HIGHWAY 35, THEN 0.2 MILE EAST ALONG COUNTY ROAD 16, THEN 2600.0 FEET SOUTH ALONG A RAILROAD FROM A SITE OF THE OLD STATION AT MISSION CREEK, 0.4 MILE SOUTH ALONG TRUNK HIGHWAY 182 (RAILROAD LANE) FROM THE JUNCTION OF TRUNK HIGHWAY 182 (RAILROAD LANE) AND TRUNK HIGHWAY 181 (RAILROAD LANE) 0.3 MILE SOUTH OF MISSION CREEK, ABOUT 0.5 MILE SOUTH ALONG A RAILROAD FROM A SITE OF THE OLD RAILROAD STATION AT MISSION CREEK, NEAR AN EXCAVATION ABOUT 3.0 FEET DEEP, 46.0 FEET EAST OF A RAILROAD, 4.5 FEET WEST OF A RIGHT-OF-WAY FENCE.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
985.762	.007	1/1				UNKNOWN/APPROXIMATE	1992	UNCHECKD
985.762	.007	1				VERTICAL CONTROL SURVEY	1929	L30 MINN

GA1912

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
986.448	.007	1				VERTICAL ADJUSTMENT	1914	GA1912

Geoid Separations(ft): GEOID18 = -90.331 12B = -90.318 09 = -90.223 03 = -90.098

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

PBM 18 A

Mn/DOT Name: PBM 18 A
NGS Name: PBM 18 A
County: PINE, MN (Sheet 1)

NGS ACRN: Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	10	40 N	21 W	455748.00	925703.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1891	2007	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
PIPE (CAPPED) DRIVEN IN GROUND (<10 FT)	SEE DESCRIPTION	MRC

Description: (1934)

Stamping:

3.3 MILES SOUTH OF HINCKLEY, 1.1 MILES EAST THEN SOUTH ON COUNTY ROAD 61 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND COUNTY ROAD 61, THEN 0.2 MILE EAST ON COUNTY ROAD 16, THEN 333.0 FEET NORTH ON A RAILROAD, 0.5 MILE SOUTH ALONG A RAILROAD FROM A SITE OF THE OLD RAILROAD STATION AT MISSION CREEK, 46.0 FEET EAST OF A RAILROAD, 4.5 FEET WEST OF A RIGHT-OF-WAY FENCE.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
989.765	.007	1				VERTICAL CONTROL SURVEY	1929	L30 MINN

GA1912

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
990.454	.007	1				VERTICAL ADJUSTMENT	1914	GA1912

Geoid Separations(ft): GEOID18 = -90.331 12B = -90.318 09 = -90.223 03 = -90.098

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

PBM 19

Mn/DOT Name: PBM 19 **NGS Name:** 19

County: PINE, MN (Sheet 1)

NGS ACRN: QO0233 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	34	40 N	21 W	455451.00	925727.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1891	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
UNKNOWN	PIPE CAP	MRC

Description: (1974) **Stamping:**

0.5 MILE NORTHWEST OF BEROUN, 0.2 MILE WEST ALONG COUNTY ROAD 127 (BEROUN AVENUE) FROM THE JUNCTION OF COUNTY ROAD 127 (BEROUN AVENUE) AND TRUNK HIGHWAY 68 (RED ROBIN ROAD) IN BEROUN, THEN 0.3 MILE NORTH ALONG COUNTY HIGHWAY 61, 0.3 MILE NORTH ALONG THE RAILROAD TRACKS FROM BEROUN RAILROAD STATION, 71.0 FEET WEST OF THE NORTH HEAD BLOCK AT AN ABANDONED RAILROAD SIDING.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
972.813	.007	1/1				UNKNOWN/APPROXIMATE	1992	UNCHECKD
972.813	.007	1				VERTICAL CONTROL SURVEY	1929	L30 MINN

GA1912

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
973.489	.007	1				VERTICAL ADJUSTMENT	1914	GA1912

Geoid Separations(ft): GEOID18 = -90.495 12B = -90.479 09 = -90.410 03 = -90.279

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

PBM 19 A

Mn/DOT Name: PBM 19 A

NGS Name: PBM 19 A

County: PINE, MN (Sheet 1)

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	34	40 N	21 W	455451.00	925727.00		

NGS ACRN: Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1891	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
PIPE (CAPPED) DRIVEN IN GROUND (<10 FT)	SEE DESCRIPTION	MRC

Description: (1974)

Stamping:

0.5 MILE NORTHWEST OF BEROUN, 0.2 MILE WEST ALONG COUNTY ROAD 127 (BEROUN AVENUE) FROM THE JUNCTION OF COUNTY ROAD 127 (BEROUN AVENUE) AND TRUNK HIGHWAY 68 (RED ROBIN ROAD) IN BEROUN, THEN 0.3 MILE NORTH ALONG COUNTY HIGHWAY 61, 0.3 MILE NORTH ALONG THE RAILROAD TRACKS FROM THE BEROUN RAILROAD STATION, 71.0 FEET WEST OF THE NORTH HEAD BLOCK AT AN ABANDONED RAILROAD SIDING.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
976.812	.007	1				VERTICAL CONTROL SURVEY	1929	L30 MINN

GA1912

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
977.488	.007	1				VERTICAL ADJUSTMENT	1914	GA1912

Geoid Separations(ft): GEOID18 = -90.495 12B = -90.479 09 = -90.410 03 = -90.279

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

PBM 20

Mn/DOT Name: PBM 20 **NGS Name:** PBM 20

County: PINE, MN (Sheet 1)

NGS ACRN: Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	33	39 N	21 W	454949.00	925806.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1898	1900	GOOD	Horz=YES Vert=YES	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
BRIDGE HEADWALL	CHISELED CROSS	MRC

Description: (1912) **Stamping:** US + BM

IN PINE CITY, 0.2 MILE SOUTH ALONG MAIN STREET NORTH FROM THE JUNCTION OF MAIN STREET NORTH AND 4TH AVENUE NORTHWEST IN PINE CITY, THEN 240.0 FEET EAST ALONG 1ST AVENUE NORTHEAST, THEN 577.89 FEET SOUTH ALONG THE TRAIN TRACK, THEN 50.0 FEET EAST ALONG THE TRAIN TRACK, STATION PBM 20 IS A CROSS CUT IN THE TOP OF THE EAST END OF THE WALL SUPPORTING THE TRACK STRINGERS, AT THE NORTH END OF THE TRUSSED SPAN OF THE ST. PAUL AND DULUTH RAILWAY OVER THE SNAKE RIVER, 26.0 INCHES WEST OF THE WEST SIDE OF THE INCLINED END OF THE POST AT THE NORTHEAST CORNER OF THE SPAN, 21.0 INCHES EAST OF THE EAST TRACK STRINGER.

Station Notes

REFERENCE LATITUDE AND LONGITUDE ARE APPROXIMATED BASED UPON A 1912 DESCRIPTION.

Leveling-Derived Orthometric Heights (Feet)

GA1912

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
948.738	.007	1				VERTICAL ADJUSTMENT	1914	GA1912

Geoid Separations(ft): GEOID18 = -90.909 12B = -90.886 09 = -90.823 03 = -90.702

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

Mn/DOT Name: PBM 21 **NGS Name:** 21 BOLT

County: PINE, MN (Sheet 1)

NGS ACRN: QO0234 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	33	39 N	21 W	454943.00	925804.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1891	2007	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE FOOTING - SMALL	BOLT	MRC

Description: (1974) **Stamping:**

IN PINE CITY, 0.5 MILE SOUTH ALONG MAIN STREET NORTH FROM THE JUNCTION OF MAIN STREET NORTH AND 4TH AVENUE NORTHWEST IN PINE CITY, THEN 0.1 MILE EAST ALONG 3RD AVENUE SOUTHEAST, THEN 0.1 MILE NORTH ALONG 3RD STREET SOUTHEAST, THEN 36.0 FEET EAST ALONG 1ST AVENUE EAST, 3.5 FEET NORTH OF THE NORTH EDGE OF A SIDEWALK ON THE SOUTH SIDE OF ROBINSON PARK IN PINE CITY, OPPOSITE A CHISEL MARK.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
945.510	.007	1				VERTICAL CONTROL SURVEY	1929	L30 MINN

GA1912

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
946.166	.007	1				VERTICAL ADJUSTMENT	1914	GA1912

Geoid Separations(ft): GEOID18 = -90.905 12B = -90.882 09 = -90.820 03 = -90.699

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

PBM 21 A

Mn/DOT Name: PBM 21 A
NGS Name: 21 A CAP
County: PINE, MN (Sheet 1)

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	33	39 N	21 W	454936.09	925808.17	2	

NGS ACRN: QO0235 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1966	2007	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
PIPE (CAPPED) DRIVEN IN GROUND (<10 FT)	PIPE CAP	MRC

Description: (1974) **Stamping:** PBM

IN PINE CITY, 0.5 MILE SOUTH ALONG MAIN STREET NORTH FROM THE JUNCTION OF MAIN STREET NORTH AND 4TH AVENUE NORTHWEST IN PINE CITY, THEN 0.1 MILE EAST ALONG 3RD AVENUE SOUTHEAST, THEN 0.1 MILE NORTH ALONG 3RD STREET SOUTHEAST, THEN 36.0 FEET EAST ALONG 1ST AVENUE EAST, 3.5 FEET NORTH OF THE NORTH EDGE OF A SIDEWALK ON THE SOUTH SIDE OF ROBINSON PARK, OPPOSITE A CHISEL MARK.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
949.745	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
949.532	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
949.532	.016	2				VERTICAL CONTROL SURVEY	1976	L30 MINN
949.532	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
949.532	.033	3				MIXED SURVEY	1966	USGS-VERT
949.513	.007	1				VERTICAL CONTROL SURVEY	1929	L30 MINN

GA1912

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
950.172	.007	1				VERTICAL ADJUSTMENT	1914	GA1912

Geoid Separations(ft): GEOID18 = -90.905 12B = -90.882 09 = -90.820 03 = -90.699

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

PBM 22 A CAP RESET

Mn/DOT Name: PBM 22 A CAP RESET **NGS Name:** 22 CAP

County: PINE, MN (Sheet 1)

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	28	38 N	21 W	454527.64	925744.60	2	

NGS ACRN: QO0236 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1974	2007	POOR	Horz=NO Vert=YES	YES		PROJECTS 18 IN.	SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
PIPE (CAPPED) DRIVEN IN GROUND (<10 FT)	CAP OF CAP-AND-BOLT PAIR	MRC

Description: (1977) **Stamping:**

AT ROCK CREEK, 0.1 MILE SOUTH OF COUNTY ROAD 2, 0.1 MILE WEST OF TRUNK HIGHWAY 361, AT THE SOUTH BANK OF ROCK CREEK, 49.5 FEET EAST OF A RAILROAD, AT RAILROAD MILEPOST 57, 36.6 FEET NORTHWEST OF A 10.0 INCH DIAMETER NORWAY PINE TREE, 32.2 FEET WEST OF THE SOUTHWEST CORNER OF A GARAGE, 35.5 FEET SOUTHWEST OF THE NORTHWEST CORNER OF A GARAGE.

Station Notes

THE PIPE IS VERY LOOSE, CAN LIFT PIPE UP SEVERAL FEET.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
937.908	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
937.692	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
937.692	.016	2				VERTICAL CONTROL SURVEY	1980	L24425
937.692	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
937.692	.016	2				VERTICAL CONTROL SURVEY	1976	L24016
937.692	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
937.761	.016	2				VERTICAL CONTROL SURVEY	1975	L23805
937.692	.033	3				MIXED SURVEY	1968	USGS-VERT

GA1912

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
938.282	.007	1				VERTICAL ADJUSTMENT	1914	GA1912

Geoid Separations(ft): GEOID18 = -91.148 12B = -91.135 09 = -91.076 03 = -90.938

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

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/22_CAP-QO0236-3N-14MAY2007.jpg	N	May 14, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/22_CAP-QO0236-2-14MAY2007.jpg		May 14, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/22_CAP-QO0236-1-14MAY2007.jpg		May 14, 2007

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

PBM 22 MRC

Mn/DOT Name: PBM 22 MRC
NGS Name: 22 BOLT
County: PINE, MN (Sheet 1)

NGS ACRN: QO0237 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	28	38 N	21 W	454527.64	925744.60	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1891	2008	NOT FOUND	Horz=NO Vert=YES	YES		RECESSED 15 IN.	MARK IS STEEL PIPE

Monument Type
PIPE (CAPPED) DRIVEN IN GROUND (<10 FT)

Disk Type
BENCH MARK DISK

Mon. Agency
MRC

Description: (1977)

Stamping:

5.5 MILES SOUTH OF PINE CITY, 0.1 MILE WEST OF TRUNK HIGHWAY 361 ON 558TH STREET IN THE NORTHWEST CORNER OF A YARD OF HOUSE NUMBER 7155, 51.5 FEET EAST OF THE EAST RAIL OF THE RAILROAD TRACKS, 1.5 FEET WEST OF A RIGHT-OF-WAY POLE, ON TOP OF THE SOUTH BANK OF ROCK CREEK, 46.0 FEET WEST OF THE SOUTHWEST CORNER OF A GARAGE.

Station Notes
PBM 22 A CAP RESET PIPE IS UNSTABLE (QO0236 -22 CAP)

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
933.902	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
933.686	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
933.686	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
933.755	.016	2				VERTICAL CONTROL SURVEY	1974	L23306
933.633	.007	1				VERTICAL CONTROL SURVEY	1929	L30 MINN

GA1912

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
934.280	.007	1				VERTICAL ADJUSTMENT	1914	GA1912

Geoid Separations(ft): GEOID18 = -91.145 12B = -91.132 09 = -91.073 03 = -90.935

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

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/22_BOLT-QO0237-3NE-30SEP2008.jpg	NE	Sep 30, 2008
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/22_BOLT-QO0237-2-30SEP2008.jpg		Sep 30, 2008
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/22_BOLT-QO0237-1-30SEP2008.jpg		Sep 30, 2008

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

PETERSON

Mn/DOT Name: PETERSON
NGS Name: PETERSON
County: PINE, MN (Sheet 1)

NGS ACRN: QO1571 Get Map
NGS Quad / Sta Num : 45092443/1028
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	35	39 N	21 W	454911.93	925537.21		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1934	2007	NOT FOUND	Horz=YES Vert=YES	NO			STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	HORIZONTAL CONTROL DISK	MNDT

Description: (1993) **Stamping:** PETERSON 1934

2.0 MILES SOUTHEAST OF PINE CITY, 0.2 MILE EAST ON 3RD AVENUE FROM THE JUNCTION OF 3RD AVENUE AND 6TH STREET IN PINE CITY, 0.2 MILE SOUTH AND EAST ON 2ND STREET TO COUNTY ROAD 8, THEN 1.7 MILES SOUTH AND EAST ON COUNTY ROAD 8, THEN 0.2 MILE NORTH ON A FIELD ROAD THEN 250.0 FEET WEST TO STATION PETERSON ON A HIGH PART OF A CULTIVATED FIELD, 101.58 FEET SOUTHWEST OF PETERSON RM 3, 71.55 FEET WEST-NORTHWEST OF PETERSON RM 4, PETERSON RM 3 IS 27.3 FEET SOUTHWEST OF THE WEST APPLE TREE OF FOUR AND 96.8 FEET WEST-SOUTHWEST OF THE EAST APPLE TREE.

*** 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
			927.078	.008	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			927.173	.009	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
			927.321	.066	1996	GPS - STATIC	1999	GPS917
1017.518	.131		927.321	.066	1996	HORIZONTAL ADJUSTMENT	1999	17648

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1017.386						GPS - STATIC	1994	HORZ
1017.255						LEVELING	1984	HORZ

Geoid Separations(ft): GEOID18 = -90.426 12B = -90.430 09 = -90.364 03 = -90.216

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 49 11.93264	92 55 37.20719	493115.019	132815.097	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 49 11.93272	92 55 37.20788	493114.970	132815.105	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 49 11.93274	92 55 37.20734	493115.008	132815.108	.033	C	GPS - STATIC	1999	GPS917
45 49 11.93274	92 55 37.20734	493115.009	132815.107	.033	C	ADJUSTMENT	1999	17648
45 49 11.93005	92 55 37.20220	493115.372	132814.834	.033	1	ADJUSTMENT	1991	17497

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 49 11.92829	92 55 37.20348	493115.282	132814.656	.033	1	ADJUSTMENT	1986	17289

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 49 12.08500	92 55 36.45400			.100	1	CLASSICAL SURVEY	1961	12611

PETERSON

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2961959.178	629908.888	1659021.311	16647109.375	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2961959.130	629908.895	1659021.262	16647109.383	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2961959.168	629908.898	1659021.300	16647109.386	.033	C	GPS - STATIC	1999	GPS917
2961959.168	629908.898	1659021.300	16647109.386	.033	C	ADJUSTMENT	1999	17648
2961959.536	629908.632	1659021.664	16647109.113	.033	1	ADJUSTMENT	1991	17497

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2961959.448	629908.452	1659021.574	16647108.935	.033	1	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2337355.726	301839.796			.100	1	CLASSICAL SURVEY	1961	12611

PETERSON AZ MK

Mn/DOT Name: PETERSON AZ MK
NGS Name: PETERSON AZ MK
County: PINE, MN (Sheet 1)

NGS ACRN: CJ4568 Get Map
NGS Quad / Sta Num : 45092443/1028
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	35	39 N	21 W	454902.37	925606.99		3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1934	2008	GOOD	Horz=YES Vert=YES	YES		FLUSH	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description: (1984) **Stamping:** PETERSON AZIMUTH 1934

2.0 MILES SOUTHEAST OF PINE CITY, 0.2 MILE EAST ON 3RD AVENUE FROM THE JUNCTION OF 3RD AVENUE AND 6TH STREET IN PINE CITY, 0.2 MILE SOUTH AND EAST ON 2ND STREET TO COUNTY ROAD 8, 1.25 MILES SOUTH AND EAST ON COUNTY ROAD 8, 33.0 FEET SOUTH OF THE CENTERLINE OF COUNTY ROAD 8, 18.0 FEET WEST OF THE NORTHEAST CORNER OF THE END POST OF A CEMETERY FENCE, 1.0 FOOT EAST OF A STEEL 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
1008.522	.262		918.187	.197	1996	GPS - RTRN	2008	RTRN2008

Geoid Separations(ft): GEOID18 = -90.541 12B = -90.541 09 = -90.476 03 = -90.334

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 49 02.37345	92 56 06.98905	491005.203	131847.586	.131	3	GPS - RTRN	2008	RTRN2008

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2959866.346	628905.653	1656913.663	16646139.659	.131	3	GPS - RTRN	2008	RTRN2008

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/PETERSON_AZ_MK-CJ4568-3S-30SEP2008.jpg	S	Sep 30, 2008
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/PETERSON_AZ_MK-CJ4568-2-30SEP2008.jpg		Sep 30, 2008
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/PETERSON_AZ_MK-CJ4568-1-30SEP2008.jpg		Sep 30, 2008

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

PETERSON AZ MK 2

Mn/DOT Name: PETERSON AZ MK 2 **NGS Name:** PETERSON AZ MK 2

County: PINE, MN (Sheet 1)

NGS ACRN: QO2502 Get Map
NGS Quad / Sta Num : 45092443/1028
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	2	38 N	21 W	454832.04	925544.66		2

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1984	2008	GOOD	Horz=YES Vert=YES	YES		RECESSED 6 IN.	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE)	REFERENCE MARK DISK	MNDT

Description: (1984) **Stamping:** PETERSON 1934 AZ MK 2 1984

2.5 MILES SOUTHEAST OF PINE CITY, 0.2 MILE EAST ON 3RD AVENUE FROM THE JUNCTION OF 3RD AVENUE AND 6TH STREET, THEN 0.8 MILE SOUTH ON 2ND STREET TO COUNTY ROAD 8, THEN 1.5 MILES SOUTH AND EAST ON COUNTY ROAD 8, THEN 0.6 MILE SOUTH ON COUNTY ROAD 4, 19.0 FEET EAST OF COUNTY ROAD 4, 77.0 FEET NORTH OF A FIELD ENTRANCE, 52.0 FEET EAST-NORTHEAST OF A POWER POLE, 30.7 FEET WEST-NORTHWEST OF A GUY POLE, 26.3 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
984.693	.262		894.408	.197	1996	GPS - RTRN	2008	RTRN2008
985.267	.197		895.001	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648
985.201						RECIPROCAL VERTICAL ANGLE	1994	HORZ

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
985.201						RECIPROCAL VERTICAL ANGLE	1984	HORZ

Geoid Separations(ft): GEOID18 = -90.492 12B = -90.499 09 = -90.439 03 = -90.285

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 48 32.04125	92 55 44.65867	492585.770	128774.326	.131	3	GPS - RTRN	2008	RTRN2008
45 48 32.04080	92 55 44.65918	492585.734	128774.281	.066	2	ADJUSTMENT	1999	17648

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 48 32.03615	92 55 44.65642	492585.928	128773.811	.066	2	CLASSICAL SURVEY	1994	G17352
45 48 32.03615	92 55 44.65642	492585.929	128773.810	.066	2	ADJUSTMENT	1994	17352

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 48 32.19240	92 55 43.90510			.100	2	CLASSICAL SURVEY	1984	3306-09

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2961498.910	625860.048	1658497.362	16643069.773	.131	3	GPS - RTRN	2008	RTRN2008
2961498.875	625860.002	1658497.326	16643069.727	.066	2	ADJUSTMENT	1999	17648

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2961499.078	625859.534	1658497.522	16643069.257	.066	2	CLASSICAL SURVEY	1994	G17352
2961499.078	625859.534	1658497.522	16643069.257	.066	2	ADJUSTMENT	1994	17352

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2336895.479	297790.859			.100	2	CLASSICAL SURVEY	1984	3306-09

PETERSON AZ MK 2

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/PETERSON_AZ_MK_2-QO2502-3E-30SEP2008.jpg	E	Sep 30, 2008
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/PETERSON_AZ_MK_2-QO2502-2-30SEP2008.jpg		Sep 30, 2008
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/PETERSON_AZ_MK_2-QO2502-1-30SEP2008.jpg		Sep 30, 2008

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

PETERSON RM 1

Mn/DOT Name: PETERSON RM 1 **NGS Name:** PETERSON RM 1

County: PINE, MN (Sheet 1)

NGS ACRN: CJ4569 Get Map
NGS Quad / Sta Num : 45092443/1028
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	35	39 N	21 W	454911.73	925536.06		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1934	2008	NOT FOUND	Horz=? Vert=YES	NO		PROJECTS 5 IN.	SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	CGS

Description: (1934) **Stamping:** PETERSON NO 1 1934

2.0 MILES SOUTHEAST OF PINE CITY, 0.2 MILE EAST ON 3RD AVENUE FROM THE JUNCTION OF 3RD AVENUE AND 6TH STREET AT PINE CITY, THEN 0.2 MILE SOUTH AND EAST ON 2ND STREET TO COUNTY ROAD 8, THEN 1.7 MILES SOUTH AND EAST ON COUNTY ROAD 8, THEN 0.2 MILE NORTH ON A FIELD ROAD, THEN 250.0 FEET WEST TO STATION ON THE HIGH PART OF A CULTIVATED FIELD, AT THE WEST EDGE OF THE WOODS, 15.0 FEET NORTH-NORTHWEST OF A 10.0 INCH MAPLE, 7.0 FEET SOUTH-SOUTHWEST OF A CROOKED 10.0 INCH DIAMETER ASH TREE.

Station Notes

IN 1959 A RECOVERY NOTE BY COAST AND GEODETIC SURVEY REPORTED THAT PETERSON RM 1 WAS REMOVED AT THE REQUEST OF THE PROPERTY OWNER, BUT IN 1971, A RECOVERY NOTE BY NATIONAL GEODETIC SURVEY (NGS) REPORTED THAT PETERSON RM 1 WAS FOUND IN GOOD CONDITION.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.423 12B = -90.430 09 = -90.364 03 = -90.216

PETERSON RM 2

Mn/DOT Name: PETERSON RM 2 **NGS Name:** PETERSON RM 2

County: PINE, MN (Sheet 1)

NGS ACRN: CJ4570 Get Map
NGS Quad / Sta Num : 45092443/1028
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	35	39 N	21 W	454911.10	925537.38		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1934	2008	DESTROYED	Horz=NO Vert=NO	NO		PROJECTS 6 IN.	SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	NGS

Description: (1934) **Stamping:** PETERSON NO 2 1934

2.0 MILES SOUTHEAST OF PINE CITY, 0.2 MILE EAST ON 3RD AVENUE FROM THE JUNCTION OF 3RD AVENUE AND 6TH STREET AT PINE CITY, THEN 0.2 MILE SOUTH AND EAST ON 2ND STREET TO COUNTY ROAD 8, THEN 1.7 MILES SOUTH AND EAST ON COUNTY ROAD 8, THEN 0.2 MILE NORTH ON FIELD ROAD, THEN 250.0 FEET WEST TO THE STATION ON THE HIGH PART OF A CULTIVATED FIELD, 1.0 FOOT EAST OF THE PASTURE FENCE, 5.0 FEET SOUTH OF A FENCE POST, 113.16 FEET SOUTHWEST OF PETERSON RM 1.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.423 12B = -90.426 09 = -90.364 03 = -90.216

PETERSON RM 3

Mn/DOT Name: PETERSON RM 3 **NGS Name:** PETERSON RM 3

County: PINE, MN (Sheet 1)

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	35	39 N	21 W	454912.63	925536.17		

NGS ACRN: CJ4571 Get Map
NGS Quad / Sta Num : 45092443/1028
USGS Quad: PINE CITY

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1959	2007	GOOD	Horz=YES Vert=YES	YES		RECESSED 6 IN.	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description: (2007) **Stamping:** PETERSON NO 3 1934

2.0 MILES SOUTHEAST OF PINE CITY, 0.2 MILE EAST ALONG 3RD AVENUE FROM THE JUNCTION OF 3RD AVENUE AND 6TH STREET (COUNTY ROAD 61) IN PINE CITY, 0.2 MILE SOUTH AND EAST ON 2ND STREET TO COUNTY ROAD 8, THEN 1.7 MILES EAST ON COUNTY ROAD 8, THEN 0.2 MILE NORTH ON A FIELD ROAD, 150.0 FEET WEST-SOUTHWEST OF EASTWICK LANE.

Station Notes

THERE IS NO WITNESS POST THE MARK IS IN A MOWED YARD.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.420 12B = -90.426 09 = -90.361 03 = -90.213

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/PETERSON_RM_3-CJ4571-3W-28NOV2007.jpg	W	Nov 28, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/PETERSON_RM_3-CJ4571-2-28NOV2007.jpg		Nov 28, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/PETERSON_RM_3-CJ4571-1-28NOV2007.jpg		Nov 28, 2007

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

PETERSON RM 4

Mn/DOT Name: PETERSON RM 4 **NGS Name:** PETERSON RM 4

County: PINE, MN (Sheet 1)

NGS ACRN: CJ4572 Get Map
NGS Quad / Sta Num : 45092443/1028
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	35	39 N	21 W	454911.74	925536.24		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1959	2007	GOOD	Horz=YES Vert=YES	YES		RECESSED 5 IN.	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description: (2007) **Stamping:** PETERSON NO 4 1934

2.0 MILES SOUTHEAST OF PINE CITY, 0.2 MILE EAST ON 3RD AVENUE FROM THE JUNCTION OF 3RD AVENUE AND 6TH STREET AT PINE CITY, 0.2 MILE SOUTH AND EAST ON 2ND STREET TO COUNTY ROAD 8, THEN 1.7 MILES SOUTH AND EAST ON COUNTY ROAD 8, THEN 0.2 MILE NORTH ON EASTWICK LANE, 181.6 FEET WEST-SOUTHWEST OF EASTWICK LANE, 1.4 FEET NORTH-NORTHEAST OF A WITNESS POST.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.423 12B = -90.426 09 = -90.361 03 = -90.213

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/PETERSON_RM_4-CJ4572-3W-28NOV2007.jpg	W	Nov 28, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/PETERSON_RM_4-CJ4572-2-28NOV2007.jpg		Nov 28, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/PETERSON_RM_4-CJ4572-1-28NOV2007.jpg		Nov 28, 2007

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

Mn/DOT Name: PIG **NGS Name:** PIG

County: PINE, MN (Sheet 1)

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	32	40 N	22 W	455505.41	930719.11	2	C

NGS ACRN: DM4954 Get Map
NGS Quad / Sta Num : 45093111/
USGS Quad: BROOK PARK

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2010	2025	POOR	Horz=NO Vert=NO	YES		FLUSH	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 15 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2010) **Stamping:** PIG 2010

3.0 MILES SOUTHWEST OF BROOK PARK, 2.0 MILES SOUTH ALONG TRUNK HIGHWAY 107 FROM THE JUNCTION OF TRUNK HIGHWAY 107 AND TRUNK HIGHWAY 23 SOUTHWEST OF BROOK PARK, AT TRUNK HIGHWAY 107 MILEPOINT 15.55, 37.7 FEET NORTHWEST OF TRUNK HIGHWAY 107, 10.2 FEET SOUTH OF AN ENTRANCE, 3.9 FEET NORTH OF A WITNESS POST.

Station Notes

THE ROD HAS BEEN BENT OVER AND NEEDS TO BE RESET IN THE FUTURE.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1010.247	.016	2/1				VERTICAL ADJUSTMENT	2012	00000745
1010.237	.016	2/1				VERTICAL CONTROL SURVEY	2010	VBRAH

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
1010.146	.262		918.781	.197	2011	GPS - RTRN	2025	RTRN2025
			918.899	.008	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1010.234	.131		918.968	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2747
1010.234	.131		918.968	.066	2007	GPS - STATIC	2010	HBRAH
1010.234	.131		919.096	.066	1996	GPS - STATIC	2010	HBRAH

Geoid Separations(ft): GEOID18 = -91.365 12B = -91.355 09 = -91.260 03 = -91.102

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 55 05.40508	93 07 19.11032	443500.683	168699.360	.131	3	GPS - RTRN	2025	RTRN2025
45 55 05.40820	93 07 19.11097	443500.638	168699.676	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 55 05.40838	93 07 19.11192	443500.570	168699.694	.033	C	ADJUSTMENT	2011	GPS2747
45 55 05.40838	93 07 19.11192	443500.570	168699.694	.033	C	GPS - STATIC	2010	HBRAH

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 55 05.40809	93 07 19.11129	443500.615	168699.665	.033	C	GPS - STATIC	2010	HBRAH

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2911745.411	664939.380	1609384.160	16682915.131	.131	3	GPS - RTRN	2025	RTRN2025
2911745.360	664939.696	1609384.115	16682915.448	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2911745.293	664939.713	1609384.048	16682915.466	.033	C	ADJUSTMENT	2011	GPS2747
2911745.293	664939.713	1609384.048	16682915.466	.033	C	GPS - STATIC	2010	HBRAH

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2911745.338	664939.684	1609384.092	16682915.437	.033	C	GPS - STATIC	2010	HBRAH

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/PIG-DM4954-3NW-28APR2010.jpg	NW	Apr 28, 2010
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/PIG-DM4954-2-28APR2010.jpg		Apr 28, 2010
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/PIG-DM4954-1-28APR2010.jpg		Apr 28, 2010

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

PINE CITY

Mn/DOT Name: PINE CITY
NGS Name: PINE CITY
County: PINE, MN (Sheet 1)

NGS ACRN: QO0346 Get Map
NGS Quad / Sta Num : 45092443/1020
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	4	38 N	21 W	454848.35	925814.89	2	A

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2013	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	NGS

Description: (2007) **Stamping:** PINE CITY 1961

1.0 MILE SOUTH OF PINE CITY, 0.4 MILE SOUTH ALONG TRUNK HIGHWAY 361 FROM THE JUNCTION OF TRUNK HIGHWAY 361 AND HILLSIDE AVENUE, 123.0 FEET SOUTHWEST OF THE JUNCTION OF TRUNK HIGHWAY 361 AND GOLF AVENUE SOUTHWEST, 84.0 FEET WEST OF TRUNK HIGHWAY 361, 87.0 FEET SOUTH OF GOLF AVENUE SOUTHWEST, 198.53 FEET SOUTHWEST OF RPPI 74.9, 132.96 FEET WEST-SOUTHWEST OF RPPI 75.0, 98.45 FEET NORTH OF PINE CITY RM 1, 19.0 FEET NORTHWEST OF A CABLE MARKER, 0.7 FOOT 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
1013.043	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1013.059	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
1013.043	.016	2/1				VERTICAL CONTROL SURVEY	2009	VCHEN
1013.043	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1012.826	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
1012.826	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
1012.921	.016	2				VERTICAL CONTROL SURVEY	1974	L23306

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
			922.078	.010	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			922.164	.009	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
1013.056	.131		922.288	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1924
1013.056	.131		922.288	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1839
1013.056	.131		922.288	.066	1996	GPS - STATIC	2003	HKANA
1013.056	.131		922.288	.066	1996	GPS - STATIC	2002	HPINE
1013.056	.131		922.285	.066	1996	HORIZONTAL ADJUSTMENT	1999	17648
1013.043	.131		922.288	.066	1996	GPS - STATIC	1997	GPS805-C

Geoid Separations(ft): GEOID18 = -91.004 12B = -90.978 09 = -90.918 03 = -90.791

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 48 48.34896	92 58 14.89487	481944.208	130432.961	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 48 48.34884	92 58 14.89580	481944.142	130432.949	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 48 48.34898	92 58 14.89520	481944.184	130432.963	.033	C	ADJUSTMENT	2003	GPS1924
45 48 48.34898	92 58 14.89520	481944.184	130432.963	.033	C	ADJUSTMENT	2003	GPS1839
45 48 48.34898	92 58 14.89520	481944.184	130432.963	.033	C	GPS - STATIC	2003	HKANA
45 48 48.34898	92 58 14.89520	481944.184	130432.963	.033	C	GPS - STATIC	2002	HPINE
45 48 48.34898	92 58 14.89520	481944.184	130432.963	.033	C	ADJUSTMENT	1999	17648
45 48 48.34898	92 58 14.89520	481944.184	130432.963	.033	C	GPS - STATIC	1997	GPS805-C
45 48 48.34656	92 58 14.89002	481944.551	130432.717	.131	3	ADJUSTMENT	1991	17497

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 48 48.34503	92 58 14.89163	481944.437	130432.563	.131	3	ADJUSTMENT	1986	17289

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 48 48.49880	92 58 14.13800			.100	3	CLASSICAL SURVEY	1961	12611

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2950831.584	627336.968	1647858.548	16644714.314	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2950831.518	627336.955	1647858.482	16644714.301	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2950831.560	627336.970	1647858.524	16644714.315	.033	C	ADJUSTMENT	2003	GPS1924
2950831.560	627336.970	1647858.524	16644714.315	.033	C	ADJUSTMENT	2003	GPS1839
2950831.560	627336.970	1647858.524	16644714.315	.033	C	GPS - STATIC	2003	HKANA
2950831.560	627336.969	1647858.524	16644714.315	.033	C	GPS - STATIC	2002	HPINE
2950831.560	627336.970	1647858.524	16644714.315	.033	C	ADJUSTMENT	1999	17648
2950831.560	627336.970	1647858.524	16644714.315	.033	C	GPS - STATIC	1997	GPS805-C
2950831.931	627336.731	1647858.891	16644714.071	.131	3	ADJUSTMENT	1991	17497

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2950831.819	627336.574	1647858.777	16644713.916	.131	3	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2326228.075	299267.605			.100	3	CLASSICAL SURVEY	1961	12611

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/PINE_CITY-QO0346-3W-10NOV2008.jpg	W	Nov 10, 2008
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/PINE_CITY-QO0346-2-10NOV2008.jpg		Nov 10, 2008
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/PINE_CITY-QO0346-1-10NOV2008.jpg		Nov 10, 2008

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

PINE CITY AZ MK

Mn/DOT Name: PINE CITY AZ MK
NGS Name: PINE CITY AZ MK
County: PINE, MN (Sheet 1)

NGS ACRN: QO0348 Get Map
NGS Quad / Sta Num : 45092443/1020
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	4	38 N	21 W	454814.66	925813.12	2	2

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2020	GOOD	Horz=YES Vert=YES	YES		FLUSH	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	NGS

Description: (1984) **Stamping:** PINE CITY 1961

1.5 MILES SOUTH OF PINE CITY, 1.05 MILES SOUTH ON TRUNK HIGHWAY 361 FROM THE JUNCTION OF TRUNK HIGHWAY 361 TO A DRIVEWAY NUMBER 1724 AND HILLSIDE AVENUE, 76.0 FEET EAST OF TRUNK HIGHWAY 361, 14.5 FEET NORTH OF AN ENTRANCE, 46.6 FEET NORTH OF A FENCE CORNER, 33.2 FEET SOUTH-SOUTHEAST OF A POWER POLE WITH A TRANSFORMER, 26.2 FEET SOUTH OF A TELEPHONE CABLE PEDESTAL, 1.7 FEET NORTH-NORTHWEST 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
956.566	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
956.579	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
956.579	.016	2/1				VERTICAL CONTROL SURVEY	2009	VCHEN
956.553	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
956.340	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
956.340	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
956.432	.016	2				VERTICAL CONTROL SURVEY	1974	L23306

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
956.661	.262		865.648	.197	2011	GPS - RTRN	2020	RTRN2020
956.560	.197		865.759	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -91.033 12B = -91.014 09 = -90.958 03 = -90.823

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 48 14.66271	92 58 13.12107	482066.841	127020.470	.131	3	GPS - RTRN	2020	RTRN2020

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 48 14.66344	92 58 13.12081	482066.860	127020.544	.066	2	ADJUSTMENT	1999	17648

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 48 14.65946	92 58 13.11871	482067.008	127020.140	.066	2	CLASSICAL SURVEY	1994	G17352
45 48 14.65946	92 58 13.11871	482067.008	127020.141	.066	2	ADJUSTMENT	1994	17352

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 48 14.81710	92 58 12.36530			.100	2	CLASSICAL SURVEY	1984	3306-09

PINE CITY AZ MK

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951012.331	623927.367	1647985.407	16641303.526	.131	3	GPS - RTRN	2020	RTRN2020

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951012.348	623927.441	1647985.426	16641303.600	.066	2	ADJUSTMENT	1999	17648

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951012.503	623927.040	1647985.575	16641303.197	.066	2	CLASSICAL SURVEY	1994	G17352
2951012.503	623927.040	1647985.575	16641303.197	.066	2	ADJUSTMENT	1994	17352

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2326408.746	295858.490			.100	2	CLASSICAL SURVEY	1984	3306-09

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/PINE_CITY_AZ_MK-QO0348-3E-29APR2020.jpg	E	Apr 29, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/PINE_CITY_AZ_MK-QO0348-2-29APR2020.jpg		Apr 29, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/PINE_CITY_AZ_MK-QO0348-1-29APR2020.jpg		Apr 29, 2020

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

PINE CITY LAND O LAKES CO STK

Mn/DOT Name: PINE CITY LAND O LAKES CO STK **NGS Name:** PINE CITY LAND O LAKES CO STK

County: PINE, MN (Sheet 1)

NGS ACRN: QO1573 Get Map
NGS Quad / Sta Num : 45092443/1022
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	33	39 N	21 W	454945.57	925807.74		4

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2008	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
SEE DESCRIPTIVE TEXT	STACK	NGS

Description: (1984) **Stamping:**

IN PINE CITY, AT THE NORTHEAST CORNER OF 5TH STREET AND EAST 1ST AVENUE.

Station Notes

IN 9-30-2008 NOTED THAT STACK IS NO LONGER IN EXISTENCE.

*** No Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.918 12B = -90.892 09 = -90.830 03 = -90.708

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 49 45.56969	92 58 07.73517	482456.388	136228.918	.328	4	ADJUSTMENT	1999	17648
45 49 45.56742	92 58 07.72970	482456.775	136228.688	.328	4	ADJUSTMENT	1991	17497

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 49 45.56588	92 58 07.73176	482456.629	136228.532	.328	4	ADJUSTMENT	1986	17289

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 49 45.72000	92 58 06.98100			.100	4	CLASSICAL SURVEY	1961	12611

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951244.890	633140.288	1648363.223	16650508.289	.328	4	ADJUSTMENT	1999	17648
2951245.281	633140.064	1648363.610	16650508.059	.328	4	ADJUSTMENT	1991	17497

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951245.138	633139.906	1648363.464	16650507.903	.328	4	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2326641.190	305070.934			.100	4	CLASSICAL SURVEY	1961	12611

PINE CITY MUNICIPAL TANK

Mn/DOT Name: PINE CITY MUNICIPAL TANK
NGS Name: PINE CITY MUNICIPAL TANK
County: PINE, MN (Sheet 1)

NGS ACRN: QO1574 Get Map
NGS Quad / Sta Num : 45092443/1031
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	33	39 N	21 W	454932.14	925809.30		4

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1934	2012	NOT FOUND	Horz=NO Vert=?	YES			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
SEE DESCRIPTIVE TEXT	ELEVATED TANK	NGS

Description: (1934)
Stamping:

IN PINE CITY, 1.0 BLOCK SOUTH OF COUNTY ROAD 8 AND 1.0 BLOCK EAST OF TRUNK HIGHWAY 361.

Station Notes

THE MONUMENT IS THE WATER TOWER FOR PINE CITY.

*** No Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.938 12B = -90.912 09 = -90.850 03 = -90.728

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 49 32.14301	92 58 09.30056	482344.350	134868.904	.328	4	ADJUSTMENT	1999	17648
45 49 32.14070	92 58 09.29703	482344.599	134868.670	.328	4	ADJUSTMENT	1991	17497

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 49 32.13905	92 58 09.29885	482344.470	134868.503	.328	4	ADJUSTMENT	1986	17289

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 49 32.29300	92 58 08.54600			.100	4	CLASSICAL SURVEY	1961	12611

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951156.050	631778.686	1648252.942	16649148.750	.328	4	ADJUSTMENT	1999	17648
2951156.304	631778.456	1648253.192	16649148.516	.328	4	ADJUSTMENT	1991	17497

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951156.178	631778.287	1648253.063	16649148.349	.328	4	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2326552.379	303709.308			.100	4	CLASSICAL SURVEY	1961	12611

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/PINE_CITY_MUNICIPAL_TANK-QO1574-3E-30SEP2008.jpg	E	Sep 30, 2008
Monument:			
Disk:			

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

PINE CITY PINE CO CTHSE SPIRE

Mn/DOT Name: PINE CITY PINE CO CTHSE SPIRE
NGS Name: PINE CITY PINE CO CTHSE SPIRE
County: PINE, MN (Sheet 1)

NGS ACRN: QO1579 Get Map
NGS Quad / Sta Num : 45092443/1032
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	33	39 N	21 W	454934.93	925814.91		4

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1934	2008	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
SEE DESCRIPTIVE TEXT	SEE DESCRIPTION	NGS

Description: (1961)

Stamping:

ABOVE A ROUND WOODEN TOWER ON THE NORTHEAST CORNER OF THE BUILDING, THE TOWER HAS A NUMBER OF HORIZONTAL LOUVERS JUST BELOW THE BASE OF THE SPIRE. THE BUILDING IS A WHITE, WOODEN STRUCTURE LOCATED AT THE MAIN INTERSECTION OF PINE CITY AND IS APPROXIMATELY 70.0 FEET HIGH.

*** No Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.951 12B = -90.928 09 = -90.866 03 = -90.741

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 49 34.93494	92 58 14.90511	481947.683	135152.074	.328	4	ADJUSTMENT	1999	17648
45 49 34.93288	92 58 14.90247	481947.870	135151.865	.328	4	ADJUSTMENT	1991	17497

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 49 34.93124	92 58 14.90396	481947.764	135151.699	.328	4	ADJUSTMENT	1986	17289

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 49 35.09000	92 58 14.15000			.100	4	CLASSICAL SURVEY	1945	06309

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2950754.653	632055.030	1647856.099	16649431.293	.328	4	ADJUSTMENT	1999	17648
2950754.843	632054.824	1647856.286	16649431.085	.328	4	ADJUSTMENT	1991	17497

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2950754.740	632054.656	1647856.181	16649430.919	.328	4	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2326150.999	303986.163			.100	4	CLASSICAL SURVEY	1945	06309

PINE CITY RADIO MAST

Mn/DOT Name: PINE CITY RADIO MAST
NGS Name: PINE CITY RADIO MAST
County: PINE, MN (Sheet 1)

NGS ACRN: QO2503 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	4	38 N	21 W	454819.30	925820.64		4

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1984	2008	GOOD	Horz=NO Vert=NO	YES			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
SEE DESCRIPTIVE TEXT	RADIO/TV TOWER	MNDT

Description: (1984)
Stamping:

1.5 MILES SOUTH OF PINE CITY, 0.95 MILE SOUTH OF TRUNK HIGHWAY 324, 300.0 FEET WEST OF TRUNK HIGHWAY 361.

*** No Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -91.053 12B = -91.030 09 = -90.974 03 = -90.843

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 48 19.30365	92 58 20.63950	481534.602	127491.070	.328	4	ADJUSTMENT	1999	17648

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 48 19.30124	92 58 20.63715	481534.769	127490.824	.328	4	CLASSICAL SURVEY	1994	G17352
45 48 19.30124	92 58 20.63715	481534.769	127490.825	.328	4	ADJUSTMENT	1994	17352

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 48 19.46540	92 58 19.88330			.100	4	CLASSICAL SURVEY	1984	3306-09

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2950472.198	624388.788	1647452.820	16641773.244	.328	4	ADJUSTMENT	1999	17648

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2950472.369	624388.546	1647452.987	16641773.000	.328	4	CLASSICAL SURVEY	1994	G17352
2950472.369	624388.546	1647452.986	16641773.000	.328	4	ADJUSTMENT	1994	17352

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2325868.619	296320.649			.100	4	CLASSICAL SURVEY	1984	3306-09

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/PINE_CITY_RADIO_MAST-QO2503-3NW-30SEP2008.jpg	NW	Sep 30, 2008
Monument:			
Disk:			

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

PINE CITY RADIO STA WCMP MAST

Mn/DOT Name: PINE CITY RADIO STA WCMP MAST **NGS Name:** PINE CITY RAD STA WCMP MAST

County: PINE, MN (Sheet 1)

NGS ACRN: QO1575 Get Map
NGS Quad / Sta Num : 45092443/1023
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	32	39 N	21 W	454905.14	925949.55		4

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2008	GOOD	Horz=NO Vert=NO	YES			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
SEE DESCRIPTIVE TEXT	RADIO/TV MAST	NGS

Description: (1984) **Stamping:**

1.5 MILES WEST-SOUTHWEST OF PINE CITY, ON THE NORTH SIDE OF COUNTY ROAD 7.

*** No Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -91.247 12B = -91.233 09 = -91.155 03 = -91.023

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 49 05.14065	92 59 49.54594	475241.562	132141.016	.328	4	ADJUSTMENT	1999	17648
45 49 05.13858	92 59 49.54438	475241.672	132140.806	.328	4	ADJUSTMENT	1991	17497

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 49 05.13708	92 59 49.54593	475241.562	132140.655	.328	4	ADJUSTMENT	1986	17289

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 49 05.28900	92 59 48.78600			.100	4	CLASSICAL SURVEY	1961	12611

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2944101.412	628930.426	1641156.796	16646413.179	.328	4	ADJUSTMENT	1999	17648
2944101.525	628930.218	1641156.906	16646412.969	.328	4	ADJUSTMENT	1991	17497

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2944101.418	628930.064	1641156.797	16646412.817	.328	4	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2319497.923	300860.884			.100	4	CLASSICAL SURVEY	1961	12611

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/PINE_CITY_RAD_STA_WCMP_MAST-QO1575-3W-30SEP2008.jpg	W	Sep 30, 2008
Monument:			
Disk:			

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

PINE CITY RM 1

Mn/DOT Name: PINE CITY RM 1 **NGS Name:** PINE CITY RM 1

County: PINE, MN (Sheet 1)

NGS ACRN: QO0347 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	4	38 N	21 W	454847.39	925814.70	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2007	NOT FOUND	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description: (1961) **Stamping:** CITY NO. 1 1961

IN PINE CITY, 0.4 MILE SOUTH ALONG TRUNK HIGHWAY 361 FROM THE JUNCTION OF TRUNK HIGHWAY 361 AND TRUNK HIGHWAY 324, 69.0 FEET WEST OF TRUNK HIGHWAY 361, 173.0 FEET SOUTH-SOUTHEAST OF A POWER POLE, 98.5 FEET SOUTH OF STATION PINE CITY, 90.3 FEET SOUTH OF A CABLE MARKER, 83.7 FEET SOUTH OF A RISER POLE, 98.0 FEET SOUTH 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
1010.631	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1010.418	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
1010.418	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
1010.513	.016	2				VERTICAL CONTROL SURVEY	1974	L23306

Geoid Separations(ft): GEOID18 = -90.994 12B = -90.971 09 = -90.912 03 = -90.781

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

PINE CITY ST MARYS CATH CH

Mn/DOT Name: PINE CITY ST MARYS CATH CH
NGS Name: PINE CITY ST MARYS CATH CH
County: PINE, MN (Sheet 1)

NGS ACRN: QO1572 Get Map
NGS Quad / Sta Num : 45092443/1033
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	33	39 N	21 W	454924.98	925824.55		4

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1934	2008	GOOD	Horz=NO Vert=NO	YES			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
SEE DESCRIPTIVE TEXT	CHURCH SPIRE	NGS

Description: (1984)

Stamping:

IN PINE CITY, STATION PINE CITY ST MARYS CATH CH IS THE CENTER OF A TALL SPIRE ON A LARGE RED BRICK TOWER ON SAINT MARYS CATHOLIC CHURCH, THE SPIRE IS OCTAGONAL, SLATE COVERED, AND SURMOUNTED BY A GILDED WOODEN CROSS, THE TOWER IS A MASSIVE SQUARE STRUCTURE WITH A LARGE GOTHIC-ARCHED WINDOW ON EACH SIDE, THE TOP OF THE TOWER IS FINISHED IN THE FRONT OF BATTLEMENTS, THE CHURCH IS LOCATED AT THE NORTHWEST CORNER OF 8TH STREET AND 6TH AVENUE IN PINE CITY AND IS NOW CALLED THE IMMACULATE CONCEPTION CHURCH.

*** No Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.994 12B = -90.968 09 = -90.905 03 = -90.777

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 49 24.98211	92 58 24.55457	481263.379	134144.482	.328	4	ADJUSTMENT	1999	17648
45 49 24.98109	92 58 24.55464	481263.374	134144.378	.328	4	ADJUSTMENT	1991	17497

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 49 24.97954	92 58 24.55621	481263.263	134144.221	.328	4	ADJUSTMENT	1986	17289

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 49 25.13400	92 58 23.80000			.100	4	CLASSICAL SURVEY	1945	06309

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2950087.678	631036.016	1647173.370	16648423.298	.328	4	ADJUSTMENT	1999	17648
2950087.675	631035.912	1647173.365	16648423.195	.328	4	ADJUSTMENT	1991	17497

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2950087.566	631035.754	1647173.254	16648423.038	.328	4	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2325483.974	302966.832			.100	4	CLASSICAL SURVEY	1945	06309

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/PINE_CITY_ST_MARYS_CATH_CH-QO1572-3NW-30SEP2008.jpg	NW	Sep 30, 2008
Monument:			
Disk:			

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

PINK

Mn/DOT Name: PINK
NGS Name: PINK
County: PINE, MN (Sheet 1)

NGS ACRN: DL4770 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	7	41 N	20 W	460308.34	925446.42	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2008	2009	GOOD	Horz=YES Vert=YES	NO		FLUSH	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 11 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2008) **Stamping:** PINK 2008

3.0 MILES NORTHEAST OF HINCKLEY, 3.1 MILES NORTH AND NORTHEAST ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 48 IN HINCKLEY, AT INTERSTATE HIGHWAY 35 MILEPOINT 186.10, 36.2 FEET SOUTHEAST OF NORTHBOUND INTERSTATE HIGHWAY 35, 65.5 FEET NORTHWEST OF A FENCE LINE, 6.0 FEET NORTHWEST 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
1078.456	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1078.453	.016	2/1				VERTICAL CONTROL SURVEY	2009	VMOOSE

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
			988.394	.008	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1078.443	.131		988.482	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2566
1078.443	.131		988.600	.066	1996	GPS - STATIC	2009	HMOOSE
1078.443	.131		988.482	.066	2007	GPS - STATIC	2009	HMOOSE

Geoid Separations(ft): GEOID18 = -90.069 12B = -90.072 09 = -89.954 03 = -89.836

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 03 08.33873	92 54 46.41655	496726.146	217542.514	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 03 08.33855	92 54 46.41709	496726.108	217542.496	.033	C	ADJUSTMENT	2009	GPS2566
46 03 08.33855	92 54 46.41709	496726.108	217542.496	.033	C	GPS - STATIC	2009	HMOOSE

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 03 08.33845	92 54 46.41668	496726.137	217542.486	.033	C	GPS - STATIC	2009	HMOOSE

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2964125.598	714677.127	1662524.559	16731803.504	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2964125.560	714677.108	1662524.521	16731803.486	.033	C	ADJUSTMENT	2009	GPS2566
2964125.560	714677.108	1662524.521	16731803.486	.033	C	GPS - STATIC	2009	HMOOSE

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2964125.589	714677.099	1662524.550	16731803.476	.033	C	GPS - STATIC	2009	HMOOSE

PINKY

Mn/DOT Name: PINKY
NGS Name: PINKY
County: PINE, MN (Sheet 1)

NGS ACRN: DO8733 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	14	38 N	21 W	454624.73	925527.19	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2012	GOOD	Horz=YES Vert=YES	YES		RECESSED 3 IN.	BAR MAG IN DRILL HOLE

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

Description: (2012)
Stamping: PINKY 2012

IN ROCK CREEK, 2.25 MILES EAST ALONG TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 70 AND COUNTY ROAD 61 IN ROCK CREEK, AT TRUNK HIGHWAY 70 MILEPOINT 22.40, 37.4 FEET NORTH OF TRUNK HIGHWAY 70, 23.9 FEET WEST OF A FIELD ENTRANCE, 1.5 FEET EAST 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
931.507	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
931.576	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
931.497	.262		840.953	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -90.577 12B = -90.597 09 = -90.541 03 = -90.371

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 46 24.72719	92 55 27.18588	493819.651	115877.157	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2962952.280	612986.911	1659746.830	16630180.017	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/PINKY-DO8733-3N-20NOV2012.jpg	N	Nov 20, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/PINKY-DO8733-2-20NOV2012.jpg		Nov 20, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/PINKY-DO8733-1-20NOV2012.jpg		Nov 20, 2012

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

POKE MNDT

Mn/DOT Name: POKE MNDT **NGS Name:** POKE

County: PINE, MN (Sheet 1)

NGS ACRN: QO0331 Get Map
NGS Quad / Sta Num : 45092444/1043
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	9	39 N	21 W	455302.67	925805.31	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1964	2012	GOOD	Horz=NO Vert=YES	YES		PROJECTS 2 IN.	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	TRAVERSE STATION DISK	MNDT

Description: (1993) **Stamping:** POKE 1964

4.0 MILES NORTH OF PINE CITY, 4.5 MILES NORTH ON INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 324 AT PINE CITY, 1.4 MILES SOUTH OF COUNTY ROAD 14 EXIT AT BEROUN, 62.3 FEET WEST OF NORTHBOUND INTERSTATE HIGHWAY 35, AT INTERSTATE HIGHWAY 35 MILEPOINT 173.95, 45.1 FEET NORTH OF POKE MNDT RM 1, 183.4 FEET EAST OF POKE MNDT RM 2, 3.4 FEET EAST-NORTHEAST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
968.249	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
968.249	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
968.249	.016	2/1				VERTICAL ADJUSTMENT	2009	00000425-36
968.249	.016	2/1				VERTICAL CONTROL SURVEY	2008	VFLEA
968.249	.016	2/1				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
967.990	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
967.990	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
968.000	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
968.075	.016	2				VERTICAL CONTROL SURVEY	1975	L23805

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
968.279	.262		877.675	.197	2007	GPS - RTRN	2012	RTRN2012
			877.564	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			877.659	.010	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
			877.803	.066	1996	GPS - STATIC	1999	GPS917
968.240	.131		877.803	.066	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -90.692 12B = -90.676 09 = -90.603 03 = -90.476

POKE MNDT

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 53 02.67040	92 58 05.30511	482645.578	156194.950	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 53 02.66885	92 58 05.30436	482645.631	156194.793	.131	3	GPS - RTRN	2012	RTRN2012
45 53 02.67052	92 58 05.30582	482645.527	156194.962	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 53 02.67038	92 58 05.30526	482645.567	156194.947	.033	C	GPS - STATIC	1999	GPS917
45 53 02.67038	92 58 05.30526	482645.567	156194.947	.033	C	ADJUSTMENT	1999	17648
45 53 02.66463	92 58 05.31037	482645.205	156194.365	.066	2	ADJUSTMENT	1991	17497

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 53 02.66528	92 58 05.30032	482645.915	156194.432	.033	C	GPS - STATIC	1994	HI35N
45 53 02.66398	92 58 05.31139	482645.133	156194.299	.066	2	ADJUSTMENT	1986	17289

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 53 02.82360	92 58 04.57208			.100	2	CLASSICAL SURVEY	1973	14930

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951093.848	653104.786	1648527.269	16670465.565	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951093.904	653104.630	1648527.322	16670465.408	.131	3	GPS - RTRN	2012	RTRN2012
2951093.798	653104.797	1648527.219	16670465.577	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951093.838	653104.784	1648527.258	16670465.563	.033	C	GPS - STATIC	1999	GPS917
2951093.838	653104.784	1648527.258	16670465.563	.033	C	ADJUSTMENT	1999	17648
2951093.486	653104.196	1648526.897	16670464.980	.066	2	ADJUSTMENT	1991	17497

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951094.196	653104.273	1648527.608	16670465.046	.033	C	GPS - STATIC	1994	HI35N
2951093.415	653104.129	1648526.825	16670464.915	.066	2	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2326488.602	325035.574			.100	2	CLASSICAL SURVEY	1973	14930

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/POKE-QO0331-3W-15OCT2012.jpg	W	Oct 15, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/POKE-QO0331-2-15OCT2012.jpg		Oct 15, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/POKE-QO0331-1-15OCT2012.jpg		Oct 15, 2012

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

POKE MNDT RM 1

Mn/DOT Name: POKE MNDT RM 1 **NGS Name:** POKE RM 1

County: PINE, MN (Sheet 1)

NGS ACRN: QO0332 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	9	39 N	21 W	455302.23	925805.41	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1964	2012	GOOD	Horz=NO Vert=YES	YES		PROJECTS 1 IN.	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	MNDT

Description: (2007) **Stamping:** POKE NO 1 1964

4.0 MILES NORTH OF PINE CITY, 4.5 MILES NORTH ON INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 324 AT PINE CITY, 1.4 MILES SOUTH OF COUNTY ROAD 14 AT BEROUN, 69.5 FEET WEST OF NORTHBOUND INTERSTATE HIGHWAY 35, AT INTERSTATE HIGHWAY 35 MILEPOINT 173.95, 45.1 FEET SOUTH OF STATION POKE MNDT, 186.3 FEET EAST OF POKE MNDT RM 2, 43.0 FEET SOUTH OF A WITNESS POST, 2.0 FEET EAST 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
967.902	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
967.902	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
967.902	.016	2/1				VERTICAL ADJUSTMENT	2009	00000425-36
967.902	.016	2/1				VERTICAL CONTROL SURVEY	2008	VFLEA
967.908	.016	2				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
967.646	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
967.646	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
967.646	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
967.731	.016	2				VERTICAL CONTROL SURVEY	1975	L23805

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
967.895	.262		877.288	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -90.692 12B = -90.679 09 = -90.603 03 = -90.476

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 53 02.23072	92 58 05.41340	482637.879	156150.417	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951086.909	653060.133	1648519.629	16670421.042	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/POKE_RM_1-QO0332-3W-15OCT2012.jpg	W	Oct 15, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/POKE_RM_1-QO0332-2-15OCT2012.jpg		Oct 15, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/POKE_RM_1-QO0332-1-15OCT2012.jpg		Oct 15, 2012

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

POKE MNDT RM 2

Mn/DOT Name: POKE MNDT RM 2 **NGS Name:** POKE RM 2

County: PINE, MN (Sheet 1)

NGS ACRN: QO0330 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	9	39 N	21 W	455302.87	925807.88	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1964	2012	GOOD	Horz=NO Vert=YES	YES		PROJECTS 2 IN.	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	MNDT

Description: (1964) **Stamping:** POKE NO 2 1964

4.0 MILES NORTH OF PINE CITY, 4.5 MILES NORTH ON INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF TRUNK HIGHWAY 324 AND INTERSTATE HIGHWAY 35 AT PINE CITY, 1.4 MILES SOUTH OF COUNTY ROAD 14 EXIT AT BEROUN, 54.4 FEET EAST OF SOUTHBOUND INTERSTATE HIGHWAY 35, IN A MEDIAN, AT INTERSTATE HIGHWAY 35 MILEPOINT 173.95, 245.0 FEET WEST OF NORTHBOUND INTERSTATE HIGHWAY 35, 183.4 FEET WEST OF STATION POKE MNDT, 186.3 FEET WEST OF POKE MNDT RM 1, 180.0 FEET WEST OF A WITNESS POST, 1.0 FOOT SOUTH 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
963.912	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
963.909	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
963.935	.016	2/1				VERTICAL ADJUSTMENT	2009	00000425-36
963.935	.016	2/1				VERTICAL CONTROL SURVEY	2008	VFLEA
963.935	.016	2/1				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
963.673	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
963.673	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
963.748	.016	2				VERTICAL CONTROL SURVEY	1974	L23306

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
963.879	.262		873.266	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -90.699 12B = -90.682 09 = -90.610 03 = -90.482

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 53 02.87376	92 58 07.88368	482463.172	156215.707	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2950911.132	653122.431	1648344.918	16670486.084	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/POKE_RM_2-QO0330-3E-15OCT2012.jpg	E	Oct 15, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/POKE_RM_2-QO0330-2-15OCT2012.jpg		Oct 15, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/POKE_RM_2-QO0330-1-15OCT2012.jpg		Oct 15, 2012

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

POKEGAMA AZ MK

Mn/DOT Name: POKEGAMA AZ MK

NGS Name: POKEGAMA AZ MK

County: PINE, MN (Sheet 1)

NGS ACRN: CJ4587 Get Map
NGS Quad / Sta Num : 45093114/
USGS Quad: QUAMBA

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	6	40 N	22 W	455852.00	930746.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2017	GOOD	Horz=NO Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

Monument Type
CONCRETE MONUMENT (CAST-IN-PLACE)

Disk Type
AZIMUTH MARK DISK

Mon. Agency
NGS

Description: (2017)

Stamping: POKEGAMA 1961

5.25 MILES NORTHEAST OF QUAMBA, 4.9 MILES NORTH ALONG COUNTY ROAD 5 FROM THE JUNCTION OF COUNTY ROAD 5 AND TRUNK HIGHWAY 23 IN QUAMBA, THEN 1.0 MILE EAST ON COUNTY ROAD 74, 22.0 FEET SOUTH OF THE COUNTY ROAD 74, 3.0 FEET EAST-SOUTHEAST OF A WITNESS POST.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -91.109 12B = -91.089 09 = -91.010 03 = -90.836

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/POKEGAMA_AZ_MK-CJ4587-3S-14JUN2017.jpg	S	Jun 14, 2017
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/POKEGAMA_AZ_MK-CJ4587-2-14JUN2017.jpg		Jun 14, 2017
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/POKEGAMA_AZ_MK-CJ4587-1-14JUN2017.jpg		Jun 14, 2017

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

POKEGAMA RM 1

Mn/DOT Name: POKEGAMA RM 1 **NGS Name:** POKEGAMA RM 1

County: PINE, MN (Sheet 1)

NGS ACRN: CJ4588 Get Map
NGS Quad / Sta Num : 45093114/
USGS Quad: QUAMBA

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	6	40 N	22 W	455851.41	930742.35		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2017	GOOD	Horz=NO Vert=YES	YES		PROJECTS 2 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description: (2017) **Stamping:** POKEGAMA NO 1 1961

5.25 MILES NORTHEAST OF QUAMBA, 4.9 MILES NORTH ALONG COUNTY ROAD 5 FROM THE JUNCTION OF COUNTY ROAD 5 AND TRUNK HIGHWAY 23 IN QUAMBA, THEN 1.65 MILES EAST ON COUNTY ROAD 74, 32.0 FEET SOUTH OF COUNTY ROAD 74, 330.0 FEET WEST OF STATION TT 8 DM USGS, 91.1 FEET SOUTHWEST OF STATION POKEGAMA.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -91.109 12B = -91.089 09 = -91.007 03 = -90.833

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/POKEGAMA_RM_1-CJ4588-3S-14JUN2017.jpg	S	Jun 14, 2017
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/POKEGAMA_RM_1-CJ4588-2-14JUN2017.jpg		Jun 14, 2017
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/POKEGAMA_RM_1-CJ4588-1-14JUN2017.jpg		Jun 14, 2017

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

Mn/DOT Name: POMROY
NGS Name: POMROY
County: PINE, MN (Sheet 1)

NGS ACRN: DM4955 Get Map
NGS Quad / Sta Num : 45093111/
USGS Quad: BROOK PARK

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	13	40 N	22 W	455740.67	930159.45	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2010	2010	GOOD	Horz=NO Vert=NO	YES		FLUSH	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
MNDT

Description: (2010)

Stamping: POMROY 2010

6.0 MILES SOUTHWEST OF HINCKLEY, 3.85 MILES SOUTHWEST ALONG TRUNK HIGHWAY 23 FROM THE JUNCTION OF TRUNK HIGHWAY 23 AND INTERSTATE HIGHWAY 35 SOUTH OF HINCKLEY, AT TRUNK HIGHWAY 23 MILEPOINT 270.0, 90.3 FEET NORTHWEST OF TRUNK HIGHWAY 23, 18.3 FEET WEST OF A DRIVEWAY, 4.1 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)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1018.669	.016	2/1				VERTICAL ADJUSTMENT	2012	00000745
1018.656	.016	2/1				VERTICAL CONTROL SURVEY	2010	VBRAH

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
1018.689	.262		927.852	.197	2011	GPS - RTRN	2025	RTRN2025
			927.820	.007	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1018.666	.131		927.898	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2747
1018.666	.131		927.898	.066	2007	GPS - STATIC	2010	HBRAH
1018.666	.131		928.049	.066	1996	GPS - STATIC	2010	HBRAH

Geoid Separations(ft): GEOID18 = -90.836 12B = -90.820 09 = -90.731 03 = -90.584

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 57 40.66610	93 01 59.45003	466127.855	184376.896	.131	3	GPS - RTRN	2025	RTRN2025
45 57 40.66617	93 01 59.45059	466127.816	184376.903	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 57 40.66626	93 01 59.45125	466127.770	184376.912	.033	C	ADJUSTMENT	2011	GPS2747
45 57 40.66626	93 01 59.45125	466127.770	184376.912	.033	C	GPS - STATIC	2010	HBRAH

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 57 40.66607	93 01 59.45064	466127.812	184376.893	.033	C	GPS - STATIC	2010	HBRAH

POMROY

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2934100.026	680998.472	1631981.518	16698614.166	.131	3	GPS - RTRN	2025	RTRN2025
2934099.986	680998.478	1631981.478	16698614.173	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2934099.940	680998.486	1631981.431	16698614.182	.033	C	ADJUSTMENT	2011	GPS2747
2934099.940	680998.486	1631981.431	16698614.182	.033	C	GPS - STATIC	2010	HBRAH

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2934099.983	680998.468	1631981.474	16698614.163	.033	C	GPS - STATIC	2010	HBRAH

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/POMROY-DM4955-3N-25SEP2025.jpg	N	Sep 25, 2025
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/POMROY-DM4955-2-25SEP2025.jpg		Sep 25, 2025
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/POMROY-DM4955-1-25SEP2025.jpg		Sep 25, 2025

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

REG MNDT TEMP

Mn/DOT Name: REG MNDT TEMP
NGS Name: REG TEMP
County: PINE, MN (Sheet 1)

NGS ACRN: QO2505 Get Map
NGS Quad / Sta Num : 45093113/
USGS Quad: GRASSTON

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	29	38 N	22 W	454517.67	930731.29		2

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1984	2007	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description: (1984) **Stamping:** REG 1984

1.5 MILES EAST ON TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 70 AND TRUNK HIGHWAY 107 (THE JUNCTION IS 2.0 MILES NORTH OF BRAHAM), THEN 0.3 MILE SOUTH ON COUNTY ROAD 101, 13.0 FEET EAST OF COUNTY ROAD 101, 136.0 FEET NORTH OF A DRIVEWAY WEST, 123.9 FEET NORTHEAST OF A CABLE MARKER POST, 5.7 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
964.303	.197		872.301	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648
964.204						RECIPROCAL VERTICAL ANGLE	1994	HORZ

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
964.106						RECIPROCAL VERTICAL ANGLE	1984	HORZ

Geoid Separations(ft): GEOID18 = -92.273 12B = -92.277 09 = -92.172 03 = -92.024

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 17.67214	93 07 31.28982	442470.897	109165.127	.066	2	ADJUSTMENT	1999	17648

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 17.66746	93 07 31.28867	442470.979	109164.654	.066	2	CLASSICAL SURVEY	1994	G17352
45 45 17.66746	93 07 31.28867	442470.978	109164.653	.066	2	ADJUSTMENT	1994	17352

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 17.80960	93 07 30.51050			.100	2	CLASSICAL SURVEY	1984	3306-09

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2911729.725	605401.689	1608430.017	16623406.451	.066	2	ADJUSTMENT	1999	17648

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2911729.813	605401.217	1608430.098	16623405.978	.066	2	CLASSICAL SURVEY	1994	G17352
2911729.813	605401.217	1608430.098	16623405.977	.066	2	ADJUSTMENT	1994	17352

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2287126.725	277331.112			.100	2	CLASSICAL SURVEY	1984	3306-09

RESOL

Mn/DOT Name: RESOL
NGS Name: RESOL
County: PINE, MN (Sheet 1)

NGS ACRN: DL4774 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	36	41 N	21 W	455938.13	925626.48	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2008	2020	GOOD	Horz=YES Vert=YES	YES		FLUSH	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: (2008) **Stamping:** RESOL 2008

1.5 MILES SOUTH OF HINCKLEY, 1.25 MILES SOUTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 48 IN HINCKLEY, AT INTERSTATE HIGHWAY 35 MILEPOINT 181.8, 61.0 FEET SOUTHEAST OF A FENCE LINE, 36.9 FEET NORTHWEST OF SOUTHBOUND INTERSTATE HIGHWAY 35, 2.0 FEET SOUTHWEST 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
1015.333	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1015.329	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
1015.329	.016	2/1				VERTICAL CONTROL SURVEY	2009	VMOOSE

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
1015.369	.262		925.146	.197	2011	GPS - OPUS	2020	GPSBM
1015.369	.262		925.152	.197	2011	GPS - RTRN	2020	RTRN2020
1015.319			925.106	.007	2011	HORIZONTAL ADJUSTMENT	2015	GPS3071
1015.319			925.100	.007	2011	GPS - STATIC	2015	HCLVR
1015.319	.131		925.225	.066	2007	GPS - STATIC	2012	HCLVR
1015.319	.131		925.343	.066	1996	GPS - STATIC	2012	HCLVR
1015.260	.262		925.156	.197	2007	GPS - RTRN	2012	RTRN2012
			925.106	.006	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1015.195	.262		925.090	.197	2007	GPS - RTRN	2012	RTRN2012
1015.319	.131		925.211	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2566
1015.319	.131		925.352	.066	1996	GPS - STATIC	2009	HMOOSE
1015.319	.131		925.211	.066	2007	GPS - STATIC	2009	HMOOSE

Geoid Separations(ft): GEOID18 = -90.223 12B = -90.216 09 = -90.105 03 = -89.987

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 59 38.12946	92 56 26.48386	489657.303	196250.340	.131	3	GPS - OPUS	2020	GPSBM
45 59 38.12978	92 56 26.48330	489657.343	196250.373	.131	3	GPS - RTRN	2020	RTRN2020
45 59 38.12917	92 56 26.48406	489657.289	196250.311	.007		ADJUSTMENT	2015	GPS3071
45 59 38.12921	92 56 26.48394	489657.297	196250.315	.007	C	GPS - STATIC	2015	HCLVR
45 59 38.12917	92 56 26.48406	489657.289	196250.311	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 59 38.12910	92 56 26.48452	489657.256	196250.304	.033	C	GPS - STATIC	2012	HCLVR
45 59 38.12911	92 56 26.48401	489657.292	196250.305	.131	3	GPS - RTRN	2012	RTRN2012
45 59 38.12885	92 56 26.48353	489657.326	196250.278	.131	3	GPS - RTRN	2012	RTRN2012
45 59 38.12910	92 56 26.48452	489657.256	196250.304	.033	C	ADJUSTMENT	2009	GPS2566
45 59 38.12910	92 56 26.48452	489657.256	196250.304	.033	C	GPS - STATIC	2009	HMOOSE

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 59 38.12904	92 56 26.48405	489657.289	196250.298	.033	C	GPS - STATIC	2012	HCLVR
45 59 38.12904	92 56 26.48405	489657.289	196250.298	.033	C	GPS - STATIC	2009	HMOOSE

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2957421.357	693269.849	1655485.587	16710511.892	.131	3	GPS - OPUS	2020	GPSBM
2957421.396	693269.882	1655485.626	16710511.924	.131	3	GPS - RTRN	2020	RTRN2020
2957421.343	693269.819	1655485.573	16710511.862	.007		ADJUSTMENT	2015	GPS3071
2957421.352	693269.823	1655485.581	16710511.866	.007	C	GPS - STATIC	2015	HCLVR
2957421.343	693269.819	1655485.573	16710511.862	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2957421.311	693269.812	1655485.540	16710511.855	.033	C	GPS - STATIC	2012	HCLVR
2957421.347	693269.813	1655485.576	16710511.856	.131	3	GPS - RTRN	2012	RTRN2012
2957421.381	693269.787	1655485.610	16710511.830	.131	3	GPS - RTRN	2012	RTRN2012
2957421.311	693269.812	1655485.540	16710511.855	.033	C	ADJUSTMENT	2009	GPS2566
2957421.311	693269.812	1655485.540	16710511.855	.033	C	GPS - STATIC	2009	HMOOSE

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2957421.344	693269.806	1655485.574	16710511.849	.033	C	GPS - STATIC	2012	HCLVR
2957421.344	693269.806	1655485.574	16710511.849	.033	C	GPS - STATIC	2009	HMOOSE

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/RESOL-DL4774-3W-04MAY2020.jpg	W	May 4, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/RESOL-DL4774-2-04MAY2020.jpg		May 4, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/RESOL-DL4774-1-04MAY2020.jpg		May 4, 2020

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

Mn/DOT Name: ROBERT
NGS Name: ROBERT
County: PINE, MN (Sheet 1)

NGS ACRN: DO8710 Get Map
NGS Quad / Sta Num : 46092233/
USGS Quad: DANBURY WEST

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	27	41 N	17 W	460044.18	922852.76	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2012	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

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

Description: (2012)
Stamping: ROBERT 2012

12.3 MILES EAST OF CLOVERDALE, 12.45 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND COUNTY ROAD 21 IN CLOVERDALE, AT TRUNK HIGHWAY 48 MILEPOINT 21.8, 50.3 FEET SOUTH OF TRUNK HIGHWAY 48, 5.6 FEET NORTH OF A FENCE LINE, 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
990.142	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
990.326	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
990.238			903.423	.013	2011	HORIZONTAL ADJUSTMENT	2015	GPS3071
990.238			903.423	.013	2011	GPS - STATIC	2015	HCLVR
990.418	.131		903.594	.066	2007	GPS - STATIC	2012	HCLVR
990.418	.131		903.722	.066	1996	GPS - STATIC	2012	HCLVR

Geoid Separations(ft): GEOID18 = -86.729 12B = -86.808 09 = -86.808 03 = -86.683

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 44.17566	92 28 52.76010	606385.074	203218.223	.020		ADJUSTMENT	2015	GPS3071
46 00 44.17566	92 28 52.76010	606385.074	203218.223	.020	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 44.17579	92 28 52.76081	606385.023	203218.236	.033	C	GPS - STATIC	2012	HCLVR

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 44.17564	92 28 52.76059	606385.039	203218.221	.033	C	GPS - STATIC	2012	HCLVR

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3074001.135	702226.452	1772153.675	16717622.912	.020		ADJUSTMENT	2015	GPS3071
3074001.135	702226.452	1772153.675	16717622.912	.020	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3074001.085	702226.464	1772153.625	16717622.925	.033	C	GPS - STATIC	2012	HCLVR

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3074001.100	702226.449	1772153.641	16717622.910	.033	C	GPS - STATIC	2012	HCLVR

ROBERT

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ROBERT-DO8710-3NE-05JUN2012.jpg	NE	Jun 5, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ROBERT-DO8710-2-05JUN2012.jpg		Jun 5, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ROBERT-DO8710-1-05JUN2012.jpg		Jun 5, 2012

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

Mn/DOT Name: ROCK
NGS Name: ROCK
County: PINE, MN (Sheet 1)

NGS ACRN: QO1566 Get Map
NGS Quad / Sta Num : 45092434/1021
USGS Quad: RUSH CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	35	38 N	21 W	454439.54	925622.41		3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2007	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	NGS

Description: (1971) **Stamping:** ROCK 1961

4.5 MILES SOUTH OF PINE CITY, 1.0 MILE SOUTH ALONG TRUNK HIGHWAY 361 FROM THE JUNCTION OF TRUNK HIGHWAY 361 AND COUNTY ROAD 2 AT ROCK CREEK, THEN 1.0 MILE EAST ON COUNTY ROAD 104, 113.0 FEET SOUTH OF COUNTY ROAD 104 (GRAVEL ROAD), 20.0 FEET EAST OF A TRACK ROAD, 81.0 FEET SOUTH OF A TELEPHONE POLE, 5.0 FEET EAST OF A FENCE, 118.24 FEET SOUTHWEST OF ROCK RM 1, 85.55 FEET SOUTH OF STATION TT 33 DM USGS, 4.0 FEET EAST OF A WITNESS POST.

*** No Leveling-Derived Orthometric Heights in the Database ***

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
935.037	.262		844.355	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
935.005						RECIPROCAL VERTICAL ANGLE	1961	HORZ

Geoid Separations(ft): GEOID18 = -90.905 12B = -90.925 09 = -90.869 03 = -90.695

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 44 39.54490	92 56 22.40891	489899.755	105223.922	.131	3	ADJUSTMENT	1999	17648
45 44 39.54056	92 56 22.40386	489900.113	105223.482	.131	3	ADJUSTMENT	1991	17497

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 44 39.53998	92 56 22.40571	489899.982	105223.424	.131	3	ADJUSTMENT	1986	17289

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 44 39.69240	92 56 21.64880			.100	3	CLASSICAL SURVEY	1961	12611

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2959214.824	602269.336	1655842.068	16619526.754	.131	3	ADJUSTMENT	1999	17648
2959215.189	602268.903	1655842.426	16619526.315	.131	3	ADJUSTMENT	1991	17497

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2959215.059	602268.842	1655842.295	16619526.256	.131	3	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2334611.847	274199.930			.100	3	CLASSICAL SURVEY	1961	12611

ROCK AZ MK

Mn/DOT Name: ROCK AZ MK
NGS Name: ROCK AZ MK
County: PINE, MN (Sheet 1)

NGS ACRN: CJ4627 Get Map
NGS Quad / Sta Num : 45092434/1021
USGS Quad: RUSH CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	34	38 N	21 W	454441.00	925641.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2008	GOOD	Horz=NO Vert=YES	YES		PROJECTS 4 IN.	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	NGS

Description: (1961) **Stamping:** ROCK 1961

4.5 MILES SOUTH OF PINE CITY, 1.0 MILE SOUTH ALONG TRUNK HIGHWAY 361 FROM THE JUNCTION OF TRUNK HIGHWAY 361 AND COUNTY ROAD 2 IN ROCK CREEK, 1.0 MILE EAST OF 550TH STREET, 126.0 FEET SOUTHWEST OF A POWER POLE NUMBER ECE 07507, 33.0 FEET SOUTH OF THE CENTERLINE OF 550TH STREET, 1.0 FOOT NORTH OF A WITNESS POST.

Station Notes
THE MONUMENT IS IN A STRIP OF WOODS BETWEEN TWO FARM FIELDS.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.971 12B = -90.984 09 = -90.932 03 = -90.761

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ROCK_AZ_MK-CJ4627-3S-30SEP2008.jpg	S	Sep 30, 2008
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ROCK_AZ_MK-CJ4627-2-30SEP2008.jpg		Sep 30, 2008
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ROCK_AZ_MK-CJ4627-1-30SEP2008.jpg		Sep 30, 2008

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

ROCK MNDT TEMP

Mn/DOT Name: ROCK MNDT TEMP
NGS Name: ROCK TEMP
County: PINE, MN (Sheet 1)

NGS ACRN: QO2506 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	21	38 N	21 W	454559.82	925826.74		2

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1984	2007	NOT FOUND	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
PIPE (<10 FT)	UNMONUMENTED	MNDT

Description: (1994) **Stamping:** ROCK 1984

4.0 MILES SOUTH OF PINE CITY, 0.7 MILE EAST ON TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 70 AND INTERSTATE HIGHWAY 35, ON THE NORTH SHOULDER OF TRUNK HIGHWAY 70, 23.5 FEET NORTH OF TRUNK HIGHWAY 70, AT TRUNK HIGHWAY 70 MILEPOINT 19.5, 52.0 FEET SOUTH OF AN EAST-WEST FENCE LINE, 75.3 FEET SOUTHEAST OF A NAIL IN A POWER POLE, 13.5 FEET SOUTH OF A WITNESS POST.

Station Notes
THE FENCE TIES AND TRUNK HIGHWAY 70 TIES DO NOT MATCH, THE POWER POLE WAS REPLACED, THERE IS NO NAIL.

*** No Leveling-Derived Orthometric Heights in the Database ***

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
955.543	.197		864.532	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648
955.707						RECIPROCAL VERTICAL ANGLE	1994	HORZ

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
955.510						RECIPROCAL VERTICAL ANGLE	1984	HORZ

Geoid Separations(ft): GEOID18 = -91.250 12B = -91.227 09 = -91.168 03 = -91.040

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 59.82066	92 58 26.74452	481088.922	113362.028	.066	2	ADJUSTMENT	1999	17648

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 59.81927	92 58 26.75016	481088.523	113361.886	.066	2	CLASSICAL SURVEY	1994	G17352
45 45 59.81927	92 58 26.75016	481088.522	113361.887	.066	2	ADJUSTMENT	1994	17352

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 59.97330	92 58 25.99430			.100	2	CLASSICAL SURVEY	1984	3306-09

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2950267.354	610255.440	1647025.073	16627650.083	.066	2	ADJUSTMENT	1999	17648

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2950266.957	610255.293	1647024.673	16627649.942	.066	2	CLASSICAL SURVEY	1994	G17352
2950266.957	610255.293	1647024.673	16627649.942	.066	2	ADJUSTMENT	1994	17352

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2325663.386	282186.458			.100	2	CLASSICAL SURVEY	1984	3306-09

ROCK RM 1

Mn/DOT Name: ROCK RM 1

NGS Name: ROCK RM 1

County: PINE, MN (Sheet 1)

NGS ACRN: CJ4628 Get Map
NGS Quad / Sta Num : 45092434/1021
USGS Quad: RUSH CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	35	38 N	21 W	454440.33	925621.17		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2008	DESTROYED	Horz=NO Vert=NO	NO		PROJECTS 4 IN.	SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	SEE DESCRIPTION	NGS

Description: (2008) **Stamping:** ROCK NO 1 1961

4.5 MILES SOUTH OF PINE CITY, 1.0 MILE SOUTH ALONG TRUNK HIGHWAY 361 FROM THE JUNCTION OF TRUNK HIGHWAY 361 AND COUNTY ROAD 2 AT ROCK CREEK, THEN 1.0 MILE EAST ON COUNTY ROAD 104, 93.0 FEET EAST OF A TELEPHONE POLE, 28.0 FEET SOUTH OF THE CENTERLINE OF THE GRAVEL ROAD, 1.0 FOOT SOUTH OF A WIRE FENCE.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.905 12B = -90.925 09 = -90.873 03 = -90.695

ROUN MNDT

Mn/DOT Name: ROUN MNDT **NGS Name:** ROUN

County: PINE, MN (Sheet 1)

NGS ACRN: AH1784 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	4	39 N	21 W	455414.30	925802.66		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1993	2010	DESTROYED	Horz=NO Vert=NO	YES		RECESSED 1 IN.	MARKER W/BAR MAGNET

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

Description: (2003) **Stamping:** ROUN 1993

0.5 MILE SOUTHWEST OF BEROUN, 21.5 FEET SOUTH OF COUNTY ROAD 14, 72.5 FEET WEST-SOUTHWEST OF THE SOUTHWEST CORNER OF COUNTY ROAD 14 BRIDGE NUMBER 58806 OVER INTERSTATE HIGHWAY 35, AT INTERSTATE HIGHWAY 35 MILEPOINT 175.35, 2.6 FEET SOUTH OF A GUARDRAIL, 2.4 FEET SOUTH OF A WITNESS POST.

*** No Leveling-Derived Orthometric Heights in the Database ***

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
			894.234	.008	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			894.329	.010	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
			894.486	.066	1996	GPS - STATIC	1999	GPS917

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
984.512						GPS - STATIC	1994	HORZ

Geoid Separations(ft): GEOID18 = -90.617 12B = -90.600 09 = -90.528 03 = -90.394

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 54 14.30308	92 58 02.66466	482838.528	163451.168	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 54 14.30320	92 58 02.66538	482838.478	163451.180	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 54 14.30305	92 58 02.66480	482838.519	163451.166	.033	C	GPS - STATIC	1999	GPS917

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 54 14.29790	92 58 02.65984	482838.870	163450.641	.033	C	GPS - STATIC	1994	HI35N

ROUN MNDT

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951163.119	660362.542	1648711.024	16677718.773	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951163.068	660362.553	1648710.974	16677718.785	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951163.109	660362.539	1648711.015	16677718.770	.033	C	GPS - STATIC	1999	GPS917

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951163.468	660362.023	1648711.365	16677718.249	.033	C	GPS - STATIC	1994	HI35N

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ROUN-AH1784-3S-05JUN2007.jpg	S	Jun 5, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ROUN-AH1784-2-05JUN2007.jpg		Jun 5, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ROUN-AH1784-1-05JUN2007.jpg		Jun 5, 2007

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

ROUN MNDT RESET

Mn/DOT Name: ROUN MNDT RESET
NGS Name: ROUN RESET
County: PINE, MN (Sheet 1)

NGS ACRN: DM4957 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	4	39 N	21 W	455414.30	925802.66	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2010	2020	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 50 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2010) **Stamping:** ROUN 1993 2010

0.5 MILE SOUTHWEST OF BEROUN, 21.5 FEET SOUTH OF COUNTY ROAD 14, 72.5 FEET WEST-SOUTHWEST OF THE SOUTHWEST CORNER OF COUNTY ROAD 14 BRIDGE NUMBER 58806 OVER INTERSTATE HIGHWAY 35, AT INTERSTATE HIGHWAY 35 MILEPOINT 175.35, 2.6 FEET SOUTH OF A GUARDRAIL, 2.4 FEET SOUTH 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
984.611	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
984.601	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
984.578	.262		893.961	.197	2011	GPS - OPUS	2020	GPSBM
984.660	.262		894.060	.197	2011	GPS - RTRN	2020	RTRN2020
984.499	.262		893.971	.197	2007	GPS - RTRN	2012	RTRN2012
			893.968	.007	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
984.611	.131		894.063	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2747
984.611	.131		894.063	.066	2007	GPS - STATIC	2010	HBRAH
984.611	.131		894.214	.066	1996	GPS - STATIC	2010	HBRAH

Geoid Separations(ft): GEOID18 = -90.617 12B = -90.600 09 = -90.528 03 = -90.394

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 54 14.30068	92 58 02.66459	482838.533	163450.924	.131	3	GPS - OPUS	2020	GPSBM
45 54 14.30083	92 58 02.66401	482838.574	163450.940	.131	3	GPS - RTRN	2020	RTRN2020
45 54 14.30120	92 58 02.66439	482838.547	163450.977	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 54 14.30073	92 58 02.66516	482838.493	163450.929	.131	3	GPS - RTRN	2012	RTRN2012
45 54 14.30133	92 58 02.66519	482838.491	163450.990	.033	C	ADJUSTMENT	2011	GPS2747
45 54 14.30133	92 58 02.66519	482838.491	163450.990	.033	C	GPS - STATIC	2010	HBRAH

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 54 14.30116	92 58 02.66455	482838.536	163450.973	.033	C	GPS - STATIC	2010	HBRAH

ROUN MNDT RESET

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951163.128	660362.299	1648711.030	16677718.530	.131	3	GPS - OPUS	2020	GPSBM
2951163.169	660362.315	1648711.071	16677718.545	.131	3	GPS - RTRN	2020	RTRN2020
2951163.141	660362.352	1648711.044	16677718.583	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951163.087	660362.303	1648710.989	16677718.535	.131	3	GPS - RTRN	2012	RTRN2012
2951163.085	660362.364	1648710.987	16677718.596	.033	C	ADJUSTMENT	2011	GPS2747
2951163.085	660362.364	1648710.987	16677718.596	.033	C	GPS - STATIC	2010	HBRAH

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951163.130	660362.348	1648711.032	16677718.579	.033	C	GPS - STATIC	2010	HBRAH

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ROUN_RESET-DM4957-3S-04MAY2020.jpg	S	May 4, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ROUN_RESET-DM4957-2-04MAY2020.jpg		May 4, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ROUN_RESET-DM4957-1-04MAY2020.jpg		May 4, 2020

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

ROY MNDT TEMP

Mn/DOT Name: ROY MNDT TEMP
NGS Name: ROY TEMP
County: PINE, MN (Sheet 1)

NGS ACRN: QO2507 Get Map
NGS Quad / Sta Num : 45093113/
USGS Quad: GRASSTON

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	29	38 N	22 W	454534.78	930731.07		2

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1984	2007	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description: (1984) **Stamping:** ROY 1984

1.5 MILES EAST ON TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 70 AND TRUNK HIGHWAY 107 (THE JUNCTION IS 2.0 MILES NORTH OF BRAHAM), NEAR THE JUNCTION OF TRUNK HIGHWAY 70 AND COUNTY ROAD 101, 28.0 FEET SOUTH OF TRUNK HIGHWAY 70, 32.0 FEET EAST OF COUNTY ROAD 101, 126.8 FEET SOUTHEAST OF A MINNESOTA DEPARTMENT OF TRANSPORTATION NAIL AND DISK IN A POWER POLE, 110.6 FEET SOUTH-SOUTHWEST OF A MINNESOTA DEPARTMENT OF TRANSPORTATION NAIL AND DISK IN A POWER POLE.

Station Notes

NO GEODETIC CONTROL, ACCORDING TO THE NATIONAL GEODETIC SURVEY (NGS). THE TIES FALL UNDER A TURNING LANE.

*** 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
950.917	.197		858.945	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648
950.785						RECIPROCAL VERTICAL ANGLE	1994	HORZ

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
950.687						RECIPROCAL VERTICAL ANGLE	1984	HORZ

Geoid Separations(ft): GEOID18 = -92.244 12B = -92.247 09 = -92.145 03 = -91.995

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 34.77631	93 07 31.06747	442491.571	110897.702	.066	2	ADJUSTMENT	1999	17648

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 34.77173	93 07 31.06687	442491.612	110897.236	.066	2	CLASSICAL SURVEY	1994	G17352
45 45 34.77173	93 07 31.06687	442491.612	110897.238	.066	2	ADJUSTMENT	1994	17352

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 34.91390	93 07 30.28890			.100	2	CLASSICAL SURVEY	1984	3306-09

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2911720.889	607134.217	1608448.490	16625138.259	.066	2	ADJUSTMENT	1999	17648

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2911720.938	607133.754	1608448.532	16625137.796	.066	2	CLASSICAL SURVEY	1994	G17352
2911720.938	607133.754	1608448.532	16625137.796	.066	2	ADJUSTMENT	1994	17352

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2287117.834	279063.638			.100	2	CLASSICAL SURVEY	1984	3306-09

ROYAL MNDT

Mn/DOT Name: ROYAL MNDT
NGS Name: ROYAL
County: PINE, MN (Sheet 1)

NGS ACRN: QO2508 Get Map
NGS Quad / Sta Num : 45093112/
USGS Quad: HENRIETTE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	24	38 N	22 W	454534.92	930227.84		2

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1984	2017	DESTROYED	Horz=NO Vert=NO	YES		RECESSED 1 IN.	MARKER W/BAR MAGNET

Monument Type
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 18 FT)

Disk Type
HORIZONTAL CONTROL DISK

Mon. Agency
MNDT

Description: (2007)

Stamping: ROYAL 1984

4.5 MILES SOUTHWEST OF PINE CITY, 2.6 MILES WEST ON TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 70 AND INTERSTATE HIGHWAY 35, 59.0 FEET SOUTHEAST OF TRUNK HIGHWAY 70 AT MILEPOINT 16.1, 31.0 FEET NORTH OF COUNTY ROAD 109, 107.43 FEET WEST OF ROYAL MNDT RM 1, 50.77 FEET NORTH-NORTHEAST OF ROYAL MNDT RM 2. 63.2 FEET EAST OF A POWER POLE WITH TWO GUY WIRES. 67.3 FEET SOUTH-SOUTHEAST OF A SIGNPOST WITH A PI SIGN ON IT.

Station Notes
THE CAP WAS FOUND POPPED OFF THE ROD, NO DAMAGE, PUT SAME CAP BACK ON. THE DISK WAS TURNED IN TO THE OFFICE.

*** No Leveling-Derived Orthometric Heights in the Database ***

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
990.418	.197		898.801	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
990.155						LEVELING	1984	HORZ

Geoid Separations(ft): GEOID18 = -91.890 12B = -91.880 09 = -91.791 03 = -91.647

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 34.92133	93 02 27.83833	463991.914	110862.883	.066	2	ADJUSTMENT	1999	17648

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 34.92062	93 02 27.84086	463991.736	110862.810	.066	2	CLASSICAL SURVEY	1994	G17352
45 45 34.92062	93 02 27.84086	463991.735	110862.811	.066	2	ADJUSTMENT	1994	17352

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 35.06830	93 02 27.07670			.100	2	CLASSICAL SURVEY	1984	3306-09

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2933216.869	607465.602	1629939.036	16625130.591	.066	2	ADJUSTMENT	1999	17648

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2933216.691	607465.528	1629938.856	16625130.519	.066	2	CLASSICAL SURVEY	1994	G17352
2933216.691	607465.528	1629938.856	16625130.519	.066	2	ADJUSTMENT	1994	17352

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2308613.232	279396.024			.100	2	CLASSICAL SURVEY	1984	3306-09

ROYAL MNDT

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ROYAL-QO2508-3N-09MAY2007.jpg	N	May 9, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ROYAL-QO2508-2-09MAY2007.jpg		May 9, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ROYAL-QO2508-1-09MAY2007.jpg		May 9, 2007

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

ROYAL MNDT RESET

Mn/DOT Name: ROYAL MNDT RESET
NGS Name: ROYAL RESET
County: PINE, MN (Sheet 1)

NGS ACRN: DQ7339 Get Map
NGS Quad / Sta Num : 45093112/
USGS Quad: HENRIETTE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	24	38 N	22 W	454534.92	930227.84	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2017	2017	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 18 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2017) **Stamping:** ROYAL 1984 2017

3.0 MILES WEST OF ROCK CREEK, 2.6 MILES WEST ON TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 70 AND INTERSTATE HIGHWAY 35 IN ROCK CREEK, AT TRUNK HIGHWAY 70 MILEPOINT 16.1, 59.0 FEET SOUTHEAST OF TRUNK HIGHWAY 70, 31.0 FEET NORTH OF BUTTERFLY ROAD, 107.43 FEET WEST OF ROYAL MNDT RM 1 RESET, 63.2 FEET EAST OF A POWER POLE WITH TWO GUY WIRES, 50.77 FEET NORTH-NORTHEAST OF ROYAL MNDT RM 2.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
990.211	.016	2/1				VERTICAL ADJUSTMENT	2021	00000963
990.211	.016	2/1				VERTICAL CONTROL SURVEY	2017	VRCRK

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
990.260	.262		898.384	.197	2011	GPS - RTRN	2017	RTRN2017

Geoid Separations(ft): GEOID18 = -91.890 12B = -91.880 09 = -91.791 03 = -91.647

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 34.92137	93 02 27.83845	463991.906	110862.887	.131	3	GPS - RTRN	2017	RTRN2017

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2933216.861	607465.606	1629939.027	16625130.595	.131	3	GPS - RTRN	2017	RTRN2017

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ROYAL_RESET-DQ7339-3N-22MAY2017.jpg	N	May 22, 2017
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ROYAL_RESET-DQ7339-2-22MAY2017.jpg		May 22, 2017
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ROYAL_RESET-DQ7339-1-22MAY2017.jpg		May 22, 2017

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

ROYAL MNDT RM 1

Mn/DOT Name: ROYAL MNDT RM 1 **NGS Name:** ROYAL RM 1

County: PINE, MN (Sheet 1)

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	24	38 N	22 W	454534.95	930226.32		

NGS ACRN: CS8966 Get Map
NGS Quad / Sta Num : 45093112/
USGS Quad: HENRIETTE

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1984	2017	DESTROYED	Horz=NO Vert=NO	YES		RECESSED 1 IN.	MARKER W/BAR MAGNET

Monument Type
ALUMINUM ALLOY ROD (NO SLEEVE)

Disk Type
REFERENCE MARK DISK

Mon. Agency
MNDT

Description: (2007) **Stamping:** ROYAL NO 1 1984

4.5 MILES SOUTHWEST OF PINE CITY, 2.6 MILES WEST ON TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 70 AND INTERSTATE HIGHWAY 35 IN ROCK CREEK, AT TRUNK HIGHWAY 70 MILEPOINT 16.1, 94.0 FEET SOUTHEAST OF TRUNK HIGHWAY 70, 34.0 FEET NORTH OF COUNTY ROAD 109, 55.0 FEET WEST OF A POWER POLE, 87.0 FEET NORTHEAST OF A SIGNPOST WITH A PI SIGN ON IT, 107.43 FEET EAST OF STATION ROYAL MNDT.

Station Notes
THE GEODETIC UNIT FOUND MARK BENT TO THE EAST 10-4-2007. THERE WAS NO WITNESS POST IN THE FIELD. THE DISK WAS TURNED IN TO THE OFFICE.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -91.886 12B = -91.876 09 = -91.788 03 = -91.644

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ROYAL_RM_1-CS8966-3N-09MAY2007.jpg	N	May 9, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ROYAL_RM_1-CS8966-2-09MAY2007.jpg		May 9, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ROYAL_RM_1-CS8966-1-09MAY2007.jpg		May 9, 2007

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

ROYAL MNDT RM 1 RESET

Mn/DOT Name: ROYAL MNDT RM 1 RESET
NGS Name: ROYAL RM 1 RESET
County: PINE, MN (Sheet 1)

NGS ACRN: DQ7338 Get Map
NGS Quad / Sta Num : 45093112/
USGS Quad: HENRIETTE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	24	38 N	22 W	454534.95	930226.33	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2017	2017	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)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2017) **Stamping:** ROYAL NO 1 1984 2017

3.0 MILES WEST OF ROCK CREEK, 2.6 MILES WEST ON TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 70 AND INTERSTATE HIGHWAY 35 IN ROCK CREEK, AT TRUNK HIGHWAY 70 MILEPOINT 16.1, 94.0 FEET SOUTHEAST OF TRUNK HIGHWAY 70, 34.0 FEET NORTH OF BUTTERFLY ROAD, 127.5 FEET NORTHEAST OF ROYAL MNDT RM 2, 107.43 FEET EAST OF STATION ROYAL MNDT RESET, 55.0 FEET WEST OF A POWER POLE.

Station Notes
THE ROD DEPTH IS UNKNOWN.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
989.867	.016	2/1				VERTICAL ADJUSTMENT	2021	00000963
989.867	.016	2/1				VERTICAL CONTROL SURVEY	2017	VRCRK

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
989.834	.262		897.958	.197	2011	GPS - RTRN	2017	RTRN2017

Geoid Separations(ft): GEOID18 = -91.886 12B = -91.876 09 = -91.788 03 = -91.644

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 34.95273	93 02 26.32585	464099.162	110865.873	.131	3	GPS - RTRN	2017	RTRN2017

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2933324.041	607470.419	1630046.230	16625133.716	.131	3	GPS - RTRN	2017	RTRN2017

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ROYAL_RM_1_RESET-DQ7338-3N-22MAY2017.jpg	N	May 22, 2017
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ROYAL_RM_1_RESET-DQ7338-2-22MAY2017.jpg		May 22, 2017
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ROYAL_RM_1_RESET-DQ7338-1-22MAY2017.jpg		May 22, 2017

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

ROYAL MNDT RM 2

Mn/DOT Name: ROYAL MNDT RM 2 **NGS Name:** ROYAL RM 2

County: PINE, MN (Sheet 1)

NGS ACRN: CS8967 Get Map
NGS Quad / Sta Num : 45093112/
USGS Quad: HENRIETTE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	24	38 N	22 W	454534.43	930227.96	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1984	2017	GOOD	Horz=YES Vert=YES	YES		RECESSED 1 IN.	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE)	REFERENCE MARK DISK	MNDT

Description: (2007) **Stamping:** ROYAL NO 2 1984

3.0 MILES WEST OF ROCK CREEK, 2.6 MILES WEST ALONG TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 70 AND INTERSTATE HIGHWAY 35 IN ROCK CREEK, AT TRUNK HIGHWAY 70 MILEPOINT 16.1, 109.0 FEET SOUTHEAST OF TRUNK HIGHWAY 70, 20.5 FEET SOUTH OF BUTTERFLY ROAD, 127.5 FEET SOUTHWEST OF ROYAL MNDT RM 1 RESET, 78.0 FEET EAST-SOUTHEAST OF A POWER POLE WITH 2 GUY WIRES, 50.77 FEET SOUTH-SOUTHWEST OF ROYAL MNDT RESET, 12.5 FEET NORTH OF A WITNESS POST.

Station Pair: HEIDEL - PINE, MN

Station Notes
THE ROD DEPTH IS UNKNOWN.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
991.323	.016	2/1				VERTICAL ADJUSTMENT	2021	00000963
991.323	.016	2/1				VERTICAL CONTROL SURVEY	2017	VRCRK

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
991.307	.262		899.427	.197	2011	GPS - RTRN	2017	RTRN2017

Geoid Separations(ft): GEOID18 = -91.890 12B = -91.880 09 = -91.791 03 = -91.650

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 34.42756	93 02 27.95991	463983.205	110812.880	.131	3	GPS - RTRN	2017	RTRN2017

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2933209.013	607415.463	1629930.393	16625080.600	.131	3	GPS - RTRN	2017	RTRN2017

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ROYAL_RM_2-CS8967-3S-22MAY2017.jpg	S	May 22, 2017
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ROYAL_RM_2-CS8967-2-22MAY2017.jpg		May 22, 2017
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ROYAL_RM_2-CS8967-1-22MAY2017.jpg		May 22, 2017

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

RPPI 74.9 MNDT

Mn/DOT Name: RPPI 74.9 MNDT **NGS Name:** RPPI 74.9

County: PINE, MN (Sheet 1)

NGS ACRN: QO1578 Get Map
NGS Quad / Sta Num : 45092443/1020
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	4	38 N	21 W	454849.84	925813.07		2

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2007	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

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

Description: (1961) **Stamping:** 2823 349 2823 333 74.9

1.0 MILE SOUTH OF PINE CITY, NEAR THE JUNCTION OF TRUNK HIGHWAY 361 AND SOUTH AVENUE, 55.0 FEET EAST OF TRUNK HIGHWAY 361, 50.0 FEET NORTH OF A FIRE HYDRANT, 66.0 FEET NORTH OF A DRIVEWAY, 198.53 FEET NORTHEAST OF STATION PINE CITY.

*** 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
1010.497	.197		919.746	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1010.497						RECIPROCAL VERTICAL ANGLE	1961	HORZ

Geoid Separations(ft): GEOID18 = -90.994 12B = -90.971 09 = -90.912 03 = -90.784

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 48 49.83836	92 58 13.07333	482073.372	130583.721	.066	2	ADJUSTMENT	1999	17648
45 48 49.83594	92 58 13.06815	482073.739	130583.475	.066	2	ADJUSTMENT	1991	17497

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 48 49.83439	92 58 13.06976	482073.625	130583.319	.066	2	ADJUSTMENT	1986	17289

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 48 49.98820	92 58 12.31620			.100	2	CLASSICAL SURVEY	1961	12611

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2950958.149	627489.893	1647987.465	16644865.168	.066	2	ADJUSTMENT	1999	17648
2950958.520	627489.654	1647987.831	16644864.922	.066	2	ADJUSTMENT	1991	17497

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2950958.408	627489.495	1647987.717	16644864.766	.066	2	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2326354.662	299420.530			.100	2	CLASSICAL SURVEY	1961	12611

RPPI 75.0 MNDT

Mn/DOT Name: RPPI 75.0 MNDT
NGS Name: RPPI 75.0
County: PINE, MN (Sheet 1)

NGS ACRN: QO1577 Get Map
NGS Quad / Sta Num : 45092443/1020
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	4	38 N	21 W	454848.65	925813.07		2

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2007	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

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

Description: (1961) **Stamping:** 2823 349 2823 533 75.0

1.0 MILE SOUTH OF PINE CITY, NEAR THE JUNCTION OF TRUNK HIGHWAY 361 AND SOUTH AVENUE, 55.0 FEET EAST OF TRUNK HIGHWAY 361, 45.0 FEET SOUTH OF A DRIVEWAY, 89.0 FEET NORTH OF A DRIVEWAY, 132.96 FEET EAST-NORTHEAST OF STATION PINE CITY.

*** 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
1010.497	.197		919.742	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1010.497						RECIPROCAL VERTICAL ANGLE	1961	HORZ

Geoid Separations(ft): GEOID18 = -90.997 12B = -90.971 09 = -90.912 03 = -90.784

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 48 48.65025	92 58 13.06684	482073.725	130463.366	.066	2	ADJUSTMENT	1999	17648
45 48 48.64800	92 58 13.06052	482074.173	130463.138	.066	2	ADJUSTMENT	1991	17497

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 48 48.64647	92 58 13.06213	482074.059	130462.983	.066	2	ADJUSTMENT	1986	17289

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 48 48.80030	92 58 12.30860			.100	2	CLASSICAL SURVEY	1961	12611

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2950960.553	627369.573	1647987.968	16644744.868	.066	2	ADJUSTMENT	1999	17648
2950961.004	627369.353	1647988.416	16644744.640	.066	2	ADJUSTMENT	1991	17497

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2950960.893	627369.196	1647988.302	16644744.485	.066	2	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2326357.145	299300.233			.100	2	CLASSICAL SURVEY	1961	12611

Mn/DOT Name: RUSHSEBA **NGS Name:** RUSHSEBA

County: PINE, MN (Sheet 1)

NGS ACRN: DP7327 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	29	38 N	21 W	454529.11	925924.95	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2014	2017	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 24 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2014) **Stamping:** RUSHSEBA 2014

1.2 MILES SOUTHWEST OF ROCK CREEK, 0.6 MILE SOUTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 70 IN ROCK CREEK, AT INTERSTATE HIGHWAY 35 MILEPOINT 165.05, 57.9 FEET EAST OF NORTHBOUND INTERSTATE HIGHWAY 35 FOG LINE, 29.1 FEET WEST OF A RIGHT-OF-WAY FENCE, 1.5 FEET WEST OF A WITNESS POST.

Station Notes
THIS STATION MAY BE A STATION PAIR FOR GOULD MNDT.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
952.570	.016	2/1				VERTICAL ADJUSTMENT	2021	00000963
952.570	.016	2/1				VERTICAL CONTROL SURVEY	2017	VRCRK
952.570	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
952.567	.016	2/1				VERTICAL CONTROL SURVEY	2014	VPCTY

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
952.521	.262		861.078	.197	2011	GPS - RTRN	2017	RTRN2017
952.439	.262		860.992	.197	2011	GPS - RTRN	2014	RTRN2014

Geoid Separations(ft): GEOID18 = -91.473 12B = -91.443 09 = -91.384 03 = -91.253

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 29.10517	92 59 24.94874	476958.956	110254.860	.131	3	GPS - RTRN	2017	RTRN2017
45 45 29.10435	92 59 24.94871	476958.958	110254.777	.131	3	GPS - RTRN	2014	RTRN2014

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2946191.280	607078.624	1642900.899	16624539.154	.131	3	GPS - RTRN	2017	RTRN2017
2946191.284	607078.541	1642900.901	16624539.070	.131	3	GPS - RTRN	2014	RTRN2014

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/RUSHSEBA-DP7327-3E-17JUN2014.jpg	E	Jun 17, 2014
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/RUSHSEBA-DP7327-2-17JUN2014.jpg		Jun 17, 2014
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/RUSHSEBA-DP7327-1-17JUN2014.jpg		Jun 17, 2014

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

SADIE

Mn/DOT Name: SADIE **NGS Name:** SADIE

County: PINE, MN (Sheet 1)

NGS ACRN: DM4958 Get Map
NGS Quad / Sta Num : 45093111/
USGS Quad: BROOK PARK

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	7	39 N	22 W	455233.14	930729.93	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2010	2020	GOOD	Horz=YES Vert=YES	YES		FLUSH	BAR MAG IN DRILL HOLE

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

Description: (2010) **Stamping:** SADIE 2010

0.4 MILE NORTHWEST OF HENRIETTE, 0.3 MILE NORTH ALONG TRUNK HIGHWAY 107 FROM THE NORTH JUNCTION OF TRUNK HIGHWAY 107 AND COUNTY ROAD 11 IN HENRIETTE, AT TRUNK HIGHWAY 107 MILEPOINT 12.55, 39.5 FEET WEST OF TRUNK HIGHWAY 107, 17.8 FEET SOUTH OF AN 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
987.531	.016	2/1				VERTICAL ADJUSTMENT	2012	00000745
987.524	.016	2/1				VERTICAL CONTROL SURVEY	2010	VBRAH

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
987.472	.262		895.855	.197	2011	GPS - OPUS	2020	GPSBM
987.606	.262		895.999	.197	2011	GPS - RTRN	2020	RTRN2020
			895.920	.006	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
987.531	.131		895.996	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2747
987.531	.131		895.996	.066	2007	GPS - STATIC	2010	HBRAH
987.531	.131		896.110	.066	1996	GPS - STATIC	2010	HBRAH

Geoid Separations(ft): GEOID18 = -91.617 12B = -91.607 09 = -91.519 03 = -91.371

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 52 33.14474	93 07 29.93416	442691.787	153277.616	.131	3	GPS - OPUS	2020	GPSBM
45 52 33.14463	93 07 29.93410	442691.791	153277.605	.131	3	GPS - RTRN	2020	RTRN2020
45 52 33.14462	93 07 29.93379	442691.813	153277.604	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 52 33.14471	93 07 29.93446	442691.766	153277.613	.033	C	ADJUSTMENT	2011	GPS2747
45 52 33.14471	93 07 29.93446	442691.766	153277.613	.033	C	GPS - STATIC	2010	HBRAH

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 52 33.14452	93 07 29.93403	442691.796	153277.594	.033	C	GPS - STATIC	2010	HBRAH

SADIE

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2911199.339	649507.582	1608595.076	16667499.260	.131	3	GPS - OPUS	2020	GPSBM
2911199.343	649507.570	1608595.080	16667499.249	.131	3	GPS - RTRN	2020	RTRN2020
2911199.365	649507.570	1608595.102	16667499.248	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2911199.318	649507.578	1608595.055	16667499.257	.033	C	ADJUSTMENT	2011	GPS2747
2911199.318	649507.578	1608595.055	16667499.257	.033	C	GPS - STATIC	2010	HBRAH

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2911199.348	649507.560	1608595.085	16667499.238	.033	C	GPS - STATIC	2010	HBRAH

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/SADIE-DM4958-3W-29APR2020.jpg	W	Apr 29, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/SADIE-DM4958-2-29APR2020.jpg		Apr 29, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/SADIE-DM4958-1-29APR2020.jpg		Apr 29, 2020

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

SALES MNDT

Mn/DOT Name: SALES MNDT **NGS Name:** SALES

County: PINE, MN (Sheet 1)

NGS ACRN: QO1597 Get Map
NGS Quad / Sta Num : 45093121/1033
USGS Quad: RUSH LAKE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	30	38 N	21 W	454442.59	930041.09		2

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1964	1971	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

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

Description: (1971) **Stamping:** SALES 1964

2.48 MILES SOUTHWEST OF ROCK CREEK, 0.70 MILE WEST ALONG TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 70 AND INTERSTATE HIGHWAY 35, WEST OF ROCK CREEK, THEN 1.50 MILE SOUTH ON COUNTY ROAD 23, THEN 0.47 MILE WEST ON 550TH STREET.

*** 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
956.363	.197		864.877	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
956.002						RECIPROCAL VERTICAL ANGLE	1964	HORZ

Geoid Separations(ft): GEOID18 = -91.745 12B = -91.722 09 = -91.650 03 = -91.516

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 44 42.59079	93 00 41.08817	471553.564	105549.875	.066	2	ADJUSTMENT	1999	17648
45 44 42.59182	93 00 41.09038	471553.408	105549.980	.066	2	ADJUSTMENT	1991	17497

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 44 42.59104	93 00 41.09176	471553.310	105549.901	.066	2	ADJUSTMENT	1986	17289

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 44 42.74010	93 00 40.32811			.100	2	CLASSICAL SURVEY	1973	14930

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2940867.289	602282.631	1637503.901	16619829.537	.066	2	ADJUSTMENT	1999	17648
2940867.130	602282.733	1637503.744	16619829.641	.066	2	ADJUSTMENT	1991	17497

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2940867.034	602282.653	1637503.646	16619829.562	.066	2	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2316263.768	274213.349			.100	2	CLASSICAL SURVEY	1973	14930

SALES MNDT RM 1

Mn/DOT Name: SALES MNDT RM 1 **NGS Name:** SALES RM 1

County: PINE, MN (Sheet 1)

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	31	38 N	21 W	454441.00	930036.00		

NGS ACRN: CJ4652 Get Map
NGS Quad / Sta Num : 45093121/1033
USGS Quad: RUSH LAKE

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1964	2017	DESTROYED	Horz=NO Vert=NO	NO		PROJECTS 1 IN.	SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	MNDT

Description: (1964) **Stamping:** SALES NO 1 1964

5.0 MILES NORTHWEST OF THE TOWN OF RUSH CITY, 4.2 MILES NORTH FROM THE JUNCTION OF TRUNK HIGHWAY 61 AND THE MAIN STREET IN RUSH CITY, 2.5 MILES WEST ON A TOWNSHIP ROAD, 114.0 FEET EAST-NORTHEAST OF A 36.0 INCH DIAMETER PINE TREE, 25.0 FEET SOUTH OF THE CENTERLINE OF A TOWNSHIP ROAD, 60.8 FEET NORTH-NORTHWEST OF A TRIPLE 10.0 INCH DIAMETER BIRCH TREE, 36.2 FEET NORTHWEST OF A SMALL PINE TREE.

Station Notes

IN 9-30-2008 UNABLE TO FIND THE TIES TO THIS MARK.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -91.735 12B = -91.712 09 = -91.640 03 = -91.506

SALES MNDT RM 2

Mn/DOT Name: SALES MNDT RM 2 **NGS Name:** SALES RM 2

County: PINE, MN (Sheet 1)

NGS ACRN: CJ4653 Get Map
NGS Quad / Sta Num : 45093121/1033
USGS Quad: RUSH LAKE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	31	38 N	21 W	454442.00	930041.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1964	2017	DESTROYED	Horz=NO Vert=NO	NO		PROJECTS 2 IN.	SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	MNDT

Description: (1964) **Stamping:** SALES NO 2 1964

5.0 MILES NORTHWEST OF THE TOWN OF RUSH CITY, 4.2 MILES NORTH FROM THE JUNCTION OF TRUNK HIGHWAY 61 AND THE MAIN STREET IN RUSH CITY, 2.5 MILES WEST ON A TOWNSHIP ROAD, 69.9 FEET NORTHWEST OF A 36.0 INCH DIAMETER PINE TREE, 20.5 FEET NORTH OF THE CENTERLINE OF A ROAD, 1.4 FEET SOUTH OF A FENCE.

Station Notes

IN 9-30-2008 UNABLE TO FIND ANY TIES TO THIS MARK.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -91.745 12B = -91.722 09 = -91.650 03 = -91.519

SALLY

Mn/DOT Name: SALLY **NGS Name:** SALLY

County: PINE, MN (Sheet 1)

NGS ACRN: DO8722 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	21	39 N	21 W	455107.34	925823.87	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2012	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 25 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) **Stamping:** SALLY 2012

1.5 MILES NORTH OF PINE CITY, 0.4 MILE NORTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND COUNTY ROAD 11 AT PINE CITY, AT INTERSTATE HIGHWAY 35 MILEPOINT 171.35, 51.9 FEET WEST-NORTHWEST OF NORTHBOUND INTERSTATE HIGHWAY 35, 79.7 FEET EAST-SOUTHEAST OF SOUTHBOUND INTERSTATE HIGHWAY 35, 1.5 FEET SOUTHEAST 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
947.866	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
947.866	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
947.800	.262		857.019	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -90.876 12B = -90.853 09 = -90.781 03 = -90.659

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 51 07.33609	92 58 23.86861	481321.515	144512.809	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2949969.144	641402.880	1647218.465	16658787.016	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/SALLY-DO8722-3NW-19NOV2012.jpg	NW	Nov 19, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/SALLY-DO8722-2-19NOV2012.jpg		Nov 19, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/SALLY-DO8722-1-19NOV2012.jpg		Nov 19, 2012

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

SAND

Mn/DOT Name: SAND **NGS Name:** SAND

County: PINE, MN (Sheet 1)

NGS ACRN: RN1617 Get Map
NGS Quad / Sta Num : 46092323/1017
USGS Quad: CLOVERDALE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	9	41 N	18 W	460226.10	923800.60		1

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1952	2008	GOOD	Horz=NO Vert=YES	YES		FLUSH	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	NGS

Description: (2008) **Stamping:** SAND 1952

5.5 MILES EAST-NORTHEAST OF CLOVERDALE, 6.05 MILES EAST ON TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND COUNTY ROAD 21, THEN 2.0 MILES NORTH ON COUNTY ROAD 22, THEN 0.95 MILE WEST ON A TOWNSHIP ROAD, 32.0 FEET NORTH OF LOG CABIN ROAD, 99.85 FEET NORTHWEST OF SAND RM 1, 78.07 FEET NORTH-NORTHEAST OF SAND RM 2, 2.0 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
1020.339	.131		932.918	.066	1996	HORIZONTAL ADJUSTMENT	1999	17648

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1020.306						RECIPROCAL VERTICAL ANGLE	1952	HORZ

Geoid Separations(ft): GEOID18 = -87.536 12B = -87.621 09 = -87.542 03 = -87.460

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 02 26.10009	92 38 00.60107	567682.570	213376.759	.033	1	ADJUSTMENT	1999	17648
46 02 26.09584	92 38 00.59644	567682.898	213376.329	.033	1	ADJUSTMENT	1991	17497

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 02 26.09219	92 38 00.59559	567682.959	213375.960	.033	1	ADJUSTMENT	1986	17289

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 02 26.27800	92 37 59.88900			.100	1	CLASSICAL SURVEY	1961	12611

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3035135.071	711722.142	1733455.057	16727728.636	.033	1	ADJUSTMENT	1999	17648
3035135.406	711721.719	1733455.386	16727728.207	.033	1	ADJUSTMENT	1991	17497

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3035135.474	711721.351	1733455.447	16727727.837	.033	1	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2410530.651	383655.315			.100	1	CLASSICAL SURVEY	1961	12611

SAND

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/SAND-RN1617-3N-17MAR2008.jpg	N	Mar 17, 2008
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/SAND-RN1617-2-17MAR2008.jpg		Mar 17, 2008
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/SAND-RN1617-1-17MAR2008.jpg		Mar 17, 2008

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

SAND AZ MK

Mn/DOT Name: SAND AZ MK

NGS Name: SAND AZ MK

County: PINE, MN (Sheet 1)

NGS ACRN: CJ2725 Get Map
NGS Quad / Sta Num : 46092323/1017
USGS Quad: CLOVERDALE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	9	41 N	18 W	460226.00	923803.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1952	2008	NOT FOUND	Horz=? Vert=YES	NO		PROJECTS 6 IN.	SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	NGS

Description: (1952) **Stamping:** SAND 1952

5.5 MILES EAST-NORTHEAST OF CLOVERDALE, 6.05 MILES EAST ON TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND COUNTY ROAD 21, THEN 2.0 MILES NORTH ON COUNTY ROAD 22, THEN 0.95 MILE WEST ON LOG CABIN ROAD, 27.0 FEET SOUTH OF THE APPROXIMATE CENTERLINE OF A ROAD, 13.0 FEET EAST OF A GATE POST, 4.0 FEET NORTH OF A FENCE, 1.0 FOOT EAST OF A WITNESS POST.

Station Notes

IN 10-02-2008 DETERMINED THAT GATE POST AND A FENCE ARE GONE.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -87.539 12B = -87.628 09 = -87.549 03 = -87.464

SAND RM 1

Mn/DOT Name: SAND RM 1 **NGS Name:** SAND RM 1

County: PINE, MN (Sheet 1)

NGS ACRN: CJ2726 Get Map
NGS Quad / Sta Num : 46092323/1017
USGS Quad: CLOVERDALE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	9	41 N	18 W	460225.51	923759.47		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1952	2008	GOOD	Horz=NO Vert=YES	YES		FLUSH	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description: (1952) **Stamping:** SAND NO 1 1952

5.5 MILES EAST-NORTHEAST OF CLOVERDALE, 6.05 MILES EAST ON TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND COUNTY ROAD 21, THEN 2.0 MILES NORTH ON COUNTY ROAD 22, THEN 0.95 MILE WEST ON LOG CABIN ROAD, 99.85 FEET SOUTHEAST OF SAND, 32.0 FEET SOUTH OF THE APPROXIMATE CENTERLINE OF A ROAD, 1.0 FOOT NORTH OF A WITNESS POST.

Station Notes

IN 10-02-2008 IT WAS NOTED THAT THERE WAS NO BASE DATA FOR REAL TIME REFERENCE NETWORK (RTRN).

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -87.533 12B = -87.621 09 = -87.542 03 = -87.457

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/SAND_RM_1-CJ2726-3S-02OCT2008.jpg	S	Oct 2, 2008
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/SAND_RM_1-CJ2726-2-02OCT2008.jpg		Oct 2, 2008
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/SAND_RM_1-CJ2726-1-02OCT2008.jpg		Oct 2, 2008

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

SAND RM 2

Mn/DOT Name: SAND RM 2 **NGS Name:** SAND RM 2

County: PINE, MN (Sheet 1)

NGS ACRN: CJ2727 Get Map
NGS Quad / Sta Num : 46092323/1017
USGS Quad: CLOVERDALE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	9	41 N	18 W	460225.47	923801.24		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1952	2008	NOT FOUND	Horz=? Vert=YES	NO		PROJECTS 6 IN.	SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description: (1952) **Stamping:** SAND NO 2 1952

5.5 MILES EAST-NORTHEAST OF CLOVERDALE, 6.05 MILES EAST ON TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND COUNTY ROAD 21, THEN 2.0 MILES NORTH ON COUNTY ROAD 22, THEN 0.95 MILE WEST ON LOG CABIN ROAD, 78.07 FEET SOUTH-SOUTHWEST OF STATION SAND, 29.0 FEET SOUTH OF THE APPROXIMATE CENTERLINE OF A ROAD.

Station Notes

IN 10-02-2008 DETERMINED THAT USING THE TIES, SAND RM 2 COULD NOT BE FOUND.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -87.533 12B = -87.621 09 = -87.542 03 = -87.457

Mn/DOT Name: SDA MNDT **NGS Name:** SDA

County: PINE, MN (Sheet 1)

NGS ACRN: QO2509 Get Map
NGS Quad / Sta Num : 45093112/
USGS Quad: HENRIETTE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	21	38 N	22 W	454535.57	930534.44		2

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1984	2017	DESTROYED	Horz=NO Vert=NO	YES		RECESSED 2 IN.	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE)	HORIZONTAL CONTROL DISK	MNDT

Description: (2007) **Stamping:** SDA 1984

4.0 MILES NORTHEAST OF BRAHAM, 3.1 MILES EAST ON TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 70 AND TRUNK HIGHWAY 107 (THE JUNCTION IS 2.0 MILES NORTH OF BRAHAM), 357.0 FEET EAST OF CLOVER LANE, 20.0 FEET NORTH OF TRUNK HIGHWAY 70 AT MILEPOINT 13.6, 8.0 FEET WEST OF A FIELD ENTRANCE, 82.5 FEET NORTHWEST OF A RIGHT-OF-WAY POST, 60.70 FEET SOUTHWEST OF SDA MNDT RM 1, 90.62 FEET NORTHWEST OF SDA MNDT RM 2, 2.0 FEET EAST OF A WITNESS POST.

Station Notes
THE DISK WAS TURNED IN TO THE OFFICE.

*** No Leveling-Derived Orthometric Heights in the Database ***

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1012.393	.262		920.497	.197	1996	GPS - RTRN	2009	RTRN2009
1013.121	.197		921.251	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648
1013.089						RECIPROCAL VERTICAL ANGLE	1994	HORZ

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1012.793						RECIPROCAL VERTICAL ANGLE	1984	HORZ

Geoid Separations(ft): GEOID18 = -92.149 12B = -92.149 09 = -92.047 03 = -91.896

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 35.56728	93 05 34.44476	450760.837	110956.090	.131	3	GPS - RTRN	2009	RTRN2009
45 45 35.56565	93 05 34.44333	450760.938	110955.924	.066	2	ADJUSTMENT	1999	17648

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 35.56229	93 05 34.44404	450760.887	110955.585	.066	2	CLASSICAL SURVEY	1994	G17352
45 45 35.56229	93 05 34.44404	450760.887	110955.584	.066	2	ADJUSTMENT	1994	17352

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 35.70640	93 05 33.66990			.100	2	CLASSICAL SURVEY	1984	3306-09

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2919987.254	607333.423	1616713.899	16625207.072	.131	3	GPS - RTRN	2009	RTRN2009
2919987.358	607333.259	1616714.000	16625206.906	.066	2	ADJUSTMENT	1999	17648

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2919987.313	607332.919	1616713.950	16625206.566	.066	2	CLASSICAL SURVEY	1994	G17352
2919987.313	607332.919	1616713.950	16625206.566	.066	2	ADJUSTMENT	1994	17352

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2295384.176	279263.020			.100	2	CLASSICAL SURVEY	1984	3306-09

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/SDA-QO2509-3N-28MAY2009.jpg	N	May 28, 2009
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/SDA-QO2509-2-28MAY2009.jpg		May 28, 2009
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/SDA-QO2509-1-28MAY2009.jpg		May 28, 2009

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

Mn/DOT Name: SDA MNDT RESET
NGS Name: SDA RESET
County: PINE, MN (Sheet 1)

NGS ACRN: DQ7342 Get Map
NGS Quad / Sta Num : 45093112/
USGS Quad: HENRIETTE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	21	38 N	22 W	454535.57	930534.45	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2017	2017	GOOD	Horz=YES Vert=YES	YES		RECESSED 8 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 10 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2017) **Stamping:** SDA 1984 2017

4.0 MILES NORTHEAST OF BRAHAM, 3.1 MILES EAST ON TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 70 AND TRUNK HIGHWAY 107 (THE JUNCTION IS 2.5 MILES NORTH OF BRAHAM), AT TRUNK HIGHWAY 70 AT MILEPOINT 13.6, 20.0 FEET NORTH OF TRUNK HIGHWAY 70, 90.62 FEET NORTHWEST OF SDA MNDT RM 2 RESET, 60.70 FEET SOUTHWEST OF SDA MNDT 1 RESET, 8.0 FEET WEST OF A FIELD ENTRANCE, 7.0 FEET SOUTHEAST 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
1012.383	.016	2/1				VERTICAL ADJUSTMENT	2021	00000963
1012.383	.016	2/1				VERTICAL CONTROL SURVEY	2017	VRCRK

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
1012.528	.262		920.379	.197	2011	GPS - RTRN	2017	RTRN2017

Geoid Separations(ft): GEOID18 = -92.149 12B = -92.149 09 = -92.047 03 = -91.896

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 35.56545	93 05 34.44515	450760.808	110955.905	.131	3	GPS - RTRN	2017	RTRN2017

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2919987.229	607333.237	1616713.872	16625206.886	.131	3	GPS - RTRN	2017	RTRN2017

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/SDA_RESET-DQ7342-3N-22MAY2017.jpg	N	May 22, 2017
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/SDA_RESET-DQ7342-2-22MAY2017.jpg		May 22, 2017
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/SDA_RESET-DQ7342-1-22MAY2017.jpg		May 22, 2017

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

SDA MNDT RM 1

Mn/DOT Name: SDA MNDT RM 1 **NGS Name:** SDA RM 1

County: PINE, MN (Sheet 1)

NGS ACRN: CS8968 Get Map
NGS Quad / Sta Num : 45093112/
USGS Quad: HENRIETTE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	21	38 N	22 W	454535.87	930533.70		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1984	2007	DESTROYED	Horz=NO Vert=NO	NO		RECESSED 1 IN.	MARKER W/BAR MAGNET

Monument Type
ALUMINUM ALLOY ROD (NO SLEEVE)

Disk Type
REFERENCE MARK DISK

Mon. Agency
MNDT

Description: (1984) **Stamping:** SDA NO 1 1984

4.0 MILES NORTHEAST OF BRAHAM, 3.1 MILES EAST ON TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 70 AND TRUNK HIGHWAY 107 (2.0 MILES NORTH OF BRAHAM), 50.5 FEET NORTH OF THE CENTERLINE OF TRUNK HIGHWAY 70, 40.0 FEET EAST OF THE CENTER OF AN ENTRANCE, 38.7 FEET WEST-SOUTHWEST OF A POWER POLE, 5.2 FEET EAST OF A TELEPHONE CABLE MARKER POST, 0.8 FOOT WEST OF A STEEL WITNESS POST.

Station Notes
SEE SDA MNDT RM 1 RESET.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -92.145 12B = -92.145 09 = -92.047 03 = -91.893

SDA MNDT RM 1 RESET

Mn/DOT Name: SDA MNDT RM 1 RESET **NGS Name:** SDA RM 1 RESET

County: PINE, MN (Sheet 1)

NGS ACRN: DQ7341 Get Map
NGS Quad / Sta Num : 45093112/
USGS Quad: HENRIETTE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	21	38 N	22 W	454535.87	930533.71	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2007	2017	GOOD	Horz=YES Vert=YES	YES		PROJECTS 1 IN.	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 10 FT)	SURVEY DISK	MNDT

Description: (2007) **Stamping:** SDA RM 1 RESET 1984 2007

4.0 MILES NORTHEAST OF BRAHAM, 3.1 MILES EAST ALONG TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 70 AND TRUNK HIGHWAY 107 (THE JUNCTION IS 2.5 MILES NORTH OF BRAHAM), AT TRUNK HIGHWAY 70 MILEPOINT 13.6, 50.5 FEET NORTH OF TRUNK HIGHWAY 70, 95.5 FEET NORTH-NORTHWEST OF STATION SDA MNDT RM 2 RESET, 60.7 FEET NORTHEAST OF STATION SDA MNDT, 40.0 FEET EAST OF A FIELD ENTRANCE, 2.0 FEET EAST 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
1012.386	.016	2/1				VERTICAL ADJUSTMENT	2021	00000963
1012.386	.016	2/1				VERTICAL CONTROL SURVEY	2017	VRCRK

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
1012.390	.262		920.244	.197	2011	GPS - RTRN	2017	RTRN2017

Geoid Separations(ft): GEOID18 = -92.145 12B = -92.145 09 = -92.047 03 = -91.896

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 35.86784	93 05 33.70578	450813.307	110986.409	.131	3	GPS - RTRN	2017	RTRN2017

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2920039.196	607364.629	1616766.308	16625237.443	.131	3	GPS - RTRN	2017	RTRN2017

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/SDA_RM_1_RESET-DQ7341-3N-22MAY2017.jpg	N	May 22, 2017
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/SDA_RM_1_RESET-DQ7341-2-22MAY2017.jpg		May 22, 2017
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/SDA_RM_1_RESET-DQ7341-1-22MAY2017.jpg		May 22, 2017

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

SDA MNDT RM 2

Mn/DOT Name: SDA MNDT RM 2 **NGS Name:** SDA RM 2

County: PINE, MN (Sheet 1)

NGS ACRN: CS8969 Get Map
NGS Quad / Sta Num : 45093112/
USGS Quad: HENRIETTE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	21	38 N	22 W	454534.93	930533.54		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1984	2017	DESTROYED	Horz=NO Vert=NO	YES		FLUSH	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE)	REFERENCE MARK DISK	MNDT

Description: (2007) **Stamping:** SDA NO 2 1984

4.0 MILES NORTHEAST OF BRAHAM, 3.1 MILES EAST ALONG TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 70 AND TRUNK HIGHWAY 107 (THE JUNCTION IS 2.0 MILES NORTH OF BRAHAM), 43.0 FEET SOUTH OF TRUNK HIGHWAY 70, 24.0 FEET EAST-NORTHEAST OF A RIGHT-OF-WAY POST, 90.6 FEET SOUTHEAST OF STATION SDA MNDT, 2.0 FEET EAST OF A STEEL WITNESS POST.

Station Notes
THE DISK WAS TURNED IN TO THE OFFICE.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -92.149 12B = -92.149 09 = -92.047 03 = -91.896

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/SDA_RM_2-CS8969-3S-08MAY2007.jpg	S	May 8, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/SDA_RM_2-CS8969-2-08MAY2007.jpg		May 8, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/SDA_RM_2-CS8969-1-08MAY2007.jpg		May 8, 2007

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

SDA MNDT RM 2 RESET

Mn/DOT Name: SDA MNDT RM 2 RESET **NGS Name:** SDA RM 2 RESET

County: PINE, MN (Sheet 1)

NGS ACRN: DQ7343 Get Map
NGS Quad / Sta Num : 45093112/
USGS Quad: HENRIETTE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	21	38 N	22 W	454534.93	930533.54	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2017	2017	GOOD	Horz=NO Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 10 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2017) **Stamping:** SDA 1984 2017

4.0 MILES NORTHEAST OF BRAHAM, 3.1 MILES EAST ALONG TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 70 AND TRUNK HIGHWAY 107 (THE JUNCTION IS 2.5 MILES NORTH OF BRAHAM), 43.0 FEET SOUTH OF TRUNK HIGHWAY 70, 95.5 FEET SOUTH-SOUTHEAST OF SDA MNDT RM 1 RESET, 90.6 FEET SOUTHEAST OF SDA MNDT, 24.0 FEET EAST-NORTHEAST OF A RIGHT-OF-WAY POST, 2.0 FEET EAST 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
1011.481	.016	2/1				VERTICAL ADJUSTMENT	2021	00000963
1011.481	.016	2/1				VERTICAL CONTROL SURVEY	2017	VRCRK

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
1011.566	.262		919.417	.197	2011	GPS - RTRN	2017	RTRN2017

Geoid Separations(ft): GEOID18 = -92.149 12B = -92.149 09 = -92.047 03 = -91.896

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 34.93124	93 05 33.54043	450824.801	110891.505	.131	3	GPS - RTRN	2017	RTRN2017

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2920052.304	607269.942	1616777.916	16625142.597	.131	3	GPS - RTRN	2017	RTRN2017

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/SDA_RM_2_RESET-DQ7343-3S-22MAY2017.jpg	S	May 22, 2017
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/SDA_RM_2_RESET-DQ7343-2-22MAY2017.jpg		May 22, 2017
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/SDA_RM_2_RESET-DQ7343-1-22MAY2017.jpg		May 22, 2017

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

SION MNDT

Mn/DOT Name: SION MNDT **NGS Name:** SION

County: PINE, MN (Sheet 1)

NGS ACRN: AH1786 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	10	40 N	21 W	455758.94	925730.62		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1993	2008	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	MARKER W/BAR MAGNET

Monument Type
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 25 FT)

Disk Type
SURVEY DISK

Mon. Agency
MNDT

Description: (1993) **Stamping:** SION 1993

0.5 MILE SOUTHWEST OF MISSION CREEK, 0.7 MILE SOUTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 23, AT INTERSTATE HIGHWAY 35 MILEPOINT 179.65, IN INTERSTATE HIGHWAY 35 MEDIAN, 35.8 FEET EAST-SOUTHEAST OF SOUTHBOUND INTERSTATE HIGHWAY 35, 48.6 FEET WEST-NORTHWEST OF NORTHBOUND INTERSTATE HIGHWAY 35, 18.0 FEET SOUTH-SOUTHWEST OF A CROSSOVER, 42.2 FEET SOUTH-SOUTHWEST OF THE WEST LEG OF A SIGN, 3.4 FEET NORTH-NORTHEAST OF A WITNESS POST.

Station Notes
THE GEODETIC UNIT COULD NOT FIND THE STATION IN 2007.

*** 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
			896.416	.010	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			896.514	.010	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
			896.685	.066	1996	GPS - STATIC	1999	GPS917

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
986.612						GPS - STATIC	1994	HORZ

Geoid Separations(ft): GEOID18 = -90.380 12B = -90.371 09 = -90.272 03 = -90.144

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 57 58.93797	92 57 30.61728	485121.684	186204.967	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 57 58.93800	92 57 30.61797	485121.635	186204.971	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 57 58.93786	92 57 30.61732	485121.681	186204.956	.033	C	GPS - STATIC	1999	GPS917

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 57 58.93202	92 57 30.61236	485122.032	186204.365	.033	C	GPS - STATIC	1994	HI35N

SION MNDT

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2953058.027	683149.683	1650964.596	16700465.289	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2953057.978	683149.686	1650964.547	16700465.292	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2953058.025	683149.672	1650964.593	16700465.277	.033	C	GPS - STATIC	1999	GPS917

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2953058.385	683149.087	1650964.944	16700464.687	.033	C	GPS - STATIC	1994	HI35N

SION MNDT RESET

Mn/DOT Name: SION MNDT RESET
NGS Name: SION RESET
County: PINE, MN (Sheet 1)

NGS ACRN: DL4784 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	10	40 N	21 W	455758.94	925730.62	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2008	2012	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 25 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2009) **Stamping:** SION RESET 2008

3.2 MILES SOUTH OF HINCKLEY, 3.4 MILES SOUTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 48 (SOUTHEAST CORNER OF HINCKLEY), AT INTERSTATE HIGHWAY 35 MILEPOINT 179.65, IN A MEDIAN, 48.6 FEET WEST-NORTHWEST OF NORTHBOUND INTERSTATE HIGHWAY 35, 42.2 FEET SOUTH-SOUTHWEST OF THE WEST LEG OF A SIGNPOST, 35.8 FEET EAST-SOUTHEAST OF SOUTHBOUND INTERSTATE HIGHWAY 35, 18.0 FEET SOUTH-SOUTHWEST OF A CROSSOVER, 3.2 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
986.848	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
986.842	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
986.842	.016	2/1				VERTICAL CONTROL SURVEY	2009	VMOOSE

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
986.776	.262		896.504	.197	2007	GPS - RTRN	2012	RTRN2012
			896.468	.006	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
986.750	.262		896.478	.197	2007	GPS - RTRN	2012	RTRN2012
986.842	.131		896.563	.066	2007	HORIZONTAL ADJUSTMENT	2011	GPS2747
986.842	.131		896.563	.066	2007	GPS - STATIC	2010	HBRAH
986.842	.131		896.711	.066	1996	GPS - STATIC	2010	HBRAH
986.842	.131		896.563	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2566
986.842	.131		896.711	.066	1996	GPS - STATIC	2009	HMOOSE
986.842	.131		896.563	.066	2007	GPS - STATIC	2009	HMOOSE

Geoid Separations(ft): GEOID18 = -90.380 12B = -90.371 09 = -90.272 03 = -90.144

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 57 58.93777	92 57 30.61682	485121.717	186204.947	.003		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 57 58.93717	92 57 30.61721	485121.689	186204.886	.131	3	GPS - RTRN	2012	RTRN2012
45 57 58.93697	92 57 30.61732	485121.681	186204.866	.131	3	GPS - RTRN	2012	RTRN2012
45 57 58.93761	92 57 30.61728	485121.684	186204.931	.033	C	ADJUSTMENT	2011	GPS2747
45 57 58.93761	92 57 30.61728	485121.684	186204.931	.033	C	GPS - STATIC	2010	HBRAH
45 57 58.93761	92 57 30.61728	485121.684	186204.931	.033	C	ADJUSTMENT	2009	GPS2566
45 57 58.93761	92 57 30.61728	485121.684	186204.931	.033	C	GPS - STATIC	2009	HMOOSE

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 57 58.93750	92 57 30.61666	485121.728	186204.920	.033	C	GPS - STATIC	2010	HBRAH
45 57 58.93750	92 57 30.61666	485121.728	186204.920	.033	C	GPS - STATIC	2009	HMOOSE

SION MNDT RESET

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2953058.060	683149.664	1650964.629	16700465.268	.003		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2953058.034	683149.603	1650964.601	16700465.208	.131	3	GPS - RTRN	2012	RTRN2012
2953058.026	683149.582	1650964.593	16700465.187	.131	3	GPS - RTRN	2012	RTRN2012
2953058.028	683149.647	1650964.596	16700465.252	.033	C	ADJUSTMENT	2011	GPS2747
2953058.028	683149.647	1650964.596	16700465.252	.033	C	GPS - STATIC	2010	HBRAH
2953058.028	683149.647	1650964.596	16700465.252	.033	C	ADJUSTMENT	2009	GPS2566
2953058.028	683149.647	1650964.596	16700465.252	.033	C	GPS - STATIC	2009	HMOOSE

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2953058.072	683149.637	1650964.640	16700465.241	.033	C	GPS - STATIC	2010	HBRAH
2953058.072	683149.637	1650964.640	16700465.241	.033	C	GPS - STATIC	2009	HMOOSE

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/SION_RESET-DL4784-3E-10NOV2008.jpg	E	Nov 10, 2008
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/SION_RESET-DL4784-2-10NOV2008.jpg		Nov 10, 2008
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/SION_RESET-DL4784-1-10NOV2008.jpg		Nov 10, 2008

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

SNAKE MNDT

Mn/DOT Name: SNAKE MNDT
NGS Name: SNAKE
County: PINE, MN (Sheet 1)

NGS ACRN: QO0335 Get Map
NGS Quad / Sta Num : 45092443/1041
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	21	39 N	21 W	455049.18	925834.01	2	2

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1964	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
UNKNOWN	TRAVERSE STATION DISK	MNDT

Description: (1993) **Stamping:** SNAKE 1964

1.5 MILES NORTHWEST OF PINE CITY, 1.8 MILES NORTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 324, NEAR THE WEST END OF COUNTY ROAD 11 BRIDGE NUMBER 58805 OVER INTERSTATE HIGHWAY 35, 181.90 FEET NORTHWEST OF STATION 5880 L, 34.78 FEET NORTH-NORTHEAST OF SNAKE MNDT RM 2, 17.2 FEET NORTH OF COUNTY ROAD 11, 5.7 FEET SOUTHWEST OF A FENCE AND A RIGHT-OF-WAY POST, 3.8 FEET WEST OF THE NORTHWEST CORNER OF A BRIDGE, 2.7 FEET NORTH-NORTHEAST OF A GUARDRAIL.

Station Notes

IN 1993 THE GEODETIC UNIT COULD NOT FIND STATION SNAKE MNDT-STATION 5880 L
(SNAKE MNDT RM 1) AND SNAKE MNDT RM 2-A NEW BRIDGE WAS BUILT ABOUT 100.0 FEET NORTH OF AN OLD BRIDGE.
THIS WAS ALSO A NEW INTERCHANGE.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
967.032	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
966.786	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
966.786	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
966.875	.016	2				VERTICAL CONTROL SURVEY	1975	L23805

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
967.026	.197		876.360	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -90.925 12B = -90.899 09 = -90.833 03 = -90.708

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 50 49.18390	92 58 34.00735	480602.064	142674.680	.066	2	ADJUSTMENT	1999	17648
45 50 49.17941	92 58 34.01176	480601.751	142674.225	.066	2	ADJUSTMENT	1991	17497

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 50 49.17870	92 58 34.01295	480601.667	142674.153	.066	2	ADJUSTMENT	1986	17289

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 50 49.33773	92 58 33.26956			.100	2	CLASSICAL SURVEY	1973	14930

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2949281.182	639552.929	1646501.646	16656948.811	.066	2	ADJUSTMENT	1999	17648
2949280.877	639552.469	1646501.334	16656948.357	.066	2	ADJUSTMENT	1991	17497

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2949280.794	639552.396	1646501.250	16656948.285	.066	2	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2324676.246	311483.865			.100	2	CLASSICAL SURVEY	1973	14930

SNAKE MNDT AZ MK

Mn/DOT Name: SNAKE MNDT AZ MK
NGS Name: SNAKE AZ MK
County: PINE, MN (Sheet 1)

NGS ACRN: QO0334 Get Map
NGS Quad / Sta Num : 45092443/1042
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	21	39 N	21 W	455128.12	925816.47	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1964	2019	GOOD	Horz=YES Vert=YES	YES		PROJECTS 4 IN.	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	AZIMUTH MARK DISK	MNDT

Description: (1993) **Stamping:** SNAKE 1964

2.5 MILES NORTH OF PINE CITY, 2.6 MILES NORTH ON INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35-TRUNK HIGHWAY 324 AND COUNTY ROAD 7, 76.5 FEET EAST OF NORTHBOUND INTERSTATE HIGHWAY 35, AT INTERSTATE HIGHWAY 35 MILEPOINT 172.15, 23.5 FEET WEST OF A RIGHT-OF-WAY FENCE, 2.9 FEET WEST 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
956.819	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
956.819	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
956.819	.016	2/1				VERTICAL ADJUSTMENT	2009	00000425-36
956.819	.016	2/1				VERTICAL CONTROL SURVEY	2008	VFLEA
956.819	.016	2/1				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
956.570	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
956.570	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
956.570	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
956.658	.016	2				VERTICAL CONTROL SURVEY	1975	L23805

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
956.652	.262		865.914	.197	2007	GPS - RTRN	2012	RTRN2012
			865.992	.008	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			866.088	.009	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
			866.242	.066	1996	GPS - STATIC	1999	GPS917
956.822	.131		866.242	.066	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -90.830 12B = -90.807 09 = -90.738 03 = -90.613

SNAKE MNDT AZ MK

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 51 28.12377	92 58 16.47012	481847.118	146618.112	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 51 28.12328	92 58 16.47186	481846.995	146618.063	.131	3	GPS - RTRN	2012	RTRN2012
45 51 28.12388	92 58 16.47083	481847.067	146618.123	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 51 28.12374	92 58 16.47029	481847.107	146618.109	.033	C	GPS - STATIC	1999	GPS917
45 51 28.12374	92 58 16.47029	481847.106	146618.109	.033	C	ADJUSTMENT	1999	17648
45 51 28.11846	92 58 16.47498	481846.774	146617.575	.066	2	ADJUSTMENT	1991	17497

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 51 28.11887	92 58 16.46552	481847.442	146617.614	.033	C	GPS - STATIC	1994	HI35N
45 51 28.11779	92 58 16.47612	481846.692	146617.507	.066	2	ADJUSTMENT	1986	17289

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 51 28.27643	92 58 15.73487			.100	2	CLASSICAL SURVEY	1973	14930

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2950458.751	643516.637	1647741.189	16660892.030	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2950458.629	643516.585	1647741.066	16660891.980	.131	3	GPS - RTRN	2012	RTRN2012
2950458.701	643516.647	1647741.139	16660892.041	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2950458.739	643516.633	1647741.177	16660892.027	.033	C	GPS - STATIC	1999	GPS917
2950458.739	643516.633	1647741.177	16660892.027	.033	C	ADJUSTMENT	1999	17648
2950458.416	643516.093	1647740.845	16660891.492	.066	2	ADJUSTMENT	1991	17497

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2950459.085	643516.145	1647741.514	16660891.533	.033	C	GPS - STATIC	1994	HI35N
2950458.337	643516.024	1647740.765	16660891.424	.066	2	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2325853.664	315447.430			.100	2	CLASSICAL SURVEY	1973	14930

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/SNAKE_AZ_MK-QO0334-3E-20NOV2019.jpg	E	Nov 20, 2019
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/SNAKE_AZ_MK-QO0334-2-20NOV2019.jpg		Nov 20, 2019
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/SNAKE_AZ_MK-QO0334-1-20NOV2019.jpg		Nov 20, 2019

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

SNAKE MNDT RM 2

Mn/DOT Name: SNAKE MNDT RM 2 **NGS Name:** SNAKE RM 2

County: PINE, MN (Sheet 1)

NGS ACRN: QO0336 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	28	39 N	21 W	455048.75	925834.29	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1964	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
UNKNOWN	REFERENCE MARK DISK	MNDT

Description: (1993) **Stamping:** SNAKE 1964 NO. 2

1.5 MILES NORTHWEST OF PINE CITY, 1.8 MILES NORTH ON INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 324 IN PINE CITY, 4.0 MILES SOUTH OF COUNTY ROAD 14 EXIT AT BEROUN, 17.5 FEET SOUTH OF COUNTY ROAD 11, 7.5 FEET WEST OF THE WEST END OF COUNTY ROAD 11 BRIDGE NUMBER 58805 OVER INTERSTATE HIGHWAY 35, 8.0 FEET NORTHWEST OF THE END OF A FENCE POST, 2.5 FEET SOUTH OF A GUARDRAIL, 34.8 FEET SOUTH OF STATION SNAKE MNDT, 40.0 FEET SOUTH OF A WITNESS POST.

Station Notes

IN 1993 GEODETIC UNIT COULD NOT FIND THE STATION-NEW BRIDGE HAS BEEN BUILT ABOUT 100.0 FEET NORTH OF AN OLD BRIDGE. 9/50 NEW INTERCHANGE.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
967.321	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
967.075	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
967.167	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
967.167	.016	2				VERTICAL CONTROL SURVEY	1974	L23306

Geoid Separations(ft): GEOID18 = -90.928 12B = -90.905 09 = -90.836 03 = -90.715

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

SPIN MNDT

Mn/DOT Name: SPIN MNDT **NGS Name:** SPIN

County: PINE, MN (Sheet 1)

NGS ACRN: AH1787 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	5	38 N	21 W	454824.17	925921.49	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1993	2020	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 43 FT)	SURVEY DISK	MNDT

Description: (2012) **Stamping:** SPIN 1993

1.25 MILES SOUTHWEST OF PINE CITY, 1.1 MILES SOUTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND COUNTY ROAD 7, AT INTERSTATE HIGHWAY 35 MILEPOINT 168.45, 31.9 FEET EAST-SOUTHEAST OF SOUTHBOUND INTERSTATE HIGHWAY 35, 63.0 FEET NORTH OF A POWER LINE, 4.0 FEET WEST 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
991.133	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
991.133	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
991.166	.262		899.939	.197	2011	GPS - OPUS	2020	GPSBM
991.025	.262		899.821	.197	2011	GPS - RTRN	2020	RTRN2020
991.002	.262		899.867	.197	2007	GPS - RTRN	2012	RTRN2012
			899.906	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			900.005	.009	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
			900.129	.066	1996	GPS - STATIC	1999	GPS917

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
990.910						GPS - STATIC	1994	HORZ

Geoid Separations(ft): GEOID18 = -91.227 12B = -91.204 09 = -91.135 03 = -91.004

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 48 24.16748	92 59 21.49278	477223.915	127988.152	.131	3	GPS - OPUS	2020	GPSBM
45 48 24.16688	92 59 21.49232	477223.947	127988.091	.131	3	GPS - RTRN	2020	RTRN2020
45 48 24.16750	92 59 21.49300	477223.899	127988.154	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 48 24.16754	92 59 21.49344	477223.868	127988.158	.131	3	GPS - RTRN	2012	RTRN2012
45 48 24.16757	92 59 21.49369	477223.850	127988.161	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 48 24.16763	92 59 21.49313	477223.890	127988.167	.033	C	GPS - STATIC	1999	GPS917

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 48 24.16352	92 59 21.48935	477224.157	127987.749	.033	C	GPS - STATIC	1994	HI35N

SPIN MNDT

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2946154.052	624812.309	1643143.466	16642264.688	.131	3	GPS - OPUS	2020	GPSBM
2946154.085	624812.249	1643143.498	16642264.627	.131	3	GPS - RTRN	2020	RTRN2020
2946154.036	624812.311	1643143.451	16642264.690	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2946154.005	624812.315	1643143.419	16642264.694	.131	3	GPS - RTRN	2012	RTRN2012
2946153.987	624812.318	1643143.402	16642264.697	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2946154.027	624812.325	1643143.441	16642264.704	.033	C	GPS - STATIC	1999	GPS917

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2946154.301	624811.912	1643143.709	16642264.287	.033	C	GPS - STATIC	1994	HI35N

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/SPIN-AH1787-3E-06MAY2020.jpg	E	May 6, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/SPIN-AH1787-2-06MAY2020.jpg		May 6, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/SPIN-AH1787-1-06MAY2020.jpg		May 6, 2020

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

Mn/DOT Name: ST CROIX **NGS Name:** ST CROIX

County: PINE, MN (Sheet 1)

NGS ACRN: QO1551 Get Map
NGS Quad / Sta Num : 45092414/1019
USGS Quad: LAKE CLAYTON

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	33	40 N	19 W	455414.43	924348.34		3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2007	GOOD	Horz=NO Vert=YES	YES		PROJECTS 0 IN.	SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	TRIANGULATION STATION DISK	NGS

Description: (2007) **Stamping:** ST CROIX 1961

12.0 MILES NORTHEAST OF PINE CITY, 5.0 MILES SOUTH ON COUNTY ROAD 22 FROM THE JUNCTION OF COUNTY ROAD 22 AND TRUNK HIGHWAY 48 TO THE SAINT CROIX STATE PARK OFFICE, THEN SOUTH 50.0 FEET TO THE CROSSROADS, THEN 0.1 MILE WEST ON A ROAD TO A FORK, THEN 4.65 MILES WEST TO A ROAD FORK, THEN 1.55 MILES WEST ON A RIGHT FORK, THEN SOUTH ON MAIN ROAD CROSSING BEAR CREEK, THEN 1.5 MILES SOUTH TO A SIDE ROAD RIGHT, THEN 2.5 MILES SOUTH ON A ROAD TO A PARKING AREA OF THE STATE PARK, 72.0 FEET NORTHEAST OF A KETTLE RIVER SIGN, 46.0 FEET NORTHEAST OF THE JUNCTION OF A GRAVEL ROAD AND A DRIVEWAY, 35.0 FEET EAST OF A GRAVEL ROAD, 76.18 FEET EAST OF ST CROIX RM 1, 2.0 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
875.982	.262		787.889	.197	1996	HORIZONTAL ADJUSTMENT	1999	17648

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
876.015						RECIPROCAL VERTICAL ANGLE	1961	HORZ

Geoid Separations(ft): GEOID18 = -88.222 12B = -88.268 09 = -88.199 03 = -88.103

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 54 14.42975	92 43 48.33863	543257.209	163502.924	.131	3	ADJUSTMENT	1999	17648
45 54 14.42689	92 43 48.33496	543257.469	163502.634	.131	3	ADJUSTMENT	1991	17497

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 54 14.42334	92 43 48.33614	543257.386	163502.274	.131	3	ADJUSTMENT	1986	17289

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 54 14.59520	92 43 47.61510			.100	3	CLASSICAL SURVEY	1961	12611

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3011566.294	661444.108	1709102.717	16677846.092	.131	3	ADJUSTMENT	1999	17648
3011566.559	661443.823	1709102.978	16677845.804	.131	3	ADJUSTMENT	1991	17497

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3011566.483	661443.462	1709102.895	16677845.444	.131	3	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2386962.110	333376.264			.100	3	CLASSICAL SURVEY	1961	12611

ST CROIX

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ST_CROIX-QO1551-3E-25APR2007.jpg	E	Apr 25, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ST_CROIX-QO1551-2-25APR2007.jpg		Apr 25, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ST_CROIX-QO1551-1-25APR2007.jpg		Apr 25, 2007

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

ST CROIX RM 1

Mn/DOT Name: ST CROIX RM 1 **NGS Name:** ST CROIX RM 1

County: PINE, MN (Sheet 1)

NGS ACRN: CJ4725 Get Map
NGS Quad / Sta Num : 45092414/1019
USGS Quad: LAKE CLAYTON

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	33	40 N	19 W	455414.69	924349.35		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2007	GOOD	Horz=NO Vert=YES	YES		PROJECTS 2 IN.	STEEL SPIKE ADJ TO MON

Monument Type
CONCRETE MONUMENT (CAST-IN-PLACE)

Disk Type
REFERENCE MARK DISK

Mon. Agency
NGS

Description: (2008)

Stamping: ST CROIX NO 1 1961

12.0 MILES NORTHEAST OF PINE CITY, 5.0 MILES SOUTH ON COUNTY ROAD 22 FROM THE JUNCTION OF COUNTY ROAD 22 AND TRUNK HIGHWAY 48 TO THE SAINT CROIX STATE PARK OFFICE, THEN SOUTH 50.0 FEET TO THE CROSSROADS, THEN STAY ON THE MAIN ROAD UNTIL UP TO KETTLE RIVER OUTLOOK PARKING LOT, 87.0 FEET NORTH OF THE KETTLE RIVER OUTLOOK SIGN, 33.0 FEET WEST OF THE CENTERLINE OF THE ROAD, 8.0 FEET EAST OF AN 8.0 INCH DIAMETER BIRCH TREE.

Station Notes
THE MARK IS A WEST SOUTHWEST GRAVEL ROAD.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -88.225 12B = -88.268 09 = -88.202 03 = -88.103

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ST_CROIX_RM_1-CJ4725-3W-25APR2007.jpg	W	Apr 25, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ST_CROIX_RM_1-CJ4725-2-25APR2007.jpg		Apr 25, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ST_CROIX_RM_1-CJ4725-1-25APR2007.jpg		Apr 25, 2007

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

ST CROIX RM 3

Mn/DOT Name: ST CROIX RM 3 **NGS Name:** ST CROIX RM 3

County: PINE, MN (Sheet 1)

NGS ACRN: CJ4727 Get Map
NGS Quad / Sta Num : 45092414/1019
USGS Quad: LAKE CLAYTON

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	33	40 N	19 W	455418.38	924347.08		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2008	GOOD	Horz=NO Vert=YES	YES		PROJECTS 2 IN.	SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	NGS

Description: (2008) **Stamping:** ST CROIX NO 3 1961

12.0 MILES NORTHEAST OF PINE CITY, 5.0 MILES SOUTH ON COUNTY ROAD 22 FROM THE JUNCTION OF COUNTY ROAD 22 AND TRUNK HIGHWAY 48 TO THE SAINT CROIX STATE PARK OFFICE, THEN 50.0 FEET SOUTH TO THE CROSSROADS, THEN 0.1 MILE WEST ON A ROAD TO A FORK, THEN 4.65 MILES WEST TO A ROAD FORK, THEN 1.55 MILES WEST ON A RIGHT FORK, THEN SOUTH ON MAIN ROAD CROSSING BEAR CREEK, THEN 1.5 MILES SOUTH TO A SIDE ROAD RIGHT, THEN 2.5 MILES SOUTH ON A ROAD TO A PARKING AREA OF THE STATE PARK, 400.0 FEET NORTH ON A TRAIL FROM GATE 23, 12.0 FEET WEST OF THE CENTERLINE OF A FIRE LANE, 1.0 FOOT SOUTHWEST OF A WITNESS POST.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -88.205 12B = -88.251 09 = -88.186 03 = -88.087

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ST_CROIX_RM_3-CJ4727-3W-16OCT2008.jpg	W	Oct 16, 2008
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ST_CROIX_RM_3-CJ4727-2-16OCT2008.jpg		Oct 16, 2008
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ST_CROIX_RM_3-CJ4727-1-16OCT2008.jpg		Oct 16, 2008

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

ST CROIX STATE PARK LOT

Mn/DOT Name: ST CROIX STATE PARK LOT
NGS Name: ST CROIX STATE PARK LOT
County: PINE, MN (Sheet 1)

NGS ACRN: QO1552 Get Map
NGS Quad / Sta Num : 45092414/1024
USGS Quad: LAKE CLAYTON

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	16	40 N	19 W	455658.48	924337.24		4

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2008	GOOD	Horz=NO Vert=NO	YES			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
BLANK	LOOKOUT TOWER	NGS

Description: (2008)
Stamping:

13.0 MILES NORTHEAST OF PINE CITY, IN A STATE PARK. FIRE LOOKOUT TOWER.

*** No Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -88.140 12B = -88.186 09 = -88.117 03 = -88.028

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 56 58.47991	92 43 37.24467	544005.644	180122.900	.328	4	ADJUSTMENT	1999	17648
45 56 58.47574	92 43 37.24134	544005.880	180122.478	.328	4	ADJUSTMENT	1991	17497

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 56 58.47254	92 43 37.24216	544005.823	180122.154	.328	4	ADJUSTMENT	1986	17289

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 56 58.64800	92 43 36.52600			.100	4	CLASSICAL SURVEY	1961	12611

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3012031.154	678072.792	1709830.080	16694459.672	.328	4	ADJUSTMENT	1999	17648
3012031.398	678072.374	1709830.317	16694459.250	.328	4	ADJUSTMENT	1991	17497

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3012031.346	678072.049	1709830.260	16694458.926	.328	4	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2387426.604	350005.108			.100	4	CLASSICAL SURVEY	1961	12611

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ST_CROIX_STATE_PARK_LOT-QO1552-3N-23OCT2008.jpg	N	Oct 23, 2008
Monument:			
Disk:			

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

STENSRUD MNDT

Mn/DOT Name: STENSRUD MNDT **NGS Name:** STENSRUD

County: PINE, MN (Sheet 1)

NGS ACRN: QO0320 Get Map
NGS Quad / Sta Num : 45092444/1044
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	33	40 N	21 W	455502.67	925758.30	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1964	2012	GOOD	Horz=NO Vert=YES	YES		FLUSH	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	TRAVERSE STATION DISK	MNDT

Description: (1993) **Stamping:** STENSRUD 1964

0.9 MILE NORTHWEST OF BEROUN, 0.9 MILE NORTH ON INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND COUNTY ROAD 14 IN BEROUN, 98.0 FEET EAST OF NORTHBOUND INTERSTATE HIGHWAY 35, AT INTERSTATE HIGHWAY 35 MILEPOINT 176.20, 2.2 FEET WEST OF A RIGHT-OF-WAY FENCE, 48.02 FEET SOUTH OF STENSRUD MNDT RM 1, 48.25 FEET NORTH OF STENSRUD MNDT RM 2, THE DISTANCE BETWEEN STENSRUD MNDT RM 1 AND STENSRUD MNDT RM 2 IS 96.27 FEET, 2.8 FEET NORTHWEST 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
977.364	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
977.360	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
977.518	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
977.245	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
977.245	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
977.259	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
977.327	.016	2				VERTICAL CONTROL SURVEY	1975	L23805
977.344	.016	2				VERTICAL CONTROL SURVEY	1974	L23306

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
977.278	.262		886.806	.197	2007	GPS - RTRN	2012	RTRN2012
			886.517	.010	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			886.619	.010	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
			887.196	.066	1996	GPS - STATIC	1999	GPS917
977.524	.131		887.196	.066	1996	HORIZONTAL ADJUSTMENT	1999	17648

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
976.901						GPS - STATIC	1994	HORZ

Geoid Separations(ft): GEOID18 = -90.564 12B = -90.548 09 = -90.472 03 = -90.338

STENSRUD MNDT

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 55 02.67417	92 57 58.29867	483151.373	168350.901	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 55 02.67420	92 57 58.30084	483151.219	168350.904	.131	3	GPS - RTRN	2012	RTRN2012
45 55 02.67427	92 57 58.29941	483151.320	168350.911	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 55 02.67412	92 57 58.29879	483151.363	168350.897	.033	C	GPS - STATIC	1999	GPS917
45 55 02.67412	92 57 58.29879	483151.364	168350.896	.033	C	ADJUSTMENT	1999	17648
45 55 02.66797	92 57 58.30331	483151.044	168350.273	.066	2	ADJUSTMENT	1991	17497

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 55 02.66851	92 57 58.29375	483151.721	168350.326	.033	C	GPS - STATIC	1994	HI35N
45 55 02.66736	92 57 58.30412	483150.987	168350.211	.066	2	ADJUSTMENT	1986	17289

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 55 02.82760	92 57 57.56633			.100	2	CLASSICAL SURVEY	1973	14930

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951392.404	665266.417	1649017.578	16682616.708	.010		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951392.251	665266.418	1649017.424	16682616.710	.131	3	GPS - RTRN	2012	RTRN2012
2951392.352	665266.427	1649017.525	16682616.718	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951392.396	665266.412	1649017.569	16682616.703	.033	C	GPS - STATIC	1999	GPS917
2951392.396	665266.412	1649017.569	16682616.703	.033	C	ADJUSTMENT	1999	17648
2951392.086	665265.784	1649017.250	16682616.080	.066	2	ADJUSTMENT	1991	17497

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951392.762	665265.850	1649017.926	16682616.135	.033	C	GPS - STATIC	1994	HI35N
2951392.030	665265.722	1649017.193	16682616.018	.066	2	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2326787.094	337197.153			.100	2	CLASSICAL SURVEY	1973	14930

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/STENSRUD-QO0320-3E-05JUN2007.jpg	E	Jun 5, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/STENSRUD-QO0320-2-05JUN2007.jpg		Jun 5, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/STENSRUD-QO0320-1-05JUN2007.jpg		Jun 5, 2007

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

STENSRUD MNDT RM 1

Mn/DOT Name: STENSRUD MNDT RM 1 **NGS Name:** STENSRUD RM 1

County: PINE, MN (Sheet 1)

NGS ACRN: QO0319 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	33	40 N	21 W	455503.15	925758.29	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1964	2012	GOOD	Horz=NO Vert=YES	YES		FLUSH	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	MNDT

Description: (2007) **Stamping:** STENSRUD NO 1 1964

0.9 MILE NORTHWEST OF BEROUN, 0.9 MILE NORTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND COUNTY ROAD 14 IN BEROUN, 97.8 FEET EAST OF NORTHBOUND INTERSTATE HIGHWAY 35, AT INTERSTATE HIGHWAY 35 MILEPOINT 176.3, 350.0 FEET SOUTH OF A CROSSOVER, 144.0 FEET SOUTH OF A HIGHWAY SIGN, 48.02 FEET NORTH OF STATION STENSRUD MNDT, 96.27 FEET NORTH OF STENSRUD MNDT RM 2, 2.2 FEET WEST OF A FENCE, 50.0 FEET NORTH OF A WITNESS POST, 2.0 FEET WEST 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
977.577	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
977.574	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
977.675	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
977.403	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
977.403	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
977.403	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
977.482	.016	2				VERTICAL CONTROL SURVEY	1975	L23805
977.495	.016	2				VERTICAL CONTROL SURVEY	1974	L23306

Geoid Separations(ft): GEOID18 = -90.564 12B = -90.548 09 = -90.472 03 = -90.338

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

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/STENSRUD_RM_1-QO0319-3E-05JUN2007.jpg	E	Jun 5, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/STENSRUD_RM_1-QO0319-2-05JUN2007.jpg		Jun 5, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/STENSRUD_RM_1-QO0319-1-05JUN2007.jpg		Jun 5, 2007

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

STENSRUD MNDT RM 2

Mn/DOT Name: STENSRUD MNDT RM 2 **NGS Name:** STENSRUD RM 2

County: PINE, MN (Sheet 1)

NGS ACRN: QO0321 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	33	40 N	21 W	455502.20	925758.31	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1964	2012	GOOD	Horz=NO Vert=YES	YES		FLUSH	STEEL SPIKE ADJ TO MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	REFERENCE MARK DISK	MNDT

Description: (2007) **Stamping:** STENSRUD NO 2 1964

0.9 MILE NORTHWEST OF BEROUN, 0.9 MILE NORTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND COUNTY ROAD 14 IN BEROUN, 97.5 FEET EAST OF NORTHBOUND INTERSTATE HIGHWAY 35, AT INTERSTATE HIGHWAY 35 MILEPOINT 176.3, 450.0 FEET SOUTH OF A CROSSOVER, 240.0 FEET SOUTH OF A HIGHWAY SIGN, 48.25 FEET SOUTH OF STATION STENSRUD MNDT, 96.27 FEET SOUTH OF STENSRUD MNDT RM 1, 2.2 FEET EAST OF A FENCE, 47.5 FEET SOUTH OF A WITNESS POST, 2.0 FEET WEST 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
977.656	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
977.652	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
977.803	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
977.531	.016	2/0				UNKNOWN/APPROXIMATE	1992	UNCHECKD
977.531	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
977.531	.016	2				VERTICAL CONTROL SURVEY	1976	L23805
977.610	.016	2				VERTICAL CONTROL SURVEY	1975	L23805
977.613	.016	2				VERTICAL CONTROL SURVEY	1974	L23306

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
977.708	.262		887.236	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -90.564 12B = -90.548 09 = -90.472 03 = -90.338

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 55 02.19864	92 57 58.30728	483150.724	168302.730	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951392.577	665218.247	1649016.990	16682568.558	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/STENSRUD_RM_2-QO0321-3W-12DEC2007.jpg	W	Dec 12, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/STENSRUD_RM_2-QO0321-2-12DEC2007.jpg		Dec 12, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/STENSRUD_RM_2-QO0321-1-12DEC2007.jpg		Dec 12, 2007

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

SW CORNER OF A BARN

Mn/DOT Name: SW CORNER OF A BARN
NGS Name: SW CORNER OF A BARN
County: PINE, MN (Sheet 1)

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	29	38 N	22 W	454447.00	930637.00		

NGS ACRN: CJ4759 Get Map
NGS Quad / Sta Num : 45093121/
USGS Quad: RUSH LAKE

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
	2008	GOOD	Horz=NO Vert=NO	YES			NO MAG MATERIAL

Monument Type	Disk Type	Mon. Agency
SEE DESCRIPTIVE TEXT	SEE DESCRIPTION	UNK

Description:

4.0 MILES SOUTHEAST OF GRASSTON, 3.0 MILES NORTHEAST OF BRAHAM, 1.5 MILES EAST ALONG TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 70 AND TRUNK HIGHWAY 107, THEN 1.0 MILE SOUTH ALONG COUNTY ROAD 101, THEN 0.7 MILE EAST ALONG COUNTY ROAD 102, THEN NORTH 0.05 MILE ALONG A FARM DRIVE NORTH (FIRE NUMBER 4435), 40.5 FEET NORTH-NORTHWEST FROM LUCHT RM 1, 25.0 FEET EAST OF A SHED, 20.0 FEET NORTHWEST OF A SILO.

Stamping:

Station Notes

THE MONUMENT IS ON THE CORNER OF A WOOD BARN. THE SURVEY MARK IS ON PRIVATE PROPERTY AND HAS BEEN ABANDONED FOR MNDOT GEODETIC USE.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -92.287 12B = -92.290 09 = -92.188 03 = -92.037

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/SW_CORNER_OF_A_BARN-CJ4759-3NE-30SEP2008.jpg	NE	Sep 30, 2008
Monument:			
Disk:			

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

SW CORNER OF A FRAME HOUSE

Mn/DOT Name: SW CORNER OF A FRAME HOUSE

NGS Name: SW CORNER OF A FRAME HOUSE

County: PINE, MN (Sheet 1)

NGS ACRN: CJ2870 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	7	41 N	20 W	460233.54	925544.68		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
	2010	UNKNOWN	Horz=? Vert=?	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
SEE DESCRIPTIVE TEXT	UNSPECIFIC DISK TYPE (SEE TEXT)	UNK

Description:

2.1 MILES NORTHEAST OF HINCKLEY, 1.8 MILES NORTHWEST ALONG COUNTY ROAD 61 FROM THE JUNCTION OF COUNTY ROAD 61 AND COUNTY ROAD 18 IN HINCKLEY.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.161 12B = -90.167 09 = -90.042 03 = -89.921

SW CORNER OF RAILROAD DEPOT

Mn/DOT Name: SW CORNER OF RAILROAD DEPOT

NGS Name: SW CORNER OF RAILROAD DEPOT

County: PINE, MN (Sheet 1)

NGS ACRN: CJ4761 Get Map
NGS Quad / Sta Num : 45093112/
USGS Quad: HENRIETTE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	17	39 N	22 W	455216.85	930701.81		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
	2010	UNKNOWN	Horz=? Vert=?	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
SEE DESCRIPTIVE TEXT	UNSPECIFIC DISK TYPE (SEE TEXT)	UNK

Description:

IN HENRIETTE, 58.0 FEET NORTHEAST OF STATION HENRIETTE.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -91.624 12B = -91.617 09 = -91.525 03 = -91.378

TBM 05 1 L23306

Mn/DOT Name: TBM 05 1 L23306 **NGS Name:** TBM 05 1

County: PINE, MN (Sheet 1)

NGS ACRN: AM1449 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	34	40 N	21 W	455434.00	925734.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1974	1974	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

6.0 MILES NORTH OF PINE CITY, 0.7 MILE ALONG TRUNK HIGHWAY 7 FROM THE JUNCTION OF TRUNK HIGHWAY 7 AND TRUNK HIGHWAY 35, 6.2 MILES NORTH ON TRUNK HIGHWAY 61, 30.0 FEET WEST OF TRUNK HIGHWAY 61.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.528 12B = -90.508 09 = -90.439 03 = -90.308

TBM 11 A L23805

Mn/DOT Name: TBM 11 A L23805 **NGS Name:** TBM 11 A

County: PINE, MN (Sheet 1)

NGS ACRN: AL9406 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	9	39 N	21 W	455249.00	925807.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1975	1975	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

4.0 MILES NORTH OF PINE CITY, 4.1 MILES NORTH ALONG TRUNK HIGHWAY 35 FROM THE JUNCTION OF TRUNK HIGHWAY 35 AND TRUNK HIGHWAY 7, 40.0 FEET WEST OF TRUNK HIGHWAY 35.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.708 12B = -90.695 09 = -90.623 03 = -90.495

TBM 12 A L23805

Mn/DOT Name: TBM 12 A L23805 **NGS Name:** TBM 12 A

County: PINE, MN (Sheet 1)

NGS ACRN: AL9407 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	4	39 N	21 W	455355.00	925759.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1975	1975	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

5.25 MILES NORTH OF PINE CITY, 1.3 MILES NORTH ON COUNTY ROAD 61 (MAIN STREET SOUTH) FROM THE JUNCTION OF MAIN STREET SOUTH AND 2ND AVENUE SOUTHWEST, 0.3 MILE WEST ON HENRIETTE ROAD NORTHWEST, THEN 3.6 MILES NORTH ON INTERSTATE HIGHWAY 35 N, 70.62 FEET EAST FROM THE CENTERLINE OF INTERSTATE HIGHWAY 35 N.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.626 12B = -90.610 09 = -90.538 03 = -90.403

TBM 15 A L23306

Mn/DOT Name: TBM 15 A L23306 **NGS Name:** TBM 15 A

County: PINE, MN (Sheet 1)

NGS ACRN: AM1439 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	29	41 N	20 W	460022.00	925358.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1974	1974	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

IN HINCKLEY, 1.8 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND TRUNK HIGHWAY 35, THEN 0.5 MILE SOUTH ON TRUNK HIGHWAY 15, 600.0 FEET NORTHWEST OF TRUNK HIGHWAY 15.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -89.911 12B = -89.895 09 = -89.793 03 = -89.698

TBM 22 A L23805

Mn/DOT Name: TBM 22 A L23805 **NGS Name:** TBM 22 A

County: PINE, MN (Sheet 1)

NGS ACRN: AL9402 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	8	38 N	21 W	454737.00	925924.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1975	1975	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

2.3 MILES SOUTHWEST OF PINE CITY, 2.0 MILES SOUTH ALONG TRUNK HIGHWAY 35 FROM THE JUNCTION OF TRUNK HIGHWAY 35 AND TRUNK HIGHWAY 7, 100.0 FEET WEST OF TRUNK HIGHWAY 35.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -91.292 12B = -91.270 09 = -91.201 03 = -91.073

TBM 35 C L22190-3

Mn/DOT Name: TBM 35 C L22190-3 **NGS Name:** TBM 35 C

County: PINE, MN (Sheet 1)

NGS ACRN: QO0252 Get Map
NGS Quad / Sta Num : 45092434/
USGS Quad: RUSH CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	32	38 N	21 W	454355.00	925911.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1968	1968	GOOD	Horz=NO Vert=NO	NO			STEEL ROD IMBED IN MON

Monument Type	Disk Type	Mon. Agency
STRUCTURE (LIGHT - WOOD FRAME OR METAL)	SPIKE	MNDT

Description: (1968)

Stamping:

3.5 MILES NORTHWEST OF RUSH CITY, 221.0 FEET EAST OF THE CENTERLINE OF NORTHBOUND INTERSTATE HIGHWAY 35, 250.0 FEET NORTH OF 540TH STREET, STATION TBM 35 C L22190-3 IS A RAILROAD SPIKE IN THE SOUTHWEST BASE OF A 24.0 INCH DIAMETER ELM TREE.

Station Notes

THIS MARK MAY ALSO BE TBM 35 C (AO1564).

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
956.701	.007	1/1				UNKNOWN/APPROXIMATE	1992	UNCHECKD

Geoid Separations(ft): GEOID18 = -91.611 12B = -91.581 09 = -91.529 03 = -91.394

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

TBM 361 A L23306

Mn/DOT Name: TBM 361 A L23306 **NGS Name:** TBM 361 A

County: PINE, MN (Sheet 1)

NGS ACRN: AM1453 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	4	38 N	21 W	454900.00	925831.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1974	1974	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

IN PINE CITY, 0.6 MILE EAST ALONG TRUNK HIGHWAY 7 FROM THE JUNCTION OF TRUNK HIGHWAY 7 AND TRUNK HIGHWAY 35, THEN 0.1 MILE SOUTH ON 8TH STREET SOUTHWEST, THEN 360.0 FEET WEST ON JOHNSON AVENUE SOUTHWEST, THEN 190.0 FEET WEST OF 9TH STREET SOUTHWEST.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -91.040 12B = -91.014 09 = -90.951 03 = -90.823

TBM 4 L3440

Mn/DOT Name: TBM 4 L3440 **NGS Name:** TBM 4

County: PINE, MN (Sheet 1)

NGS ACRN: BI8999 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	12	41 N	21 W	460307.00	925615.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1934	1934	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	NGS

Description:

2.55 MILES NORTH OF HINCKLEY, 2.1 MILES NORTH ALONG TRUNK HIGHWAY 61 FROM THE JUNCTION OF TRUNK HIGHWAY 61/OLD HIGHWAY 61 AND TRUNK HIGHWAY 62.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.226 12B = -90.233 09 = -90.111 03 = -89.977

TBM 48 A L23306

Mn/DOT Name: TBM 48 A L23306 **NGS Name:** TBM 48 A

County: PINE, MN (Sheet 1)

NGS ACRN: AM1437 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	30	41 N	20 W	460039.00	925525.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1974	1974	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

0.79 MILE EAST-SOUTHEAST OF HINCKLEY, 0.6 MILE EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND MCGOWAN AVENUE.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.102 12B = -90.098 09 = -89.980 03 = -89.872

TBM 48 B L23306

Mn/DOT Name: TBM 48 B L23306 **NGS Name:** TBM 48 B

County: PINE, MN (Sheet 1)

NGS ACRN: AM1438 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	30	41 N	20 W	460039.00	925455.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1974	1974	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

1.17 MILES WEST OF HINCKLEY, 0.1 MILE SOUTH ALONG COUNTY HIGHWAY 61 FROM THE JUNCTION OF COUNTY HIGHWAY 61 AND 3RD STREET SOUTHWEST/3RD STREET SOUTHEAST, 0.51 MILES EAST ON COUNTY HIGHWAY 61 SPUR, THEN CONTINUE 0.84 MILE EAST ON TRUNK HIGHWAY 48, 108.52 FEET SOUTH FROM THE CENTERLINE OF TRUNK HIGHWAY 48.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.042 12B = -90.033 09 = -89.921 03 = -89.816

TBM 5 L3440

Mn/DOT Name: TBM 5 L3440 **NGS Name:** TBM 5

County: PINE, MN (Sheet 1)

NGS ACRN: BI9000 Get Map
NGS Quad / Sta Num : 45093114/
USGS Quad: QUAMBA

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	30	40 N	22 W	455546.00	930822.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1934	1934	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	NGS

Description:

1.89 MILES NORTHEAST OF QUAMBA, 1.9 MILES NORTHEAST ALONG COUNTY ROAD 23 FROM THE JUNCTION OF COUNTY ROAD 23 AND COUNTY ROAD 5/QUARTER STREET.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -91.345 12B = -91.338 09 = -91.247 03 = -91.082

TBM 58 1 L24016

Mn/DOT Name: TBM 58 1 L24016 **NGS Name:** TBM 58 1

County: PINE, MN (Sheet 1)

NGS ACRN: AK9863 Get Map
NGS Quad / Sta Num : 45092434/
USGS Quad: RUSH CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	32	38 N	21 W	454410.00	925929.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1975	1975	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

4.0 MILES NORTH OF RUSH CITY, 3.6 MILES NORTH ON TRUNK HIGHWAY 35, FROM THE JUNCTION OF TRUNK HIGHWAY 35 AND TRUNK HIGHWAY 1, 100.0 FEET EAST OF TRUNK HIGHWAY 35.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -91.594 12B = -91.565 09 = -91.509 03 = -91.378

TBM 58 10 L23306

Mn/DOT Name: TBM 58 10 L23306 **NGS Name:** TBM 58 10

County: PINE, MN (Sheet 1)

NGS ACRN: AM1452 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	21	39 N	21 W	455114.00	925822.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1974	1974	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

2.2 MILES NORTH OF PINE CITY, 2.3 MILES NORTH ALONG TRUNK HIGHWAY 35 FROM THE JUNCTION OF TRUNK HIGHWAY 35 AND TRUNK HIGHWAY 7, 110.0 FEET WEST OF TRUNK HIGHWAY 35.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.863 12B = -90.840 09 = -90.768 03 = -90.646

TBM 58 10 L23805

Mn/DOT Name: TBM 58 10 L23805 **NGS Name:** TBM 58 10

County: PINE, MN (Sheet 1)

NGS ACRN: AL9405 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	21	39 N	21 W	455114.00	925822.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1975	1975	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

2.3 MILES NORTH OF PINE CITY, 2.4 MILES NORTH ALONG TRUNK HIGHWAY 35 FROM THE JUNCTION OF TRUNK HIGHWAY 35 AND TRUNK HIGHWAY 7, 110.0 FEET WEST OF TRUNK HIGHWAY 35.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.863 12B = -90.840 09 = -90.768 03 = -90.646

TBM 58 11 L23306

Mn/DOT Name: TBM 58 11 L23306 **NGS Name:** TBM 58 11

County: PINE, MN (Sheet 1)

NGS ACRN: AM1451 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	9	39 N	21 W	455245.00	925807.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1974	1974	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

3.9 MILES NORTH OF PINE CITY, 1.2 MILES NORTH ALONG COUNTY HIGHWAY 61 (MAIN STREET SOUTH) FROM THE JUNCTION OF MAIN STREET SOUTH AND 2ND AVENUE SOUTHWEST, 0.3 MILE WEST ON HENRIETTE ROAD NORTHWEST, THEN 2.3 MILES NORTH ON INTERSTATE HIGHWAY 35 N.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.715 12B = -90.699 09 = -90.626 03 = -90.499

TBM 58 12 L23306

Mn/DOT Name: TBM 58 12 L23306 **NGS Name:** TBM 58 12

County: PINE, MN (Sheet 1)

NGS ACRN: AM1450 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	4	39 N	21 W	455353.00	925759.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1974	1974	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

5.2 MILES NORTH OF PINE CITY, 1.3 MILES NORTH ALONG COUNTY HIGHWAY 61 (MAIN STREET SOUTH) FROM THE JUNCTION OF MAIN STREET SOUTH AND 2ND AVENUE SOUTHWEST, 0.3 MILE WEST ON HENRIETTE ROAD NORTHWEST, THEN 3.6 MILES NORTH ON INTERSTATE HIGHWAY 35 N, ABOUT 70.96 FEET EAST FROM THE CENTERLINE OF INTERSTATE HIGHWAY 35 N.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.626 12B = -90.610 09 = -90.538 03 = -90.407

TBM 58 13 L23306

Mn/DOT Name: TBM 58 13 L23306 **NGS Name:** TBM 58 13

County: PINE, MN (Sheet 1)

NGS ACRN: AM1448 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	33	40 N	21 W	455446.00	925759.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1974	1974	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

0.57 MILE WEST OF BEROUN, 0.6 MILE NORTH ALONG TRUNK HIGHWAY INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF TRUNK HIGHWAY INTERSTATE HIGHWAY 35 AND COUNTY ROAD 14/BEROUN CROSSING ROAD.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.581 12B = -90.564 09 = -90.489 03 = -90.354

TBM 58 13 L23805

Mn/DOT Name: TBM 58 13 L23805 **NGS Name:** TBM 58 13

County: PINE, MN (Sheet 1)

NGS ACRN: AL9408 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	33	40 N	21 W	455446.00	925759.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1975	1975	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

6.2 MILES NORTH OF PINE CITY, 6.3 MILES NORTH ALONG TRUNK HIGHWAY 35 FROM THE JUNCTION OF TRUNK HIGHWAY 35 AND TRUNK HIGHWAY 7, 60.0 FEET EAST OF TRUNK HIGHWAY 35.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.581 12B = -90.564 09 = -90.489 03 = -90.354

TBM 58 2 L24016

Mn/DOT Name: TBM 58 2 L24016 **NGS Name:** TBM 58 2

County: PINE, MN (Sheet 1)

NGS ACRN: AK9864 Get Map
NGS Quad / Sta Num : 45092434/
USGS Quad: RUSH CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	29	38 N	21 W	454459.00	925927.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1975	1975	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

4.6 MILES NORTH OF RUSH CITY, 4.5 MILES NORTH ALONG TRUNK HIGHWAY 35 FROM THE JUNCTION OF TRUNK HIGHWAY 35 AND TRUNK HIGHWAY 1, 200.0 FEET WEST OF TRUNK HIGHWAY 35.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -91.522 12B = -91.493 09 = -91.434 03 = -91.306

TBM 58 20 L23306

Mn/DOT Name: TBM 58 20 L23306 **NGS Name:** TBM 58 20

County: PINE, MN (Sheet 1)

NGS ACRN: AM1454 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	5	38 N	21 W	454859.00	925904.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1974	1974	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

0.75 MILE SOUTHWEST OF PINE CITY, 0.4 MILE SOUTH ALONG TRUNK HIGHWAY 35 FROM THE JUNCTION OF TRUNK HIGHWAY 35 AND TRUNK HIGHWAY 7, 10.0 FEET WEST OF TRUNK HIGHWAY 35.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -91.138 12B = -91.115 09 = -91.046 03 = -90.915

TBM 58 20 L23805

Mn/DOT Name: TBM 58 20 L23805 **NGS Name:** TBM 58 20

County: PINE, MN (Sheet 1)

NGS ACRN: AL9404 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	5	38 N	21 W	454901.00	925904.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1975	1975	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

0.8 MILE SOUTHWEST OF PINE CITY, 1.3 MILES NORTH ON COUNTY HIGHWAY 61 (MAIN STREET SOUTH) FROM THE JUNCTION OF MAIN STREET SOUTH AND 2ND AVENUE SOUTHWEST, 0.4 MILE WEST ON INTERSTATE HIGHWAY 35 BL (HENRIETTE ROAD NORTHWEST), THEN 2.2 MILES SOUTHWEST ON INTERSTATE HIGHWAY 35 S, 58.40 FEET NORTHWEST OF THE CENTERLINE OF INTERSTATE HIGHWAY 35 S.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -91.135 12B = -91.112 09 = -91.043 03 = -90.912

TBM 58 21 L23306

Mn/DOT Name: TBM 58 21 L23306 **NGS Name:** TBM 58 21

County: PINE, MN (Sheet 1)

NGS ACRN: AM1455 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	8	38 N	21 W	454755.00	925923.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1974	1974	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

1.9 MILES SOUTHWEST OF PINE CITY, 1.7 MILES SOUTH ALONG TRUNK HIGHWAY 35 FROM THE JUNCTION OF TRUNK HIGHWAY 35 AND TRUNK HIGHWAY 7, 220.0 FEET EAST OF TRUNK HIGHWAY 35.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -91.266 12B = -91.247 09 = -91.174 03 = -91.046

TBM 58 21 L23805

Mn/DOT Name: TBM 58 21 L23805 **NGS Name:** TBM 58 21

County: PINE, MN (Sheet 1)

NGS ACRN: AL9403 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	8	38 N	21 W	454752.00	925924.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1975	1975	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

1.96 MILES SOUTHWEST FROM PINE CITY, 3.7 MILES SOUTH ALONG COUNTY HIGHWAY 61 (MAIN STREET SOUTH) FROM THE JUNCTION OF COUNTY HIGHWAY 61 AND HILL SIDE AVENUE SOUTHWEST, 1.0 MILE WEST ON TRUNK HIGHWAY 70, THEN 2.2 MILES NORTHWEST ON INTERSTATE HIGHWAY 35 N, 57.95 FEET EAST FROM THE CENTERLINE OF INTERSTATE HIGHWAY 35 N.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -91.273 12B = -91.253 09 = -91.181 03 = -91.053

TBM 58 22 L23306

Mn/DOT Name: TBM 58 22 L23306 **NGS Name:** TBM 58 22

County: PINE, MN (Sheet 1)

NGS ACRN: AM1456 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	8	38 N	21 W	454735.00	925924.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1974	1974	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

2.22 MILES SOUTHWEST OF PINE CITY, 3.7 MILES SOUTH ON COUNTY HIGHWAY 61 (MAIN STREET SOUTH) FROM THE JUNCTION OF COUNTY HIGHWAY 61 AND HILLSIDE AVENUE SOUTHWEST, 1.0 MILE WEST ON TRUNK HIGHWAY 70 W, THEN 1.8 MILES NORTHWEST ON INTERSTATE HIGHWAY 35 N, ABOUT 56.57 FEET EAST OF THE CENTERLINE OF INTERSTATE HIGHWAY 35 N.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -91.296 12B = -91.273 09 = -91.204 03 = -91.073

TBM 58 23 L23306

Mn/DOT Name: TBM 58 23 L23306 **NGS Name:** TBM 58 23

County: PINE, MN (Sheet 1)

NGS ACRN: AM1458 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	17	38 N	21 W	454631.00	925926.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1974	1974	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

3.4 MILES SOUTHWEST OF PINE CITY, 3.3 MILES SOUTH ALONG TRUNK HIGHWAY 35 FROM THE JUNCTION OF TRUNK HIGHWAY 35 AND TRUNK HIGHWAY 7, 30.0 FEET WEST OF TRUNK HIGHWAY 35.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -91.388 12B = -91.361 09 = -91.299 03 = -91.168

TBM 58 23 L23805

Mn/DOT Name: TBM 58 23 L23805 **NGS Name:** TBM 58 23

County: PINE, MN (Sheet 1)

NGS ACRN: AL9401 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	17	38 N	21 W	454631.00	925926.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1975	1975	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

3.4 MILES SOUTHWEST OF PINE CITY, 3.3 MILES SOUTH ALONG TRUNK HIGHWAY 35 FROM THE JUNCTION OF TRUNK HIGHWAY 35 AND TRUNK HIGHWAY 7, 30.0 FEET WEST OF TRUNK HIGHWAY 35.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -91.388 12B = -91.361 09 = -91.299 03 = -91.168

TBM 58 3 L24016

Mn/DOT Name: TBM 58 3 L24016 **NGS Name:** TBM 58 3

County: PINE, MN (Sheet 1)

NGS ACRN: AK9865 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	29	38 N	21 W	454534.00	925927.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1975	1975	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

4.49 MILES SOUTHWEST OF PINE CITY, 4.2 MILES SOUTH ALONG TRUNK HIGHWAY INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF TRUNK HIGHWAY INTERSTATE HIGHWAY 35 AND HILLSIDE AVENUE/COUNTY ROAD 7.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -91.473 12B = -91.443 09 = -91.381 03 = -91.253

TBM 58 A L23805

Mn/DOT Name: TBM 58 A L23805 **NGS Name:** TBM 58 A

County: PINE, MN (Sheet 1)

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	19	41 N	20 W	460114.00	925537.00		

NGS ACRN: AL9415 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1975	1975	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

0.71 MILE NORTHEAST OF HINCKLEY, 0.2 MILE NORTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND FIRE MONUMENT ROAD/MINNESOTA 48.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.131 12B = -90.131 09 = -90.010 03 = -89.895

TBM 61 70 L22190-2

Mn/DOT Name: TBM 61 70 L22190-2 **NGS Name:** TBM 61 70

County: PINE, MN (Sheet 1)

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	21	38 N	21 W	454542.00	925813.00		

NGS ACRN: AO1481 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1966	1966	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

4.23 MILES SOUTH OF PINE CITY, 4.0 MILES SOUTH ALONG TRUNK HIGHWAY 61 FROM THE JUNCTION OF TRUNK HIGHWAY 61 AND 6TH AVENUE SOUTHWEST, THEN 0.1 MILE WEST ON TRUNK HIGHWAY 70 W, THEN 0.3 MILE SOUTH FAIRVIEW AVENUE

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -91.230 12B = -91.207 09 = -91.148 03 = -91.017

TBM 61 70 L24016

Mn/DOT Name: TBM 61 70 L24016 **NGS Name:** TBM 61 70

County: PINE, MN (Sheet 1)

NGS ACRN: AK9868 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	21	38 N	21 W	454548.00	925807.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1975	1975	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

4.01 MILE SOUTH OF PINE CITY, 3.7 MILES SOUTH ON COUNTY HIGHWAY 61 (MAIN STREET SOUTH) FROM THE JUNCTION OF MAIN STREET SOUTH AND HILLSIDE AVENUE SOUTHWEST, 0.1 MILE WEST ON TRUNK HIGHWAY 70, THEN 492.0 FEET SOUTH ON COUNTY ROAD 108 (FAIRVIEW AVENUE), 141.31 FEET EAST OF THE CENTERLINE OF COUNTY ROAD 108.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -91.201 12B = -91.178 09 = -91.122 03 = -90.991

TBM 61 A 1 L23306

Mn/DOT Name: TBM 61 A 1 L23306 **NGS Name:** TBM 61 A

County: PINE, MN (Sheet 1)

NGS ACRN: AM1444 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	10	40 N	21 W	455829.00	925714.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1974	1974	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

2.87 MILES SOUTH OF HINCKLEY, 2.9 MILES SOUTH ALONG TRUNK HIGHWAY 61 FROM THE JUNCTION OF TRUNK HIGHWAY 61 AND 1ST STREET SOUTHEAST, THEN 0.4 MILE EAST ON TRUNK HIGHWAY 61 E.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.331 12B = -90.325 09 = -90.223 03 = -90.098

TBM 61 A L22190-2

Mn/DOT Name: TBM 61 A L22190-2 **NGS Name:** TBM 61 A

County: PINE, MN (Sheet 1)

NGS ACRN: QO0244 Get Map
NGS Quad / Sta Num : 45092434/
USGS Quad: RUSH CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	28	38 N	21 W	454457.00	925740.00		

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

Monument Type	Disk Type	Mon. Agency
STRUCTURE (LIGHT - WOOD FRAME OR METAL)	BOLT	MNDT

Description: (1968)

Stamping:

0.8 MILE SOUTH OF ROCK CREEK, 0.8 MILE SOUTH ALONG TRUNK HIGHWAY 61 FROM THE INTERSECTION OF TRUNK HIGHWAY 61 AND COUNTY ROAD 2, 67.0 FEET WEST OF THE CENTERLINE OF TRUNK HIGHWAY 61, 33.0 FEET SOUTH OF A FARM ENTRANCE, 82.0 FEET NORTHEAST OF THE NORTHEAST CORNER OF A HOUSE, THE STATION IS A 0.5 INCH LAG BOLT IN THE EAST BASE OF A 14.0 INCH DIAMETER ELM TREE.

Station Notes

THIS MARK MAY ALSO BE TBM 61 A (AO1480).

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
942.744	.007	1/1				UNKNOWN/APPROXIMATE	1992	UNCHECKD

Geoid Separations(ft): GEOID18 = -91.171 12B = -91.161 09 = -91.102 03 = -90.958

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

TBM 70 1 L23805

Mn/DOT Name: TBM 70 1 L23805 **NGS Name:** TBM 70 1

County: PINE, MN (Sheet 1)

NGS ACRN: AL9400 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	21	38 N	21 W	454550.00	925818.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1975	1975	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

0.75 MILES NORTHWEST OF ROCK CREEK, 0.5 MILES WEST ON PINE COUNTY HIGHWAY 109 (560TH STREET), THEN 0.3 MILE NORTH ON COUNTY ROAD 108 (FAIRVIEW AVENUE), ABOUT 327.25 FEET WEST FROM THE CENTERLINE OF COUNTY ROAD 108.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -91.237 12B = -91.210 09 = -91.155 03 = -91.023

TBM 70 1 L24016

Mn/DOT Name: TBM 70 1 L24016 **NGS Name:** TBM 70 1

County: PINE, MN (Sheet 1)

NGS ACRN: AK9867 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	21	38 N	21 W	454550.00	925818.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1975	1975	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

4.08 MILES SOUTH OF PINE CITY, 4.0 MILES SOUTH ALONG TRUNK HIGHWAY 61 FROM THE JUNCTION OF TRUNK HIGHWAY 61 AND 6TH AVENUE SOUTHWEST, THEN 0.1 MILE WEST ON TRUNK HIGHWAY 70 W, THEN 0.2 MILE SOUTH ON FAIRVIEW AVENUE.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -91.237 12B = -91.210 09 = -91.155 03 = -91.023

TBM 70 2 L24425

Mn/DOT Name: TBM 70 2 L24425 **NGS Name:** TBM 70 2

County: PINE, MN (Sheet 1)

NGS ACRN: AK8837 Get Map
NGS Quad / Sta Num : 45093113/
USGS Quad: GRASSTON

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	19	38 N	22 W	454537.00	930815.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1977	1977	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

3.09 MILE NORTHEAST OF BRAHAM, 2.5 MILES NORTH ALONG TRUNK HIGHWAY 107 NORTH (MAIN STREET NORTH) FROM THE JUNCTION OF CENTRAL DRIVE WEST AND MAIN STREET NORTH, THEN 1.0 MILE EAST ON TRUNK HIGHWAY 70 E, 246.06 FEET NORTH FROM THE CENTERLINE OF TRUNK HIGHWAY 70.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -92.264 12B = -92.264 09 = -92.165 03 = -92.018

TBM 70 3 L24425

Mn/DOT Name: TBM 70 3 L24425 **NGS Name:** TBM 70 3

County: PINE, MN (Sheet 1)

NGS ACRN: AK8838 Get Map
NGS Quad / Sta Num : 45093112/
USGS Quad: HENRIETTE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	29	38 N	22 W	454535.00	930656.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1977	1977	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

2.91 MILES SOUTHEAST OF GRASSTON, 2.0 MILES EAST ALONG COUNTY ROAD 41 FROM THE JUNCTION OF COUNTY ROAD 41 AND TRUNK HIGHWAY 107.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -92.221 12B = -92.221 09 = -92.119 03 = -91.968

TBM 70 4 L24425

Mn/DOT Name: TBM 70 4 L24425 **NGS Name:** TBM 70 4

County: PINE, MN (Sheet 1)

NGS ACRN: AK8839 Get Map
NGS Quad / Sta Num : 45093112/
USGS Quad: HENRIETTE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	28	38 N	22 W	454535.00	930541.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1977	1977	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

3.5 MILES SOUTHEAST OF GRASSTON, 2.5 MILES SOUTHWEST ALONG TRUNK HIGHWAY 107 S FROM THE JUNCTION OF TRUNK HIGHWAY 107 S AND PINE STREET, THEN 3.1 MILES EAST ON TRUNK HIGHWAY 70 E, 44.0 FEET SOUTH FROM THE CENTERLINE OF TRUNK HIGHWAY 70 E.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -92.155 12B = -92.155 09 = -92.057 03 = -91.903

TBM 70 5 L24425

Mn/DOT Name: TBM 70 5 L24425 **NGS Name:** TBM 70 5

County: PINE, MN (Sheet 1)

NGS ACRN: AK8840 Get Map
NGS Quad / Sta Num : 45093112/
USGS Quad: HENRIETTE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	22	38 N	22 W	454537.00	930428.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1977	1977	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

1.12 MILES NORTH OF GREELY, 1.0 MILE NORTH ALONG GREELEY ROAD FROM THE JUNCTION OF GREELEY ROAD AND COUNTY ROAD 102, THEN 0.2 MILE WEST ON TRUNK HIGHWAY 70 W, 167.76 FEET NORTH OF THE CENTERLINE OF TRUNK HIGHWAY 70 W.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -92.067 12B = -92.067 09 = -91.968 03 = -91.817

TBM 70 6 L24425

Mn/DOT Name: TBM 70 6 L24425 **NGS Name:** TBM 70 6

County: PINE, MN (Sheet 1)

NGS ACRN: AK8841 Get Map
NGS Quad / Sta Num : 45093112/
USGS Quad: HENRIETTE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	23	38 N	22 W	454538.00	930309.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1977	1977	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

5.23 MILES SOUTHEAST OF GRASSTON, 5.1 MILES EAST ALONG COUNTY ROAD 70 FROM THE JUNCTION OF COUNTY ROAD 70 AND TRUNK HIGHWAY 107.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -91.955 12B = -91.949 09 = -91.857 03 = -91.709

TBM 70 7 L24425

Mn/DOT Name: TBM 70 7 L24425 **NGS Name:** TBM 70 7

County: PINE, MN (Sheet 1)

NGS ACRN: AK8842 Get Map
NGS Quad / Sta Num : 45093112/
USGS Quad: HENRIETTE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	24	38 N	22 W	454548.00	930157.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1977	1977	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

5.09 MILES SOUTHWEST OF PINE CITY, 3.4 MILES SOUTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND COUNTY ROAD 7, THEN 2.1 MILES WEST ON COUNTY ROAD 70.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -91.808 12B = -91.798 09 = -91.712 03 = -91.571

TBM 70 8 L24425

Mn/DOT Name: TBM 70 8 L24425 **NGS Name:** TBM 70 8

County: PINE, MN (Sheet 1)

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	19	38 N	21 W	454559.00	930032.00		

NGS ACRN: AK8843 Get Map
NGS Quad / Sta Num : 45093112/
USGS Quad: HENRIETTE

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1977	1977	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

4.33 MILES SOUTHWEST OF PINE CITY, 3.4 MILES SOUTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND COUNTY ROAD 7, THEN 0.9 MILE WEST ON COUNTY ROAD 70.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -91.607 12B = -91.584 09 = -91.512 03 = -91.374

TBM 70 A L23306

Mn/DOT Name: TBM 70 A L23306 **NGS Name:** TBM 70 A

County: PINE, MN (Sheet 1)

NGS ACRN: AM1459 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	21	38 N	21 W	454606.00	925840.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1974	1974	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

3.79 MILES SOUTH OF PINE CITY, 4.0 MILES SOUTH ALONG TRUNK HIGHWAY 61 FROM THE JUNCTION OF TRUNK HIGHWAY 61 AND 6TH AVENUE SOUTHWEST, THEN 0.5 MILE WEST ON TRUNK HIGHWAY 70 W.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -91.286 12B = -91.260 09 = -91.201 03 = -91.073

TBM 70 A L24016

Mn/DOT Name: TBM 70 A L24016 **NGS Name:** TBM 70 A

County: PINE, MN (Sheet 1)

NGS ACRN: AK9866 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	21	38 N	21 W	454553.00	925836.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1975	1975	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

4.03 MILES SOUTH OF PINE CITY, 4.0 MILES SOUTH ALONG TRUNK HIGHWAY 61 FROM THE JUNCTION OF TRUNK HIGHWAY 61 AND 6TH AVENUE SOUTHWEST, THEN 0.4 MILE WEST ON COUNTY ROAD 70.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -91.289 12B = -91.266 09 = -91.207 03 = -91.076

TBM 70 A L24425

Mn/DOT Name: TBM 70 A L24425

NGS Name: TBM 70 A

County: PINE, MN (Sheet 1)

NGS ACRN: AK8845 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	21	38 N	21 W	454550.00	925818.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1977	1977	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

4.08 MILES SOUTH OF PINE CITY, 4.0 MILES SOUTH ALONG TRUNK HIGHWAY 61 FROM THE JUNCTION OF TRUNK HIGHWAY 61 AND 6TH AVENUE SOUTHWEST, THEN 0.1 MILE WEST ON TRUNK HIGHWAY 70, THEN 0.2 MILE SOUTH ON FAIRVIEW AVENUE.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -91.237 12B = -91.210 09 = -91.155 03 = -91.023

TBM 70 B L24425

Mn/DOT Name: TBM 70 B L24425 **NGS Name:** TBM 70 B

County: PINE, MN (Sheet 1)

NGS ACRN: AK8844 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	21	38 N	21 W	454554.00	925846.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1977	1977	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

4.02 MILES SOUTH-SOUTHWEST OF PINE CITY, 4.0 MILES SOUTH ALONG TRUNK HIGHWAY 61 FROM THE JUNCTION OF TRUNK HIGHWAY 61 AND 6TH AVENUE SOUTHWEST, THEN 0.6 MILE WEST ON COUNTY ROAD 70.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -91.319 12B = -91.296 09 = -91.237 03 = -91.105

TBM 80 10 L23306

Mn/DOT Name: TBM 80 10 L23306 **NGS Name:** TBM 80 10

County: PINE, MN (Sheet 1)

NGS ACRN: AM1441 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	25	41 N	21 W	460015.00	925605.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1974	1974	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

IN HINCKLEY, 0.5 MILE SOUTHWEST ALONG TRUNK HIGHWAY 35 FROM THE JUNCTION OF TRUNK HIGHWAY 35 AND TRUNK HIGHWAY 48, 200.0 FEET SOUTHEAST OF TRUNK HIGHWAY 35.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.180 12B = -90.174 09 = -90.059 03 = -89.944

TBM 80 10 L23805

Mn/DOT Name: TBM 80 10 L23805 **NGS Name:** TBM 80 10

County: PINE, MN (Sheet 1)

NGS ACRN: AL9414 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	25	41 N	21 W	460013.00	925606.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1975	1975	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

IN HINCKLEY, 0.5 MILE SOUTHWEST ALONG TRUNK HIGHWAY 35 FROM THE JUNCTION OF TRUNK HIGHWAY 35 AND TRUNK HIGHWAY 48, 200.0 FEET SOUTHEAST OF TRUNK HIGHWAY 35.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.180 12B = -90.177 09 = -90.062 03 = -89.944

TBM 80 11 L23306

Mn/DOT Name: TBM 80 11 L23306 **NGS Name:** TBM 80 11

County: PINE, MN (Sheet 1)

NGS ACRN: AM1442 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	36	41 N	21 W	455930.00	925630.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1974	1974	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

1.6 MILES SOUTH OF HINCKLEY, 1.4 MILES SOUTHWEST ALONG TRUNK HIGHWAY 35 FROM THE JUNCTION OF TRUNK HIGHWAY 35 AND TRUNK HIGHWAY 48, 15.0 FEET SOUTHEAST OF TRUNK HIGHWAY 35.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.229 12B = -90.226 09 = -90.115 03 = -89.993

TBM 80 11 L23805

Mn/DOT Name: TBM 80 11 L23805 **NGS Name:** TBM 80 11

County: PINE, MN (Sheet 1)

NGS ACRN: AL9413 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	36	41 N	21 W	455929.00	925630.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1975	1975	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

1.6 MILES SOUTH OF HINCKLEY, 1.4 MILES SOUTHWEST ALONG TRUNK HIGHWAY 35 FROM THE JUNCTION OF TRUNK HIGHWAY 35 AND TRUNK HIGHWAY 48, 15.0 FEET SOUTHEAST OF TRUNK HIGHWAY 35.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.229 12B = -90.226 09 = -90.115 03 = -89.993

TBM 80 12 L23306

Mn/DOT Name: TBM 80 12 L23306 **NGS Name:** TBM 80 12

County: PINE, MN (Sheet 1)

NGS ACRN: AM1443 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	3	40 N	21 W	455853.00	925659.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1974	1974	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

2.4 MILES SOUTH OF HINCKLEY, 2.7 MILES SOUTHWEST ALONG TRUNK HIGHWAY 35 FROM THE JUNCTION OF TRUNK HIGHWAY 35 AND TRUNK HIGHWAY 48, THEN 0.2 MILE NORTHEAST ON TRUNK HIGHWAY 61, THEN 0.4 MILE NORTH ON TRUNK HIGHWAY 61, THEN 270.0 FEET EAST ON BEAR ROAD, 210.0 FEET SOUTH OF BEAR ROAD.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.295 12B = -90.289 09 = -90.180 03 = -90.059

TBM 80 12 L23805

Mn/DOT Name: TBM 80 12 L23805 **NGS Name:** TBM 80 12

County: PINE, MN (Sheet 1)

NGS ACRN: AL9412 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	3	40 N	21 W	455851.00	925701.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1975	1975	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

2.4 MILES SOUTH OF HINCKLEY, 2.7 MILES SOUTHWEST ALONG TRUNK HIGHWAY 35 FROM THE JUNCTION OF TRUNK HIGHWAY 35 AND TRUNK HIGHWAY 48, THEN 0.2 MILE NORTHEAST ON TRUNK HIGHWAY 61, THEN 0.4 MILE NORTH ON TRUNK HIGHWAY 61, THEN 270.0 FEET EAST ON BEAR ROAD, 210.0 FEET SOUTH OF BEAR ROAD.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.298 12B = -90.292 09 = -90.187 03 = -90.062

TBM 80 13 L23306

Mn/DOT Name: TBM 80 13 L23306 **NGS Name:** TBM 80 13

County: PINE, MN (Sheet 1)

NGS ACRN: AM1445 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	10	40 N	21 W	455811.00	925722.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1974	1974	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

4.08 MILE NORTH OF BEROUN, 0.3 MILE SOUTH ON RED ROBIN ROAD FROM THE JUNCTION OF 2ND STREET S AND RED ROBIN ROAD, 0.5 MILE WEST ON BEROUN CROSSING ROAD, THEN 4.6 MILES NORTH ON INTERSTATE HIGHWAY 35 N, 331.31 FEET SOUTHEAST OF THE CENTERLINE OF INTERSTATE HIGHWAY 35 NORTH.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.357 12B = -90.348 09 = -90.249 03 = -90.121

TBM 80 13 L23805

Mn/DOT Name: TBM 80 13 L23805 **NGS Name:** TBM 80 13

County: PINE, MN (Sheet 1)

NGS ACRN: AL9411 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	10	40 N	21 W	455811.00	925722.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1975	1975	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

4.3 MILES NORTH OF BEROUN, 0.3 MILE SOUTH ALONG RED ROBIN ROAD FROM THE JUNCTION OF RED ROBIN ROAD AND 2ND STREET SOUTH, 0.5 MILE WEST ON BEROUN CROSSING ROAD, THEN 4.6 MILES NORTH ON INTERSTATE HIGHWAY 35, 334.72 FEET EAST OF THE CENTERLINE OF INTERSTATE HIGHWAY 35.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.357 12B = -90.348 09 = -90.249 03 = -90.121

TBM 80 14 L23306

Mn/DOT Name: TBM 80 14 L23306 **NGS Name:** TBM 80 14

County: PINE, MN (Sheet 1)

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	16	40 N	21 W	455710.00	925741.00		

NGS ACRN: AM1446 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1974	1974	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

4.4 MILES SOUTH OF HINCKLEY, 4.4 MILES SOUTHWEST ALONG TRUNK HIGHWAY 35 FROM THE JUNCTION OF TRUNK HIGHWAY 35 AND TRUNK HIGHWAY 48, 320.0 FEET SOUTHEAST OF TRUNK HIGHWAY 35.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.433 12B = -90.420 09 = -90.328 03 = -90.197

TBM 80 14 L23805

Mn/DOT Name: TBM 80 14 L23805 **NGS Name:** TBM 80 14

County: PINE, MN (Sheet 1)

NGS ACRN: AL9410 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	16	40 N	21 W	455710.00	925741.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1975	1975	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

3.01 MILE NORTH OF BEROUN,0.3 MILE SOUTH ON RED ROBIN ROAD FROM THE JUNCTION OF RED ROBIN ROAD AND 2ND STREET SOUTH, 0.5 MILE WEST ON BEROUN CROSSING ROAD, THEN 3.4 MILES NORTH ON INTERSTATE HIGHWAY 35 N, 126.04 FEET EAST OF THE CENTERLINE OF INTERSTATE HIGHWAY 35 N.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.433 12B = -90.420 09 = -90.328 03 = -90.197

TBM 80 15 L23306

Mn/DOT Name: TBM 80 15 L23306 **NGS Name:** TBM 80 15

County: PINE, MN (Sheet 1)

NGS ACRN: AM1447 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	21	40 N	21 W	455634.00	925751.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1974	1974	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

5.0 MILES SOUTH OF HINCKLEY, 5.1 MILES SOUTHWEST ALONG TRUNK HIGHWAY 35 FROM THE JUNCTION OF TRUNK HIGHWAY 35 AND TRUNK HIGHWAY 48, 280.0 FEET SOUTHEAST OF TRUNK HIGHWAY 35.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.479 12B = -90.466 09 = -90.377 03 = -90.246

TBM 80 15 L23805

Mn/DOT Name: TBM 80 15 L23805 **NGS Name:** TBM 80 15

County: PINE, MN (Sheet 1)

NGS ACRN: AL9409 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	21	40 N	21 W	455634.00	925751.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1975	1975	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

5.0 MILES SOUTH OF HINCKLEY, 5.1 MILES SOUTHWEST ALONG TRUNK HIGHWAY 35 FROM THE JUNCTION OF TRUNK HIGHWAY 35 AND TRUNK HIGHWAY 48, 280.0 FEET SOUTHEAST OF TRUNK HIGHWAY 35.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.479 12B = -90.466 09 = -90.377 03 = -90.246

TBM 80 A L23306

Mn/DOT Name: TBM 80 A L23306 **NGS Name:** TBM 80 A

County: PINE, MN (Sheet 1)

NGS ACRN: AM1436 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	19	41 N	20 W	460114.00	925537.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1974	1974	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

0.71 MILE NORTHEAST OF HINCKLEY, 0.2 MILE NORTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND FIRE MONUMENT ROAD/MINNESOTA 48.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.131 12B = -90.131 09 = -90.010 03 = -89.895

TBM 80 B L23306

Mn/DOT Name: TBM 80 B L23306 **NGS Name:** TBM 80 B

County: PINE, MN (Sheet 1)

NGS ACRN: AM1435 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	18	41 N	20 W	460214.00	925522.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1974	1974	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

1.72 MILES NORTHEAST OF HINCKLEY, 1.9 MILES NORTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND FIRE MONUMENT ROAD/MINNESOTA 48.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.115 12B = -90.118 09 = -89.997 03 = -89.878

TBM 80 B L23805

Mn/DOT Name: TBM 80 B L23805 **NGS Name:** TBM 80 B

County: PINE, MN (Sheet 1)

NGS ACRN: AL9416 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	18	41 N	20 W	460214.00	925522.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1975	1975	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

1.72 MILES NORTHEAST OF HINCKLEY, 1.9 MILES NORTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND FIRE MONUMENT ROAD/MINNESOTA 48.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.115 12B = -90.118 09 = -89.997 03 = -89.878

TBM 80 C L23306

Mn/DOT Name: TBM 80 C L23306

NGS Name: TBM 80 C

County: PINE, MN (Sheet 1)

NGS ACRN: AM1434 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	5	41 N	20 W	460350.00	925426.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1974	1974	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

3.71 MILES NORTHEAST OF HINCKLEY, 3.9 MILES NORTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND FIRE MONUMENT ROAD/MINNESOTA 48.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.052 12B = -90.056 09 = -89.937 03 = -89.819

TBM 80 C L23805

Mn/DOT Name: TBM 80 C L23805 **NGS Name:** TBM 80 C

County: PINE, MN (Sheet 1)

NGS ACRN: AL9417 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	5	41 N	20 W	460350.00	925426.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1975	1975	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

3.71 MILES NORTHEAST OF HINCKLEY, 3.9 MILES NORTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND FIRE MONUMENT ROAD/MINNESOTA 48.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.052 12B = -90.056 09 = -89.937 03 = -89.819

TBM CHECKPOINT L23306

Mn/DOT Name: TBM CHECKPOINT L23306 **NGS Name:** TBM CHECKPOINT

County: PINE, MN (Sheet 1)

NGS ACRN: AM1461 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	28	38 N	21 W	454527.00	925744.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1974	1974	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

4.53 MILES SOUTH OF PINE CITY, 4.7 MILES SOUTH ALONG TRUNK HIGHWAY 61 FROM THE JUNCTION OF TRUNK HIGHWAY 61 AND 6TH AVENUE SOUTHWEST, THEN 266.0 FEET WEST ON 558TH STREET.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -91.148 12B = -91.135 09 = -91.076 03 = -90.935

TBM PBM 17 A MRC L23306

Mn/DOT Name: TBM PBM 17 A MRC L23306 **NGS Name:** TBM PBM 17 A MRC

County: PINE, MN (Sheet 1)

NGS ACRN: AM1440 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	24	41 N	21 W	460041.00	925640.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1974	1974	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

IN HINCKLEY, 0.3 MILE SOUTH OF A RAILROAD STATION, 123.0 FEET NORTHEAST OF A RAILROAD CROSSING, 48.0 FEET NORTHWEST OF ONE RAILROAD TRACK, 65.0 FEET EAST OF THE OTHER RAILROAD TRACK.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -90.243 12B = -90.243 09 = -90.124 03 = -900000

TBM PBM 22 CAP MRC L23306

Mn/DOT Name: TBM PBM 22 CAP MRC L23306 **NGS Name:** TBM PBM 22 CAP MRC

County: PINE, MN (Sheet 1)

NGS ACRN: AM1460 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	28	38 N	21 W	454528.00	925743.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1974	1974	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

5.5 MILES SOUTH OF PINE CITY, 0.1 MILE WEST OF TRUNK HIGHWAY 361 ON 558TH STREET IN THE NORTHWEST CORNER OF A YARD OF HOUSE NUMBER 7155, 51.5 FEET EAST OF THE EAST RAIL OF THE RAILROAD TRACKS, 1.5 FEET WEST OF A RIGHT-OF-WAY POLE, ON TOP OF THE SOUTH BANK OF ROCK CREEK, 46.0 FEET WEST OF THE SOUTHWEST CORNER OF A GARAGE.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -91.142 12B = -91.128 09 = -91.069 03 = -90.932

TBM TT A L23306

Mn/DOT Name: TBM TT A L23306 **NGS Name:** TBM TT A

County: PINE, MN (Sheet 1)

NGS ACRN: AM1457 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	8	38 N	21 W	454726.00	925951.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1974	1974	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	UNMONUMENTED	MNDT

Description:

2.59 MILES SOUTHWEST OF PINE CITY, 2.1 MILES SOUTH ALONG FAIRWAY AVENUE FROM THE JUNCTION OF FAIRWAY AVENUE AND COUNTY ROAD 7/POKEGAMA LAKE ROAD, THEN 0.3 MILE EAST ON 580TH STREET.

Stamping:

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -91.381 12B = -91.358 09 = -91.286 03 = -91.155

THUM MNDT

Mn/DOT Name: THUM MNDT **NGS Name:** THUM

County: PINE, MN (Sheet 1)

NGS ACRN: AH1791 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	10	40 N	21 W	455834.56	925722.73	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1993	2012	DESTROYED	Horz=NO Vert=NO	YES		FLUSH	MARKER W/BAR MAGNET

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

Description: (1993) **Stamping:** THUM 1993

0.5 MILE NORTHWEST OF MISSION CREEK, AT THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 23, AT INTERSTATE HIGHWAY 35 MILEPOINT 180.35, 19.9 FEET SOUTH-SOUTHEAST OF TRUNK HIGHWAY 23, 29.3 FEET WEST-SOUTHWEST OF THE SOUTHWEST CORNER OF TRUNK HIGHWAY 23 BRIDGE NUMBER 9782 OVER INTERSTATE HIGHWAY 35, 3.1 FEET SOUTH-SOUTHEAST OF A GUARDRAIL, 2.7 FEET SOUTH-SOUTHEAST 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
1021.835	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1021.832	.016	2/1				VERTICAL CONTROL SURVEY	2009	VMOOSE

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
			931.520	.006	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1021.848	.131		931.609	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2566
1021.848	.131		931.757	.066	1996	GPS - STATIC	2009	HMOOSE
1021.848	.131		931.609	.066	2007	GPS - STATIC	2009	HMOOSE
1021.665	.262		931.553	.197	1996	GPS - RTRN	2008	RTRN2008
			931.609	.009	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
1021.816	.131		931.757	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1839
1021.816	.131		931.757	.066	1996	GPS - STATIC	2002	HPINE
1021.848	.131		931.763	.066	1996	HORIZONTAL ADJUSTMENT	1998	GPS917

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1021.586						GPS - STATIC	1994	HORZ

Geoid Separations(ft): GEOID18 = -90.348 12B = -90.341 09 = -90.236 03 = -90.348

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 58 34.55878	92 57 22.73325	485681.178	189812.984	.003		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 58 34.55859	92 57 22.73361	485681.153	189812.965	.033	C	ADJUSTMENT	2009	GPS2566
45 58 34.55859	92 57 22.73361	485681.153	189812.965	.033	C	GPS - STATIC	2009	HMOOSE
45 58 34.55859	92 57 22.73361	485681.153	189812.965	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 58 34.55847	92 57 22.73295	485681.199	189812.953	.033	C	GPS - STATIC	2009	HMOOSE
45 58 34.55872	92 57 22.73323	485681.180	189812.978	.131	3	GPS - RTRN	2008	RTRN2008
45 58 34.55847	92 57 22.73295	485681.199	189812.953	.033	C	ADJUSTMENT	2003	GPS1839
45 58 34.55847	92 57 22.73295	485681.201	189812.954	.033	C	GPS - STATIC	2002	HPINE
45 58 34.55847	92 57 22.73295	485681.199	189812.953	.033	1	ADJUSTMENT	1998	GPS917

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 58 34.55241	92 57 22.72785	485681.558	189812.340	.033	C	GPS - STATIC	1994	HI35N

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2953555.907	686766.341	1651519.311	16704072.403	.003		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2953555.882	686766.322	1651519.286	16704072.384	.033	C	ADJUSTMENT	2009	GPS2566
2953555.882	686766.322	1651519.286	16704072.384	.033	C	GPS - STATIC	2009	HMOOSE
2953555.882	686766.322	1651519.286	16704072.384	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2953555.929	686766.310	1651519.332	16704072.372	.033	C	GPS - STATIC	2009	HMOOSE
2953555.908	686766.335	1651519.312	16704072.397	.131	3	GPS - RTRN	2008	RTRN2008
2953555.929	686766.310	1651519.332	16704072.372	.033	C	ADJUSTMENT	2003	GPS1839
2953555.929	686766.310	1651519.332	16704072.372	.033	C	GPS - STATIC	2002	HPINE
2953555.929	686766.310	1651519.332	16704072.372	.033	1	ADJUSTMENT	1998	GPS917

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2953556.299	686765.702	1651519.692	16704071.758	.033	C	GPS - STATIC	1994	HI35N

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/THUM-AH1791-3S-10NOV2008.jpg	S	Nov 10, 2008
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/THUM-AH1791-2-10NOV2008.jpg		Nov 10, 2008
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/THUM-AH1791-1-10NOV2008.jpg		Nov 10, 2008

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

TIMM MNDT

Mn/DOT Name: TIMM MNDT **NGS Name:** TIMM

County: PINE, MN (Sheet 1)

NGS ACRN: AC4976 Get Map
NGS Quad / Sta Num : 46092233/
USGS Quad: DANBURY WEST

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	25	41 N	17 W	460045.16	922639.74	2	B

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1995	2016	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	MARKER IS STEEL ROD

Monument Type: STEEL ROD (NO SLEEVE) (DEPTH 20 FT)
Disk Type: METAL ROD
Mon. Agency: MNDT

Description: (2012) **Stamping:** TIMM 1995

14.2 MILES EAST OF CLOVERDALE, 14.2 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND COUNTY ROAD 21 IN CLOVERDALE, AT TRUNK HIGHWAY 48 MILEPOINT 23.5, 21.0 FEET SOUTH OF TRUNK HIGHWAY 48, 34.6 FEET WEST OF THE SOUTHWEST CORNER OF TRUNK HIGHWAY 48 BRIDGE NUMBER B 7 6 84 OVER THE ST. CROIX RIVER., 3.7 FEET SOUTH OF A GUARDRAIL, 2.5 FEET WEST 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
880.523	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
880.704	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
880.494	.016	2/1				VERTICAL ADJUSTMENT	2012	00000712
880.756	.016	2/1				VERTICAL ADJUSTMENT	2006	00000497
880.812	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
880.536	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

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
880.546	.262		793.896	.197	2011	GPS - RTRN	2022	RTRN2022P
880.526	.262		793.876	.197	2011	GPS - RTRN	2022	RTRN2022T
880.523			793.876	.009	2011	HORIZONTAL ADJUSTMENT	2018	GPS3119
880.681	.131		794.175	.066	1996	GPS - STATIC	2017	HMNCORS07
880.523			793.876	.009	2011	GPS - STATIC	2017	HMNPH
880.494			793.876	.008	2011	HORIZONTAL ADJUSTMENT	2015	GPS3071
880.490	.262		793.775	.197	2011	GPS - RTRN	2015	RTRN2015
880.494			793.876	.008	2011	GPS - STATIC	2015	HCLVR
			794.175	.066	1996	GPS - STATIC	2014	HMNCORS06
			793.876	.007	2011	HORIZONTAL ADJUSTMENT	2013	GPS2829-E
880.497	.131		793.781	.066	2011	HORIZONTAL ADJUSTMENT	2012	GPS2829-D
880.805	.131		794.076	.066	2007	GPS - STATIC	2012	HCLVR
880.805	.131		794.211	.066	1996	GPS - STATIC	2012	HCLVR
			793.876	.007	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
880.658	.262		793.922	.197	2007	GPS - RTRN	2012	RTRN2012
			793.988	.033	2007	HORIZONTAL ADJUSTMENT	2012	GPS2829-B
880.582	.262		793.981	.197	1996	GPS - RTRN	2008	RTRN2008
			793.988	.008	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
880.740	.098		794.175	.049	1996	GPS - STATIC	2004	GPS1954
880.805	.131		794.175	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1839
880.805	.131		794.175	.066	1996	GPS - STATIC	2002	HPINE
880.805	.131		794.175	.066	1996	HORIZONTAL ADJUSTMENT	2002	GPS1700
880.805	.131		794.175	.066	1996	GPS - STATIC	2001	HCLOV
880.753	.098		794.175	.049	1996	GPS - STATIC	1997	GPS805-B

Geoid Separations(ft): GEOID18 = -86.650 12B = -86.716 09 = -86.739 03 = -86.601

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 45.15639	92 26 39.74222	615773.168	203369.165	.131	3	GPS - RTRN	2022	RTRN2022P
46 00 45.15655	92 26 39.74215	615773.173	203369.182	.131	3	GPS - RTRN	2022	RTRN2022T
46 00 45.15671	92 26 39.74304	615773.110	203369.198	.007		ADJUSTMENT	2018	GPS3119
46 00 45.15671	92 26 39.74304	615773.110	203369.198	.007	C	GPS - STATIC	2017	HMNPH
46 00 45.15671	92 26 39.74304	615773.110	203369.198	.007		ADJUSTMENT	2015	GPS3071
46 00 45.15538	92 26 39.74290	615773.121	203369.063	.131	3	GPS - RTRN	2015	RTRN2015
46 00 45.15669	92 26 39.74303	615773.111	203369.196	.007	C	GPS - STATIC	2015	HCLVR
46 00 45.15671	92 26 39.74305	615773.110	203369.198	.007		ADJUSTMENT	2013	GPS2829-E
46 00 45.15671	92 26 39.74304	615773.110	203369.198	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 45.15680	92 26 39.74374	615773.061	203369.206	.033	C	GPS - STATIC	2012	HCLVR
46 00 45.15518	92 26 39.74398	615773.045	203369.042	.131	3	GPS - RTRN	2012	RTRN2012
46 00 45.15680	92 26 39.74374	615773.061	203369.206	.033	C	ADJUSTMENT	2012	GPS2829-B
46 00 45.15680	92 26 39.74374	615773.061	203369.206	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 45.15661	92 26 39.74339	615773.086	203369.187	.033	C	GPS - STATIC	2017	HMNCORS07
46 00 45.15661	92 26 39.74339	615773.086	203369.187	.033	C	GPS - STATIC	2014	HMNCORS06
46 00 45.15661	92 26 39.74339	615773.086	203369.187	.033	C	GPS - STATIC	2012	HCLVR
46 00 45.15676	92 26 39.74300	615773.113	203369.203	.131	3	GPS - RTRN	2008	RTRN2008
46 00 45.15661	92 26 39.74339	615773.086	203369.187	.016	B	GPS - STATIC	2004	GPS1954
46 00 45.15661	92 26 39.74339	615773.086	203369.187	.033	C	ADJUSTMENT	2003	GPS1839
46 00 45.15661	92 26 39.74339	615773.086	203369.187	.033	C	GPS - STATIC	2002	HPINE
46 00 45.15661	92 26 39.74339	615773.086	203369.187	.033	C	ADJUSTMENT	2002	GPS1700
46 00 45.15661	92 26 39.74339	615773.086	203369.187	.033	C	GPS - STATIC	2001	HCLOV
46 00 45.15661	92 26 39.74339	615773.086	203369.187	.016	B	GPS - STATIC	1997	GPS805-B

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 45.14991	92 26 39.73658	615773.572	203368.511	.033	C	GPS - STATIC	1997	HCLOV

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3083384.298	702537.571	1781537.614	16717785.521	.131	3	GPS - RTRN	2022	RTRN2022P
3083384.303	702537.587	1781537.619	16717785.537	.131	3	GPS - RTRN	2022	RTRN2022T
3083384.240	702537.602	1781537.556	16717785.553	.007		ADJUSTMENT	2018	GPS3119
3083384.240	702537.602	1781537.556	16717785.553	.007	C	GPS - STATIC	2017	HMNPH
3083384.240	702537.602	1781537.556	16717785.553	.007		ADJUSTMENT	2015	GPS3071
3083384.253	702537.467	1781537.567	16717785.418	.131	3	GPS - RTRN	2015	RTRN2015
3083384.240	702537.600	1781537.557	16717785.551	.007	C	GPS - STATIC	2015	HCLVR
3083384.239	702537.602	1781537.556	16717785.553	.007		ADJUSTMENT	2013	GPS2829-E
3083384.240	702537.602	1781537.556	16717785.553	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3083384.190	702537.610	1781537.507	16717785.561	.033	C	GPS - STATIC	2012	HCLVR
3083384.177	702537.445	1781537.491	16717785.397	.131	3	GPS - RTRN	2012	RTRN2012
3083384.190	702537.610	1781537.507	16717785.561	.033	C	ADJUSTMENT	2012	GPS2829-B
3083384.190	702537.610	1781537.507	16717785.561	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3083384.215	702537.591	1781537.532	16717785.542	.033	C	GPS - STATIC	2017	HMNCORS07
3083384.215	702537.591	1781537.532	16717785.542	.033	C	GPS - STATIC	2014	HMNCORS06
3083384.215	702537.591	1781537.532	16717785.542	.033	C	GPS - STATIC	2012	HCLVR
3083384.242	702537.607	1781537.559	16717785.558	.131	3	GPS - RTRN	2008	RTRN2008
3083384.215	702537.591	1781537.532	16717785.542	.016	B	GPS - STATIC	2004	GPS1954
3083384.215	702537.591	1781537.532	16717785.542	.033	C	ADJUSTMENT	2003	GPS1839
3083384.215	702537.591	1781537.532	16717785.542	.033	C	GPS - STATIC	2002	HPINE
3083384.215	702537.591	1781537.532	16717785.542	.033	C	ADJUSTMENT	2002	GPS1700
3083384.215	702537.591	1781537.532	16717785.542	.033	C	GPS - STATIC	2001	HCLOV
3083384.215	702537.591	1781537.532	16717785.542	.016	B	GPS - STATIC	1997	GPS805-B

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3083384.711	702536.924	1781538.017	16717784.868	.033	C	GPS - STATIC	1997	HCLOV

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TIMM-AC4976-3S-08MAY2012.jpg	S	May 8, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TIMM-AC4976-2-08MAY2012.jpg		May 8, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TIMM-AC4976-1-08MAY2012.jpg		May 8, 2012

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

TOBIE MNDT

Mn/DOT Name: TOBIE MNDT
NGS Name: TOBIE
County: PINE, MN (Sheet 1)

NGS ACRN: AC4977 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	25	41 N	21 W	460039.69	925552.87	2	B

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1993	2016	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 40 FT)	SURVEY DISK	MNDT

Description: (1993) **Stamping:** TOBIE 1993

IN HINCKLEY, AT THE JUNCTION OF TRUNK HIGHWAY 48 AND INTERSTATE HIGHWAY 35, AT INTERSTATE HIGHWAY 35 MILEPOINT 183.1, 35.4 FEET SOUTH OF TRUNK HIGHWAY 48, 47.9 FEET EAST OF THE SOUTHEAST CORNER OF TRUNK HIGHWAY 48 BRIDGE NUMBER 9785 OVER INTERSTATE HIGHWAY 35, 2.8 FEET SOUTH OF A GUARDRAIL, 2.1 FEET SOUTH 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
1037.613	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1037.613	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR
1037.613	.016	2/1				VERTICAL CONTROL SURVEY	2009	VMOOSE
1037.613	.016	2/1				VERTICAL ADJUSTMENT	2006	00000497
1037.596	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1037.321	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

TOBIE MNDT

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
1037.613			947.446	.007	2011	HORIZONTAL ADJUSTMENT	2018	GPS3119
1037.613	.131		947.685	.066	1996	GPS - STATIC	2017	HMNCORS07
1037.613			947.446	.007	2011	GPS - STATIC	2017	HMNPH
1037.613			947.446	.006	2011	HORIZONTAL ADJUSTMENT	2015	GPS3071
1037.504	.262		947.350	.197	2011	GPS - RTRN	2015	RTRN2015
1037.613			947.439	.006	2011	GPS - STATIC	2015	HCLVR
1037.629	.131		947.577	.066	2007	GPS - STATIC	2012	HCLVR
1037.629	.131		947.692	.066	1996	GPS - STATIC	2012	HCLVR
			947.446	.006	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1037.524	.262		947.488	.197	2007	GPS - RTRN	2012	RTRN2012
1037.596	.098		947.554	.049	2007	HORIZONTAL ADJUSTMENT	2010	GPS2697
1037.596	.098		947.554	.049	2007	GPS - STATIC	2010	HBMN2
1037.596	.131		947.554	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2566
1037.629	.131		947.685	.066	1996	GPS - STATIC	2009	HMOOSE
1037.629	.131		947.554	.066	2007	GPS - STATIC	2009	HMOOSE
1037.465	.262		947.544	.197	1996	GPS - RTRN	2008	RTRN2008
			947.554	.007	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
1037.596	.098		947.685	.049	1996	GPS - STATIC	2005	GPS2036
1037.596	.098		947.685	.049	1996	GPS - STATIC	2004	GPS1954
1037.596	.131		947.685	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1924
1037.596	.131		947.685	.066	1996	HORIZONTAL ADJUSTMENT	2003	GPS1839
1037.596	.131		947.685	.066	1996	GPS - STATIC	2003	HKANA
1037.596	.131		947.685	.066	1996	GPS - STATIC	2002	HPINE
1037.596	.131		947.685	.066	1996	HORIZONTAL ADJUSTMENT	2002	GPS1700
1037.596	.131		947.685	.066	1996	GPS - STATIC	2001	HCLOV
1037.603	.098		947.685	.049	1996	GPS - STATIC	1997	GPS805-B
1037.603	.131		947.685	.066	1996	GPS - STATIC	1997	GPS805-C

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1037.301						GPS - STATIC	1994	HORZ

Geoid Separations(ft): GEOID18 = -90.157 12B = -90.154 09 = -90.036 03 = -89.921

TOBIE MNDT

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 39.68541	92 55 52.86713	492033.316	202484.966	.007		ADJUSTMENT	2018	GPS3119
46 00 39.68541	92 55 52.86713	492033.316	202484.966	.007	C	GPS - STATIC	2017	HMNPH
46 00 39.68541	92 55 52.86713	492033.316	202484.966	.007		ADJUSTMENT	2015	GPS3071
46 00 39.68423	92 55 52.86629	492033.376	202484.847	.131	3	GPS - RTRN	2015	RTRN2015
46 00 39.68540	92 55 52.86703	492033.324	202484.965	.007	C	GPS - STATIC	2015	HCLVR
46 00 39.68541	92 55 52.86713	492033.316	202484.966	.003		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 39.68545	92 55 52.86762	492033.282	202484.970	.033	C	GPS - STATIC	2012	HCLVR
46 00 39.68501	92 55 52.86771	492033.275	202484.926	.131	3	GPS - RTRN	2012	RTRN2012
46 00 39.68545	92 55 52.86762	492033.282	202484.970	.016	B	ADJUSTMENT	2010	GPS2697
46 00 39.68545	92 55 52.86762	492033.282	202484.970	.016	B	GPS - STATIC	2010	HBMN2
46 00 39.68545	92 55 52.86762	492033.282	202484.970	.033	C	ADJUSTMENT	2009	GPS2566
46 00 39.68545	92 55 52.86762	492033.282	202484.970	.033	C	GPS - STATIC	2009	HMOOSE
46 00 39.68545	92 55 52.86762	492033.282	202484.970	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 39.68539	92 55 52.86727	492033.307	202484.964	.033	C	GPS - STATIC	2017	HMNCORS07
46 00 39.68539	92 55 52.86727	492033.307	202484.964	.033	C	GPS - STATIC	2012	HCLVR
46 00 39.68539	92 55 52.86727	492033.307	202484.964	.033	C	GPS - STATIC	2009	HMOOSE
46 00 39.68586	92 55 52.86789	492033.263	202485.012	.131	3	GPS - RTRN	2008	RTRN2008
46 00 39.68539	92 55 52.86727	492033.307	202484.964	.016	B	GPS - STATIC	2005	GPS2036
46 00 39.68539	92 55 52.86727	492033.307	202484.964	.016	B	GPS - STATIC	2004	GPS1954
46 00 39.68539	92 55 52.86727	492033.307	202484.964	.033	C	ADJUSTMENT	2003	GPS1924
46 00 39.68539	92 55 52.86727	492033.307	202484.964	.033	C	ADJUSTMENT	2003	GPS1839
46 00 39.68539	92 55 52.86727	492033.307	202484.964	.033	C	GPS - STATIC	2003	HKANA
46 00 39.68539	92 55 52.86727	492033.307	202484.964	.033	C	GPS - STATIC	2002	HPINE
46 00 39.68539	92 55 52.86727	492033.307	202484.964	.033	C	ADJUSTMENT	2002	GPS1700
46 00 39.68539	92 55 52.86727	492033.307	202484.964	.033	C	GPS - STATIC	2001	HCLOV
46 00 39.68539	92 55 52.86727	492033.307	202484.964	.016	B	GPS - STATIC	1997	GPS805-B
46 00 39.68539	92 55 52.86727	492033.307	202484.964	.033	C	GPS - STATIC	1997	GPS805-C

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 39.67923	92 55 52.86188	492033.688	202484.339	.033	C	GPS - STATIC	1994	HI35N

TOBIE MNDT

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2959690.540	699543.405	1657852.718	16716746.734	.007		ADJUSTMENT	2018	GPS3119
2959690.540	699543.405	1657852.718	16716746.734	.007	C	GPS - STATIC	2017	HMNPH
2959690.540	699543.405	1657852.718	16716746.734	.007		ADJUSTMENT	2015	GPS3071
2959690.601	699543.287	1657852.778	16716746.615	.131	3	GPS - RTRN	2015	RTRN2015
2959690.547	699543.404	1657852.726	16716746.733	.007	C	GPS - STATIC	2015	HCLVR
2959690.540	699543.405	1657852.718	16716746.734	.003		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2959690.505	699543.409	1657852.684	16716746.738	.033	C	GPS - STATIC	2012	HCLVR
2959690.500	699543.364	1657852.678	16716746.694	.131	3	GPS - RTRN	2012	RTRN2012
2959690.505	699543.409	1657852.684	16716746.738	.016	B	ADJUSTMENT	2010	GPS2697
2959690.505	699543.409	1657852.684	16716746.738	.016	B	GPS - STATIC	2010	HBMN2
2959690.505	699543.409	1657852.684	16716746.738	.033	C	ADJUSTMENT	2009	GPS2566
2959690.505	699543.409	1657852.684	16716746.738	.033	C	GPS - STATIC	2009	HMOOSE
2959690.505	699543.409	1657852.684	16716746.738	.007		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2959690.530	699543.403	1657852.709	16716746.732	.033	C	GPS - STATIC	2017	HMNCORS07
2959690.530	699543.403	1657852.709	16716746.732	.033	C	GPS - STATIC	2012	HCLVR
2959690.530	699543.403	1657852.709	16716746.732	.033	C	GPS - STATIC	2009	HMOOSE
2959690.486	699543.450	1657852.665	16716746.780	.131	3	GPS - RTRN	2008	RTRN2008
2959690.530	699543.403	1657852.709	16716746.732	.016	B	GPS - STATIC	2005	GPS2036
2959690.530	699543.403	1657852.709	16716746.732	.016	B	GPS - STATIC	2004	GPS1954
2959690.530	699543.403	1657852.709	16716746.732	.033	C	ADJUSTMENT	2003	GPS1924
2959690.530	699543.403	1657852.709	16716746.732	.033	C	ADJUSTMENT	2003	GPS1839
2959690.530	699543.403	1657852.709	16716746.732	.033	C	GPS - STATIC	2003	HKANA
2959690.530	699543.403	1657852.709	16716746.732	.033	C	GPS - STATIC	2002	HPINE
2959690.530	699543.403	1657852.709	16716746.732	.033	C	ADJUSTMENT	2002	GPS1700
2959690.530	699543.403	1657852.709	16716746.732	.033	C	GPS - STATIC	2001	HCLOV
2959690.530	699543.403	1657852.709	16716746.732	.016	B	GPS - STATIC	1997	GPS805-B
2959690.530	699543.403	1657852.709	16716746.732	.033	C	GPS - STATIC	1997	GPS805-C

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2959690.921	699542.785	1657853.089	16716746.109	.033	C	GPS - STATIC	1994	HI35N

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TOBIE-AC4977-3S-01MAY2012.jpg	S	May 1, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TOBIE-AC4977-2-01MAY2012.jpg		May 1, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TOBIE-AC4977-1-01MAY2012.jpg		May 1, 2012

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

TONY

Mn/DOT Name: TONY **NGS Name:** TONY

County: PINE, MN (Sheet 1)

NGS ACRN: DQ7346 Get Map
NGS Quad / Sta Num : 45093113/
USGS Quad: GRASSTON

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	30	38 N	22 W	454534.63	930745.24	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2017	2017	GOOD	Horz=YES Vert=YES	YES		RECESSED 2 IN.	BAR MAG IN DRILL HOLE

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 39 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2017) **Stamping:** TONY 2017

3.1 MILES NORTHEAST OF BRAHAM, 1.4 MILES EAST ALONG TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 70 AND TRUNK HIGHWAY 107 (THE JUNCTION IS 2.5 MILES NORTH OF BRAHAM), AT TRUNK HIGHWAY 70 MILEPOINT 11.85, 26.3 FEET SOUTH OF TRUNK HIGHWAY 70, 25.0 FEET WEST OF A FIELD ENTRANCE, 1.5 FEET EAST OF A WITNESS POST.

Station Pair: TRACY - PINE, MN

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
956.366	.016	2/1				VERTICAL ADJUSTMENT	2021	00000963
956.366	.016	2/1				VERTICAL CONTROL SURVEY	2017	VRCRK

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
956.419	.262		864.165	.197	2011	GPS - RTRN	2017	RTRN2017

Geoid Separations(ft): GEOID18 = -92.254 12B = -92.254 09 = -92.152 03 = -92.004

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 34.62889	93 07 45.24201	441486.491	110885.639	.131	3	GPS - RTRN	2017	RTRN2017

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2910716.245	607105.041	1607443.884	16625124.931	.131	3	GPS - RTRN	2017	RTRN2017

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TONY-DQ7346-3S-13JUN2017.jpg	S	Jun 13, 2017
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TONY-DQ7346-2-13JUN2017.jpg		Jun 13, 2017
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TONY-DQ7346-1-13JUN2017.jpg		Jun 13, 2017

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

Mn/DOT Name: TRACY
NGS Name: TRACY
County: PINE, MN (Sheet 1)

NGS ACRN: DQ7345 Get Map
NGS Quad / Sta Num : 45093112/
USGS Quad: HENRIETTE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	20	38 N	22 W	454535.56	930722.79	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2017	2020	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 40 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2017) **Stamping:** TRACY 2017

3.5 MILES NORTHEAST OF BRAHAM, 1.7 MILES EAST ALONG TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 70 AND TRUNK HIGHWAY 107 (THE JUNCTION IS 2.5 MILES NORTH OF BRAHAM), AT TRUNK HIGHWAY 70 MILEPOINT 12.15, 44.0 FEET NORTH OF TRUNK HIGHWAY 70, 28.9 FEET WEST OF A FIELD ENTRANCE, 1.5 FEET EAST OF A WITNESS POST.

Station Pair: TONY - PINE, MN

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
948.194	.016	2/1				VERTICAL ADJUSTMENT	2021	00000963
948.194	.016	2/1				VERTICAL CONTROL SURVEY	2017	VRCRK

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
948.085	.262		855.848	.197	2011	GPS - OPUS	2020	GPSBM
948.223	.262		855.983	.197	2011	GPS - RTRN	2020	RTRN2020
948.039	.262		855.802	.197	2011	GPS - RTRN	2017	RTRN2017

Geoid Separations(ft): GEOID18 = -92.237 12B = -92.241 09 = -92.139 03 = -91.988

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 35.56001	93 07 22.78693	443078.921	110975.435	.131	3	GPS - OPUS	2020	GPSBM
45 45 35.55943	93 07 22.78598	443078.988	110975.375	.131	3	GPS - RTRN	2020	RTRN2020
45 45 35.55984	93 07 22.78639	443078.959	110975.417	.131	3	GPS - RTRN	2017	RTRN2017

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2912306.779	607221.935	1609035.473	16625216.700	.131	3	GPS - OPUS	2020	GPSBM
2912306.848	607221.877	1609035.540	16625216.641	.131	3	GPS - RTRN	2020	RTRN2020
2912306.818	607221.918	1609035.511	16625216.683	.131	3	GPS - RTRN	2017	RTRN2017

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TRACY-DQ7345-3N-29APR2020.jpg	N	Apr 29, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TRACY-DQ7345-2-29APR2020.jpg		Apr 29, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TRACY-DQ7345-1-29APR2020.jpg		Apr 29, 2020

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

TT 10 DM

Mn/DOT Name: TT 10 DM
NGS Name: TT 10 DM
County: PINE, MN (Sheet 1)

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	9	40 N	22 W	455830.00	930500.00		

NGS ACRN: Get Map
NGS Quad / Sta Num : 45093111/
USGS Quad: BROOK PARK

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2007	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

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

Description: (1954) **Stamping:** TT 10 DM 1954 1035

2.0 MILES NORTH AND 0.5 MILE WEST OF BROOK PARK, 2.4 MILES NORTH ON COUNTY ROAD 13 FROM THE JUNCTION OF COUNTY ROAD 13 AND TRUNK HIGHWAY 23, 507.0 FEET NORTH AND 35.0 FEET WEST OF A ROAD IN LINE WITH A DRIVEWAY EAST, 3.0 FEET NORTH OF A POLE.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1035.205	.033	3				VERTICAL CONTROL SURVEY	1966	USGS-VERT

Geoid Separations(ft): GEOID18 = -91.007 12B = -90.984 09 = -90.905 03 = -90.741

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

TT 11 DM

Mn/DOT Name: TT 11 DM
NGS Name: TT 11 DM
County: PINE, MN (Sheet 1)

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	14	40 N	22 W	455742.00	930312.00		

NGS ACRN: Get Map
NGS Quad / Sta Num : 45093111/
USGS Quad: BROOK PARK

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2010	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

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

Description: (2007) **Stamping:** TT 11 DM 1954 1028

1.45 MILES NORTHEAST OF BROOK PAR, ALONG A RAILROAD AND OLD TRUNK HIGHWAY 23, 42.0 FEET SOUTH AND 496.0 FEET WEST OF A ROAD AT A RAILROAD CROSSING, 42.0 FEET NORTH OF OLD TRUNK HIGHWAY 23.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1027.823	.033	3				VERTICAL CONTROL SURVEY	1966	USGS-VERT

Geoid Separations(ft): GEOID18 = -90.928 12B = -90.909 09 = -90.827 03 = -90.672

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

TT 2 JRT

Mn/DOT Name: TT 2 JRT

NGS Name: TT 2 JRT

County: PINE, MN (Sheet 1)

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	19	39 N	22 W	455110.49	930831.95		

NGS ACRN: Get Map
NGS Quad / Sta Num : 45093113/
USGS Quad: GRASSTON

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1960	2010	GOOD	Horz=NO Vert=?	YES		FLUSH	NO MAG MATERIAL

Monument Type	Disk Type	Mon. Agency
BRIDGE RAILING	BENCH MARK DISK	USGS

Description: (2010)

Stamping: TT 2 JRT 1960

1.0 MILE WEST AND 1.0 MILE SOUTH OF HENRIETTE, 0.85 MILE WEST ON COUNTY ROAD 11 FROM THE JUNCTION OF COUNTY ROAD 11 AND TRUNK HIGHWAY 107 AT MILEPOINT 12 IN HENRIETTE, THEN 1.05 MILES SOUTH ON COUNTY ROAD 120 (SHERWOOD AVENUE), 75.0 FEET NORTH OF THE JUNCTION OF COUNTY ROAD 120 (SHERWOOD AVENUE) AND THORN ROAD, SOUTH END OF THE EAST CONCRETE BRIDGE RAILING OVER MUDD CREEK, 15.0 FEET SOUTH AND 10.0 FEET EAST OF THE CENTER OF A BRIDGE IN THE SOUTHEAST CORNER OF A BRIDGE.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -91.791 12B = -91.778 09 = -91.696 03 = -91.548

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TT_2_JRT-3N-30OCT2008.jpg	N	Oct 30, 2008
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TT_2_JRT-2-30OCT2008.jpg		Oct 30, 2008
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TT_2_JRT-1-28APR2010.jpg		Apr 28, 2010

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

TT 28 DM

Mn/DOT Name: TT 28 DM
NGS Name: TT 28 DM
County: PINE, MN (Sheet 1)

NGS ACRN: QO1276 Get Map
NGS Quad / Sta Num : 45093113/
USGS Quad: GRASSTON

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	19	38 N	22 W	454535.50	930737.81	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2020	DESTROYED	Horz=NO Vert=NO	YES		FLUSH	STEEL ROD IMBED IN MON

Monument Type
CONCRETE MONUMENT (CAST-IN-PLACE)

Disk Type
BENCH MARK DISK

Mon. Agency
USGS

Description: (2007)

Stamping: TT 28 DM 1954

2.6 MILES SOUTHEAST OF GRASSTON, 1.5 MILES EAST ON TRUNK HIGHWAY 70 FROM THE SOUTH JUNCTION OF TRUNK HIGHWAY 107 AND TRUNK HIGHWAY 70, AT TRUNK HIGHWAY 70 MILEPOINT 11.95, 438.0 FEET WEST OF COUNTY ROAD 101, 52.0 FEET NORTH OF TRUNK HIGHWAY 70, 18.0 FEET SOUTH OF A POWER POLE, 2.0 FEET EAST OF A WITNESS POST.

Station Notes
THE MARK HAS BEEN HIT, THE CONCRETE IS BROKEN.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
955.087	.016	2/1				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
954.844	.016	2				VERTICAL CONTROL SURVEY	1980	L24425
954.696	.033	3				VERTICAL CONTROL SURVEY	1966	USGS-VERT

Geoid Separations(ft): GEOID18 = -92.247 12B = -92.250 09 = -92.145 03 = -91.998

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

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TT_28_DM-QO1276-3N-08MAY2007.jpg	N	May 8, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TT_28_DM-QO1276-2-08MAY2007.jpg		May 8, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TT_28_DM-QO1276-1-08MAY2007.jpg		May 8, 2007

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

TT 29 DM

Mn/DOT Name: TT 29 DM
NGS Name: TT 29 DM
County: PINE, MN (Sheet 1)

NGS ACRN: QO1278 Get Map
NGS Quad / Sta Num : 45093112/
USGS Quad: HENRIETTE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	22	38 N	22 W	454535.96	930457.41	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2017	GOOD	Horz=YES Vert=YES	YES		FLUSH	STEEL ROD IMBED IN MON

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

Description: (2007) **Stamping:** TT 29 DM 1954

4.6 MILES WEST OF ROCK CREEK, 4.6 MILES WEST ALONG TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 70 AND INTERSTATE HIGHWAY 35 IN ROCK CREEK, 73.0 FEET NORTH OF TRUNK HIGHWAY 70, AT TRUNK HIGHWAY 70 MILEPOINT 14.1, 360.0 FEET EAST OF COUNTY ROAD 111, 63.0 FEET NORTHEAST OF THE EAST END OF A CULVERT, 5.0 FEET NORTHEAST OF A POWER POLE, 1.0 FOOT WEST 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
1000.657	.016	2/1				VERTICAL ADJUSTMENT	2021	00000963
1000.657	.016	2/1				VERTICAL CONTROL SURVEY	2017	VRCRK
1000.657	.016	2/1				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1000.415	.016	2				VERTICAL CONTROL SURVEY	1980	L24425
1000.126	.033	3				VERTICAL CONTROL SURVEY	1966	USGS-VERT

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
1000.674	.262		908.568	.197	2011	GPS - RTRN	2017	RTRN2017

Geoid Separations(ft): GEOID18 = -92.106 12B = -92.106 09 = -92.004 03 = -91.857

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 35.96261	93 04 57.41055	453386.811	110989.938	.131	3	GPS - RTRN	2017	RTRN2017

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2922612.046	607411.989	1619338.629	16625244.220	.131	3	GPS - RTRN	2017	RTRN2017

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TT_29_DM-QO1278-3N-23MAY2017.jpg	N	May 23, 2017
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TT_29_DM-QO1278-2-23MAY2017.jpg		May 23, 2017
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TT_29_DM-QO1278-1-23MAY2017.jpg		May 23, 2017

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

TT 33 DM USGS

Mn/DOT Name: TT 33 DM USGS
NGS Name: TT 33 DM
County: PINE, MN (Sheet 1)

NGS ACRN: QO1567 Get Map
NGS Quad / Sta Num : 45092434/1021
USGS Quad: RUSH CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	35	38 N	21 W	454440.39	925622.45		2

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2007	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	USGS

Description: (1961) **Stamping:** TT 33 DM 1954 936

4.5 MILES SOUTH OF PINE CITY, 1.5 MILES SOUTH ON TRUNK HIGHWAY 361 FROM A RAILROAD UNDERPASS AT ROCK CREEK, THEN 1.0 MILE EAST ON COUNTY ROAD 104, 2.0 FEET EAST OF A FENCE CORNER, 5.0 FEET NORTHEAST OF A TELEPHONE POLE, 15.0 FEET EAST OF A FIELD DRIVEWAY, 25.0 FEET SOUTH OF A GRAVEL ROAD, 85.55 FEET NORTH OF STATION ROCK.

Station Notes
THE MARK WAS FOUND IN POOR CONDITION, REMOVED THE DISK, TURNED IN TO THE CENTRAL OFFICE.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
935.713	.033	3				VERTICAL CONTROL SURVEY	1968	USGS-VERT

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
935.037	.197		844.355	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -90.902 12B = -90.922 09 = -90.869 03 = -90.692

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 44 40.38908	92 56 22.44549	489897.204	105309.438	.066	2	ADJUSTMENT	1999	17648
45 44 40.38473	92 56 22.44044	489897.562	105308.997	.066	2	ADJUSTMENT	1991	17497

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 44 40.38415	92 56 22.44228	489897.431	105308.938	.066	2	ADJUSTMENT	1986	17289

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 44 40.53660	92 56 21.68540			.100	2	CLASSICAL SURVEY	1961	12611

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2959210.815	602354.789	1655839.410	16619612.227	.066	2	ADJUSTMENT	1999	17648
2959211.181	602354.354	1655839.768	16619611.787	.066	2	ADJUSTMENT	1991	17497

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2959211.051	602354.293	1655839.638	16619611.728	.066	2	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2334607.836	274285.384			.100	2	CLASSICAL SURVEY	1961	12611

TT 4 JRT

Mn/DOT Name: TT 4 JRT
NGS Name: TT 4 JRT
County: PINE, MN (Sheet 1)

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	30	40 N	22 W	455540.74	930832.69		

NGS ACRN: Get Map
NGS Quad / Sta Num : 45093114/
USGS Quad: QUAMBA

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1960	2010	DESTROYED	Horz=NO Vert=NO	YES		PROJECTS 5 IN.	STEEL ROD IMBED IN MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	USGS

Description: (1965) **Stamping:** TT 4 JRT 1960

3.0 MILES WEST AND 1.0 MILE SOUTH OF BROOK PARK, AT THE PINE-KANABEC COUNTY LINE, 70.0 FEET SOUTH AND 32.0 FEET EAST OF COUNTY ROAD 68 (SHERWOOD STREET) CROSSING TRUNK HIGHWAY 23, 18.0 FEET NORTH OF A POWER POLE, 1.0 FOOT EAST OF A RIGHT-OF-WAY MONUMENT, 2.0 FEET NORTHWEST OF A WITNESS POST.

*** No Horizontal or Vertical Positions in the Database ***

Geoid Separations(ft): GEOID18 = -91.358 12B = -91.352 09 = -91.260 03 = -91.096

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TT_4_JRT-3S-30OCT2008.jpg	S	Oct 30, 2008
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TT_4_JRT-2-30OCT2008.jpg		Oct 30, 2008
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TT_4_JRT-1-30OCT2008.jpg		Oct 30, 2008

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

TT 50 FJH

Mn/DOT Name: TT 50 FJH **NGS Name:** TT 50 FJH

County: PINE, MN (Sheet 1)

NGS ACRN: Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	10	41 N	21 W	460315.37	925930.84		3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2008	GOOD	Horz=NO Vert=YES	YES		FLUSH	STEEL SPIKE IMBED IN MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	USGS

Description: (2008) **Stamping:** TT 50 FJH 1954 1079

2.5 MILES NORTH AND 2.3 MILES WEST OF HINCKLEY, NEAR COUNTY ROAD 17 AT A TEE-ROAD WEST, 24.6 FEET EAST OF FOX ROAD, 11.0 FEET SOUTH AND 4.0 FEET EAST OF A CORNER FENCE POST ON LINE WITH THE SOUTH EDGE OF A TEE-ROAD WEST AND A NORTH-SOUTH BRUSH LINE, 7.0 FEET SOUTH OF ROBIN DRIVE, 1.0 FOOT WEST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1078.804	.033	3				VERTICAL CONTROL SURVEY	1979	USGS-VERT

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
1079.191	.262		988.928	.197	1996	GPS - RTRN	2008	RTRN2008

Geoid Separations(ft): GEOID18 = -90.535 12B = -90.521 09 = -90.416 03 = -90.262

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 03 15.37246	92 59 30.83740	476666.192	218268.259	.131	3	GPS - RTRN	2008	RTRN2008

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2944058.366	715060.889	1642472.582	16732503.727	.131	3	GPS - RTRN	2008	RTRN2008

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TT_50_FJH-3E-07MAY2008.jpg	E	May 7, 2008
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TT_50_FJH-2-07MAY2008.jpg		May 7, 2008
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TT_50_FJH-1-07MAY2008.jpg		May 7, 2008

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

TT 51 FJH

Mn/DOT Name: TT 51 FJH
NGS Name: TT 51 FJH
County: PINE, MN (Sheet 1)

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	22	41 N	21 W	460131.00	925930.00		

NGS ACRN: Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	1961	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

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

Description: (1967) **Stamping:** TT 51 FJH 1954 1062

0.5 MILE NORTH AND 2.3 MILES WEST OF HINCKLEY, 25.0 FEET EAST OF A ROAD, 3.0 FEET WEST OF A CORNER POST OF A TEE FENCE EAST.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1062.222	.033	3				VERTICAL CONTROL SURVEY	1966	USGS-VERT

Geoid Separations(ft): GEOID18 = -90.515 12B = -90.508 09 = -90.397 03 = -90.246

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

TT 58 FJH

Mn/DOT Name: TT 58 FJH
NGS Name: TT 58 FJH
County: PINE, MN (Sheet 1)

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	5	40 N	19 W	455832.22	924447.29		

NGS ACRN: Get Map
NGS Quad / Sta Num : 45092414/
USGS Quad: LAKE CLAYTON

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2007	GOOD	Horz=YES Vert=YES	YES		PROJECTS 1 IN.	STEEL SPIKE IMBED IN MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	USGS

Description: (2007) **Stamping:** TT 58 FJH 1954 980

2.5 MILES SOUTH AND 0.5 MILE WEST OF CLOVERDALE, 2.52 MILES SOUTH ALONG COUNTY ROAD 21 FROM THE JUNCTION OF COUNTY ROAD 21 AND TRUNK HIGHWAY 48 IN CLOVERDALE, THEN 0.13 MILE WEST ALONG COUNTY ROAD 19 (FISHTAIL ROAD), 28.0 FEET NORTH OF COUNTY ROAD 19, 8.0 FEET EAST OF SOME SMALL TREES, 6.0 FEET SOUTH OF A FENCE LINE, 2.0 FEET SOUTH OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
980.477	.033	3				VERTICAL CONTROL SURVEY	1967	USGS-VERT

Geoid Separations(ft): GEOID18 = -88.297 12B = -88.340 09 = -88.268 03 = -88.179

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

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TT_58_FJH-3N-22MAY2007.jpg	N	May 22, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TT_58_FJH-2-22MAY2007.jpg		May 22, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TT_58_FJH-1-22MAY2007.jpg		May 22, 2007

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

TT 59 FJH

Mn/DOT Name: TT 59 FJH
NGS Name: TT 59 FJH
County: PINE, MN (Sheet 1)

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	16	40 N	19 W	455659.80	924337.20		

NGS ACRN: Get Map
NGS Quad / Sta Num : 45092414/
USGS Quad: LAKE CLAYTON

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2007	GOOD	Horz=NO Vert=YES	YES		PROJECTS 0 IN.	STEEL ROD IMBED IN MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	USGS

Description: (1954) **Stamping:** TT 59 FJH 1954 985

AT SAINT CROIX STATE PARK, UNDER THE SAINT CROIX FIRE TOWER.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
984.703	.033	3				VERTICAL CONTROL SURVEY	1967	USGS-VERT

Geoid Separations(ft): GEOID18 = -88.140 12B = -88.186 09 = -88.117 03 = -88.028

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

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TT_59_FJH-3E-25APR2007.jpg	E	Apr 25, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TT_59_FJH-2-25APR2007.jpg		Apr 25, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TT_59_FJH-1-25APR2007.jpg		Apr 25, 2007

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

TT 60 FJH

Mn/DOT Name: TT 60 FJH
NGS Name: TT 60 FJH
County: PINE, MN (Sheet 1)

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	21	40 N	19 W	455606.20	924342.40		

NGS ACRN: Get Map
NGS Quad / Sta Num : 45092414/
USGS Quad: LAKE CLAYTON

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2007	GOOD	Horz=NO Vert=YES	YES		PROJECTS 0 IN.	STEEL ROD IMBED IN MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	USGS

Description: (2007) **Stamping:** TT 60 FJH 1954 927

AT SAINT CROIX STATE PARK, 63.0 FEET NORTH OF A ROAD FORK TO BIG EDDY, 27.0 FEET WEST OF A ROAD, 18.0 FEET EAST OF A LONE 9.0 INCH DIAMETER OAK TREE, 1.0 FOOT EAST-SOUTHEAST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
927.223	.033	3				VERTICAL CONTROL SURVEY	1967	USGS-VERT

Geoid Separations(ft): GEOID18 = -88.163 12B = -88.212 09 = -88.143 03 = -88.048

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

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TT_60_FJH-3E-25APR2007.jpg	E	Apr 25, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TT_60_FJH-2-25APR2007.jpg		Apr 25, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TT_60_FJH-1-25APR2007.jpg		Apr 25, 2007

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

TT 61 FJH USGS

Mn/DOT Name: TT 61 FJH USGS **NGS Name:** TT 61 FJH

County: PINE, MN (Sheet 1)

NGS ACRN: QO1550 Get Map
NGS Quad / Sta Num : 45092414/1019
USGS Quad: LAKE CLAYTON

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	33	40 N	19 W	455413.57	924348.60		2

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2007	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	USGS

Description: (1961) **Stamping:** TT 61 FJH 1954 876

12.0 MILES NORTHEAST OF PINE CITY, IN THE PARKING AREA AT THE STATE PARK, 24.0 FEET WEST OF A GRAVEL ROAD, 49.0 FEET SOUTH OF THE JUNCTION OF A GRAVEL ROAD AND A DRIVEWAY, 88.6 FEET SOUTH OF STATION SAINT CROIX, 3.0 FEET EAST OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
875.818	.033	3				VERTICAL CONTROL SURVEY	1967	USGS-VERT

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
875.982	.197		787.889	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -88.222 12B = -88.268 09 = -88.199 03 = -88.103

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 54 13.57486	92 43 48.60330	543238.676	163416.283	.066	2	ADJUSTMENT	1999	17648
45 54 13.57200	92 43 48.59963	543238.936	163415.994	.066	2	ADJUSTMENT	1991	17497

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 54 13.56845	92 43 48.60081	543238.853	163415.634	.066	2	ADJUSTMENT	1986	17289

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 54 13.74030	92 43 47.87970			.100	2	CLASSICAL SURVEY	1961	12611

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3011549.243	661357.172	1709084.301	16677759.468	.066	2	ADJUSTMENT	1999	17648
3011549.508	661356.888	1709084.561	16677759.179	.066	2	ADJUSTMENT	1991	17497

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3011549.432	661356.527	1709084.479	16677758.819	.066	2	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2386945.063	333289.329			.100	2	CLASSICAL SURVEY	1961	12611

TT 62 FJH

Mn/DOT Name: TT 62 FJH

NGS Name: TT 62 FJH

County: PINE, MN (Sheet 1)

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	34	40 N	19 W	455416.80	924208.00		

NGS ACRN: Get Map
NGS Quad / Sta Num : 45092414/
USGS Quad: LAKE CLAYTON

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2007	GOOD	Horz=NO Vert=YES	YES		PROJECTS 0 IN.	STEEL ROD IMBED IN MON

Monument Type	Disk Type	Mon. Agency
CONCRETE MONUMENT (CAST-IN-PLACE)	BENCH MARK DISK	USGS

Description: (2007) **Stamping:** TT 62 FJH 1954 899

AT SAINT CROIX STATE PARK, 84.0 FEET EAST-SOUTHEAST OF A ROAD. ABOUT 330.0 FEET EAST-NORTHEAST OF A SMALL PARKING LOT FOR A WOODEN OVERLOOK, THE STATION IS ON A SMALL HILL, 1.4 MILES EAST OF STATION SAINT CROIX TO A PARKING LOT.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
899.162	.033	3				VERTICAL CONTROL SURVEY	1967	USGS-VERT

Geoid Separations(ft): GEOID18 = -88.008 12B = -88.064 09 = -88.002 03 = -87.887

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

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TT_62_FJH-3E-25APR2007.jpg	E	Apr 25, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TT_62_FJH-2-25APR2007.jpg		Apr 25, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TT_62_FJH-1-25APR2007.jpg		Apr 25, 2007

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

TT 75 DM

Mn/DOT Name: TT 75 DM
NGS Name: TT 75 DM
County: PINE, MN (Sheet 1)

NGS ACRN: Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	6	38 N	21 W	454812.00	925928.00		

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2012	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

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

Description: (1961)
Stamping: TT 75 DM 1954 989

1.5 MILES SOUTH AND 1.0 MILE WEST OF PINE CITY, IN A SCHOOLYARD, 23.0 FEET WEST OF A ROAD, 3.0 FEET WEST AND 4.0 FEET NORTH OF A TELEPHONE POLE.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
989.109	.033	3				VERTICAL CONTROL SURVEY	1966	USGS-VERT

Geoid Separations(ft): GEOID18 = -91.260 12B = -91.237 09 = -91.165 03 = -91.037

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

TT 76 DM

Mn/DOT Name: TT 76 DM

NGS Name: TT 76 DM

County: PINE, MN (Sheet 1)

NGS ACRN: QO1421 Get Map
NGS Quad / Sta Num : 45093112/
USGS Quad: HENRIETTE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	18	38 N	21 W	454716.00	930025.00	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2007	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

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

Description: (1954) **Stamping:** TT 76 DM 1954 973

2.25 MILES SOUTHWEST OF PINE CITY, 0.8 MILE WEST OF INTERSTATE HIGHWAY 35, 1.4 MILES NORTH OF TRUNK HIGHWAY 70, 1.5 MILES WEST OF ROCK CREEK, 2.55 MILES SOUTH OF TRUNK HIGHWAY 324, 235.0 FEET SOUTH OF A TOWNSHIP ROAD, 28.0 FEET EAST OF A TOWNSHIP ROAD, 23.7 FEET WEST OF A 30.0 INCH DIAMETER OAK TREE, 29.2 FEET SOUTHWEST OF A 30.0 INCH DIAMETER BIRCH TREE, ON A FENCE LINE, 1.0 FOOT WEST 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
973.932	.016	2/0				VERTICAL ADJUSTMENT	1991	00000025

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
973.715	.016	2				VERTICAL CONTROL SURVEY	1976	L23306
973.817	.016	2				VERTICAL CONTROL SURVEY	1974	L23306
973.433	.033	3				VERTICAL CONTROL SURVEY	1966	USGS-VERT

Geoid Separations(ft): GEOID18 = -91.470 12B = -91.450 09 = -91.374 03 = -91.240

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

TT 8 DM USGS

Mn/DOT Name: TT 8 DM USGS **NGS Name:** TT 8 DM

County: PINE, MN (Sheet 1)

NGS ACRN: QO1589 Get Map
NGS Quad / Sta Num : 45093114/1015
USGS Quad: QUAMBA

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	6	40 N	22 W	455851.42	930737.67		2

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1961	2017	GOOD	Horz=NO Vert=YES	YES		PROJECTS 6 IN.	STEEL SPIKE ADJ TO MON

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

Description: (2005) **Stamping:** TT 8 DM 1954 1070

5.0 MILES NORTHEAST OF QUAMBA, 4.9 MILES NORTH ALONG COUNTY ROAD 5 FROM THE JUNCTION OF COUNTY ROAD 5 AND TRUNK HIGHWAY 23 IN QUAMBA, THEN 1.7 MILES EAST ON COUNTY ROAD 74, 33.0 FEET SOUTH OF COUNTY ROAD 74, 330.0 FEET EAST OF REFERENCE MARK 1, 271.85 FEET SOUTHEAST OF POKEGAMA RM 1, 0.7 FOOT NORTH OF A WITNESS POST.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1069.601	.033	3				VERTICAL CONTROL SURVEY	1966	USGS-VERT

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
1070.142	.197		979.253	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648

Geoid Separations(ft): GEOID18 = -91.105 12B = -91.086 09 = -91.004 03 = -90.833

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Kanabec County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 58 51.42001	93 07 37.66669	442254.070	191598.413	.066	2	ADJUSTMENT	1999	17648

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 58 51.41532	93 07 37.66174	442254.418	191597.937	.066	2	ADJUSTMENT	1986	17289

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 58 51.56360	93 07 36.89460			.100	2	CLASSICAL SURVEY	1961	12611

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2910109.142	687811.586	1608109.253	16705802.436	.066	2	ADJUSTMENT	1999	17648

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2910109.499	687811.116	1608109.602	16705801.960	.066	2	ADJUSTMENT	1986	17289

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2285505.395	359741.098			.100	2	CLASSICAL SURVEY	1961	12611

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TT_8_DM-QO1589-3S-14JUN2017.jpg	S	Jun 14, 2017
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TT_8_DM-QO1589-2-14JUN2017.jpg		Jun 14, 2017
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TT_8_DM-QO1589-1-14JUN2017.jpg		Jun 14, 2017

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

TT 9 DM

Mn/DOT Name: TT 9 DM

NGS Name: TT 9 DM

County: PINE, MN (Sheet 1)

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	9	40 N	22 W	455747.00	930558.00		

NGS ACRN: Get Map
NGS Quad / Sta Num : 45093111/
USGS Quad: BROOK PARK

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1954	2007	NOT FOUND	Horz=? Vert=YES	NO			SEE DESCRIPTION

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

Description: (1979) **Stamping:** TT 9 DM 1954 1034

1.0 MILE NORTH AND 1.5 MILES WEST OF BROOK PARK, 28.0 FEET NORTH AND 419.0 FEET EAST OF A BRIDGE OVER POKEGAMA CREEK, 1.0 FOOT NORTH AND 1.0 FOOT EAST OF A FENCE CORNER.

Leveling-Derived Orthometric Heights (Feet)

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
1033.449	.033	3				VERTICAL CONTROL SURVEY	1966	USGS-VERT

Geoid Separations(ft): GEOID18 = -91.099 12B = -91.079 09 = -90.997 03 = -90.833

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

TUX MNDT

Mn/DOT Name: TUX MNDT **NGS Name:** TUX

County: PINE, MN (Sheet 1)

NGS ACRN: QO2511 Get Map
NGS Quad / Sta Num : 45093112/
USGS Quad: HENRIETTE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	19	38 N	21 W	454534.45	930017.60		2

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1984	1993	DESTROYED	Horz=NO Vert=NO	NO			SEE DESCRIPTION

Monument Type	Disk Type	Mon. Agency
IRON ROD	HORIZONTAL CONTROL DISK	MNDT

Description: (1993) **Stamping:** TUX 1984

4.5 MILES SOUTH-SOUTHWEST OF PINE CITY, 0.6 MILE WEST ON TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 70 AND INTERSTATE HIGHWAY 35, THEN 0.5 MILE SOUTH ON COUNTY ROAD 23, THEN 0.15 MILE WEST ON COUNTY ROAD 109, 12.0 FEET NORTH OF COUNTY ROAD 109, 56.5 FEET EAST OF AN ENTRANCE, 94.7 FEET WEST-SOUTHWEST OF A POWER POLE, 87.4 FEET EAST-SOUTHEAST OF A POWER POLE, 40.7 FEET EAST-SOUTHEAST OF A TELEPHONE CABLE PEDESTAL, 47.95 FEET NORTH-NORTHEAST OF TUX MNDT RM 1, 38.08 FEET SOUTHEAST OF TUX MNDT RM 2, 40.8 FEET EAST-SOUTHEAST OF A WITNESS POST.

Station Notes

IN 1993 THE GEODETIC UNIT FOUND THE STATION HAD BEEN HIT AND DISK WAS MISSING.

*** 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
970.602	.197		879.253	.131	1996	HORIZONTAL ADJUSTMENT	1999	17648
970.503						RECIPROCAL VERTICAL ANGLE	1994	HORZ

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
970.503						RECIPROCAL VERTICAL ANGLE	1984	HORZ

Geoid Separations(ft): GEOID18 = -91.607 12B = -91.584 09 = -91.516 03 = -91.381

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 34.45181	93 00 17.60249	473226.168	110801.045	.066	2	ADJUSTMENT	1999	17648

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 34.45291	93 00 17.60664	473225.874	110801.156	.066	2	CLASSICAL SURVEY	1994	G17352
45 45 34.45291	93 00 17.60664	473225.874	110801.157	.066	2	ADJUSTMENT	1994	17352

NAD27

Geodetic Position							Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 34.60290	93 00 16.84790			.100	2	CLASSICAL SURVEY	1984	3306-09

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2942450.048	607561.089	1639169.136	16625080.399	.066	2	ADJUSTMENT	1999	17648

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2942449.752	607561.196	1639168.842	16625080.511	.066	2	CLASSICAL SURVEY	1994	G17352
2942449.752	607561.196	1639168.842	16625080.511	.066	2	ADJUSTMENT	1994	17352

NAD27

MN State Plane - Central Zone							Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2317846.172	279491.955			.100	2	CLASSICAL SURVEY	1984	3306-09

TUX MNDT RM 1

Mn/DOT Name: TUX MNDT RM 1 **NGS Name:** TUX RM 1

County: PINE, MN (Sheet 1)

NGS ACRN: CS8973 Get Map
NGS Quad / Sta Num : 45093112/
USGS Quad: HENRIETTE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	19	38 N	21 W	454534.04	930017.95		3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1984	2017	DESTROYED	Horz=NO Vert=NO	YES		RECESSED 2 IN.	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE)	REFERENCE MARK DISK	MNDT

Description: (2008) **Stamping:** TUX NO 1 1984

4.5 MILES SOUTH-SOUTHWEST OF PINE CITY, 0.6 MILE WEST ON TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 70 AND INTERSTATE HIGHWAY 35, THEN 0.5 MILE SOUTH ON COUNTY ROAD 23, THEN 0.15 MILE WEST ON COUNTY ROAD 109, 29.5 FEET SOUTH OF THE CENTER OF COUNTY ROAD 109, 34.0 FEET EAST OF THE CENTER OF A DRIVEWAY FOR 5020 360TH STREET, 130.5 FEET WEST-SOUTHWEST OF A POWER POLE, 84.5 FEET EAST-SOUTHEAST OF A POWER POLE, 59.3 FEET SOUTHEAST OF A TELEPHONE CABLE PEDESTAL, 2.0 FEET NORTH OF A WITNESS POST.

Station Notes

THE ROD DEPTH IS UNKNOWN. THE DISK WAS TURNED IN TO THE OFFICE.

*** No Leveling-Derived Orthometric Heights in the Database ***

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
968.709	.262		877.328	.197	1996	GPS - RTRN	2008	RTRN2008

Geoid Separations(ft): GEOID18 = -91.611 12B = -91.584 09 = -91.516 03 = -91.381

Lat/Lon and County Coordinates (Feet)

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 34.04409	93 00 17.94538	473201.801	110759.776	.131	3	GPS - RTRN	2008	RTRN2008

State Plane and UTM Coordinates (Feet)

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2942426.389	607519.414	1639144.832	16625039.118	.131	3	GPS - RTRN	2008	RTRN2008

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TUX_RM_1-CS8973-3SW-30SEP2008.jpg	SW	Sep 30, 2008
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TUX_RM_1-CS8973-2-30SEP2008.jpg		Sep 30, 2008
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TUX_RM_1-CS8973-1-30SEP2008.jpg		Sep 30, 2008

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

TUX MNDT RM 1 RESET

Mn/DOT Name: TUX MNDT RM 1 RESET **NGS Name:** TUX RM 1 RESET

County: PINE, MN (Sheet 1)

NGS ACRN: DQ7336 Get Map
NGS Quad / Sta Num : 45093112/
USGS Quad: HENRIETTE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	19	38 N	21 W	454534.07	930017.94	2	

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2017	2017	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)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2017) **Stamping:** TUX NO 1 1984 2017

IN ROCK CREEK, 0.6 MILE WEST ON TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 70 AND INTERSTATE HIGHWAY 35 IN ROCK CREEK, THEN 0.5 MILE SOUTH ON COUNTY ROAD 23, THEN 0.15 MILE WEST ON COUNTY ROAD 109 (560TH STREET), 29.5 FEET SOUTH OF COUNTY ROAD 109 (560TH STREET), 130.5 FEET WEST-SOUTHWEST OF A POWER POLE, 84.5 FEET EAST-SOUTHEAST OF A POWER POLE, 59.3 FEET SOUTHEAST OF A TELEPHONE CABLE PEDESTAL, 59.0 SOUTH-SOUTHEAST OF TUX MNDT RM 2, 34.0 FEET EAST OF THE CENTER OF DRIVEWAY NUMBER 5020, 2.0 FEET NORTH OF A WITNESS POST.

Station Notes
THE ROD DEPTH IS UNKNOWN.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
968.974	.016	2/1				VERTICAL ADJUSTMENT	2021	00000963
968.974	.016	2/1				VERTICAL CONTROL SURVEY	2017	VRCRK

Geoid Separations(ft): GEOID18 = -91.611 12B = -91.584 09 = -91.516 03 = -91.381

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

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TUX_RM_1_RESET-DQ7336-3S-23MAY2017.jpg	S	May 23, 2017
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TUX_RM_1_RESET-DQ7336-2-23MAY2017.jpg		May 23, 2017
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TUX_RM_1_RESET-DQ7336-1-23MAY2017.jpg		May 23, 2017

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

TUX MNDT RM 2

Mn/DOT Name: TUX MNDT RM 2 **NGS Name:** TUX RM 2

County: PINE, MN (Sheet 1)

NGS ACRN: CS8974 Get Map
NGS Quad / Sta Num : 45093112/
USGS Quad: HENRIETTE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SE	19	38 N	21 W	454534.62	930018.09	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1984	2017	GOOD	Horz=YES Vert=YES	YES		FLUSH	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
ALUMINUM ALLOY ROD (NO SLEEVE)	REFERENCE MARK DISK	MNDT

Description: (2008) **Stamping:** TUX NO 2 1984

IN ROCK CREEK, 0.6 MILE WEST ALONG TRUNK HIGHWAY 70 FROM THE JUNCTION OF TRUNK HIGHWAY 70 AND INTERSTATE HIGHWAY 35 IN ROCK CREEK, THEN 0.5 MILE SOUTH ON COUNTY ROAD 23, THEN 0.15 MILE WEST ON COUNTY ROAD 109 (560TH STREET), 28.0 FEET NORTH OF COUNTY ROAD 109, IN THE SOUTHWEST CORNER OF THE YARD AT 5155 560TH STREET, 128.0 FEET WEST OF A POWER POLE, 60.7 FEET NORTHWEST OF A WITNESS POST FOR TUX MNDT RM 1, 59.0 FEET NORTH-NORTHWEST OF TUX MNDT RM 1 RESET, 51.6 FEET EAST OF A POWER POLE, 2.9 FEET EAST OF A TELEPHONE CABLE PEDESTAL.

Station Notes
THE ROD DEPTH IS UNKNOWN.

Leveling-Derived Orthometric Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
970.208	.016	2/1				VERTICAL ADJUSTMENT	2021	00000963
970.211	.016	2/1				VERTICAL CONTROL SURVEY	2017	VRCRK

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
970.175	.262		878.591	.197	2011	GPS - RTRN	2017	RTRN2017
970.116	.262		878.735	.197	1996	GPS - RTRN	2008	RTRN2008

Geoid Separations(ft): GEOID18 = -91.611 12B = -91.584 09 = -91.516 03 = -91.381

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 34.61500	93 00 18.08701	473191.835	110817.622	.131	3	GPS - RTRN	2017	RTRN2017

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 45 34.61466	93 00 18.08754	473191.798	110817.587	.131	3	GPS - RTRN	2008	RTRN2008

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2942415.440	607577.076	1639134.798	16625096.925	.131	3	GPS - RTRN	2017	RTRN2017

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2942415.403	607577.041	1639134.760	16625096.890	.131	3	GPS - RTRN	2008	RTRN2008

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TUX_RM_2-CS8974-3N-23MAY2017.jpg	N	May 23, 2017
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TUX_RM_2-CS8974-2-23MAY2017.jpg		May 23, 2017
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/TUX_RM_2-CS8974-1-23MAY2017.jpg		May 23, 2017

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

VDOO MNDT

Mn/DOT Name: VDOO MNDT **NGS Name:** VDOO

County: PINE, MN (Sheet 1)

NGS ACRN: DE5990 Get Map
NGS Quad / Sta Num : 46092323/
USGS Quad: CLOVERDALE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	20	41 N	18 W	460043.35	923921.46	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1996	2012	DESTROYED	Horz=NO Vert=NO	YES		FLUSH	BAR MAG IMBED IN MON

Monument Type	Disk Type	Mon. Agency
UNKNOWN	SURVEY DISK	MNDT

Description: (1996) **Stamping:** VDOO 1996

13.25 MILES EAST OF HINCKLEY, 13.3 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND INTERSTATE HIGHWAY 35 IN HINCKLEY, AT TRUNK HIGHWAY 48 MILEPOINT 13.3, 91.0 FEET NORTH OF TRUNK HIGHWAY 48, 1.6 FEET WEST OF A FENCE, 33.3 FEET NORTH-NORTHWEST OF A FENCE CORNER, 1.4 FEET WEST 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
973.489	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
973.604	.016	2/1				VERTICAL ADJUSTMENT	2006	00000497
973.646	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
973.371	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

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
			885.855	.007	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			885.963	.009	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
973.653	.131		886.114	.066	1996	HORIZONTAL ADJUSTMENT	2002	GPS1700
973.653	.131		886.114	.066	1996	GPS - STATIC	2001	HCLOV

Geoid Separations(ft): GEOID18 = -87.631 12B = -87.713 09 = -87.638 03 = -87.549

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 43.34906	92 39 21.45646	562010.428	202949.646	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 43.34913	92 39 21.45713	562010.381	202949.653	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 43.34911	92 39 21.45677	562010.406	202949.651	.033	C	ADJUSTMENT	2002	GPS1700
46 00 43.34911	92 39 21.45677	562010.406	202949.651	.033	C	GPS - STATIC	2001	HCLOV

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 43.34242	92 39 21.45041	562010.858	202948.974	.033	C	GPS - STATIC	1997	HCLOV

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3029642.199	701200.913	1727798.442	16717298.945	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3029642.152	701200.919	1727798.395	16717298.951	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3029642.177	701200.917	1727798.421	16717298.950	.033	C	ADJUSTMENT	2002	GPS1700
3029642.177	701200.917	1727798.421	16717298.950	.033	C	GPS - STATIC	2001	HCLOV

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3029642.640	701200.249	1727798.872	16717298.274	.033	C	GPS - STATIC	1997	HCLOV

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/VDOO-DE5990-3N-17MAR2008.jpg	N	Mar 17, 2008
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/VDOO-DE5990-2-17MAR2008.jpg		Mar 17, 2008
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/VDOO-DE5990-1-17MAR2008.jpg		Mar 17, 2008

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

Mn/DOT Name: WATANA
NGS Name: WATANA
County: PINE, MN (Sheet 1)

NGS ACRN: DO8718 Get Map
NGS Quad / Sta Num : 45092444/
USGS Quad: BEROUN

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	33	40 N	21 W	455444.95	925800.58	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2012	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 45 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) **Stamping:** WATANA 2012

1.0 MILE WEST-NORTHWEST OF BEROUN, 0.6 MILE NORTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND COUNTY ROAD 14 AT BEROUN, AT INTERSTATE HIGHWAY 35 MILEPOINT 175.90, 143.7 FEET EAST OF SOUTHBOUND INTERSTATE HIGHWAY 35, 60.8 FEET WEST OF NORTHBOUND INTERSTATE HIGHWAY 35, 1.5 FEET EAST 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
966.461	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
966.455	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
966.333	.262		875.841	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -90.584 12B = -90.567 09 = -90.492 03 = -90.361

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 54 44.94611	92 58 00.58343	482988.323	166555.182	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2951259.990	663468.356	1648856.855	16680821.587	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/WATANA-DO8718-3W-19NOV2012.jpg	W	Nov 19, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/WATANA-DO8718-2-19NOV2012.jpg		Nov 19, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/WATANA-DO8718-1-19NOV2012.jpg		Nov 19, 2012

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

Mn/DOT Name: WAYNE
NGS Name: WAYNE
County: PINE, MN (Sheet 1)

NGS ACRN: DO8689 Get Map
NGS Quad / Sta Num : 46092332/
USGS Quad: SANDSTONE SOUTH

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	21	41 N	19 W	460044.07	924523.20	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2012	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 45 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) **Stamping:** WAYNE 2012

0.8 MILE WEST OF CLOVERDALE, 0.75 MILE WEST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND COUNTY ROAD 21 IN CLOVERDALE, AT TRUNK HIGHWAY 48 MILEPOINT 8.45, 49.2 FEET NORTH OF TRUNK HIGHWAY 48, 8.9 FEET WEST OF A DRIVEWAY, 1.5 FEET EAST 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
990.310	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
990.388	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
990.405			901.895	.012	2011	HORIZONTAL ADJUSTMENT	2015	GPS3071
990.405			901.895	.012	2011	GPS - STATIC	2015	HCLVR
990.418	.131		902.029	.066	2007	GPS - STATIC	2012	HCLVR
990.418	.131		902.124	.066	1996	GPS - STATIC	2012	HCLVR

Geoid Separations(ft): GEOID18 = -88.422 12B = -88.491 09 = -88.386 03 = -88.291

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 44.06704	92 45 23.19986	536477.322	202960.175	.016		ADJUSTMENT	2015	GPS3071
46 00 44.06704	92 45 23.19986	536477.322	202960.175	.016	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 44.06713	92 45 23.20073	536477.260	202960.185	.033	C	GPS - STATIC	2012	HCLVR

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 44.06711	92 45 23.20031	536477.290	202960.183	.033	C	GPS - STATIC	2012	HCLVR

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3004115.313	700776.038	1702276.491	16717277.486	.016		ADJUSTMENT	2015	GPS3071
3004115.313	700776.038	1702276.491	16717277.486	.016	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3004115.252	700776.046	1702276.429	16717277.495	.033	C	GPS - STATIC	2012	HCLVR

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3004115.281	700776.045	1702276.459	16717277.493	.033	C	GPS - STATIC	2012	HCLVR

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/WAYNE-DO8689-3N-20AUG2012.jpg	N	Aug 20, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/WAYNE-DO8689-2-20AUG2012.jpg		Aug 20, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/WAYNE-DO8689-1-20AUG2012.jpg		Aug 20, 2012

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

WILBUR MNDT

Mn/DOT Name: WILBUR MNDT **NGS Name:** WILBUR

County: PINE, MN (Sheet 1)

NGS ACRN: DE5991 Get Map
NGS Quad / Sta Num : 46092323/
USGS Quad: CLOVERDALE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	20	41 N	18 W	460055.50	923925.47	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1996	2012	DESTROYED	Horz=NO Vert=NO	NO		FLUSH	BAR MAG IMBED IN MON

Monument Type
ALUMINUM ALLOY ROD (NO SLEEVE) (DEPTH 25 FT)

Disk Type
SURVEY DISK

Mon. Agency
MNDT

Description: (1996)

Stamping: WILBUR 1996

13.25 MILES EAST OF HINCKLEY, 13.2 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND INTERSTATE HIGHWAY 35 IN HINCKLEY TO TRUNK HIGHWAY 48 MILEPOINT 13.2 THEN 0.25 MILE NORTH ON A TOWNSHIP ROAD, STATION ON THE EAST SIDE OF A ROAD, 3.8 FEET NORTH 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
973.899	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
974.017	.016	2/1				VERTICAL ADJUSTMENT	2006	00000497
974.056	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
973.781	.016	2/1				VERTICAL CONTROL SURVEY	1997	VCLOV

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
			886.252	.008	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			886.356	.009	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
974.047	.131		886.504	.066	1996	HORIZONTAL ADJUSTMENT	2002	GPS1700
974.047	.131		886.504	.066	1996	GPS - STATIC	2001	HCLOV

Geoid Separations(ft): GEOID18 = -87.644 12B = -87.723 09 = -87.651 03 = -87.562

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 55.49931	92 39 25.47231	561723.219	204179.612	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 55.49938	92 39 25.47298	561723.171	204179.619	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 55.49938	92 39 25.47262	561723.197	204179.619	.033	C	ADJUSTMENT	2002	GPS1700
46 00 55.49938	92 39 25.47262	561723.197	204179.619	.033	C	GPS - STATIC	2001	HCLOV

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 55.49270	92 39 25.46627	561723.647	204178.942	.033	C	GPS - STATIC	1997	HCLOV

WILBUR MNDT

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3029334.085	702425.672	1727509.818	16718528.015	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3029334.037	702425.678	1727509.771	16718528.022	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3029334.063	702425.678	1727509.796	16718528.023	.033	C	ADJUSTMENT	2002	GPS1700
3029334.063	702425.678	1727509.796	16718528.023	.033	C	GPS - STATIC	2001	HCLOV

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3029334.524	702425.011	1727510.247	16718527.348	.033	C	GPS - STATIC	1997	HCLOV

WILBUR MNDT RESET

Mn/DOT Name: WILBUR MNDT RESET
NGS Name: WILBUR RESET
County: PINE, MN (Sheet 1)

NGS ACRN: DO8697 Get Map
NGS Quad / Sta Num : 46092323/
USGS Quad: CLOVERDALE

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
SW	20	41 N	18 W	460055.50	923925.47	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2012	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 25 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) **Stamping:** WILBUR 1996 2012

4.0 MILES EAST OF CLOVERDALE, 4.0 MILES EAST ALONG TRUNK HIGHWAY 48 FROM THE JUNCTION OF TRUNK HIGHWAY 48 AND COUNTY ROAD 21 IN CLOVERDALE, TO TRUNK HIGHWAY 48 MILEPOINT 13.2, THEN 0.25 MILE NORTH ON LITTLE SAND ROAD, 36.6 FEET NORTH OF DRIVEWAY NUMBER 39491 EXTENDED, 32.4 FEET EAST OF LITTLE SAND ROAD, 3.8 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
973.528	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
973.646	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
973.663			885.871	.012	2011	HORIZONTAL ADJUSTMENT	2015	GPS3071
973.663			885.871	.012	2011	GPS - STATIC	2015	HCLVR
973.719	.131		886.061	.066	2007	GPS - STATIC	2012	HCLVR
973.719	.131		886.163	.066	1996	GPS - STATIC	2012	HCLVR
973.528	.262		885.877	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -87.644 12B = -87.723 09 = -87.651 03 = -87.562

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 55.49958	92 39 25.47287	561723.179	204179.639	.016		ADJUSTMENT	2015	GPS3071
46 00 55.49958	92 39 25.47287	561723.179	204179.639	.016	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 55.49968	92 39 25.47345	561723.138	204179.649	.033	C	GPS - STATIC	2012	HCLVR
46 00 55.49858	92 39 25.47268	561723.193	204179.538	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 00 55.49963	92 39 25.47308	561723.164	204179.644	.033	C	GPS - STATIC	2012	HCLVR

WILBUR MNDT RESET

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3029334.045	702425.698	1727509.779	16718528.043	.016		ADJUSTMENT	2015	GPS3071
3029334.045	702425.698	1727509.779	16718528.043	.016	C	GPS - STATIC	2015	HCLVR

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3029334.004	702425.707	1727509.738	16718528.053	.033	C	GPS - STATIC	2012	HCLVR
3029334.060	702425.597	1727509.792	16718527.941	.131	3	GPS - RTRN	2012	RTRN2012

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
3029334.030	702425.703	1727509.763	16718528.048	.033	C	GPS - STATIC	2012	HCLVR

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/WILBUR_RESET-DO8697-3E-07MAY2012.jpg	E	May 7, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/WILBUR_RESET-DO8697-2-07MAY2012.jpg		May 7, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/WILBUR_RESET-DO8697-1-07MAY2012.jpg		May 7, 2012

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

Mn/DOT Name: YZAL **NGS Name:** YZAL

County: PINE, MN (Sheet 1)

NGS ACRN: DL4794 Get Map
NGS Quad / Sta Num : 46092333/
USGS Quad: HINCKLEY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NW	18	41 N	20 W	460200.08	925531.15	2	C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2008	2020	GOOD	Horz=YES Vert=YES	YES		FLUSH	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: (2008) **Stamping:** YZAL 2008

1.5 MILES NORTHEAST OF HINCKLEY, 1.6 MILES NORTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND TRUNK HIGHWAY 48 IN HINCKLEY, AT INTERSTATE HIGHWAY 35 MILEPOINT 184.60, 44.0 FEET WEST OF NORTHBOUND INTERSTATE HIGHWAY 35, 40.9 FEET EAST OF SOUTHBOUND INTERSTATE HIGHWAY 35, 1.3 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
1075.716	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
1075.733	.016	2/1				VERTICAL CONTROL SURVEY	2009	VMOOSE

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
1075.736	.262		985.608	.197	2011	GPS - OPUS	2020	GPSBM
1075.808	.262		985.677	.197	2011	GPS - RTRN	2020	RTRN2020
			985.598	.007	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
1075.641	.262		985.635	.197	2007	GPS - RTRN	2012	RTRN2012
1075.720	.131		985.707	.066	2007	HORIZONTAL ADJUSTMENT	2009	GPS2566
1075.720	.131		985.828	.066	1996	GPS - STATIC	2009	HMOOSE
1075.720	.131		985.707	.066	2007	GPS - STATIC	2009	HMOOSE

Geoid Separations(ft): GEOID18 = -90.128 12B = -90.131 09 = -90.010 03 = -89.888

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 02 00.08196	92 55 31.14584	493569.098	210628.724	.131	3	GPS - OPUS	2020	GPSBM
46 02 00.08211	92 55 31.14641	493569.057	210628.740	.131	3	GPS - RTRN	2020	RTRN2020
46 02 00.08208	92 55 31.14599	493569.087	210628.737	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 02 00.08183	92 55 31.14634	493569.062	210628.711	.131	3	GPS - RTRN	2012	RTRN2012
46 02 00.08199	92 55 31.14658	493569.045	210628.727	.033	C	ADJUSTMENT	2009	GPS2566
46 02 00.08199	92 55 31.14658	493569.045	210628.727	.033	C	GPS - STATIC	2009	HMOOSE

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
46 02 00.08194	92 55 31.14616	493569.075	210628.722	.033	C	GPS - STATIC	2009	HMOOSE

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2961087.164	707711.287	1659377.592	16724888.811	.131	3	GPS - OPUS	2020	GPSBM
2961087.123	707711.302	1659377.552	16724888.826	.131	3	GPS - RTRN	2020	RTRN2020
2961087.153	707711.299	1659377.582	16724888.823	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2961087.129	707711.274	1659377.557	16724888.798	.131	3	GPS - RTRN	2012	RTRN2012
2961087.112	707711.290	1659377.540	16724888.814	.033	C	ADJUSTMENT	2009	GPS2566
2961087.112	707711.290	1659377.540	16724888.814	.033	C	GPS - STATIC	2009	HMOOSE

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2961087.141	707711.285	1659377.570	16724888.809	.033	C	GPS - STATIC	2009	HMOOSE

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/YZAL-DL4794-3N-04MAY2020.jpg	N	May 4, 2020
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/YZAL-DL4794-2-04MAY2020.jpg		May 4, 2020
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/YZAL-DL4794-1-04MAY2020.jpg		May 4, 2020

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

ZAHUT MNDT

Mn/DOT Name: ZAHUT MNDT **NGS Name:** ZAHUT

County: PINE, MN (Sheet 1)

NGS ACRN: AH1795 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	5	38 N	21 W	454846.42	925909.24		C

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
1993	2012	DESTROYED	Horz=NO Vert=NO	YES		RECESSED 2 IN.	MARKER W/BAR MAGNET

Monument Type	Disk Type	Mon. Agency
UNKNOWN	SURVEY DISK	MNDT

Description: (1993) **Stamping:** ZAHUT 1993

0.75 MILE SOUTHEAST OF PINE CITY, 0.55 MILE SOUTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF INTERSTATE HIGHWAY 35 AND COUNTY ROAD 7, AT INTERSTATE HIGHWAY 35 MILEPOINT 168.9, 44.6 FEET EAST-SOUTHEAST OF SOUTHBOUND INTERSTATE HIGHWAY 35, 17.0 FEET SOUTH-SOUTHWEST OF A CROSSOVER, 53.8 FEET SOUTHWEST OF THE WEST LEG OF A SIGN, 2.8 FEET NORTH OF A WITNESS POST.

Station Notes

DISK OFF, SEE RESET.
THE DISK WAS TURNED IN TO THE OFFICE.

*** No Leveling-Derived Orthometric Heights in the Database ***

Non Leveling-Derived Orthometric and Ellipsoid Heights (Feet)

NAVD88

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
			869.785	.009	2011	HORIZONTAL ADJUSTMENT	2012	GPS2800
			869.883	.009	2007	HORIZONTAL ADJUSTMENT	2007	GPS2300
			870.011	.066	1996	GPS - STATIC	1999	GPS917

NGVD29

Orthometric Height			Ellipsoid (NAD83)				Project Info	
Height	Acc	Order (/Class)	Height	Acc	Adj	Determination Method	Year	Reference
960.792						GPS - STATIC	1994	HORZ

Geoid Separations(ft): GEOID18 = -91.168 12B = -91.145 09 = -91.076 03 = -90.945

Lat/Lon and County Coordinates (Feet)

NAD83(2011)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 48 46.42463	92 59 09.24318	478094.169	130241.820	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 48 46.42470	92 59 09.24387	478094.120	130241.827	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 48 46.42475	92 59 09.24332	478094.159	130241.833	.033	C	GPS - STATIC	1999	GPS917

NAD83(1986)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 48 46.42065	92 59 09.23949	478094.431	130241.416	.033	C	GPS - STATIC	1994	HI35N

ZAHUT MNDT

State Plane and UTM Coordinates (Feet)

NAD83(2011)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2946985.705	627080.276	1644010.495	16644518.427	.007		ADJUSTMENT	2012	GPS2800

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2946985.657	627080.282	1644010.447	16644518.434	.010		ADJUSTMENT	2007	GPS2300

NAD83(1996)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2946985.696	627080.288	1644010.486	16644518.439	.033	C	GPS - STATIC	1999	GPS917

NAD83(1986)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2946985.973	627079.877	1644010.757	16644518.024	.033	C	GPS - STATIC	1994	HI35N

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ZAHUT-AH1795-3E-15MAY2007.jpg	E	May 15, 2007
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ZAHUT-AH1795-2-15MAY2007.jpg		May 15, 2007
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ZAHUT-AH1795-1-15MAY2007.jpg		May 15, 2007

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

ZAHUT MNDT RESET

Mn/DOT Name: ZAHUT MNDT RESET
NGS Name: ZAHUT RESET
County: PINE, MN (Sheet 1)

NGS ACRN: DO8725 Get Map
NGS Quad / Sta Num : 45092443/
USGS Quad: PINE CITY

1/4	Sec	Twp	Rng	Reference Latitude	Reference Longitude	Vert Order	Horz Order
NE	5	38 N	21 W	454846.42	925909.24	2	3

Year Set	Last Recovery	Condition	Geodetic Usability	Photos	Bridge Num	F/P/R	Magnetic Properties
2012	2012	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 20 FT)	METAL ROD (WITH REMOVABLE ID DISK)	MNDT

Description: (2012) **Stamping:** ZAHUT 1993 2012

0.75 MILE SOUTHEAST OF PINE CITY, 0.55 MILE SOUTH ALONG INTERSTATE HIGHWAY 35 FROM THE JUNCTION OF COUNTY ROAD 7 AND INTERSTATE HIGHWAY 35 IN PINE CITY, AT INTERSTATE HIGHWAY 35 MILEPOINT 168.9, 44.6 FEET EAST-SOUTHEAST OF SOUTHBOUND INTERSTATE HIGHWAY 35, 17.0 FEET SOUTH-SOUTHWEST OF A CROSSOVER, 53.8 FEET SOUTHWEST OF THE WEST LEG OF A SIGN, 2.8 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
960.713	.016	2/1				VERTICAL ADJUSTMENT	2016	00000879
960.713	.016	2/1				VERTICAL CONTROL SURVEY	2013	VCLVR

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
960.539	.262		869.463	.197	2007	GPS - RTRN	2012	RTRN2012

Geoid Separations(ft): GEOID18 = -91.168 12B = -91.145 09 = -91.076 03 = -90.945

Lat/Lon and County Coordinates (Feet)

NAD83(2007)

Geodetic Position		Pine County					Project Info	
Latitude	Longitude	X	Y	Acc	Order	Determination Method	Year	Reference
45 48 46.42444	92 59 09.24370	478094.132	130241.801	.131	3	GPS - RTRN	2012	RTRN2012

State Plane and UTM Coordinates (Feet)

NAD83(2007)

MN State Plane - Central Zone		UTM - Zone 15					Project Info	
X	Y	X	Y	Acc	Order	Determination Method	Year	Reference
2946985.669	627080.256	1644010.459	16644518.407	.131	3	GPS - RTRN	2012	RTRN2012

Station Photos

Type	File Name	Dir	Date
Location:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ZAHUT_RESET-DO8725-3N-16OCT2012.jpg	N	Oct 16, 2012
Monument:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ZAHUT_RESET-DO8725-2-16OCT2012.jpg		Oct 16, 2012
Disk:	https://www.olmweb.dot.state.mn.us/geod/StationPhotos/pine/ZAHUT_RESET-DO8725-1-16OCT2012.jpg		Oct 16, 2012

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