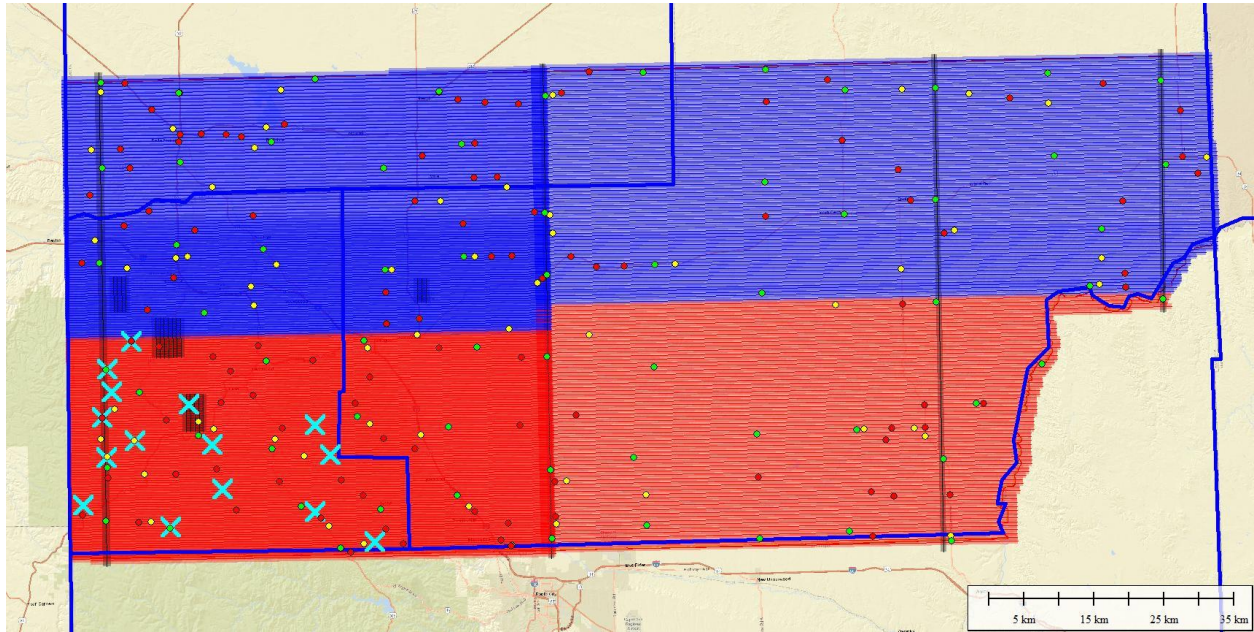


REPORT OF SURVEY

USGS SD FY17 NRCS LIDAR



Performed by:

TerraSurv

For:

Fugro Geospatial

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INTRODUCTION

Terrasurv, Inc of Pittsburgh, PA was tasked by Fugro Geospatial with performing a control survey in support of LiDAR data collection covering an area in west central South Dakota. The project consisted of two parts: ground control (GCP, 65 points) and quality control (VVA/NVA, 180 points). The map below in figure 1 shows the layout of the project.

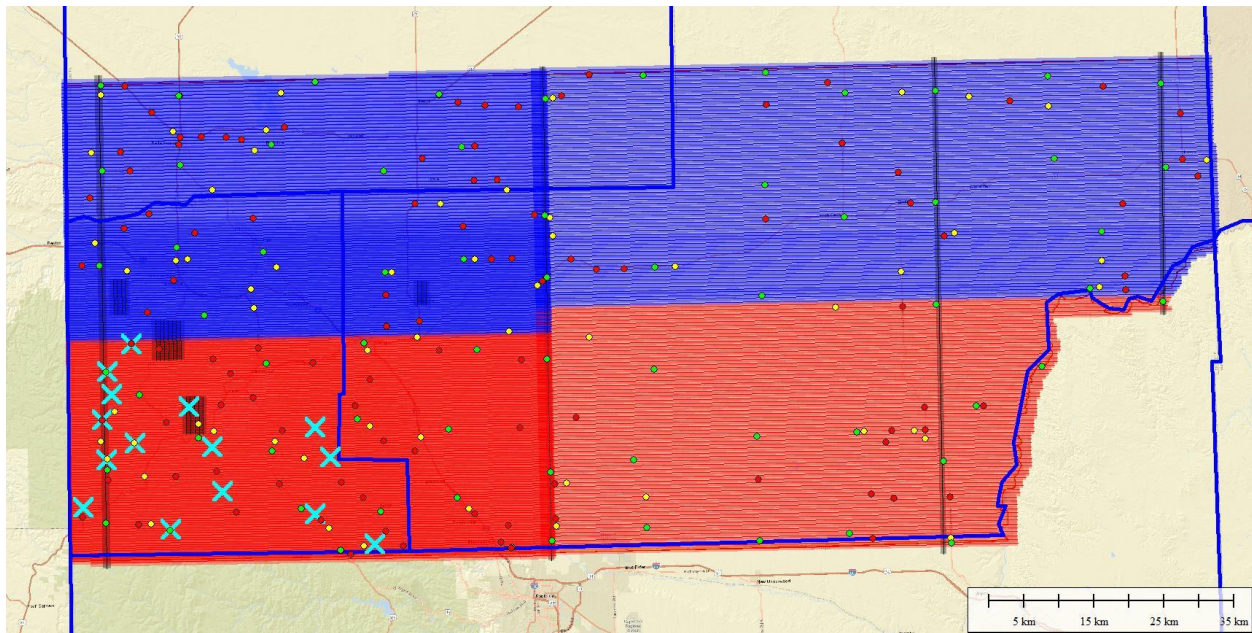


Figure 1 – Flight Lines and Lidar ground control

The green circles show the locations of the 65 GCP stations. The yellow circles are the VVA (non-woods) points, the red circles are the NVA points, and the blue X's are the woods points.

CONTROL

The National Spatial Reference System (NSRS) was used to provide control for the network. Two Continuously Operating Reference Stations (CORS) were included in the network, as well as thirteen existing NSRS benchmarks. Table 1 summarizes the NSRS control. The horizontal datum was the North American Datum of 1983 – NAD83 (2011), epoch 2010.0. The vertical datum was the North American Vertical Datum of 1988 (NAVD88), realized with GEOID12B.

Table 1 - NSRS Control

Station Name	PID	Horizontal Accuracy	Vertical Order	Type of Mark
RAPID CITY CORS ARP (SDRC)	DP1963	CORS	N/A	CORS
NEWCASTLE WY2006 CORS ARP (P043)	DI2251	CORS	N/A	CORS
34 090.10	AB9179	N/A	1-II	Conc Monument

Station Name	PID	Horizontal Accuracy	Vertical Order	Type of Mark													
34 058.0	AB9205	N/A	1-II	Conc Monument													
JUG	PU1218	3 rd **	2-0	Conc Monument													
JUG RM 1	PU1219	N/A	2-0	Conc Monument													
JUG RM 2	PU1217	N/A	2-0	Conc Monument													
Q 393	PU0182	N/A	2-0	Steel Rod													
F 375	PU0378	N/A	2-0	Conc Monument													
G 407	PU1122	N/A	2-0	Conc Monument													
R 403	PU1370	N/A	2-0	Conc Monument													
E 24	PU1406	N/A </tr <tr> <td>E 418</td> <td>PU1500</td> <td>N/A</td> <td>1-II</td> <td>Conc Monument</td> </tr> <tr> <td>S 359</td> <td>PU1998</td> <td>N/A</td> <td>2-0</td> <td>Culvert</td> </tr> <tr> <td>I90 002.39</td> <td>PV0616</td> <td>N/A</td> <td>1-II</td> <td>Steel Pipe</td> </tr>	E 418	PU1500	N/A	1-II	Conc Monument	S 359	PU1998	N/A	2-0	Culvert	I90 002.39	PV0616	N/A	1-II	Steel Pipe
E 418	PU1500	N/A	1-II	Conc Monument													
S 359	PU1998	N/A	2-0	Culvert													
I90 002.39	PV0616	N/A	1-II	Steel Pipe													

*Note: **JUG** is a third order triangulation station. The published horizontal position is on NAD83 (1996), and was not determined using GPS. **JUG RM 1** and **JUG RM 2** are at the same location, and all three are second order benchmarks.

The distribution of these NSRS stations is shown below in figure 2, along with flight lines. The two CORS are shown as red dots with labels, the benchmarks are shown as red crosses inside white squares.

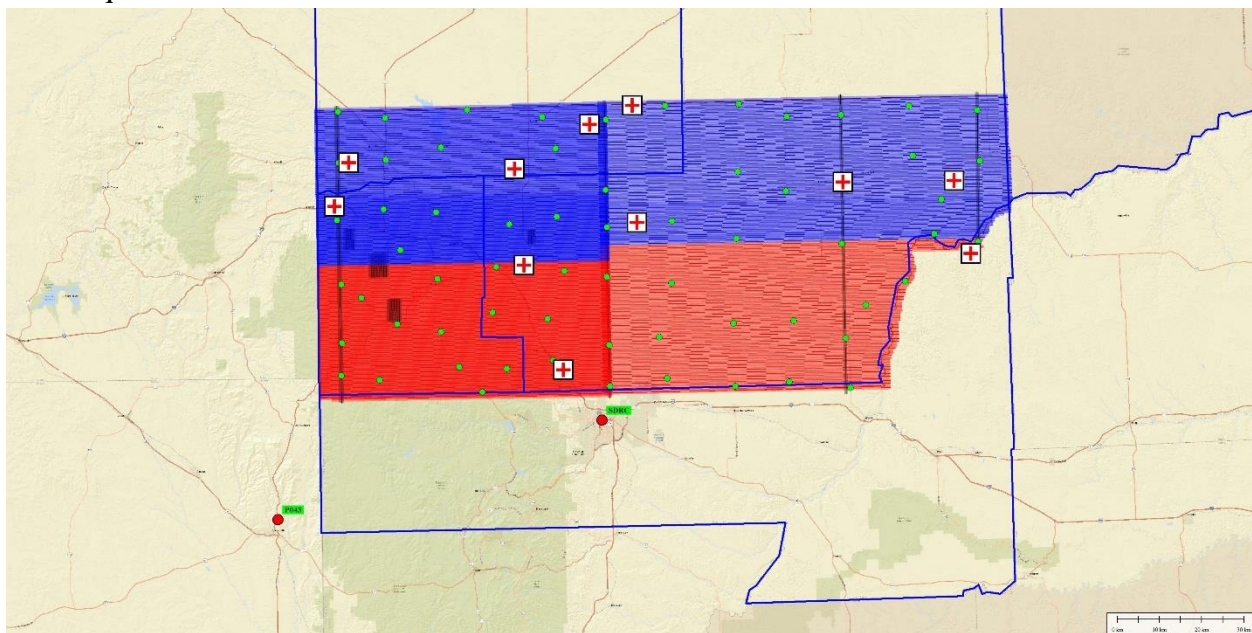


Figure 2 - Continuously Operating Reference Stations (CORS) and NSRS benchmarks used

STATIONS

There were a total of 65 GCP stations. 180 QC points were requested, consisting of 103 NVA (bare ground, low grass, low brush, etc) and 77 VVA (61 high brush, 16 woods). There were actually a total of 104 NVA and 78 VVA points (63 high brush, 15 woods) surveyed. Table 2 lists the stations established in this survey, including traverse stations that were set to enable survey of points in dense woods, as well as the CORS and benchmarks used, as well as the temporary base stations.

Table 2 - Station Summary

Station Name	GPSID	USGS Quadrangle	Description
34 058.0	AB9205	VOLUNTEER SE	NSRS BENCHMARK
34 090.10	AB9179	WHITE OWL	NSRS BENCHMARK
BASE	17079YA	OWANKA NE	Temporary Base
BASE	17079YB	CREIGHTON	Temporary Base
BASE	17079YC	PEDRO	Temporary Base
BASE	17079YD	PLAINVIEW	Temporary Base
BASE	17079YE	BONEITA SPRINGS	Temporary Base
BASE	17079YF	VIEWFIELD	Temporary Base
BASE	17079YG	VOLUNTEER NW	Temporary Base
BASE	17079YH	VALE SE	Temporary Base
BASE	17079YI	VOLUNTEER SE	Temporary Base
BASE	17079YJ	FORT MEADE	Temporary Base
BASE	17079YK	BLACKHAWK	Temporary Base
BASE	17079YL	NEMO	Temporary Base
BASE	17079YM	DEADWOOD SOUTH	Temporary Base
BASE	17079YN	CROOKS TOWER	Temporary Base
BASE	17079ZA	RAPID CITY 1 SW	Temporary Base
BASE	17079ZB	UNION CENTER	Temporary Base
BASE	17079ZC	BELLE FOURCHE	Temporary Base
BASE	17079ZD	JOLLY	Temporary Base
BASE	17079ZO	NEMO	Temporary Base
E 24	PU1406	BLACKHAWK	NSRS BENCHMARK
E 418	PU1500	FORT MEADE	NSRS BENCHMARK
F 375	PU0378	PEDRO	NSRS BENCHMARK
G 407	PU1122	VALE	NSRS BENCHMARK
GCP101	17079CX	RAPID CITY 1 NW	BARE=field entrance road on SE side of SR 34
GCP102	17079AI	WHITE OWL	BARE=center of a field road to the south of SR34
GCP103	17079CC	DALZELL	BARE=C/L of EB lane of Dalzell Road
GCP104	17079AF	WHITE OWL NW	BARE=south side of Red Owl Road at a field road intersection
GCP105	17079CK	HOWES	BARE=edge of Narcelle Road at C/L drive
GCP106	17079DD	RAPID CITY NW	BARE=EB lane of 218th Street
GCP107	17079CS	VOLUNTEER	BARE=EB lane of Wetz Road
GCP108	17079AB	RAPID CITY 1 NW	BARE=edge of 208 Place at a grass pull off
GCP109	17079CJ	LEMMON CREEK	BARE=WB lane of Old Marcus Road
GCP110	17079CG	PEDRO	BARE=NB lane of Wilsey Road
GCP111	17079CL	BONEITA SPRINGS	BARE=ground in road at intersection
GCP112	17079CB	WASTA NW	BARE=C/L of SB lane of Elm Springs Road
GCP113	17079DE	RAPID CITY NW	BARE=WB lane of 224th Street just east of W Nike Road
GCP114	17079CP	VOLUNTEER NW	BARE=EB lane of Old US 212 (broken asphalt surface)
GCP115	17079AL	FAIRPOINT	BARE=center of dirt road intersection, Fairpoint Road and Old Stoneville Road
GCP116	17079CO	VIEWFIELD	BARE=C/L of driveway on east side of New Underwood Road
GCP117	17079AC	RAPID CITY 1 SE	BARE=side of dirt road at the intersection of a field track to the east
GCP118	17079CD	ELM SPRINGS SW	BARE=C/L of WB lane of West Elm Springs Road
GCP119	17079AJ	UNION CENTER	BARE=center of a dirt parking area for a ball field on the west side of Ball Field Road and south of SR34
GCP120	17079CW	VOLUNTEER SE	BARE=C/L field entrance road on south side of SR 34
GCP121	17079CM	HEREFORD NE	BARE=WB lane of Hay Draw Road on east side of New Underwood Road
GCP122	17079AH	MARCUS	BARE=east side of Avance Road at a field access
GCP123	17079CI	PEDRO NW	BARE=C/L Vista Place at driveway intersection
GCP124	17079AD	BEND	BARE=centerline of Lazy Horse Road and west side of Antelope Road
GCP125	17079CE	OWANKA NW	BARE=ground at bend in road
GCP126	17079CQ	VOLUNTEER NE	BARE=C/L W Fairpoint Road
GCP127	17079AE	STONEVILLE	BARE=center of the intersection of Stoneville road and Old Stoneville Road
GCP128	17079AG	MARCUS	BARE=east side of Avance Road
GCP129	17079AA	RAPID CITY 1 SE	BARE=dirt road intersection
GCP130	17079CA	WASTA NW	BARE=west edge of Elm Springs Road at C/L field

Station Name	GPSID	USGS Quadrangle	Description
			entrance west
GCP131	17079CN	HEREFORD SE	BARE=EB lane of Elm Springs Road just east of New Underwood Road
GCP132	17079AK	FAIRPOINT SE	BARE=center of intersection of Chalk Butte Road and Fairpoint Road
GCP133	17079CF	DALZELL SE	BARE=C/L of Cheney Road
GCP134	17079CH	PLAINVIEW	BARE=ground in triangle formed by road intersection
GCP135	17079DL	SAVOY	BARE=NE edge of Tinton Road and C/L trail to the NE
GCP136	17079DM	SAVOY	BARE=paved parking lot on south side of Spearfish Canyon Lodge. Point is on the west side of the east parking are about midway along parking rows
GCP137	17079AT	BEULAH	BARE=center of Crows Creek Road at Homestake Road
GCP138	17079AO	SOURDOUGH FLATS	BARE=asphalt/gravel/dirt center of drive and south edge of SR34
GCP139	17079DO	CROOKS TOWER	BARE=center of NB lane of S Rapid Creek Road opposite SE edge of driveway to the SW
GCP140	17079AM	SOURDOUGH FLATS	BARE- center of dirt are on the south side of ACC Road and on the north side of a small pond
GCP141	17079AR	NISLAND	BARE=west edge of Beet Road at centerline of Reid Road
GCP142	17079AP	BELLE FOURCHE	BARE=asphalt centerline of Airport Road on the west side of US85
GCP143	17079CR	NEWELL	BARE=C/L 133rd Avenue just north of US 212
GCP144	17079DI	NEMO	BARE=C/L driveway on SW side of US 385
GCP145	17079DN	CROOKS TOWER	BARE=C/L S Rapid Creek Road at C/L trail to the east
GCP146	17079DJ	NEMO	BARE=paved apron to dirt road (Troxell Street) on west side of Nemo Road
GCP147	17079AN	BELLE FOURCHE	BARE=gravel/dirt area in front of the Black Hills Gospel Assembly on the east side of SR34
GCP148	17079AQ	FRUITDALE	BARE=center of side dirt road on the south side of High Street
GCP149	17079CU	NEWELL	BARE=NB lane of Vale Cut-off Road just north of Ericson Road
GCP150	17079CV	VALE NE	BARE=EB lane of Lewis Road
GCP151	17079AS	JOLLY	BARE=north side of Camp Comfort Road at a pull off
GCP152	17079AU	SAINT ONGE	BARE=center of asphalt at Weisman Road and SR34
GCP153	17079CY	VALE	BARE=dirt road surface in intersection of Bighorn Road and Bear Butte Road
GCP154	17079CT	VALE SE	BARE=dirt road in intersection of 199th Street and Nine Mile Road
GCP155	17079XB	MAURICE	BARE=southside of Beaver Creek Road
GCP156	17079AW	DEADWOOD NORTH	BARE=dirt center of Slag Pile Road on the south side of US14A
GCP157	17079CZ	STURGIS	BARE=WB lane of Short Track Road just west of end of pavement
GCP158	17079DC	FORT MEADE NE	BARE=WB lane of 207th Street
GCP159	17079AV	SPEARFISH	BARE=center of dirt parking for Spearfish Public Archery Range on the south side of Christensen Road
GCP160	17079DG	DEADWOOD SOUTH	BARE=pavement/dirt on west side of US 385 and on south side of Brownsville Road
GCP161	17079DA	DEADMAN MOUNTAIN	BARE=NW side of Runkle Road (paved) on east side of Vanocker Canyon Road just NW of cattle guard
GCP162	17079DB	TILFORD	BARE=wide area at intersection of dirt driveways on north side of Tilford Road
GCP163	17079DK	LEAD	BARE=SB lane (pavement) of Terry Summit Road on north side of US ALT 85
GCP164	17079DF	BLACKHAWK	BARE=gravel parking lot on NE side of Sturgis Road
GCP165	17079DH	MINNESOTA RIDGE	BARE=C/L of driveway on NE side of US 385
I90 002.39	PV0616	BEULAH	NSRS BENCHMARK
JUG	PU1218	VOLUNTEER NW	NSRS BENCHMARK
JUG RM 1	PU1219	VOLUNTEER NW	NSRS BENCHMARK
JUG RM 2	PU1217	VOLUNTEER NW	NSRS BENCHMARK
NVAJ01	17079IA	WASTA NW	BARE/SPARSE=C/L field entrance on west side of Elm Springs Road opposite Angell Road
NVAJ02	17079IB	ELM SPRINGS	BARE=C/L NB lane of Elm Springs Road just north of Smithville Road

Station Name	GPSID	USGS Quadrangle	Description
NVAJ03	17079IC	ELM SPRINGS	BARE=flat ground in triangle at T intersection of Elm Springs Road and Dalzell Road
NVAJ04	17079ID	DALZELL	BARE=C/L field entrance on north side of Dalzell Road
NVAJ05	17079IE	ELM SPRINGS	BARE=C/L field entrance on south side of West Elm Springs Road
NVAJ06	17079IF	ELM SPRINGS	BARE/SPARSE=west edge of Wicksville Road at field entrance
NVAJ07	17079IG	OWANKA NW	BARE=C/L field entrance on east side of Rocky Knoll Road
NVAJ08	17079IH	OWANKA NW	BARE=NB lane of Rocky Knoll Road
NVAJ09	17079II	OWANKA NE	BARE=EB lane of Angell Road
NVAJ10	17079IJ	PEDRO NW	BARE=dirt road intersection of Twin Creek Road and Plainview Road
NVAJ11	17079IK	PEDRO NW	BARE=ground on east edge of Cheyenne Crossing Road at south end just north of gate
NVAJ12	17079IL	PLAINVIEW	BARE=east edge of Plainview Road at south edge of Nuzum Road
NVAJ13	17079IM	HOWES	BARE=dirt/pavement on east side of SR 73 near NW corner of gas station property
NVAJ14	17079IN	HOWES	BARE=C/L field entrance on west side of Four Corners Road
NVAJ15	17079IO	THOMPSON LAKE	BARE=WB lane of Old Marcus Road
NVAJ16	17079IP	LEMMON CREEK	BARE=C/L field entrance on east side of SR 73
NVAJ17	17079IQ	WHITE OWL	BARE=ground in road intersection of Ranch Road and road south
NVAJ18	17079IR	BONEITA SPRINGS	BARE=NB lane of Elm Springs Road
NVAJ19	17079IS	VIEWFIELD	BARE=C/L drive on east side of New Underwood Road
NVAJ20	17079IT	VOLUNTEER NW	BARE=EB lane of Old US 212
NVAJ21	17079IU	OWL BUTTE SE	BARE=middle of road intersection of Old US 212 and W Fairpoint Road
NVAJ22	17079IV	VOLUNTEER NW	BARE=ground on gated road SE on south side of Old US 212
NVAJ23	17079IW	VALE NE	BARE=C/L Willow Creek Trail south of Old US 212
NVAJ24	17079IX	VALE NE	BARE=WB lane of Old US 212
NVAJ25	17079IY	VALE SE	BARE=paved apron to field entrance on south side of Valley Township Road opposite 136th Avenue
NVAJ26	17079IZ	VALE SE	BARE=EB lane of Valley Township Road
NVAJ27	17079JA	VOLUNTEER	BARE=EB lane of Wetz Road
NVAJ28	17079JB	VALE SE	BARE=WB lane of 199th Street
NVAJ29	17079JC	VALE SE	BARE=WB lane of 199th Street at field entrance north
NVAJ30	17079JD	VALE SE	BARE/SPARSE=short grass on field entrance on west side of Nine Mile Road
NVAJ31	17079JE	VALE	BARE=C/L dirt road from 194th Street WB to SR 79 NB
NVAJ32	17079JF	NEWELL	BARE=EB lane of Wilson Cemetery Road
NVAJ33	17079JG	VALE NE	EB lane of Lewis Road
NVAJ34	17079JH	VOLUNTEER SE	BARE/SPARSE=short grass on north side of SR 34 at field entrance
NVAJ35	17079JI	VOLUNTEER	BARE=C/L 145th Avenue on south side of SR 34
NVAJ36	17079JJ	RAPID CITY 1 NW	BARE=ground on pull-off on south side of SR 34
NVAJ37	17079JK	VOLUNTEER SE	BARE=C/L field entrance on NE side of SR 34
NVAJ38	17079JL	FORT MEADE	BARE/SPARSE=short grass on east side of SR 79 just south of drive east
NVAJ39	17079JM	FORT MEADE	BARE=dirt road surface in intersection of Bear Butte Road and Eden Road
NVAJ40	17079JN	FORT MEADE	BARE/SPARSE=short grass on north side of entrance road to Fort Meade Reservoir just east of Bear Butte Road
NVAJ41	17079JO	DEADMAN MOUNTAIN	BARE=pavement on pull-off on north side of Vanocker Canyon Road
NVAJ42	17079JP	DEADMAN MOUNTAIN	BARE=C/L gated trail on east side of Vanocker Canyon Road
NVAJ43	17079JQ	TILFORD	BARE=C/L Runkle Road at west edge of Bethlehem Road
NVAJ44	17079JR	TILFORD	BARE=-C/L Bethlehem Road at west edge of Big Elk Drive

Station Name	GPSID	USGS Quadrangle	Description
NVAJ45	17079JS	FORT MEADE SE	BARE=EB lane of Tilford Road at west edge of Middle Alkali Road
NVAJ46	17079JT	RAPID CITY 1 NW	BARE=C/L Titan Road west of Middle Alkali Road
NVAJ47	17079JU	FORT MEADE	BARE=WB lane of 207th Street
NVAJ48	17079JV	BLACKHAWK	BARE=C/L gravel drive on east side of Erickson Ranch Road
NVAJ49	17079JW	RAPID CITY NW	BARE=C/L gravel road on north side of Elk Creek Road opposite 143rd Avenue
NVAJ50	17079JX	RAPID CITY NW	BARE=SB lane of 143rd Avenue
NVAJ51	17079JY	BLACKHAWK	BARE=ground on west side of Deadwood Avenue North between two driveways
NVAJ52	17079JZ	BLACKHAWK	BARE/SPARSE=short grass on south side of Peaceful Pines Road and north side of drive
NVAJ53	17079KA	BLACKHAWK	BARE/SPARSE=short grass on SW side of RR tracks and NE side of new buildings
NVAJ54	17079KB	NEMO	BARE=intersection of Oak Ridge Road (dirt) and Nemo Road (paved). Point is on NE side of Nemo Road and just NE of dirt/pavement transition
NVAJ55	17079KC	DEADWOOD SOUTH	BARE=C/L gated drive to campground and NW edge of snowmobile trail on east side of US 385
NVAJ56	17079KD	MINNESOTA RIDGE	BARE=rough pavement on pull-off area on east side of US 385
NVAJ57	17079KE	NEMO	BARE=rough pavement on NB side of single lane road (Breezy Meadow Lane)
NVAJ58	17079KF	NEMO	BARE=south edge of Merritt Estes Road at C/L drive to farm
NVAJ59	17079KG	PIEDMONT	BARE=dirt pull-off on SE side of Merritt Road
NVAJ60	17079KH	PIEDMONT	BARE=C/L field entrance on west side of Nemo Road
NVAJ61	17079KI	NEMO	BARE=C/L woods trail on north side of Nemo Road
NVAJ62	17079KJ	DEADWOOD SOUTH	BARE=C/L dirt trail to woods on east side of US 385
NVAJ63	17079KK	LEAD	BARE=paved pull-off area on west side of US 85 and just north of Nevada Gulch Road
NVAJ64	17079KM	CROOKS TOWER	BARE=east edge of Triton Road at C/L road to the east
NVAJ65	17079KN	SAVOY	BARE=north edge of Tinton Road at C/L Little Spearfish Creek Road
NVAJ66	17079KO	SAVOY	BARE=north side of Elmore road at wide-out for mailboxes just west of US 14a
NVAJ67	17079KP	NAHANT	BARE=dirt vehicle turn-around on south side of Long Draw Road opposite TR 8150
NVAJ68	17079KQ	CROOKS TOWER	BARE=dirt road intersection of S Rapid Creek Road and drive to #189
NVAJ69	17079KR	BUCKHORN	BARE=gravel road surface on Moskee Road on west side of US 85
NVAJ70	17079KS	LEAD	BARE=dirt road surface on parallel road on east side of Rochford Road
NVAJ71	17079KT	NAHANT	BARE=dirt road surface of Forest Service Road 219 on north side of Rochford Road
NVAT01	17079EA	RAPID CITY 1 SW	BARE=dirt edge of road at a field road
NVAT02	17079EB	FORT MEADE SE	BARE=intersection of Tilford Road and West Alkali Road
NVAT03	17079EC	STONEVILLE	BARE=west side of Stoneville Road and centerline of Chalk Butte Road
NVAT04	17079ED	MARCUS	BARE=south side of Red Owl at a field track headed south
NVAT05	17079EE	ENNING	BARE=center of a gravel pull-off and field road on the south side of SR34
NVAT06	17079EF	ENNING	BARE=center of a field access on the east side of Red Owl Road
NVAT07	17079EG	FAIRPOINT SE	BARE=center of the intersection of Fairpoint Road and 196th Street
NVAT08	17079EH	FAIRPOINT	SPARSE=center of a field access road on the east side of Fairpoint Road
NVAT09	17079EI	STONEVILLE	SPARSE=center of a field road on the south side of Old Stoneville Road
NVAT10	17079EJ	SOURDOUGH FLATS	BARE=center of a dirt field access drive on the north side of US212

Station Name	GPSID	USGS Quadrangle	Description
NVAT11	17079EK	SOURDOUGH FLATS	BARE=center of asphalt drive apron on the north side of US212
NVAT12	17079EL	BELLE FOURCHE	BARE=dirt area between the railroad tracks and south side of Railroad Street and north of a parking area
NVAT13	17079EM	SOURDOUGH FLATS	BARE=asphalt/gravel center of a field access drive on the south side of SR34 opposite Bonato Road
NVAT14	17079EN	BEULAH	BARE=east side of Upper Red Water Road at a dirt drive to the southeast
NVAT15	17079EO	SOURDOUGH FLATS	BARE=center of Rehorst Road and Sourdough Road
NVAT16	17079EP	BELLE FOURCHE	GRASS=cut grass on the north side of the parking lot for Shopko and south of US212
NVAT17	17079EQ	BELLE FOURCHE	BARE=gravel pull off on the south side of US212
NVAT18	17079ER	BELLE FOURCHE	BARE=dirt road intersection of 5 Mile Road and Valley Road
NVAT19	17079ES	FRUITDALE	BARE=center of a dirt field road on the north side of Valley 1 Road
NVAT20	17079ET	FRUITDALE	BARE=center of a dirt drive to the west off of Arpan Road
NVAT21	17079EU	MAURICE	BARE=dirt center of intersection of Kerwin Road and Lookout Mountain Road
NVAT22	17079EV	JOLLY	BARE=center of dirt road intersection of Johnson Road and Lookout Mountain Road
NVAT23	17079EW	SPEARFISH	GRASS=area in the southeast corner of a dirt parking lot on the southeast side of St Joe Street
NVAT24	17079EX	BEULAH	BARE=centerline of Bear Creek Road and south side of Homestake Road
NVAT25	17079EY	CHICKEN CREEK	BARE=centerline of Mossing Lane at the south side of Chicken Creek Road
NVAT26	17079EZ	CHICKEN CREEK	BARE=center of Lower Redwater Road and Dorsette Road intersection
NVAT27	17079FA	SAINT ONGE	BARE=center of Crooked Oaks Road and Fogelsong Road
NVAT28	17079FB	SPEARFISH	BARE=center of Dynasty Road and east side of Maitland Road
NVAT29	17079FC	DEADWOOD NORTH	BARE=center of dirt forest road on the west side of US85
NVAT30	17079FD	STURGIS	BARE=center of Camp 5 Road and south side of US14A
NVAT31	17079FE	SPEARFISH	BARE=northeast side of Maitland Road at a pull-off for mailboxes
NVAT32	17079FF	MAURICE	BARE=south end of a dirt turn out on the north side of Spearfish Canyon Road
NVAT33	17079XA	MAURICE	BARE
P043 ARP	P043	CAMBRIA	CORS
Q 393	PU0182	PLAINVIEW	NSRS BENCHMARK
R 403	PU1370	OWL BUTTE SE	NSRS BENCHMARK
S 359	PU1998	SOURDOUGH FLATS	NSRS BENCHMARK
SDRC ARP	SDRC	RAPID CITY EAST	CORS
VVAJ01	17079PA	WASTA NW	BRUSH on west side of Elm Springs Road
VVAJ02	17079PB	ELM SPRINGS	CROPS=flat ground in uncultivated corn field on west side of Elm Springs Road
VVAJ03	17079PC	ELM SPRINGS	BRUSH=uncultivated crops in SE quadrant of intersection of 215th Street and 176th Avenue
VVAJ04	17079PD	ELM SPRINGS SW	CROPS=short corn stalks on north side of 215th Street and on east side of field road
VVAJ05	17079PE	PEDRO NW	BRUSH on south side of Vista Place
VVAJ06	17079PF	PEDRO NW	CROPS=short corn stalks on east side of Plainfield Road
VVAJ07	17079PG	HOWES	BRUSH=vegetation on north side of SR 34/73
VVAJ08	17079PH	WHITE OWL	BRUSH=vegetation on north side of Ranch Road
VVAJ09	17079PI	BONEITA SPRINGS	CROPS=uncultivated sunflowers on west side of Elm Springs Road and north side of field road
VVAJ10	17079PJ	HAYDRAW	BRUSH=uncut forage in SE quadrant of intersection of Hay Draw Road and Hope Road
VVAJ11	17079PK	NEWELL	BRUSH on north side of US 212 and west side of 133rd Avenue
VVAJ12	17079PL	VALE SE	BRUSH on west side of Wetz Road opposite 193rd Street

Station Name	GPSID	USGS Quadrangle	Description
VVAJ13	17079FM	VOLUNTEER	BRUSH=fallow field on south side of Wetz Road
VVAJ14	17079FN	VOLUNTEER	BRUSH=patch of high brush in fallow field on west side of Wetz Road
VVAJ15	17079PO	VALE SE	BRUSH in NW quadrant of intersection of 199th Street and 135th Place
VVAJ16	17079PP	VALE	BRUSH on south side of 194th Street and east side of Dunn Road extended
VVAJ17	17079PQ	VALE NE	BRUSH on north side of Lewis Road
VVAJ18	17079PR	FAIRPOINT SW	BRUSH on south side of SR 34
VVAJ19	17079PS	RAPID CITY 1 NW	BRUSH on north side of SR 34
VVAJ20	17079PT	FORT MEADE	BRUSH on NW side of SR 79 just to the SW of field entrance
VVAJ21	17079PU	VALE	CROPS=sunflowers on north side of Bighorn Road
VVAJ22	17079PV	STURGIS	BRUSH on west side of Moose Drive in vacant lot
VVAJ23	17079PW	DEADMAN MOUNTAIN	BRUSH in clearing on south side of Runkle Road opposite forest road to the north
VVAJ24	17079PX	TILFORD	BRUSH in area between I90 EB and Sturgis Road
VVAJ25	17079PY	FORT MEADE NE	BRUSH on north side of Alkali Road
VVAJ26	17079PZ	RAPID CITY NW	BRUSH in NE quadrant of T intersection of Elk Creek Road and 144 Avenue
VVAJ27	17079QA	RAPID CITY NW	BRUSH on top of cut for roadway on west side of 143rd Avenue
VVAJ28	17079QB	BLACKHAWK	BRUSH on east side of Deadwood Avenue N in triangle formed by campground entrances and highway
VVAJ29	17079QC	BLACKHAWK	BRUSH on east side of off ramp from I90WB to Stage Stop Road
VVAJ30	17079QD	DEADWOOD SOUTH	BRUSH on south side of Nemo Road
VVAJ31	17079QE	DEADWOOD SOUTH	BRUSH on east side of US 385
VVAJ32	17079QF	NEMO	BRUSH in sparsely wooded area on south side of power line
VVAJ33	17079QG	NEMO	BRUSH on north side of Merritt Estes Road
VVAJ34	17079QH	LEAD	BRUSH at east edge of parking area on east side of Rochford Road
VVAJ35	17079QI	LEAD	BRUSH on east side of Terry Summit Road
VVAJ36	17079QJ	OLD BALDY MOUNTAIN	BRUSH on NW side of Tinton Road
VVAJ37	17079QK	SAVOY	BRUSH on north side of Roughneck Falls Road
VVAJ38	17079QL	CROOKS TOWER	BRUSH on north side of S Rapid Creek Road
VVAJ39	17079QM	CROOKS TOWER	BRUSH on east side of US 85 opposite paved pull-off
VVAJ40	17079QN	VOLUNTEER NW	BRUSH=weeds on north side of Old US 212
VVAT01	17079MA	RAPID CITY 1 NW	BRUSH=low brush area on the southeast side of the intersection of Elk Vale Road and Alkali Road
VVAT02	17079MB	BEND	BRUSH=low brush field on the east side of Antelope Creek Road
VVAT03	17079MC	REDOWL	BRUSH=low brush area in the center of the intersection of Old Stoneville Road and Red Owl
VVAT04	17079MD	WHITE OWL NW	BRUSH=brush on the south side of Red Owl Road and north of a fence line
VVAT05	17079ME	MARCUS	BRUSH=brush field on the west side of Avance Road
VVAT06	17079MF	BELLE FOURCHE	BRUSH=vacant lot on the southeast side of Bonanza Drive and southwest side of US212
VVAT07	17079MG	SOURDOUGH FLATS	BRUSH=low brush area on the west side of ACC Road and north of a four-way intersection
VVAT08	17079MH	THE FORKS	BRUSH=area on the east side of Sourdough Road and west of a fence line
VVAT09	17079MI	BELLE FOURCHE	BRUSH=on the east side of US84 just north of the drive to the airport
VVAT10	17079MJ	FRUITDALE	BRUSH=low brush area on the southwest side of Valley 1 Road at a bend in the road
VVAT11	17079MK	FRUITDALE	BRUSH=on the north side of an access road to the Belle Fourche Reservoir
VVAT12	17079ML	FRUITDALE	BRUSH=brush area on the north side of US212 and the east side of a dirt access road to the Belle Fourche Reservoir
VVAT13	17079MM	JOLLY	BRUSH=center of brush area between US85 and Brookview Road
VVAT14	17079MN	JOLLY	BRUSH=brush field on the north side of Kerwin Road

Station Name	GPSID	USGS Quadrangle	Description
VVAT15	17079MO	CHICKEN CREEK	BRUSH=brush island at the intersection of Crows Peak Bench Road and Homestake Road
VVAT16	17079MP	BEULAH	BRUSH=brush area on the north side of the I90 exit for Red Hill Road and south of W Highway 14
VVAT17	17079MQ	JOLLY	BRUSH=brush area on the north side of SR34 and south side of the railroad tracks
VVAT18	17079MR	SAINT ONGE	BRUSH=brush on the west side of SR34 and east of fence line
VVAT19	17079MS	DEADWOOD NORTH	BRUSH=brush field on the west side of St Onge Road and east of Duke Parkway
VVAT20	17079MT	DEADWOOD NORTH	BRUSH=vacant lot on the north side of Centennial Road and west of US85
VVAT21	17079XE	SAVOY	BRUSH=brush field on the south side of Timber Gulch Road
VVAT22	17079XF	SAVOY	LOGGED AREA=brushy, stumps and tree tops on the east side of Timber Gulch Road
VVAT23	17079XD	SAVOY	Brush
WOODS SETUP	17079XC	SAVOY	BS
WOODS SETUP	17079XG	BUCKHORN	BRUSH=on the south side of Willow Springs Road
WOODS SETUP	17079XH	CROOKS TOWER	BRUSH=on the south side of the intersection of Besant Park Road and S Rapid Creek Road
WOODS SETUP	17079XI	NAHANT	BRUSH=on the south side of N Rochford Road and west side of parking for a trailhead
WOODS SETUP	17079XJ	LEAD	
WOODS SETUP	17079XK	LEAD	BARE=dirt parking lot on the south side of Moose Lane
WOODS SETUP	17079XL	NEMO	
WOODS SETUP	17079XM	NEMO	BRUSH
WOODS SETUP	17079XO	DEADMAN MOUNTAIN	
WOODS SETUP	17079XP	DEADMAN MOUNTAIN	
WOODS SETUP	17079SA	MAURICE	
WOODS SETUP	17079SB	MAURICE	
WOODS SETUP	17079SC	SAVOY	
WOODS SETUP	17079SD	SAVOY	
WOODS SETUP	17079SE	SAVOY	
WOODS SETUP	17079SF	SAVOY	
WOODS SETUP	17079SG	BUCKHORN	
WOODS SETUP	17079SH	CROOKS TOWER	
WOODS SETUP	17079SI	NAHANT	
WOODS SETUP	17079SJ	LEAD	
WOODS SETUP	17079SK	LEAD	
WOODS SETUP	17079SL	NEMO	
WOODS SETUP	17079SM	NEMO	
WOODS SETUP	17079SO	DEADMAN MOUNTAIN	
WOODS SETUP	17079SP	DEADMAN MOUNTAIN	
WOODS01	17079WA	MAURICE	WOODS=on the south side of Tinton Road at a trailhead and opposite a camp ground
WOODS02	17079WB	MAURICE	WOODS=pine trees on the north side of Beaver Creek Road
WOODS03	17079WC	SAVOY	WOODS=woods on the west side of Tinton Road
WOODS04	17079WD	SAVOY	WOODS=on the north side of a parking area on the north side of Tinton Road
WOODS05	17079WE	SAVOY	WOODS=on the north side of Timber Gulch Road and east of a track headed north
WOODS06	17079WF	SAVOY	WOODS=on the east side of an open logged area and east of Timber Gulch Road
WOODS07	17079WG	BUCKHORN	WOODS=on the north side of Willow Springs Road
WOODS08	17079WH	CROOKS TOWER	WOODS=on the east side of S Rapid Creek Road
WOODS09	17079WI	NAHANT	WOODS=on the southeast side of parking for a trailhead on the south side of N Rochford Road
WOODS10	17079WJ	LEAD	WOODS=on the east side of Rochford Road opposite a cemetery
WOODS11	17079WK	LEAD	WOODS=pines on the south side of a dirt parking lot on the south side of Moose Lane
WOODS12	17079WL	NEMO	WOODS= on the south side of Forest Road 1A and south east of a logged area

Station Name	GPSID	USGS Quadrangle	Description
WOODS13	17079WM	NEMO	WOODS=on the east side of Merritt Estates Road and north of a track road heading east
WOODS14	17079WO	DEADMAN MOUNTAIN	WOODS=piners on the north side of Elk Creek Road
WOODS15	17079WP	DEADMAN MOUNTAIN	WOODS=piners on the east side of Old Ridge Road

METHODOLOGY

The field survey was done by using a combination of static and RTK methods. Temporary base stations (two Trimble R10 dual frequency multi-constellation receivers) were setup each day and were used to transmit corrections via the cellular network to two R8 GNSS rover receivers. The base receivers also collected static data for post processing. At the rover receiver, data is received via the cellular network. The data is processed in real time to compute a position and elevation for the unknown station. The vector data is stored in a data collector as a vector from the base position, along with statistical data for the solution. Each point was surveyed two times in succession, separated by a new initialization. Multiple stations were occupied by the rover receiver in a static mode due to lack of cellular connectivity. Table 3 summarizes the RTK data, precisions in meters):

Table 3 - RTK Occupation Summary

GPS BASE	GPSID	UTC Start	UTC End	Horz Prec	Vert Prec	# of SV's	PDOP
17079YH	PU1122	11/07/2017 21:22:03	21:25:02	0.007	0.012	15	1.3
17079YH	PU1122	11/07/2017 21:25:26	21:27:26	0.008	0.013	13	1.5
17079YH	17079JF	11/07/2017 21:35:31	21:38:30	0.006	0.010	16	1.2
17079YH	17079JF	11/07/2017 21:38:50	21:40:40	0.007	0.011	13	1.4
17079YH	17079CV	11/07/2017 21:47:39	21:50:38	0.008	0.012	14	1.6
17079YH	17079CV	11/07/2017 21:50:57	21:52:25	0.008	0.012	15	1.3
17079YH	17079PQ	11/07/2017 21:53:23	21:54:08	0.007	0.011	15	1.3
17079YH	17079PQ	11/07/2017 21:54:53	21:55:52	0.007	0.010	15	1.3
17079YH	17079JG	11/07/2017 22:00:48	22:02:44	0.009	0.013	14	1.4
17079YH	17079JG	11/07/2017 22:03:01	22:04:13	0.009	0.014	13	1.5
17079YI	17079CW	11/07/2017 22:55:04	22:58:03	0.008	0.012	15	1.5
17079YI	17079CW	11/07/2017 22:58:28	23:00:27	0.008	0.014	15	1.5
17079YI	17079PR	11/07/2017 23:03:52	23:06:51	0.007	0.011	17	1.3
17079YI	17079PR	11/07/2017 23:07:14	23:09:13	0.008	0.013	16	1.3
17079YI	17079JH	11/07/2017 23:15:33	23:18:56	0.007	0.011	16	1.3
17079YI	17079JH	11/07/2017 23:19:17	23:20:30	0.006	0.009	16	1.3
17079YI	17079JI	11/07/2017 23:30:25	23:32:24	0.006	0.010	16	1.3
17079YI	17079JI	11/07/2017 23:32:45	23:34:01	0.005	0.008	12	1.5
17079YI	17079PS	11/07/2017 23:40:03	23:41:52	0.010	0.014	15	1.3
17079YI	17079PS	11/07/2017 23:42:12	23:43:14	0.009	0.012	13	1.5
17079YI	17079JJ	11/07/2017 23:48:16	23:48:59	0.010	0.014	13	1.5
17079YI	17079JJ	11/07/2017 23:49:24	23:50:54	0.010	0.013	15	1.3
17079YI	17079CX	11/07/2017 23:53:21	23:54:28	0.008	0.011	15	1.3
17079YI	17079CX	11/07/2017 23:55:01	23:55:59	0.010	0.014	15	1.3
17079YI	AB9205	11/08/2017 00:05:07	00:06:32	0.007	0.011	15	1.3
17079YI	AB9205	11/08/2017 00:06:49	00:07:52	0.006	0.009	12	1.6
17079YI	17079JK	11/08/2017 00:09:32	00:10:50	0.008	0.011	14	1.4
17079YI	17079JK	11/08/2017 00:11:50	00:13:18	0.006	0.008	8	2.1
17079YJ	17079PT	11/08/2017 14:38:59	14:41:58	0.006	0.010	15	1.4
17079YJ	17079PT	11/08/2017 14:42:23	14:43:59	0.005	0.009	11	1.6
17079YJ	17079JL	11/08/2017 14:48:45	14:51:44	0.005	0.009	15	1.4
17079YJ	17079JL	11/08/2017 14:52:01	14:53:36	0.005	0.009	13	1.5
17079YJ	17079PU	11/08/2017 15:01:59	15:04:58	0.008	0.014	15	1.5
17079YJ	17079PU	11/08/2017 15:05:13	15:07:13	0.011	0.018	13	1.5
17079YJ	17079CY	11/08/2017 15:09:48	15:12:47	0.008	0.013	15	1.4
17079YJ	17079CY	11/08/2017 15:13:06	15:16:05	0.008	0.013	13	1.5

GPS BASE	GPSID	UTC Start	UTC End	Horz Prec	Vert Prec	# of SV's	PDOP
17079YJ	17079JM	11/08/2017 15:20:38	15:23:37	0.008	0.012	14	1.6
17079YJ	17079JM	11/08/2017 15:23:56	15:26:33	0.010	0.014	13	1.5
17079YJ	17079JN	11/08/2017 15:32:00	15:34:59	0.005	0.008	16	1.2
17079YJ	17079JN	11/08/2017 15:35:31	15:38:05	0.006	0.008	14	1.3
17079YA	17079IA	11/05/2017 20:28:23	20:31:23	0.006	0.011	17	1.3
17079YA	17079IA	11/05/2017 20:31:57	20:34:02	0.006	0.010	17	1.3
17079YA	17079CA	11/05/2017 20:46:09	20:49:09	0.007	0.013	15	1.6
17079YA	17079CA	11/05/2017 20:49:32	20:51:50	0.007	0.013	15	1.6
17079YA	17079PA	11/05/2017 20:55:51	20:59:04	0.007	0.012	15	1.6
17079YA	17079PA	11/05/2017 20:59:28	21:01:48	0.007	0.012	14	1.7
17079YA	17079CB	11/05/2017 21:23:25	21:26:24	0.007	0.011	17	1.2
17079YA	17079CB	11/05/2017 21:26:49	21:28:51	0.007	0.012	15	1.3
17079YA	17079PB	11/05/2017 21:46:00	21:48:08	0.009	0.013	15	1.2
17079YA	17079PB	11/05/2017 21:48:36	21:51:35	0.007	0.011	15	1.3
17079YA	17079IB	11/05/2017 21:54:49	21:55:11	0.009	0.015	18	1.1
17079YJ	17079CZ	11/08/2017 15:48:33	15:51:32	0.007	0.009	14	1.4
17079YJ	17079CZ	11/08/2017 15:51:50	15:54:17	0.007	0.009	14	1.4
17079YJ	17079PV	11/08/2017 15:57:18	16:00:17	0.006	0.009	16	1.2
17079YJ	17079PV	11/08/2017 16:00:37	16:03:04	0.006	0.009	15	1.3
17079YJ	17079JO	11/08/2017 16:19:24	16:22:23	0.006	0.010	13	1.5
17079YJ	17079JO	11/08/2017 16:22:53	16:25:11	0.007	0.010	14	1.4
17079YJ	17079JP	11/08/2017 16:33:08	16:36:07	0.006	0.010	13	1.5
17079YJ	17079JP	11/08/2017 16:36:27	16:38:02	0.007	0.012	8	2.0
17079XA	17079SA	11/10/2017 14:49:47	14:51:46	0.004	0.008	11	1.7
17079XA	17079SA	11/10/2017 15:01:41	15:03:41	0.004	0.007	10	1.5
17079XB	17079SB	11/10/2017 15:29:50	15:31:49	0.004	0.005	8	2.4
17079XB	17079SB	11/10/2017 15:45:43	15:47:15	0.005	0.007	9	1.8
17079XC	17079SC	11/10/2017 16:03:59	16:05:58	0.003	0.004	11	0.7
17079XC	17079SC	11/10/2017 16:10:35	16:12:41	0.002	0.003	13	1.5
17079XC	17079SC	11/10/2017 16:27:05	16:29:08	0.002	0.003	12	1.3
17079XD	17079SD	11/10/2017 17:05:54	17:07:57	0.006	0.012	7	2.1
17079XJ	17079SJ	11/10/2017 21:48:42	21:52:14	0.002	0.002	14	0.8
17079XK	17079SK	11/10/2017 22:46:24	22:50:57	0.002	0.003	14	1.5
17079XL	17079SL	11/11/2017 15:40:07	15:45:35	0.002	0.003	11	1.7
17079XM	17079SM	11/11/2017 16:24:08	16:28:26	0.002	0.003	10	1.8
17079XN	17079SN	11/11/2017 17:06:27	17:14:03	0.001	0.002	12	1.6
17079XO	17079SO	11/11/2017 17:44:42	17:49:17	0.002	0.002	13	1.4
17079XP	17079SP	11/11/2017 18:20:35	18:25:48	0.002	0.002	14	1.3
17079YA	17079IB	11/05/2017 21:59:44	22:00:26	0.009	0.014	18	1.1
17079YA	17079IC	11/05/2017 22:07:52	22:10:51	0.007	0.011	15	1.4
17079YA	17079IC	11/05/2017 22:11:16	22:14:03	0.012	0.019	14	1.4
17079YA	17079IC	11/05/2017 22:14:44	22:16:44	0.009	0.014	17	1.3
17079YA	17079CC	11/05/2017 22:27:31	22:30:30	0.008	0.012	17	1.3
17079YA	17079CC	11/05/2017 22:31:01	22:33:27	0.008	0.011	16	1.3
17079YA	17079ID	11/05/2017 22:36:13	22:39:12	0.007	0.011	17	1.3
17079YA	17079ID	11/05/2017 22:39:39	22:41:42	0.009	0.015	16	1.2
17079YA	17079PC	11/05/2017 22:53:50	22:56:49	0.006	0.010	18	1.2
17079YA	17079PC	11/05/2017 22:57:10	22:59:24	0.006	0.010	17	1.2
17079YA	17079IE	11/05/2017 23:05:36	23:08:35	0.006	0.010	17	1.3
17079YA	17079IE	11/05/2017 23:09:00	23:11:10	0.007	0.010	17	1.3
17079YA	17079CD	11/05/2017 23:15:28	23:17:28	0.007	0.011	17	1.3
17079YA	17079CD	11/05/2017 23:17:59	23:19:58	0.007	0.011	13	1.6
17079YA	17079PD	11/05/2017 23:22:43	23:25:42	0.008	0.012	18	1.2
17079YA	17079PD	11/05/2017 23:26:03	23:28:02	0.008	0.011	17	1.2
17079YA	17079IF	11/05/2017 23:33:02	23:33:56	0.007	0.010	18	1.2
17079YA	17079IF	11/05/2017 23:34:30	23:36:42	0.008	0.012	18	1.2
17079YA	17079IG	11/05/2017 23:47:49	23:50:48	0.007	0.010	14	1.5
17079YA	17079IG	11/05/2017 23:51:50	23:53:50	0.007	0.011	14	1.5
17079YA	17079CE	11/06/2017 00:02:34	00:05:19	0.009	0.012	13	1.7
17079YA	17079CE	11/06/2017 00:06:17	00:08:39	0.008	0.010	16	1.3
17079YA	17079IH	11/06/2017 00:26:59	00:29:58	0.007	0.011	13	1.6
17079YA	17079IH	11/06/2017 00:30:25	00:32:10	0.007	0.011	7	2.6
17079YA	17079II	11/06/2017 00:41:04	00:44:03	0.008	0.012	14	1.5
17079YA	17079II	11/06/2017 00:44:28	00:45:15	0.008	0.012	9	1.8
17079ZA	17079AB	11/05/2017 21:35:56	21:41:26	0.006	0.010	11	1.4

GPS BASE	GPSID	UTC Start	UTC End	Horz Prec	Vert Prec	# of SV's	PDOP
17079ZA	17079AB	11/05/2017 21:52:47	21:56:18	0.008	0.012	14	1.2
17079ZA	17079EB	11/05/2017 22:11:06	22:16:15	0.006	0.009	12	1.6
17079ZA	17079EB	11/05/2017 22:16:51	22:20:24	0.006	0.009	13	1.5
17079ZA	17079AC	11/05/2017 22:41:19	22:45:20	0.006	0.010	14	1.4
17079ZA	17079AC	11/05/2017 22:46:48	22:51:20	0.006	0.010	15	1.3
17079ZA	17079MB	11/05/2017 23:29:56	23:32:57	0.008	0.011	15	1.3
17079ZA	17079MB	11/05/2017 23:44:05	23:46:11	0.009	0.013	13	1.4
17079YC	PU0378	11/06/2017 14:54:55	14:56:54	0.007	0.012	14	1.5
17079YC	PU0378	11/06/2017 14:57:34	14:59:33	0.006	0.010	13	1.5
17079YD	17079CH	11/06/2017 16:42:46	16:45:45	0.006	0.009	15	1.3
17079YD	17079CH	11/06/2017 16:46:07	16:47:47	0.007	0.010	15	1.3
17079YD	17079CI	11/06/2017 16:59:11	17:02:10	0.008	0.012	15	1.4
17079YD	17079CI	11/06/2017 17:02:30	17:04:26	0.008	0.012	13	1.8
17079YD	17079PE	11/06/2017 17:13:28	17:16:27	0.008	0.011	14	1.4
17079YJ	17079DA	11/08/2017 16:59:56	17:01:00	0.011	0.018	13	1.6
17079YJ	17079DA	11/08/2017 17:02:22	17:02:43	0.013	0.020	13	1.6
17079YJ	17079JQ	11/08/2017 17:37:32	17:42:01	0.010	0.016	11	2.4
17079YJ	17079JQ	11/08/2017 17:42:36	17:45:35	0.017	0.023	12	1.8
17079YJ	17079JR	11/08/2017 17:58:42	18:00:02	0.009	0.013	14	1.5
17079YJ	17079JR	11/08/2017 18:00:40	18:02:59	0.007	0.011	14	1.5
17079YJ	17079PX	11/08/2017 18:09:23	18:10:33	0.014	0.022	15	1.4
17079YJ	17079PX	11/08/2017 18:13:27	18:14:53	0.008	0.012	15	1.4
17079YJ	17079DB	11/08/2017 18:22:33	18:25:32	0.007	0.010	15	1.3
17079YJ	17079DB	11/08/2017 18:25:56	18:27:57	0.008	0.011	15	1.3
17079YJ	17079JS	11/08/2017 18:36:17	18:39:16	0.007	0.011	14	1.4
17079YJ	17079JS	11/08/2017 18:39:35	18:41:51	0.008	0.012	14	1.5
17079YJ	17079JS	11/08/2017 18:42:18	18:44:28	0.008	0.012	14	1.5
17079YJ	17079JT	11/08/2017 18:55:32	18:58:31	0.011	0.016	14	1.5
17079YJ	17079JT	11/08/2017 18:59:08	19:01:00	0.009	0.013	14	1.7
17079YJ	17079PY	11/08/2017 19:11:30	19:15:22	0.007	0.010	16	1.2
17079YJ	17079PY	11/08/2017 19:15:44	19:16:29	0.010	0.013	10	2.0
17079YJ	17079DC	11/08/2017 19:27:41	19:30:40	0.006	0.009	15	1.3
17079YJ	17079DC	11/08/2017 19:32:46	19:34:24	0.007	0.010	8	2.1
17079YJ	17079JU	11/08/2017 19:40:54	19:43:53	0.006	0.008	13	1.5
17079YJ	17079JU	11/08/2017 19:44:11	19:47:10	0.007	0.010	7	2.4
17079YJ	PU1500	11/08/2017 19:58:06	20:01:31	0.005	0.008	18	1.2
17079YJ	PU1500	11/08/2017 20:01:51	20:03:19	0.005	0.008	17	1.3
17079YK	17079JV	11/08/2017 20:49:46	20:52:45	0.007	0.011	14	1.5
17079YD	17079PE	11/06/2017 17:17:51	17:19:52	0.014	0.020	14	1.4
17079YD	17079PE	11/06/2017 17:20:18	17:22:17	0.012	0.016	13	1.9
17079YD	17079IJ	11/06/2017 17:30:21	17:33:20	0.007	0.012	13	1.9
17079YD	17079IJ	11/06/2017 17:33:43	17:35:45	0.008	0.014	12	1.9
17079YD	17079IK	11/06/2017 17:39:05	17:42:04	0.009	0.012	13	1.7
17079YD	17079IK	11/06/2017 17:42:22	17:44:18	0.010	0.014	7	2.6
17079YD	17079PF	11/06/2017 17:51:52	17:54:51	0.008	0.011	15	1.3
17079YD	17079PF	11/06/2017 17:55:28	17:57:27	0.009	0.012	16	1.2
17079YD	17079IL	11/06/2017 18:07:14	18:10:13	0.006	0.009	15	1.4
17079YD	17079IL	11/06/2017 18:10:31	18:12:46	0.006	0.009	7	2.1
17079YD	PU0182	11/06/2017 18:17:37	18:20:36	0.006	0.009	15	1.4
17079YD	PU0182	11/06/2017 18:20:54	18:23:04	0.006	0.009	13	1.5
17079YD	17079IM	11/06/2017 18:50:30	18:53:34	0.007	0.010	14	1.4
17079YD	17079IM	11/06/2017 18:54:02	18:56:08	0.007	0.011	13	1.5
17079YD	17079IN	11/06/2017 19:01:29	19:04:28	0.008	0.011	14	1.5
17079YD	17079IN	11/06/2017 19:04:50	19:06:54	0.012	0.017	11	1.8
17079YD	17079PG	11/06/2017 19:16:22	19:19:21	0.008	0.011	16	1.2
17079YD	17079PG	11/06/2017 19:19:43	19:22:10	0.010	0.014	6	3.9
17079YD	17079CJ	11/06/2017 19:34:39	19:37:38	0.008	0.011	16	1.2
17079YD	17079CJ	11/06/2017 19:37:59	19:39:59	0.008	0.012	15	1.3
17079YD	17079IO	11/06/2017 19:46:42	19:49:41	0.007	0.010	16	1.3
17079YD	17079IO	11/06/2017 19:50:03	19:52:10	0.008	0.012	8	2.0
17079YD	17079IP	11/06/2017 20:08:39	20:12:43	0.006	0.010	15	1.4
17079YD	17079IP	11/06/2017 20:13:08	20:14:08	0.008	0.013	16	1.3
17079YD	17079CK	11/06/2017 20:23:54	20:26:53	0.005	0.009	17	1.3
17079YD	17079CK	11/06/2017 20:27:32	20:30:03	0.005	0.009	17	1.3
17079ZB	17079PH	11/06/2017 21:13:45	21:16:05	0.010	0.015	16	1.3

GPS BASE	GPSID	UTC Start	UTC End	Horz Prec	Vert Prec	# of SV's	PDOP
17079ZB	17079PH	11/06/2017 21:16:31	21:17:31	0.019	0.028	17	1.2
17079ZB	17079PH	11/06/2017 21:18:03	21:20:18	0.018	0.027	16	1.3
17079ZB	17079PH	11/06/2017 21:22:13	21:24:11	0.014	0.022	17	1.1
17079ZB	17079IQ	11/06/2017 21:27:38	21:30:37	0.016	0.025	16	1.2
17079ZB	17079IQ	11/06/2017 21:30:56	21:34:38	0.019	0.031	14	1.5
17079ZB	17079IQ	11/06/2017 21:35:33	21:36:32	0.018	0.029	15	1.3
17079ZB	17079PI	11/06/2017 21:47:16	21:50:15	0.008	0.013	18	1.1
17079ZB	17079PI	11/06/2017 21:50:35	21:52:45	0.011	0.017	12	1.6
17079YE	17079CL	11/06/2017 22:08:43	22:11:42	0.005	0.008	16	1.3
17079YE	17079CL	11/06/2017 22:12:13	22:14:10	0.005	0.008	17	1.2
17079YE	17079IR	11/06/2017 22:21:29	22:24:28	0.007	0.010	17	1.3
17079YE	17079IR	11/06/2017 22:24:53	22:26:54	0.006	0.008	17	1.3
17079ZB	17079PJ	11/06/2017 22:47:41	22:50:40	0.008	0.012	18	1.2
17079ZB	17079PJ	11/06/2017 22:51:07	22:53:05	0.011	0.016	17	1.3
17079ZB	17079CM	11/06/2017 23:03:19	23:06:18	0.022	0.029	16	1.4
17079ZB	17079CM	11/06/2017 23:06:39	23:08:36	0.024	0.032	14	1.5
17079ZB	17079CM	11/06/2017 23:08:58	23:10:57	0.015	0.020	16	1.4
17079ZB	17079CM	11/06/2017 23:12:09	23:14:08	0.013	0.017	17	1.3
17079YF	17079CN	11/06/2017 23:39:59	23:42:58	0.009	0.011	15	1.3
17079YF	17079CN	11/06/2017 23:43:16	23:45:32	0.009	0.012	14	1.3
17079YF	17079CO	11/06/2017 23:55:48	23:58:47	0.008	0.011	14	1.5
17079YF	17079CO	11/06/2017 23:59:10	00:01:09	0.010	0.013	15	1.4
17079YF	17079IS	11/07/2017 00:07:32	00:10:34	0.007	0.011	15	1.4
17079YF	17079IS	11/07/2017 00:11:38	00:12:03	0.006	0.009	15	1.4
17079ZB	17079EC	11/06/2017 15:02:47	15:06:41	0.005	0.009	12	1.5
17079ZB	17079EC	11/06/2017 15:07:16	15:10:21	0.007	0.012	10	1.7
17079ZB	17079AE	11/06/2017 15:17:25	15:25:46	0.011	0.016	10	1.8
17079ZB	17079AE	11/06/2017 15:32:25	15:36:35	0.014	0.019	4	5.5
17079ZB	17079AE	11/06/2017 15:38:04	15:42:30	0.013	0.017	10	1.6
17079ZB	17079MC	11/06/2017 15:58:55	16:02:24	0.010	0.013	10	1.7
17079ZB	17079MC	11/06/2017 16:03:49	16:09:06	0.008	0.011	10	1.7
17079ZB	17079AF	11/06/2017 16:18:05	16:23:37	0.008	0.009	10	1.7
17079YK	17079JV	11/08/2017 20:53:05	20:54:52	0.006	0.009	12	1.6
17079YK	17079DD	11/08/2017 21:10:01	21:13:00	0.008	0.012	14	1.5
17079YK	17079DD	11/08/2017 21:13:18	21:16:17	0.009	0.014	7	3.0
17079YK	17079PZ	11/08/2017 21:22:24	21:25:25	0.008	0.013	14	1.3
17079YK	17079PZ	11/08/2017 21:25:45	21:27:45	0.008	0.012	10	2.3
17079YK	17079JW	11/08/2017 21:30:50	21:33:49	0.007	0.010	16	1.2
17079YK	17079JW	11/08/2017 21:34:15	21:36:12	0.008	0.012	13	1.4
17079YK	17079JX	11/08/2017 21:41:52	21:44:51	0.006	0.009	16	1.2
17079YK	17079JX	11/08/2017 21:45:13	21:47:12	0.006	0.010	16	1.2
17079YK	17079QA	11/08/2017 21:59:32	22:01:35	0.007	0.011	14	1.4
17079YK	17079QA	11/08/2017 22:02:00	22:04:01	0.006	0.009	15	1.3
17079YK	17079DE	11/08/2017 22:08:22	22:11:21	0.007	0.010	15	1.3
17079YK	17079DE	11/08/2017 22:11:53	22:14:15	0.006	0.008	16	1.3
17079YK	17079JY	11/08/2017 22:33:55	22:36:54	0.005	0.007	17	1.2
17079YK	17079JY	11/08/2017 22:42:08	22:43:11	0.005	0.007	18	1.2
17079YK	17079QB	11/08/2017 22:45:49	22:50:02	0.007	0.010	16	1.3
17079YK	17079QB	11/08/2017 22:50:24	22:51:23	0.005	0.008	14	1.5
17079YK	17079JZ	11/08/2017 22:54:52	22:57:51	0.007	0.010	16	1.3
17079YK	17079JZ	11/08/2017 22:58:09	22:59:21	0.007	0.010	9	1.9
17079YK	17079QC	11/08/2017 23:05:57	23:08:56	0.006	0.009	17	1.3
17079YK	17079QC	11/08/2017 23:09:11	23:10:16	0.007	0.011	9	1.8
17079YK	17079DF	11/08/2017 23:15:07	23:18:06	0.007	0.010	17	1.2
17079YK	17079DF	11/08/2017 23:18:37	23:19:43	0.008	0.011	15	1.3
17079YK	PU1406	11/08/2017 23:31:10	23:34:09	0.008	0.011	15	1.4
17079YK	PU1406	11/08/2017 23:34:30	23:36:24	0.009	0.012	13	1.6
17079YK	17079KA	11/08/2017 23:37:00	23:39:11	0.009	0.013	14	1.5
17079YK	17079KA	11/08/2017 23:39:31	23:42:32	0.007	0.011	7	2.1
17079YL	17079QD	11/09/2017 15:55:12	15:55:30	0.007	0.010	16	1.2
17079YL	17079QD	11/09/2017 15:56:22	15:56:33	0.007	0.010	16	1.2
17079YL	17079QD	11/09/2017 15:58:02	16:00:00	0.006	0.009	16	1.2
17079YM	17079KK	11/09/2017 22:28:08	22:30:12	0.006	0.011	14	1.4
17079YM	17079KK	11/09/2017 22:30:44	22:32:58	0.007	0.010	12	2.0
17079ZB	17079AF	11/06/2017 16:25:16	16:30:32	0.008	0.009	11	1.7

GPS BASE	GPSID	UTC Start	UTC End	Horz Prec	Vert Prec	# of SV's	PDOP
17079ZB	17079MD	11/06/2017 16:50:36	16:54:22	0.008	0.013	10	1.7
17079ZB	17079MD	11/06/2017 16:54:46	16:58:42	0.008	0.013	10	1.7
17079ZB	17079MD	11/06/2017 16:59:29	17:02:33	0.010	0.016	10	1.7
17079YD	17079MD	11/06/2017 17:07:19	17:10:42	0.012	0.017	10	1.7
17079YD	17079MD	11/06/2017 17:11:49	17:15:01	0.014	0.021	10	1.6
17079ZB	17079ED	11/06/2017 17:26:41	17:29:56	0.016	0.022	9	1.9
17079ZB	AB9179	11/06/2017 21:14:15	21:18:18	0.009	0.012	12	3.1
17079ZB	AB9179	11/06/2017 21:19:50	21:23:04	0.009	0.013	13	1.4
17079ZB	17079AI	11/06/2017 21:25:57	21:29:50	0.008	0.011	13	1.3
17079ZB	17079AI	11/06/2017 21:31:11	21:34:11	0.009	0.013	12	1.4
17079ZB	17079EE	11/06/2017 21:39:26	21:42:25	0.007	0.011	14	1.2
17079ZB	17079EE	11/06/2017 21:43:34	21:46:31	0.007	0.011	13	1.3
17079ZB	17079EF	11/06/2017 21:53:47	21:57:51	0.006	0.008	14	1.3
17079ZB	17079EF	11/06/2017 21:58:29	22:02:56	0.006	0.009	13	1.4
17079ZB	17079AJ	11/06/2017 22:12:18	22:19:42	0.005	0.007	13	1.4
17079ZB	17079AJ	11/06/2017 22:21:02	22:25:34	0.006	0.008	13	1.5
17079ZB	17079EG	11/06/2017 22:37:53	22:41:23	0.007	0.012	13	1.5
17079ZB	17079EG	11/06/2017 22:42:47	22:47:56	0.006	0.010	14	1.4
17079ZB	17079AK	11/06/2017 22:53:14	22:57:17	0.007	0.010	12	1.5
17079ZB	17079AK	11/06/2017 22:59:07	23:03:27	0.006	0.010	12	1.7
17079ZB	17079EH	11/06/2017 23:16:10	23:20:30	0.008	0.011	14	1.5
17079ZB	17079EH	11/06/2017 23:21:52	23:25:52	0.008	0.011	13	1.5
17079ZB	17079AL	11/06/2017 23:34:44	23:39:57	0.008	0.012	12	1.5
17079ZB	17079AL	11/06/2017 23:41:41	23:45:44	0.009	0.012	12	1.5
17079ZB	17079EI	11/06/2017 23:57:18	00:02:14	0.007	0.010	11	1.6
17079ZB	17079EI	11/07/2017 00:03:51	00:06:13	0.008	0.012	12	1.5
17079ZB	17079EI	11/07/2017 00:08:05	00:10:14	0.008	0.012	12	1.5
17079YG	17079CP	11/07/2017 14:46:04	14:49:03	0.006	0.010	14	1.5
17079YG	17079CP	11/07/2017 14:49:27	14:52:51	0.005	0.009	13	1.5
17079YG	17079QN	11/07/2017 14:57:16	15:00:26	0.006	0.009	15	1.3
17079YG	17079QN	11/07/2017 15:01:16	15:03:32	0.006	0.011	13	1.6
17079YG	17079IT	11/07/2017 15:07:59	15:09:53	0.008	0.012	13	1.5
17079YG	17079IT	11/07/2017 15:10:17	15:11:47	0.008	0.013	11	2.3
17079YG	PUI370	11/07/2017 15:25:55	15:26:54	0.024	0.032	14	1.3
17079YG	PUI370	11/07/2017 15:27:17	15:28:16	0.015	0.020	12	1.8
17079YG	17079IU	11/07/2017 15:30:16	15:32:05	0.009	0.013	13	1.5
17079YG	17079IU	11/07/2017 15:32:29	15:33:34	0.010	0.015	12	1.5
17079YG	17079CQ	11/07/2017 15:41:34	15:44:33	0.009	0.012	14	1.3
17079YG	17079CQ	11/07/2017 15:48:50	15:49:15	0.011	0.015	14	1.3
17079YG	17079IV	11/07/2017 16:04:57	16:08:23	0.007	0.009	15	1.3
17079YG	17079IV	11/07/2017 16:08:47	16:11:33	0.005	0.008	14	1.4
17079YG	17079IW	11/07/2017 16:18:59	16:22:05	0.006	0.009	16	1.3
17079YG	17079IW	11/07/2017 16:23:56	16:24:22	0.006	0.009	16	1.3
17079YG	17079IW	11/07/2017 16:24:45	16:25:05	0.006	0.010	11	1.9
17079YG	17079IX	11/07/2017 16:32:40	16:33:41	0.007	0.011	10	1.5
17079YG	17079IX	11/07/2017 16:33:55	16:35:42	0.007	0.010	16	1.2
17079YG	17079IX	11/07/2017 16:36:16	16:36:36	0.007	0.011	16	1.2
17079YG	17079PK	11/07/2017 16:43:37	16:44:44	0.008	0.011	15	1.3
17079YM	17079QH	11/09/2017 22:40:34	22:43:33	0.009	0.015	11	3.0
17079YM	17079QH	11/09/2017 22:43:55	22:46:54	0.007	0.012	10	3.0
17079YM	17079QH	11/09/2017 22:47:18	22:50:17	0.007	0.010	15	1.6
17079YM	17079DK	11/09/2017 22:55:15	22:58:14	0.006	0.010	16	1.4
17079YM	17079DK	11/09/2017 22:58:37	23:00:37	0.007	0.010	15	1.4
17079YM	17079QI	11/09/2017 23:07:48	23:10:47	0.007	0.010	16	1.4
17079YM	17079QI	11/09/2017 23:14:22	23:15:04	0.012	0.018	14	1.6
17079YM	17079QI	11/09/2017 23:15:25	23:16:25	0.009	0.013	13	1.7
17079YN	17079KM	11/10/2017 15:19:23	15:21:04	0.010	0.015	10	2.7
17079YN	17079KM	11/10/2017 15:21:40	15:23:00	0.010	0.016	10	2.7
17079YN	17079QK	11/10/2017 17:04:36	17:05:36	0.010	0.029	10	3.9
17079YN	17079QK	11/10/2017 17:05:56	17:06:56	0.010	0.030	9	4.0
17079YN	17079KO	11/10/2017 17:47:24	17:50:23	0.008	0.012	12	1.7
17079YN	17079KO	11/10/2017 17:50:43	17:53:55	0.007	0.010	6	3.5
17079YN	17079KP	11/10/2017 18:22:38	18:23:02	0.006	0.009	13	1.5
17079YN	17079KP	11/10/2017 18:23:33	18:26:32	0.006	0.009	14	1.4
17079YN	17079DN	11/10/2017 18:47:38	18:50:37	0.008	0.012	12	1.8

GPS BASE	GPSID	UTC Start	UTC End	Horz Prec	Vert Prec	# of SV's	PDOP
17079YN	17079DN	11/10/2017 18:51:06	18:53:36	0.009	0.014	11	2.2
17079YN	17079KQ	11/10/2017 19:23:54	19:24:47	0.007	0.012	13	1.5
17079YN	17079KQ	11/10/2017 19:26:53	19:29:52	0.007	0.012	13	1.6
17079YN	17079DO	11/10/2017 19:37:54	19:38:48	0.007	0.013	13	1.6
17079YN	17079DO	11/10/2017 19:39:15	19:40:59	0.007	0.012	13	1.6
17079YN	17079DO	11/10/2017 19:42:50	19:43:41	0.008	0.013	14	1.5
17079YN	17079KS	11/10/2017 21:07:08	21:10:08	0.013	0.021	12	1.7
17079YN	17079KS	11/10/2017 21:10:40	21:12:41	0.009	0.014	12	1.7
17079XE	17079SE	11/10/2017 17:52:27	17:54:26	0.002	0.003	14	0.7
17079XF	17079SF	11/10/2017 18:26:05	18:31:46	0.002	0.004	10	1.7
17079XG	17079SG	11/10/2017 19:17:27	19:21:25	0.003	0.006	9	1.2
17079XG	17079SG	11/10/2017 19:28:16	19:34:19	0.002	0.004	9	1.6
17079XG	17079SG	11/10/2017 19:35:08	19:38:12	0.002	0.004	10	2.5
17079XH	17079SH	11/10/2017 20:19:45	20:24:06	0.002	0.003	11	1.5
17079XI	17079SI	11/10/2017 21:01:24	21:05:26	0.003	0.003	11	0.9
17079YG	17079PK	11/07/2017 16:45:04	16:46:10	0.009	0.013	11	1.8
17079YG	17079PK	11/07/2017 16:46:32	16:47:05	0.008	0.012	16	1.2
17079YG	17079CR	11/07/2017 16:49:59	16:50:29	0.008	0.013	15	1.4
17079YG	17079CR	11/07/2017 16:51:17	16:51:39	0.008	0.012	15	1.4
17079YG	17079CR	11/07/2017 16:52:00	16:52:19	0.008	0.013	7	2.5
17079YG	17079CR	11/07/2017 16:52:40	16:53:17	0.008	0.012	12	1.7
17079YG	PU1219	11/07/2017 17:08:46	17:09:04	0.006	0.009	15	1.3
17079YG	PU1217	11/07/2017 17:10:21	17:10:40	0.006	0.009	15	1.3
17079YG	PU1218	11/07/2017 17:11:14	17:11:33	0.006	0.008	15	1.3
17079YH	17079IY	11/07/2017 17:53:05	17:57:04	0.006	0.008	12	2.1
17079YH	17079IY	11/07/2017 17:57:37	17:57:51	0.006	0.008	16	1.3
17079YH	17079IY	11/07/2017 18:05:11	18:05:34	0.006	0.010	14	1.5
17079YH	17079IZ	11/07/2017 18:18:07	18:18:52	0.007	0.011	14	1.4
17079YH	17079IZ	11/07/2017 18:19:18	18:19:47	0.007	0.011	13	1.5
17079YH	17079IZ	11/07/2017 18:20:11	18:21:32	0.007	0.010	13	1.5
17079YH	17079PL	11/07/2017 18:27:50	18:29:04	0.007	0.011	15	1.3
17079YH	17079PL	11/07/2017 18:30:03	18:30:37	0.007	0.010	15	1.3
17079YH	17079PL	11/07/2017 18:31:06	18:31:26	0.008	0.012	14	1.3
17079YH	17079JA	11/07/2017 19:00:33	19:01:34	0.010	0.015	14	1.5
17079YH	17079JA	11/07/2017 19:09:25	19:09:43	0.011	0.014	16	1.2
17079YH	17079CS	11/07/2017 19:13:53	19:14:17	0.011	0.014	16	1.2
17079YH	17079CS	11/07/2017 19:14:37	19:15:03	0.011	0.014	9	1.6
17079YH	17079CS	11/07/2017 19:15:21	19:15:45	0.011	0.014	11	2.3
17079YH	17079PM	11/07/2017 19:24:01	19:24:31	0.010	0.014	15	1.3
17079YH	17079PM	11/07/2017 19:24:55	19:25:25	0.010	0.014	14	1.4
17079YH	17079PM	11/07/2017 19:25:51	19:26:44	0.010	0.013	16	1.3
17079YH	17079PN	11/07/2017 19:36:53	19:37:33	0.010	0.014	17	1.2
17079YH	17079PN	11/07/2017 19:38:00	19:38:21	0.031	0.044	17	1.2
17079YH	17079PN	11/07/2017 19:38:48	19:39:11	0.021	0.030	17	1.2
17079YH	17079JB	11/07/2017 19:55:11	19:55:54	0.008	0.013	17	1.3
17079YH	17079JB	11/07/2017 19:56:15	19:56:42	0.009	0.014	16	1.3
17079YH	17079JB	11/07/2017 19:57:03	19:57:34	0.028	0.044	15	1.4
17079YH	17079JB	11/07/2017 19:57:56	19:58:24	0.011	0.017	8	2.1
17079YH	17079JC	11/07/2017 20:02:26	20:03:48	0.007	0.011	18	1.2
17079YH	17079JC	11/07/2017 20:04:13	20:05:11	0.008	0.012	18	1.2
17079YH	17079PO	11/07/2017 20:09:35	20:12:39	0.007	0.011	17	1.3
17079YH	17079PO	11/07/2017 20:12:59	20:15:58	0.007	0.012	15	1.5
17079YH	17079CT	11/07/2017 20:21:08	20:24:07	0.006	0.011	17	1.3
17079YH	17079CT	11/07/2017 20:24:41	20:26:26	0.008	0.014	17	1.3
17079YH	17079JD	11/07/2017 20:32:15	20:33:59	0.007	0.012	17	1.3
17079YH	17079JD	11/07/2017 20:34:16	20:36:20	0.006	0.011	7	3.1
17079YH	17079JD	11/07/2017 20:37:02	20:37:32	0.007	0.012	17	1.3
17079YH	17079PP	11/07/2017 20:44:45	20:46:46	0.006	0.011	15	1.6
17079YH	17079PP	11/07/2017 20:47:10	20:48:27	0.007	0.012	15	1.6
17079YH	17079JE	11/07/2017 20:53:44	20:56:43	0.008	0.013	15	1.6
17079YH	17079JE	11/07/2017 20:57:01	20:58:10	0.008	0.013	16	1.4
17079YH	17079CU	11/07/2017 21:10:45	21:12:50	0.008	0.013	16	1.3
17079YH	17079CU	11/07/2017 21:13:27	21:14:32	0.009	0.014	16	1.3
17079YH	17079CU	11/07/2017 21:14:57	21:15:34	0.011	0.018	12	2.0

Three occupations were rejected, denoted in the table above by ~~strikethrough~~.

Each station had two or more occupations, separated by a re-initialization. The Earth Centered Earth Fixed (ECEF) vector differences were rotated into a local horizon system (NEU) for analysis.

Table 4 - Repeat Baseline Differences (meters)

From	To	Delta N	Delta E	Horiz	Delta U	Length
17079ZA	17079AB	0.022	-0.012	0.025	0.019	13127
17079ZA	17079AC	-0.004	-0.006	0.007	-0.004	8337
17079ZB	17079AE	0.016	0.004	0.017	-0.003	11124
17079ZB	17079AE	0.028	0.008	0.030	-0.013	11124
17079ZB	17079AE	0.012	0.004	0.013	-0.010	11124
17079ZB	17079AF	-0.004	0.006	0.007	0.007	17469
17079ZB	17079AI	0.004	-0.001	0.005	0.013	13902
17079ZB	17079AJ	-0.003	-0.002	0.004	0.008	6557
17079ZB	17079AK	0.014	0.000	0.014	-0.021	11376
17079ZB	17079AL	0.000	-0.003	0.003	0.014	17859
17079YA	17079CA	0.007	0.001	0.007	-0.019	10341
17079YA	17079CB	-0.004	-0.004	0.005	0.008	8824
17079YA	17079CC	-0.014	-0.007	0.015	0.014	17688
17079YA	17079CD	0.003	0.002	0.004	-0.011	10898
17079YA	17079CE	-0.001	0.001	0.001	-0.002	8086
17079YD	17079CH	-0.003	0.002	0.004	0.004	8781
17079YD	17079CI	0.007	0.002	0.007	-0.003	16952
17079YD	17079CJ	-0.012	0.000	0.012	-0.005	13981
17079YD	17079CK	0.000	0.000	0.000	-0.004	5826
17079YE	17079CL	-0.002	-0.002	0.003	0.000	4811
17079ZB	17079CM	0.008	-0.056	0.057	-0.077	21182
17079ZB	17079CM	0.011	-0.067	0.068	-0.104	21182
17079ZB	17079CM	0.008	-0.075	0.075	-0.115	21182
17079ZB	17079CM	0.004	-0.011	0.011	-0.027	21182
17079ZB	17079CM	0.001	-0.018	0.018	-0.038	21182
17079ZB	17079CM	-0.003	-0.007	0.008	-0.011	21182
17079YF	17079CN	0.001	-0.002	0.002	0.002	6181
17079YF	17079CO	0.012	0.000	0.012	0.014	8726
17079YG	17079CP	-0.001	-0.001	0.002	-0.004	4032
17079YG	17079CQ	-0.018	0.003	0.018	0.002	18368
17079YG	17079CR	-0.001	0.002	0.002	-0.003	11382
17079YG	17079CR	0.001	0.001	0.002	0.000	11382
17079YG	17079CR	0.001	0.004	0.004	-0.004	11382
17079YG	17079CR	0.002	0.000	0.002	0.003	11382
17079YG	17079CR	0.002	0.002	0.002	-0.002	11382
17079YG	17079CR	-0.001	0.002	0.002	-0.005	11382
17079YH	17079CS	0.003	-0.002	0.003	-0.003	13174
17079YH	17079CS	0.006	-0.003	0.006	-0.007	13174
17079YH	17079CS	0.003	-0.001	0.003	-0.004	13174
17079YH	17079CT	0.005	0.006	0.007	-0.013	11273
17079YH	17079CU	-0.010	0.003	0.010	0.014	10870
17079YH	17079CU	-0.010	0.001	0.010	0.018	10870
17079YH	17079CU	-0.001	-0.002	0.002	0.004	10870
17079YH	17079CV	-0.005	0.000	0.005	-0.002	4835
17079YI	17079CW	0.001	0.003	0.003	0.000	8313
17079YI	17079CX	0.014	-0.002	0.014	0.001	7156
17079YJ	17079CY	-0.002	0.000	0.002	0.012	10308
17079YJ	17079CZ	0.003	0.001	0.003	0.001	7642

From	To	Delta N	Delta E	Horiz	Delta U	Length
17079YJ	17079DA	0.011	0.002	0.011	-0.017	14400
17079YJ	17079DB	-0.004	0.003	0.005	0.006	13865
17079YJ	17079DC	0.005	-0.006	0.008	-0.009	8707
17079YK	17079DD	-0.001	0.002	0.002	0.001	10221
17079YK	17079DE	0.001	0.003	0.003	0.007	6405
17079YK	17079DF	0.002	-0.003	0.004	-0.004	8574
17079YM	17079DK	0.008	0.003	0.009	-0.006	9986
17079YN	17079DN	0.001	-0.011	0.011	0.011	8641
17079YN	17079DO	0.002	-0.002	0.003	-0.005	8726
17079YN	17079DO	0.010	-0.008	0.013	0.001	8726
17079YN	17079DO	0.008	-0.006	0.010	0.006	8726
17079ZA	17079EB	-0.006	0.001	0.006	-0.007	8484
17079ZB	17079EC	0.009	0.004	0.009	-0.005	3969
17079ZB	17079EE	-0.002	0.001	0.002	-0.006	10663
17079ZB	17079EF	0.001	0.001	0.001	0.006	7873
17079ZB	17079EG	0.003	0.006	0.007	-0.026	12999
17079ZB	17079EH	-0.011	-0.004	0.011	0.017	14495
17079ZB	17079EI	-0.004	-0.008	0.009	-0.012	12829
17079ZB	17079EI	0.005	-0.002	0.006	0.006	12829
17079ZB	17079EI	0.009	0.006	0.011	0.018	12829
17079YA	17079IA	0.001	0.002	0.002	-0.003	7974
17079YA	17079IB	-0.005	-0.001	0.005	-0.006	10779
17079YA	17079IC	-0.022	-0.004	0.022	0.035	13722
17079YA	17079IC	-0.017	-0.005	0.018	0.010	13722
17079YA	17079IC	0.004	-0.002	0.004	-0.025	13722
17079YA	17079ID	-0.014	-0.009	0.017	0.028	18403
17079YA	17079IE	0.002	-0.003	0.004	0.012	9651
17079YA	17079IF	0.001	-0.003	0.003	0.006	8098
17079YA	17079IG	0.001	-0.001	0.001	0.007	3333
17079YA	17079IH	0.002	0.000	0.002	0.000	6487
17079YA	17079II	-0.001	0.001	0.001	0.001	11
17079YD	17079IJ	-0.003	-0.007	0.008	0.001	14417
17079YD	17079IK	-0.008	-0.002	0.009	-0.026	16411
17079YD	17079IL	-0.003	0.001	0.003	-0.001	4171
17079YD	17079IM	0.004	-0.001	0.004	0.000	8411
17079YD	17079IN	0.008	0.000	0.008	0.012	10298
17079YD	17079IO	-0.014	0.000	0.014	0.021	13005
17079YD	17079IP	0.001	0.000	0.001	0.011	11744
17079ZB	17079IQ	-0.007	0.010	0.012	0.030	17122
17079ZB	17079IQ	-0.032	0.013	0.035	0.020	17122
17079ZB	17079IQ	-0.025	0.004	0.025	-0.010	17122
17079YE	17079IR	0.000	-0.002	0.002	-0.001	29
17079YF	17079IS	0.001	-0.001	0.002	0.000	11
17079YG	17079IT	-0.002	-0.002	0.003	-0.004	6397
17079YG	17079IU	0.006	0.002	0.006	-0.005	11081
17079YG	17079IV	0.000	0.001	0.001	0.004	25
17079YG	17079IW	-0.003	0.000	0.003	0.005	4787
17079YG	17079IW	-0.002	-0.001	0.002	0.004	4787
17079YG	17079IW	0.002	-0.001	0.002	-0.001	4787
17079YG	17079IX	-0.002	0.000	0.002	-0.004	8659
17079YG	17079IX	-0.003	0.000	0.003	-0.002	8659
17079YG	17079IX	-0.001	0.000	0.001	0.001	8659
17079YH	17079IY	0.000	0.002	0.002	0.000	2037
17079YH	17079IY	-0.004	0.002	0.004	0.002	2037
17079YH	17079IY	-0.003	0.001	0.003	0.003	2037
17079YH	17079IZ	-0.002	-0.001	0.002	0.004	5468

From	To	Delta N	Delta E	Horiz	Delta U	Length
17079YH	17079IZ	-0.002	0.000	0.002	0.021	5468
17079YH	17079IZ	0.000	0.000	0.000	0.017	5468
17079YH	17079JA	0.006	0.004	0.007	-0.014	11775
17079YH	17079JB	0.003	0.000	0.003	0.004	13429
17079YH	17079JB	-0.017	-0.011	0.020	0.057	13429
17079YH	17079JB	-0.009	-0.003	0.009	0.024	13429
17079YH	17079JB	-0.020	-0.011	0.023	0.053	13429
17079YH	17079JB	-0.012	-0.003	0.012	0.019	13429
17079YH	17079JB	0.008	0.008	0.012	-0.034	13429
17079YH	17079JC	-0.003	-0.005	0.005	0.000	12089
17079YH	17079JD	0.000	0.000	0.000	-0.005	6556
17079YH	17079JD	0.003	0.002	0.004	-0.007	6556
17079YH	17079JD	0.003	0.001	0.003	-0.002	6556
17079YH	17079JE	-0.002	-0.002	0.003	-0.015	7137
17079YH	17079JF	0.002	0.000	0.002	0.001	6180
17079YH	17079JG	0.002	0.001	0.002	-0.001	5323
17079YI	17079JH	0.000	0.002	0.002	0.014	4012
17079YI	17079JI	0.005	0.004	0.007	-0.003	3926
17079YI	17079JJ	-0.013	0.004	0.014	0.010	7841
17079YI	17079JK	0.001	0.001	0.001	-0.003	19
17079YJ	17079JL	0.001	-0.004	0.004	0.006	2361
17079YJ	17079JM	-0.001	0.003	0.004	-0.008	7522
17079YJ	17079JN	-0.001	0.003	0.003	-0.004	4606
17079YJ	17079JO	0.001	-0.004	0.004	-0.015	8984
17079YJ	17079JP	-0.010	-0.001	0.010	0.015	13122
17079YJ	17079JQ	-0.008	0.013	0.015	0.015	15489
17079YJ	17079JR	0.000	0.004	0.004	-0.003	16249
17079YJ	17079JS	0.035	-0.009	0.036	0.045	19581
17079YJ	17079JS	-0.002	-0.006	0.007	0.006	19581
17079YJ	17079JS	-0.037	0.003	0.037	-0.038	19581
17079YJ	17079JT	0.014	0.001	0.014	0.021	15282
17079YJ	17079JU	0.001	-0.004	0.004	0.006	3680
17079YK	17079JV	0.002	-0.001	0.002	-0.002	686
17079YK	17079JW	0.001	0.002	0.002	0.011	9442
17079YK	17079JX	-0.002	0.001	0.002	-0.002	7029
17079YK	17079JY	-0.001	-0.001	0.001	0.004	2626
17079YK	17079JZ	0.002	0.000	0.002	0.001	1969
17079YK	17079KA	-0.002	-0.001	0.003	0.009	5285
17079YM	17079KK	0.004	0.006	0.007	-0.006	6453
17079YN	17079KM	-0.001	-0.003	0.003	0.014	5174
17079YN	17079KO	0.008	0.001	0.008	-0.005	8207
17079YN	17079KP	0.002	0.006	0.006	-0.001	4498
17079YN	17079KQ	0.005	0.005	0.007	0.008	7032
17079YN	17079KS	-0.012	0.000	0.012	0.006	10327
17079ZA	17079MB	-0.005	0.004	0.006	0.004	12217
17079ZB	17079MC	0.004	-0.005	0.006	-0.020	14058
17079ZB	17079MD	-0.001	-0.002	0.002	0.004	20850
17079ZB	17079MD	0.004	-0.002	0.004	0.000	20850
17079ZB	17079MD	0.004	0.000	0.004	-0.004	20850
17079YD	17079MD	-0.004	-0.001	0.004	0.010	24933
17079YA	17079PA	-0.007	0.003	0.008	0.004	9870
17079YA	17079PB	-0.009	0.002	0.009	0.006	9615
17079YA	17079PC	0.001	-0.002	0.003	-0.003	10139
17079YA	17079PD	-0.001	-0.005	0.005	0.006	10520
17079YD	17079PE	-0.005	0.004	0.006	0.040	16466
17079YD	17079PE	-0.009	0.012	0.015	0.040	16466

From	To	Delta N	Delta E	Horiz	Delta U	Length
17079YD	17079PE	-0.004	0.008	0.009	0.000	16466
17079YD	17079PF	-0.012	-0.001	0.012	-0.023	12739
17079YD	17079PG	-0.017	-0.007	0.018	-0.017	11773
17079ZB	17079PH	0.018	0.007	0.019	0.089	18133
17079ZB	17079PH	0.024	-0.002	0.024	0.047	18133
17079ZB	17079PH	0.014	-0.007	0.016	0.004	18133
17079ZB	17079PH	0.007	-0.009	0.011	-0.041	18133
17079ZB	17079PH	-0.004	-0.014	0.015	-0.085	18133
17079ZB	17079PH	-0.010	-0.005	0.012	-0.043	18133
17079ZB	17079PI	-0.006	-0.005	0.008	-0.014	16522
17079ZB	17079PJ	-0.004	-0.001	0.004	-0.003	19466
17079YG	17079PK	-0.007	-0.001	0.007	0.001	11430
17079YG	17079PK	-0.004	-0.005	0.007	0.005	11430
17079YG	17079PK	0.003	-0.004	0.005	0.004	11430
17079YH	17079PL	-0.003	0.001	0.003	-0.006	6946
17079YH	17079PL	-0.008	0.002	0.009	-0.019	6946
17079YH	17079PL	-0.005	0.001	0.005	-0.013	6946
17079YH	17079PM	-0.003	-0.001	0.003	-0.004	13988
17079YH	17079PM	-0.008	-0.003	0.008	-0.009	13988
17079YH	17079PM	-0.005	-0.002	0.005	-0.005	13988
17079YH	17079PN	0.017	-0.018	0.024	0.013	15465
17079YH	17079PN	0.007	-0.010	0.012	0.001	15465
17079YH	17079PN	-0.009	0.008	0.012	-0.012	15465
17079YH	17079PO	0.000	0.003	0.003	0.004	11425
17079YH	17079PP	-0.007	0.002	0.007	-0.004	4279
17079YH	17079PQ	0.001	-0.001	0.002	0.000	4853
17079YI	17079PR	-0.018	-0.008	0.019	0.013	11284
17079YI	17079PS	-0.003	0.003	0.004	-0.003	8776
17079YJ	17079PT	-0.001	0.000	0.001	0.000	7
17079YJ	17079PU	-0.002	0.001	0.002	-0.011	10006
17079YJ	17079PV	0.001	0.005	0.005	-0.004	7291
17079YJ	17079PX	0.003	0.003	0.004	0.018	14209
17079YJ	17079PY	0.002	0.004	0.005	-0.011	13185
17079YK	17079PZ	-0.003	-0.002	0.004	-0.020	10693
17079YK	17079QA	0.000	0.006	0.006	0.004	6900
17079YK	17079QB	0.003	0.001	0.003	-0.001	2463
17079YK	17079QC	-0.005	-0.004	0.007	0.005	6418
17079YL	17079QD	0.004	-0.002	0.005	-0.003	6674
17079YL	17079QD	0.007	0.006	0.009	0.006	6674
17079YL	17079QD	0.002	0.007	0.008	0.009	6674
17079YM	17079QH	-0.011	-0.009	0.014	0.026	7676
17079YM	17079QH	-0.012	-0.006	0.013	0.011	7676
17079YM	17079QH	-0.001	0.004	0.004	-0.014	7676
17079YM	17079QI	-0.007	-0.010	0.012	0.033	9527
17079YM	17079QI	0.002	-0.011	0.011	0.017	9527
17079YM	17079QI	0.008	-0.001	0.008	-0.015	9527
17079YN	17079QK	0.000	-0.001	0.001	0.001	10023
17079YG	17079QN	0.002	0.002	0.003	-0.005	5060
17079XA	17079SA	-0.002	-0.001	0.002	-0.003	28
17079XB	17079SB	0.014	-0.008	0.016	-0.023	113
17079XC	17079SC	-0.005	0.010	0.012	-0.001	346
17079XC	17079SC	0.002	0.008	0.008	-0.007	346
17079XC	17079SC	0.007	-0.003	0.008	-0.006	346
17079XG	17079SG	0.021	-0.011	0.023	-0.041	23
17079XG	17079SG	0.016	-0.010	0.019	-0.039	23
17079XG	17079SG	-0.005	0.000	0.005	0.002	23

From	To	Delta N	Delta E	Horiz	Delta U	Length
17079ZB	AB9179	0.007	0.000	0.007	-0.007	14332
17079YI	AB9205	0.000	0.001	0.001	0.005	46
17079YD	PU0182	0.002	0.000	0.002	-0.003	3560
17079YC	PU0378	0.001	-0.001	0.001	-0.005	137
17079YH	PU1122	-0.013	0.006	0.015	-0.001	9406
17079YG	PU1370	-0.019	0.003	0.019	0.007	11070
17079YK	PU1406	0.001	0.002	0.003	-0.009	5286
17079YJ	PU1500	-0.002	-0.002	0.003	-0.001	1177

STATIC OCCUPATIONS AND PROCESSING

As mentioned above, the base occupations had long static data sets. These were used to process against the CORS to provide ties to the NSRS. Static data was also collected at GCP's, VVA's, NVA's, and NSRS benchmarks when cellular data was not available. Table 5 summarizes the static occupations, including the CORS data.

Table 5 - Static GPS Occupation Summary

GPSID	UTC Start	Duration Minutes	HI meters	Filename
SDRC	11/05/2017 18:24	335	0.000	sdrc309.17o
17079ZA	11/05/2017 18:25	334	0.000	42403090.dat
17079EA	11/05/2017 18:39	27	2.000	84973090.dat
17079EA	11/05/2017 19:06	16	2.000	84973091.dat
17079MA	11/05/2017 20:04	21	2.000	84973093.dat
17079YA	11/05/2017 20:10	275	0.000	54323090.dat
17079AA	11/05/2017 20:35	19	2.000	84973094.dat
17079AB	11/05/2017 21:14	16	2.000	84973095.dat
17079PB	11/05/2017 21:36	8	2.000	81103094.dat
17079AD	11/05/2017 23:06	16	2.000	84973097.dat
SDRC	11/06/2017 13:09	650	0.000	sdrc310.17o
17079YB	11/06/2017 13:10	50	0.000	54323101.dat
17079CF	11/06/2017 13:23	16	2.000	81103103.dat
17079YC	11/06/2017 14:21	26	0.000	54323102.dat
17079CG	11/06/2017 14:27	15	2.000	81103104.dat
17079YC	11/06/2017 14:52	8	0.000	54323103.dat
17079ZB	11/06/2017 14:54	572	0.000	42403100.dat
17079YD	11/06/2017 16:22	267	0.000	54323104.dat
17079AG	11/06/2017 18:45	20	2.000	84973100.dat
17079ED	11/06/2017 19:16	20	2.000	84973101.dat
17079ME	11/06/2017 19:44	16	2.000	84973102.dat
17079AH	11/06/2017 20:08	17	2.000	84973103.dat
17079YE	11/06/2017 21:58	29	0.000	54323105.dat
17079YF	11/06/2017 23:32	40	0.000	54323106.dat
SDRC	11/07/2017 14:28	571	0.000	sdrc311.17o
17079ZC	11/07/2017 14:29	637	0.000	42403113.dat
17079YG	11/07/2017 14:34	158	0.000	54323112.dat
17079MF	11/07/2017 14:41	11	2.000	84973110.DAT
17079EJ	11/07/2017 14:59	10	2.000	84973111.DAT
17079EK	11/07/2017 15:28	13	2.000	84973112.DAT
17079AM	11/07/2017 15:51	15	2.000	84973113.DAT
17079MG	11/07/2017 16:10	15	2.000	84973113.DAT
17079EL	11/07/2017 16:49	12	2.000	84973113.DAT
17079AN	11/07/2017 17:07	12	2.000	84973113.DAT
17079EM	11/07/2017 17:33	14	2.000	84973113.DAT
17079YH	11/07/2017 17:44	275	0.000	54323113.dat
PU1998	11/07/2017 17:53	20	2.000	84973113.DAT
17079AO	11/07/2017 18:19	15	2.000	84973113.DAT
17079EN	11/07/2017 18:44	16	2.000	84973113.DAT
17079EO	11/07/2017 19:16	15	2.000	84973113.DAT
17079MH	11/07/2017 19:36	16	2.000	84973113.DAT
17079EP	11/07/2017 20:22	11	2.000	84973114.DAT

GPSID	UTC Start	Duration Minutes	HI meters	Filename
17079MI	11/07/2017 20:43	17	2.000	84973114.DAT
17079AP	11/07/2017 21:04	12	2.000	84973116.DAT
17079EQ	11/07/2017 21:26	14	2.000	84973116.DAT
17079ER	11/07/2017 21:46	11	2.000	84973116.DAT
17079ES	11/07/2017 22:03	15	2.000	84973116.DAT
17079MJ	11/07/2017 22:24	15	2.000	84973116.DAT
17079YI	11/07/2017 22:43	91	0.000	54323114.dat
17079AQ	11/07/2017 22:43	16	2.000	84973116.DAT
17079AR	11/07/2017 23:12	26	2.000	84973116.DAT
17079MK	11/07/2017 23:48	22	2.000	84973116.DAT
SDRC	11/08/2017 00:19	1411	0.000	sdr312.17o
17079ET	11/08/2017 00:20	15	2.000	84973120.DAT
17079ML	11/08/2017 00:40	15	2.000	84973120.DAT
17079YJ	11/08/2017 14:29	336	0.000	54323122.dat
17079DA	11/08/2017 16:43	15	2.000	81103125.dat
17079PW	11/08/2017 17:09	15	2.000	81103126.dat
17079YK	11/08/2017 20:42	188	0.000	54323123.dat
P043	11/09/2017 14:04	595	0.008	p043313.17o
SDRC	11/09/2017 14:05	594	0.000	sdr313.17o
17079ZD	11/09/2017 14:06	650	0.000	42403130.dat
17079MM	11/09/2017 14:10	15	2.000	84973130.dat
17079MN	11/09/2017 14:30	11	2.000	84973131.dat
17079EV	11/09/2017 14:49	15	2.000	84973132.dat
17079AS	11/09/2017 15:10	14	2.000	84973133.dat
17079YL	11/09/2017 15:28	354	0.000	54323132.dat
17079KB	11/09/2017 15:33	13	2.000	81103132.dat
17079EW	11/09/2017 15:33	11	2.000	84973134.dat
17079EU	11/09/2017 15:56	17	2.000	84973135.dat
17079DG	11/09/2017 16:09	15	2.000	81103134.dat
17079MO	11/09/2017 16:26	16	2.000	84973136.dat
17079KC	11/09/2017 16:31	15	2.000	81103136.dat
17079AT	11/09/2017 16:48	16	2.000	84973137.dat
17079QE	11/09/2017 16:54	15	2.000	81103138.dat
17079EX	11/09/2017 17:08	15	2.000	84973138.dat
17079KD	11/09/2017 17:18	15	2.000	8110313A.dat
PV0616	11/09/2017 17:29	17	2.000	84973139.dat
17079DH	11/09/2017 17:39	15	2.000	8110313C.dat
17079MP	11/09/2017 17:47	18	2.000	8497313A.dat
17079KE	11/09/2017 18:03	15	2.000	8110313E.dat
17079EY	11/09/2017 18:12	12	2.000	8497313B.dat
17079QF	11/09/2017 18:27	15	2.000	8110313G.dat
17079EZ	11/09/2017 18:39	16	2.000	8497313C.dat
17079DI	11/09/2017 18:49	15	2.000	8110313I.dat
17079MQ	11/09/2017 19:09	16	2.000	8497313D.dat
17079KF	11/09/2017 19:13	15	2.000	8110313K.dat
17079FA	11/09/2017 19:33	15	2.000	8497313E.dat
17079QG	11/09/2017 19:34	16	2.000	8110313M.dat
17079AU	11/09/2017 19:53	15	2.000	8497313F.dat
17079KG	11/09/2017 19:58	15	2.000	8110313O.dat
17079MR	11/09/2017 20:12	15	2.000	8497313G.dat
17079KH	11/09/2017 20:21	15	2.000	8110313Q.dat
17079MS	11/09/2017 20:35	14	2.000	8497313H.dat
17079DJ	11/09/2017 20:44	15	2.000	8110313S.dat
17079MT	11/09/2017 20:55	15	2.000	8497313I.dat
17079KI	11/09/2017 21:05	12	2.000	8110313U.dat
17079FC	11/09/2017 21:17	15	2.000	8497313J.dat
17079AW	11/09/2017 21:38	16	2.000	8497313K.dat
17079YM	11/09/2017 21:39	115	0.000	54323133.dat
17079KJ	11/09/2017 21:48	16	2.000	8110313X.dat
17079FD	11/09/2017 22:01	18	2.000	8497313L.dat
17079FE	11/09/2017 22:33	15	2.000	8497313M.dat
17079FB	11/09/2017 22:55	15	2.000	8497313N.dat
17079AV	11/09/2017 23:21	15	2.000	8497313O.dat
17079FF	11/09/2017 23:55	23	2.000	8497313P.dat
P043	11/10/2017 14:35	520	0.008	p043314.17o

GPSID	UTC Start	Duration Minutes	HI meters	Filename
SDRC	11/10/2017 14:36	519	0.000	sdrc314.17o
17079YN	11/10/2017 14:37	518	0.000	54323141.dat
17079XA	11/10/2017 14:44	23	2.164	42403140.dat
17079XB	11/10/2017 15:23	25	2.164	42403142.dat
17079DL	11/10/2017 15:28	15	2.000	81103144.dat
17079QJ	11/10/2017 15:53	15	2.000	81103146.dat
17079XC	11/10/2017 15:59	32	2.164	42403144.dat
17079KN	11/10/2017 16:16	15	2.000	81103148.dat
17079XD	11/10/2017 17:03	19	2.164	42403146.dat
17079DM	11/10/2017 17:22	15	2.000	8110314B.dat
17079XE	11/10/2017 17:47	22	2.164	42403148.dat
17079XF	11/10/2017 18:22	21	2.164	4240314A.dat
17079QL	11/10/2017 19:00	16	2.000	8110314G.dat
17079XG	11/10/2017 19:15	24	2.164	4240314C.dat
17079KR	11/10/2017 19:59	15	2.000	8110314K.dat
17079XH	11/10/2017 20:14	20	2.164	4240314E.dat
17079QM	11/10/2017 20:31	14	2.000	8110314M.dat
17079XI	11/10/2017 20:58	37	2.164	4240314G.dat
17079KT	11/10/2017 21:41	15	2.000	8110314P.dat
17079XJ	11/10/2017 21:46	17	2.164	4240314I.dat
17079XK	11/10/2017 22:43	19	2.164	4240314K.dat
P043	11/11/2017 15:16	212	0.008	p043315.17o
SDRC	11/11/2017 15:16	212	0.000	sdrc315.17o
17079YO	11/11/2017 15:17	211	0.000	81103150.dat
17079XL	11/11/2017 15:36	20	2.164	42403150.dat
17079XM	11/11/2017 16:22	17	2.164	42403152.dat
17079XO	11/11/2017 17:43	17	2.164	42403156.dat
17079XP	11/11/2017 18:15	21	2.164	42403159.dat

The static data was processed using Trimble Business Center V3.82. The precise ephemerides were used. Table 6 summarizes the results of the static baseline processing.

Table 6 - Summary of GPS Static Baseline Processing

From	To	UTC Start	Dur. mins	Length meters	Horz Prec	Vert Prec	RMS	L/T Ratio
SDRC	17079ZA	11/05/2017 18:25	334	22165	0.004	0.010	0.016	15.1
17079ZA	17079EA	11/05/2017 19:06	16	4110	0.013	0.013	0.004	3.9
17079ZA	17079MA	11/05/2017 20:04	21	15664	0.011	0.014	0.016	1.3
17079ZA	17079YA	11/05/2017 20:10	229	45895	0.004	0.012	0.019	5.0
SDRC	17079YA	11/05/2017 20:10	229	52629	0.004	0.013	0.015	4.4
17079ZA	17079AA	11/05/2017 20:35	19	15545	0.012	0.018	0.013	1.2
17079ZA	17079AB	11/05/2017 21:14	16	13125	0.016	0.018	0.017	1.2
17079YA	17079PB	11/05/2017 21:36	8	9614	0.024	0.023	0.008	0.8
17079ZA	17079AD	11/05/2017 23:06	16	15268	0.012	0.015	0.016	1.0
SDRC	17079YB	11/06/2017 13:10	50	84755	0.006	0.008	0.009	0.6
17079YB	17079CF	11/06/2017 13:24	15	9721	0.012	0.016	0.004	1.5
SDRC	17079YC	11/06/2017 14:21	26	95859	0.096	0.071	0.006	0.3
17079YC	17079CG	11/06/2017 14:27	15	3088	0.006	0.014	0.003	4.9
SDRC	17079ZB	11/06/2017 14:54	545	74665	0.003	0.007	0.013	7.3
17079ZB	17079YC	11/06/2017 14:54	6	48718	0.045	0.066	0.005	0.1
17079ZB	17079YD	11/06/2017 16:22	267	40297	0.003	0.009	0.013	6.6
SDRC	17079YD	11/06/2017 16:22	267	103138	0.004	0.011	0.025	2.6
17079YD	17079AG	11/06/2017 18:45	20	17927	0.017	0.015	0.019	1.1
17079ZB	17079AG	11/06/2017 18:45	20	32190	0.015	0.014	0.013	0.6
17079YD	17079ED	11/06/2017 19:16	20	19560	0.014	0.015	0.012	1.0
17079ZB	17079ED	11/06/2017 19:16	20	25772	0.014	0.015	0.013	0.8
17079YD	17079ME	11/06/2017 19:44	16	14737	0.013	0.016	0.014	1.1
17079ZB	17079ME	11/06/2017 19:44	16	30729	0.012	0.014	0.012	0.5
17079YD	17079AH	11/06/2017 20:08	17	10395	0.012	0.016	0.011	1.6
17079ZB	17079AH	11/06/2017 20:08	17	30199	0.011	0.014	0.013	0.6
17079ZB	17079YE	11/06/2017 21:58	29	21053	0.011	0.012	0.019	1.4
SDRC	17079YE	11/06/2017 21:58	29	66459	0.015	0.015	0.015	0.4
17079ZB	17079YF	11/06/2017 23:32	40	45624	0.009	0.012	0.013	0.9

From	To	UTC Start	Dur. mins	Length meters	Horz Prec	Vert Prec	RMS	L/T Ratio
SDRC	17079YF	11/06/2017 23:32	27	35509	0.009	0.011	0.013	0.8
SDRC	17079ZC	11/07/2017 14:29	570	84487	0.003	0.007	0.015	6.7
17079ZC	17079YG	11/07/2017 14:35	157	49418	0.004	0.012	0.016	3.2
SDRC	17079YG	11/07/2017 14:35	157	69996	0.005	0.013	0.015	2.2
17079ZC	17079MF	11/07/2017 14:41	11	50	0.002	0.006	0.003	222.1
17079ZC	17079EJ	11/07/2017 14:59	10	3993	0.010	0.021	0.004	2.5
17079ZC	17079EK	11/07/2017 15:28	13	9365	0.015	0.018	0.011	1.4
17079ZC	17079AM	11/07/2017 15:51	15	12148	0.013	0.014	0.010	1.2
17079ZC	17079MG	11/07/2017 16:10	15	11506	0.012	0.013	0.010	1.3
17079ZC	17079EL	11/07/2017 16:49	12	2089	0.005	0.008	0.004	5.7
17079ZC	17079AN	11/07/2017 17:07	12	4936	0.009	0.015	0.003	2.4
17079ZC	17079EM	11/07/2017 17:33	14	8315	0.011	0.017	0.009	1.7
17079ZC	17079YH	11/07/2017 17:44	275	41504	0.004	0.010	0.013	6.6
SDRC	17079YH	11/07/2017 17:44	275	60467	0.005	0.010	0.012	4.5
17079ZC	PUI998	11/07/2017 17:53	20	9514	0.011	0.014	0.011	2.1
17079ZC	17079AO	11/07/2017 18:19	15	11558	0.017	0.016	0.010	1.3
17079ZC	17079EN	11/07/2017 18:44	16	15154	0.018	0.017	0.009	1.1
17079ZC	17079EO	11/07/2017 19:16	15	8064	0.017	0.019	0.010	1.9
17079ZC	17079MH	11/07/2017 19:36	16	11954	0.014	0.016	0.008	1.3
17079ZC	17079EP	11/07/2017 20:22	11	1416	0.006	0.008	0.004	7.8
17079ZC	17079MI	11/07/2017 20:43	17	5182	0.012	0.016	0.004	3.3
17079ZC	17079AP	11/07/2017 21:04	12	5104	0.014	0.015	0.008	2.4
17079ZC	17079EQ	11/07/2017 21:26	14	4190	0.012	0.013	0.008	3.3
17079ZC	17079ER	11/07/2017 21:46	11	7699	0.016	0.018	0.016	1.4
17079ZC	17079ES	11/07/2017 22:03	15	9840	0.016	0.016	0.014	1.5
17079ZC	17079MJ	11/07/2017 22:24	15	12037	0.016	0.016	0.021	1.2
17079ZC	17079YI	11/07/2017 22:43	91	63586	0.008	0.024	0.013	1.4
SDRC	17079YI	11/07/2017 22:43	76	47449	0.006	0.021	0.012	1.6
17079ZC	17079AQ	11/07/2017 22:43	16	14181	0.032	0.044	0.029	1.1
17079ZC	17079AR	11/07/2017 23:12	26	21477	0.026	0.048	0.020	1.2
17079ZC	17079MK	11/07/2017 23:48	22	16322	0.014	0.017	0.012	1.3
SDRC	17079ZC	11/08/2017 00:19	47	84487	0.007	0.009	0.014	0.6
17079ZC	17079ET	11/08/2017 00:20	15	15992	0.014	0.017	0.013	0.9
17079ZC	17079ML	11/08/2017 00:40	15	13307	0.013	0.017	0.011	1.1
SDRC	17079YJ	11/08/2017 14:30	335	40894	0.003	0.009	0.014	8.2
17079YJ	17079DA	11/08/2017 16:43	15	14389	0.011	0.017	0.013	1.0
17079YJ	17079PW	11/08/2017 17:09	15	14317	0.012	0.028	0.017	1.0
SDRC	17079YK	11/08/2017 20:42	188	10471	0.005	0.015	0.014	18.0
SDRC	P043	11/09/2017 14:05	594	80216	0.002	0.007	0.009	7.4
SDRC	17079ZD	11/09/2017 14:06	593	70625	0.003	0.007	0.014	8.4
17079ZD	P043	11/09/2017 14:06	593	75854	0.003	0.007	0.014	7.8
17079ZD	17079MM	11/09/2017 14:10	15	96	0.002	0.005	0.003	156.1
17079ZD	17079MN	11/09/2017 14:30	11	1664	0.005	0.011	0.003	6.6
17079ZD	17079EV	11/09/2017 14:49	15	4701	0.010	0.020	0.005	3.2
17079ZD	17079AS	11/09/2017 15:10	14	1820	0.007	0.009	0.004	7.7
17079ZD	17079YL	11/09/2017 15:28	354	40111	0.003	0.009	0.012	8.8
SDRC	17079YL	11/09/2017 15:28	354	32312	0.003	0.010	0.011	11.0
P043	17079YL	11/09/2017 15:28	354	62115	0.003	0.009	0.011	5.7
17079YL	17079KB	11/09/2017 15:33	13	953	0.005	0.006	0.006	13.6
17079ZD	17079EW	11/09/2017 15:33	11	2906	0.009	0.010	0.007	3.8
17079ZD	17079EU	11/09/2017 15:56	17	8521	0.011	0.013	0.013	2.0
17079YL	17079DG	11/09/2017 16:09	15	11071	0.012	0.014	0.010	1.4
17079ZD	17079MO	11/09/2017 16:26	16	7102	0.010	0.013	0.006	2.3
17079YL	17079KC	11/09/2017 16:31	15	11664	0.012	0.018	0.008	1.3
17079ZD	17079AT	11/09/2017 16:48	16	10929	0.010	0.017	0.008	1.5
17079YL	17079QE	11/09/2017 16:54	15	11428	0.011	0.018	0.008	1.3
17079ZD	17079EX	11/09/2017 17:08	15	13423	0.011	0.019	0.006	1.1
17079YL	17079KD	11/09/2017 17:18	15	8649	0.011	0.022	0.013	1.7
17079ZD	PV0616	11/09/2017 17:29	17	11803	0.012	0.019	0.015	1.4
17079YL	17079DH	11/09/2017 17:39	15	6176	0.011	0.017	0.007	2.4
17079ZD	17079MP	11/09/2017 17:47	18	11822	0.012	0.016	0.008	1.5
17079YL	17079KE	11/09/2017 18:03	15	5246	0.012	0.014	0.004	2.9
17079ZD	17079EY	11/09/2017 18:12	12	8690	0.017	0.017	0.005	1.4
17079YL	17079QF	11/09/2017 18:27	15	5840	0.016	0.014	0.005	2.6
17079ZD	17079EZ	11/09/2017 18:39	16	7641	0.018	0.016	0.006	2.1

From	To	UTC Start	Dur. mins	Length meters	Horz Prec	Vert Prec	RMS	L/T Ratio
17079YL	17079DI	11/09/2017 18:49	15	8796	0.019	0.018	0.009	1.7
17079ZD	17079MQ	11/09/2017 19:09	16	11361	0.018	0.019	0.012	1.4
17079YL	17079KF	11/09/2017 19:13	15	9535	0.017	0.020	0.008	1.6
17079ZD	17079FA	11/09/2017 19:33	15	12514	0.014	0.016	0.011	1.2
17079YL	17079QG	11/09/2017 19:34	16	8868	0.022	0.021	0.008	1.8
17079ZD	17079AU	11/09/2017 19:53	15	12565	0.012	0.017	0.018	1.2
17079YL	17079KG	11/09/2017 19:58	15	8914	0.012	0.017	0.006	1.7
17079ZD	17079MR	11/09/2017 20:12	15	14414	0.013	0.018	0.009	1.0
17079YL	17079KH	11/09/2017 20:21	15	12180	0.014	0.021	0.006	1.2
17079ZD	17079MS	11/09/2017 20:35	14	11431	0.016	0.021	0.007	1.2
17079YL	17079DJ	11/09/2017 20:44	15	6713	0.015	0.018	0.005	2.2
17079ZD	17079MT	11/09/2017 20:55	15	13128	0.016	0.017	0.012	1.1
17079YL	17079KI	11/09/2017 21:05	12	3557	0.013	0.013	0.007	3.4
17079ZD	17079FC	11/09/2017 21:17	15	17183	0.017	0.020	0.014	0.9
17079ZD	17079AW	11/09/2017 21:38	16	19525	0.014	0.016	0.017	0.8
17079ZD	17079YM	11/09/2017 21:39	115	25508	0.006	0.019	0.016	4.5
SDRC	17079YM	11/09/2017 21:39	115	46888	0.005	0.018	0.016	2.5
P043	17079YM	11/09/2017 21:39	115	62174	0.009	0.019	0.014	1.8
17079YM	17079AW	11/09/2017 21:39	15	7430	0.014	0.016	0.012	2.0
17079YM	17079KJ	11/09/2017 21:48	16	3024	0.011	0.011	0.006	5.3
17079ZD	17079KJ	11/09/2017 21:48	16	22491	0.035	0.024	0.019	0.7
17079FD	17079KJ	11/09/2017 22:01	3	9850	0.035	0.034	0.008	0.3
17079YM	17079FD	11/09/2017 22:01	18	10136	0.017	0.016	0.011	1.8
17079ZD	17079FD	11/09/2017 22:01	18	24430	0.014	0.014	0.019	0.7
17079YM	17079FE	11/09/2017 22:33	15	7710	0.018	0.019	0.007	1.9
17079ZD	17079FE	11/09/2017 22:33	15	17963	0.018	0.020	0.011	0.8
17079YM	17079FB	11/09/2017 22:55	15	10883	0.014	0.017	0.007	1.4
17079ZD	17079FB	11/09/2017 22:55	15	15104	0.014	0.017	0.011	1.0
17079ZD	17079AV	11/09/2017 23:21	15	8862	0.013	0.016	0.008	1.7
17079ZD	17079FF	11/09/2017 23:55	23	12902	0.024	0.020	0.004	1.8
SDRC	P043	11/10/2017 14:36	519	80216	0.002	0.007	0.012	6.5
SDRC	17079YN	11/10/2017 14:37	518	58897	0.003	0.011	0.011	8.8
P043	17079YN	11/10/2017 14:37	518	45732	0.003	0.010	0.010	11.3
17079YN	17079XA	11/10/2017 14:44	23	18900	0.012	0.024	0.006	1.2
17079YN	17079XB	11/10/2017 15:23	25	15722	0.013	0.014	0.011	1.6
17079YN	17079DL	11/10/2017 15:28	15	5317	0.016	0.017	0.007	2.8
17079YN	17079QJ	11/10/2017 15:53	15	7861	0.035	0.039	0.006	1.9
17079YN	17079XC	11/10/2017 15:59	32	12798	0.010	0.012	0.008	2.5
17079YN	17079KN	11/10/2017 16:16	15	9892	0.012	0.017	0.007	1.5
17079YN	17079XD	11/10/2017 17:03	19	9899	0.012	0.028	0.008	1.9
17079YN	17079DM	11/10/2017 17:22	15	11542	0.015	0.037	0.003	1.3
17079YN	17079XE	11/10/2017 17:47	22	4850	0.010	0.012	0.005	4.5
17079YN	17079XF	11/10/2017 18:22	21	5735	0.017	0.015	0.004	3.7
17079YN	17079QL	11/10/2017 19:00	16	6944	0.019	0.019	0.006	2.3
17079YN	17079XG	11/10/2017 19:15	24	9785	0.013	0.017	0.009	2.5
17079YN	17079KR	11/10/2017 19:59	15	10644	0.014	0.021	0.007	1.4
17079YN	17079XH	11/10/2017 20:14	20	8366	0.013	0.019	0.005	2.4
17079YN	17079QM	11/10/2017 20:31	14	106	0.004	0.005	0.004	131.9
17079XH	17079QM	11/10/2017 20:31	3	8261	0.026	0.036	0.003	0.4
17079YN	17079XI	11/10/2017 20:58	37	11363	0.014	0.015	0.012	3.3
17079YN	17079KT	11/10/2017 21:41	15	14211	0.019	0.019	0.012	1.1
17079YN	17079XJ	11/10/2017 21:46	17	10524	0.017	0.018	0.006	1.6
17079YN	17079XK	11/10/2017 22:43	19	11763	0.017	0.020	0.007	1.6
SDRC	P043	11/11/2017 15:16	212	80216	0.003	0.010	0.009	2.6
SDRC	17079YO	11/11/2017 15:17	211	32338	0.003	0.012	0.012	6.5
P043	17079YO	11/11/2017 15:17	211	62116	0.004	0.012	0.011	3.4
17079YO	17079XL	11/11/2017 15:36	20	5058	0.009	0.010	0.005	4.0
17079YO	17079XM	11/11/2017 16:22	17	9393	0.011	0.015	0.009	1.8
17079YO	17079XO	11/11/2017 17:43	17	9501	0.013	0.017	0.011	1.8
17079YO	17079XP	11/11/2017 18:15	21	4671	0.013	0.012	0.006	4.5

WOODS VVA CHECK POINTS

The 15 woods checkpoints were surveyed by establishing a pair of intervisible stations in an open area using GPS (Static GPS from a base to one station, and an RTK vector between the two intervisible stations). A Trimble S6 total station was then used to traverse to the woods point. Table 7 lists the conventional observations (mark-to-mark, grads and meters).

Table 7 - Conventional Observations to Woods VVA points

Standpoint	Backsight	Forepoint	HI	HT	Direction	M-to-M Zenith Distance	M-to-M Distance
17079SA	17079XA	17079XA	0.196	2.050		105.6992	28.3554
17079SA	17079XA	17079XA	0.196	2.050		105.7000	28.3553
17079SA	17079XA	17079WA	0.196	2.135	267.6727	100.8749	61.6007
17079SB	17079XB	17079XB	0.196	2.050		99.7147	112.5346
17079SB	17079XB	17079XB	0.196	2.050		99.7146	112.5349
17079SB	17079XB	17079WB	0.196	2.135	172.7507	100.4041	65.0244
17079SC	17079XC	17079XC	0.196	2.050		102.9347	345.6214
17079SC	17079XC	17079XC	0.196	2.050		102.9344	345.6224
17079SC	17079XC	17079WC	0.196	2.135	280.5348	100.0954	23.7941
17079SD	17079XD	17079XD	0.196	2.050		108.9113	25.3672
17079SD	17079XD	17079XD	0.196	2.050		108.9112	25.3671
17079SD	17079XD	17079WD	0.196	2.135	179.0615	97.7367	48.6647
17079SE	17079XE	17079XE	0.196	2.050		102.1444	74.3868
17079SE	17079XE	17079XE	0.196	2.050		102.1441	74.3870
17079SE	17079XE	17079WE	0.196	2.135	194.6593	98.6531	50.6724
17079SF	17079XF	17079XF	0.196	2.050		104.3067	25.1370
17079SF	17079XF	17079XF	0.196	2.050		104.3060	25.1373
17079SF	17079XF	17079WF	0.196	2.135	311.8619	103.4973	72.1258
17079SG	17079XG	17079XG	0.196	2.050		105.1892	23.0307
17079SG	17079XG	17079XG	0.196	2.050		105.1888	23.0310
17079SG	17079XG	17079WG	0.196	2.135	288.0656	97.6742	34.8103
17079SH	17079XH	17079XH	0.196	2.050		99.0344	94.6342
17079SH	17079XH	17079XH	0.196	2.050		99.0337	94.6346
17079SH	17079XH	17079WH	0.196	2.135	112.3612	96.8083	55.6294
17079SI	17079XI	17079XI	0.196	2.050		101.0274	56.7153
17079SI	17079XI	17079XI	0.196	2.050		101.0265	56.7151
17079SI	17079XI	17079WI	0.196	2.135	171.0858	101.8292	38.8005
17079SJ	17079XJ	17079XJ	0.196	2.050		99.8539	46.4948
17079SJ	17079XJ	17079XJ	0.196	2.050		99.8535	46.4948
17079SJ	17079XJ	17079WJ	0.196	2.135	110.7423	109.5644	45.1585
17079SK	17079XK	17079XK	0.196	2.050		103.9604	28.6846
17079SK	17079XK	17079XK	0.196	2.050		103.9597	28.6849
17079SK	17079XK	17079WK	0.196	2.135	323.9897	110.0879	48.9218
17079SL	17079XL	17079XL	0.196	2.050		103.3629	22.0748
17079SL	17079XL	17079XL	0.196	2.050		103.3625	22.0752
17079SL	17079XL	17079WL	0.196	2.135	204.8519	98.8007	44.7552
17079SM	17079XM	17079XM	0.196	2.050		104.1903	35.2894
17079SM	17079XM	17079XM	0.196	2.050		104.1894	35.2895
17079SM	17079XM	17079WM	0.196	2.135	229.2447	99.8899	73.8215
17079SN	17079XN	17079XN	0.196	2.050		104.8170	33.3235
17079SN	17079XN	17079XN	0.196	2.050		104.8174	33.3234
17079SN	17079XN	17079WN	0.196	2.135	149.9257	98.9819	68.5354

Standpoint	Backsight	Forepoint	HI	HT	Direction	M-to-M Zenith Distance	M-to-M Distance
17079SO	17079XO	17079XO	0.196	2.050		100.6920	30.2847
17079SO	17079XO	17079XO	0.196	2.050		100.6919	30.2841
17079SO	17079XO	17079WO	0.196	2.135	131.3223	100.8248	43.7107
17079SP	17079XP	17079XP	0.196	2.050		99.8299	65.7984
17079SP	17079XP	17079XP	0.196	2.050		99.8294	65.7983
17079SP	17079XP	17079WP	0.196	2.135	283.2533	106.7898	43.8530

LEAST SQUARES ADJUSTMENTS

Geolab was used to adjust the GPS vectors. No scaling of the apriori GPS statistics was done. Station errors (centering, HI and HT) of 0.005 m were input. The GEOID12B model was used.

The first adjustment constrained the CORS SDRC in all three dimensions (NAD83 (2011) epoch 2010.0 latitude, longitude, and ellipsoidal height). The adjustment had an estimated variance factor of 0.30. The map in figure 3 shows the configuration of the network that was adjusted, with the two CORS shown as green dots and the thirteen NSRS benchmarks shows as red X's.

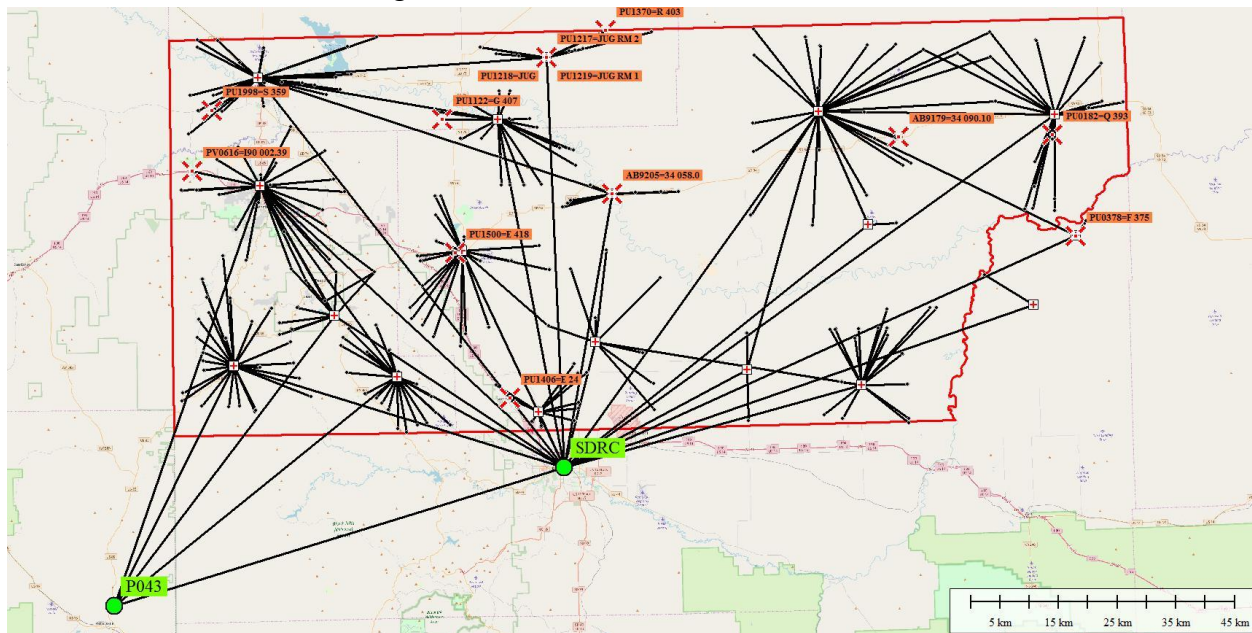


Figure 3- Network Adjustment

The misclosures at each of the NSRS benchmarks was then checked, as shown in table 8, in meters.

Table 8 - NSRS Misclosures

PID	Azimuth	Distance	Delta Ortho H	Delta Ellip H	Comment
AB9179			+0.023 m		
AB9205			-0.008 m		
PU1218	319°	0.113 m	+0.065 m		Disturbed?
PU1219			+0.095 m		Disturbed?
PU1217			+0.052 m		Disturbed?
PU0182			+0.031 m		

PID	Azimuth	Distance	Delta Ortho H	Delta Ellip H	Comment
PU0378			-0.009 m		
PU1122			-0.008 m		
PU1370			+0.104 m		Disturbed?
PU1406			-0.003 m		
PU1500			-0.005 m		
PU1998			-0.001 m		
PV0616			-0.001 m		
P043	106°	0.003 m		-0.007 m	CORS

The four stations listed as “Disturbed?” are all concrete posts, and all are higher than published, probably due to frost heave. The three stations at the location of **JUG** show different amounts of movement, against a base that was located approximately 30 meters away. The horizontal position of this station is referenced to NAD83 (1996) and is a third order triangulation derived position. The other mark suspected of being disturbed (**R 403**=PID PU1370) is listed in the original description as projecting 0.4 feet (0.12 m) above ground. As can be seen in figure 4, the station mark currently projects significantly more than that.

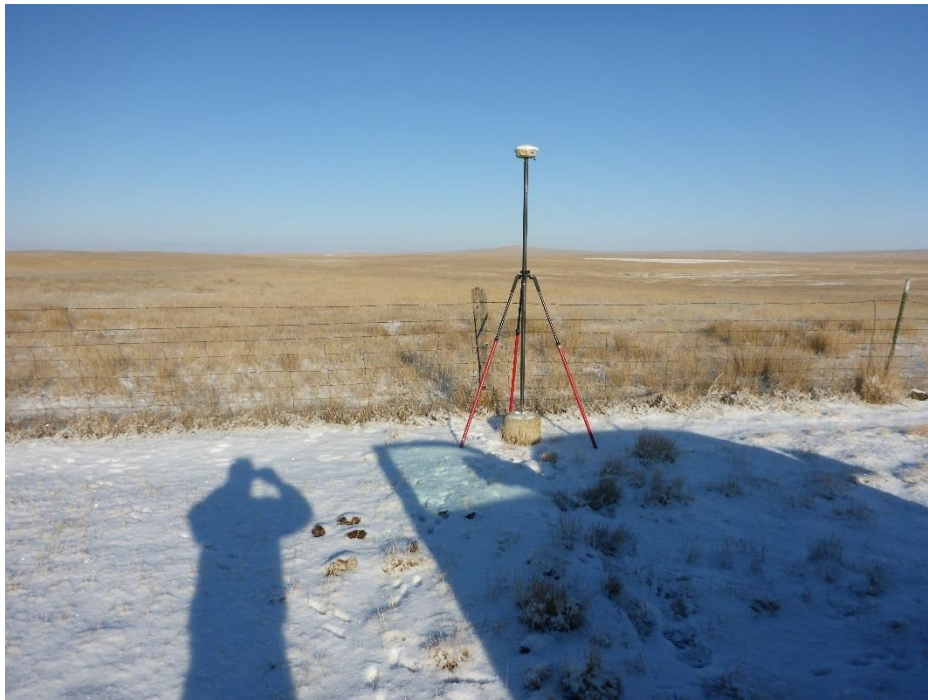


Figure 4 - NSRS Benchmark R 403 (PID PU1370)

The final adjustment constrained the two CORS horizontally (NAD83 (2011) epoch 2010.0 latitude and longitude) and eight of the NSRS benchmarks constrained vertically (NAVD88 orthometric height). The estimated variance factor was 0.30. This adjustment provided the adjusted positions and elevations for the stations in the network. Table 9 lists the station confidence regions (error ellipses) at the 95% level (in meters):

Table 9 - Station Confidence Intervals (95% - meters)

Station Name	Semi-Major Axis	Azimuth	Semi-Minor Axis	Vertical
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Station Name	Semi-Major Axis	Azimuth	Semi-Minor Axis	Vertical
17079AA	0.014	178	0.013	0.015
17079AB	0.011	167	0.010	0.011
17079AC	0.012	26	0.011	0.014
17079AD	0.014	27	0.013	0.015
17079AE	0.013	10	0.010	0.016
17079AF	0.012	108	0.011	0.012
17079AG	0.011	178	0.009	0.010
17079AH	0.010	9	0.009	0.010
17079AI	0.014	160	0.011	0.014
17079AJ	0.011	22	0.010	0.011
17079AK	0.011	22	0.010	0.013
17079AL	0.013	0	0.011	0.015
17079AM	0.013	165	0.012	0.012
17079AN	0.012	15	0.011	0.012
17079AO	0.014	168	0.012	0.013
17079AP	0.013	160	0.012	0.013
17079AQ	0.020	28	0.018	0.026
17079AR	0.018	92	0.013	0.028
17079AS	0.011	160	0.011	0.011
17079AT	0.012	15	0.011	0.014
17079AU	0.013	10	0.011	0.013
17079AV	0.013	10	0.012	0.013
17079AW	0.010	13	0.009	0.010
17079CA	0.014	152	0.011	0.016
17079CB	0.014	162	0.011	0.015
17079CC	0.014	27	0.012	0.015
17079CD	0.013	25	0.012	0.015
17079CE	0.013	4	0.011	0.015
17079CF	0.015	5	0.015	0.015
17079CG	0.029	62	0.024	0.012
17079CH	0.012	19	0.011	0.013
17079CI	0.012	10	0.011	0.015
17079CJ	0.013	6	0.011	0.014
17079CK	0.011	167	0.010	0.013
17079CL	0.016	20	0.014	0.015
17079CM	0.013	109	0.011	0.015
17079CN	0.013	2	0.011	0.013
17079CO	0.014	3	0.011	0.015
17079CP	0.011	171	0.010	0.013
17079CQ	0.014	162	0.012	0.016
17079CR	0.011	21	0.010	0.013
17079CS	0.013	6	0.011	0.014
17079CT	0.012	169	0.011	0.014
17079CU	0.013	163	0.010	0.014
17079CV	0.013	1	0.011	0.012
17079CW	0.012	27	0.011	0.013
17079CX	0.013	179	0.011	0.013
17079CY	0.014	169	0.013	0.015
17079CZ	0.013	172	0.013	0.012
17079DA	0.012	21	0.012	0.012
17079DB	0.014	170	0.013	0.012
17079DC	0.013	6	0.013	0.012
17079DD	0.015	158	0.013	0.015
17079DE	0.014	20	0.012	0.012
17079DF	0.014	9	0.013	0.014
17079DG	0.013	9	0.012	0.013
17079DH	0.013	172	0.012	0.014
17079DI	0.015	5	0.012	0.014
17079DJ	0.014	164	0.012	0.014
17079DK	0.011	26	0.010	0.014
17079DL	0.015	152	0.012	0.015
17079DM	0.014	170	0.013	0.023
17079DN	0.013	178	0.011	0.015
17079DO	0.011	3	0.010	0.013
17079EA	0.014	4	0.013	0.014

Station Name	Semi-Major Axis	Azimuth	Semi-Minor Axis	Vertical
17079EB	0.012	12	0.011	0.014
17079EC	0.011	31	0.010	0.013
17079ED	0.011	10	0.009	0.010
17079EE	0.013	168	0.011	0.013
17079EF	0.011	2	0.010	0.011
17079EG	0.012	28	0.011	0.013
17079EH	0.012	6	0.011	0.014
17079EI	0.011	5	0.009	0.012
17079EJ	0.012	161	0.012	0.015
17079EK	0.014	156	0.012	0.014
17079EL	0.011	16	0.011	0.010
17079EM	0.012	179	0.012	0.013
17079EN	0.015	177	0.011	0.013
17079EO	0.014	9	0.012	0.014
17079EP	0.011	2	0.011	0.010
17079EQ	0.013	169	0.011	0.012
17079ER	0.014	8	0.012	0.014
17079ES	0.014	24	0.012	0.013
17079ET	0.013	1	0.012	0.013
17079EU	0.012	1	0.012	0.012
17079EV	0.012	160	0.011	0.015
17079EW	0.012	161	0.011	0.011
17079EX	0.012	6	0.011	0.015
17079EY	0.014	168	0.012	0.014
17079EZ	0.014	179	0.011	0.013
17079FA	0.013	15	0.011	0.013
17079FB	0.010	29	0.009	0.011
17079FC	0.014	169	0.012	0.015
17079FD	0.010	30	0.009	0.010
17079FE	0.011	40	0.009	0.011
17079FF	0.017	168	0.011	0.015
17079IA	0.012	161	0.011	0.014
17079IB	0.015	0	0.012	0.017
17079IC	0.013	16	0.011	0.015
17079ID	0.014	29	0.012	0.015
17079IE	0.012	25	0.011	0.014
17079IF	0.012	13	0.011	0.015
17079IG	0.011	8	0.011	0.013
17079IH	0.013	2	0.011	0.014
17079II	0.011	4	0.010	0.011
17079IJ	0.012	8	0.011	0.016
17079IK	0.012	4	0.011	0.016
17079IL	0.011	175	0.010	0.011
17079IM	0.013	171	0.011	0.014
17079IN	0.014	171	0.011	0.015
17079IO	0.012	4	0.011	0.014
17079IP	0.012	175	0.011	0.014
17079IQ	0.017	162	0.011	0.021
17079IR	0.015	22	0.014	0.013
17079IS	0.011	4	0.010	0.011
17079IT	0.012	168	0.012	0.016
17079IU	0.014	161	0.012	0.017
17079IV	0.010	173	0.010	0.010
17079IW	0.011	7	0.010	0.012
17079IX	0.011	13	0.010	0.012
17079IY	0.010	168	0.009	0.010
17079IZ	0.012	165	0.010	0.011
17079JA	0.015	5	0.012	0.017
17079JB	0.011	10	0.011	0.014
17079JC	0.012	174	0.011	0.015
17079JD	0.011	163	0.010	0.012
17079JE	0.013	162	0.011	0.014
17079JF	0.013	174	0.011	0.013
17079JG	0.013	6	0.011	0.013
17079JH	0.011	15	0.011	0.010

Station Name	Semi-Major Axis	Azimuth	Semi-Minor Axis	Vertical
17079JI	0.011	1	0.011	0.011
17079JJ	0.014	177	0.012	0.015
17079JK	0.011	2	0.010	0.009
17079JL	0.012	175	0.012	0.010
17079JM	0.013	169	0.013	0.013
17079JN	0.013	167	0.012	0.011
17079JO	0.013	7	0.013	0.012
17079JP	0.014	19	0.013	0.013
17079JQ	0.014	166	0.013	0.018
17079JR	0.014	171	0.013	0.014
17079JS	0.013	174	0.012	0.011
17079JT	0.015	2	0.013	0.015
17079JU	0.013	9	0.012	0.010
17079JV	0.012	172	0.012	0.010
17079JW	0.014	172	0.013	0.013
17079JX	0.014	1	0.013	0.013
17079JY	0.013	21	0.012	0.011
17079JZ	0.012	17	0.012	0.011
17079KA	0.013	5	0.012	0.012
17079KB	0.011	162	0.011	0.011
17079KC	0.013	11	0.012	0.014
17079KD	0.013	174	0.012	0.016
17079KE	0.013	166	0.012	0.013
17079KF	0.015	10	0.012	0.015
17079KG	0.013	8	0.012	0.014
17079KH	0.014	1	0.012	0.016
17079KI	0.013	162	0.012	0.013
17079KJ	0.011	21	0.009	0.011
17079KK	0.011	29	0.010	0.014
17079KM	0.013	155	0.011	0.017
17079KN	0.013	17	0.013	0.015
17079KO	0.012	168	0.011	0.014
17079KP	0.011	166	0.010	0.012
17079KQ	0.012	5	0.011	0.014
17079KR	0.014	13	0.013	0.016
17079KS	0.015	161	0.011	0.017
17079KT	0.016	32	0.013	0.015
17079MA	0.014	10	0.013	0.014
17079MB	0.013	7	0.012	0.016
17079MC	0.013	150	0.012	0.014
17079MD	0.009	140	0.009	0.012
17079ME	0.010	15	0.009	0.010
17079MF	0.011	170	0.011	0.010
17079MG	0.013	1	0.012	0.012
17079MH	0.013	15	0.012	0.013
17079MI	0.013	169	0.011	0.013
17079MJ	0.014	30	0.012	0.013
17079MK	0.013	167	0.012	0.013
17079ML	0.013	2	0.012	0.013
17079MM	0.011	24	0.011	0.010
17079MN	0.011	172	0.011	0.012
17079MO	0.012	16	0.011	0.012
17079MP	0.013	168	0.011	0.013
17079MQ	0.014	8	0.011	0.014
17079MR	0.013	2	0.012	0.014
17079MS	0.014	170	0.012	0.015
17079MT	0.014	162	0.012	0.014
17079PA	0.013	159	0.011	0.016
17079PB	0.012	168	0.010	0.013
17079PC	0.013	27	0.011	0.014
17079PD	0.012	19	0.012	0.015
17079PE	0.011	3	0.010	0.015
17079PF	0.012	179	0.011	0.015
17079PG	0.013	0	0.011	0.014
17079PH	0.016	165	0.010	0.016

Station Name	Semi-Major Axis	Azimuth	Semi-Minor Axis	Vertical
17079PI	0.014	178	0.011	0.016
17079PJ	0.013	36	0.011	0.015
17079PK	0.012	18	0.010	0.013
17079PL	0.012	169	0.010	0.011
17079PM	0.012	10	0.011	0.014
17079PN	0.017	172	0.012	0.016
17079PO	0.014	170	0.011	0.014
17079PP	0.011	163	0.010	0.012
17079PQ	0.013	2	0.011	0.012
17079PR	0.013	26	0.011	0.014
17079PS	0.013	178	0.011	0.014
17079PT	0.012	171	0.012	0.009
17079PU	0.014	174	0.013	0.017
17079PV	0.013	176	0.013	0.011
17079PW	0.015	3	0.014	0.018
17079PX	0.016	149	0.014	0.016
17079PY	0.014	3	0.013	0.014
17079PZ	0.015	164	0.013	0.014
17079QA	0.014	16	0.013	0.012
17079QB	0.013	19	0.012	0.011
17079QC	0.014	12	0.013	0.013
17079QD	0.010	6	0.009	0.011
17079QE	0.012	13	0.012	0.015
17079QF	0.014	173	0.012	0.013
17079QG	0.016	177	0.012	0.015
17079QH	0.010	27	0.008	0.012
17079QI	0.010	12	0.009	0.013
17079QJ	0.022	147	0.014	0.024
17079QK	0.014	15	0.012	0.026
17079QL	0.015	6	0.012	0.016
17079QM	0.012	164	0.012	0.012
17079QN	0.011	168	0.011	0.014
17079SA	0.015	168	0.013	0.017
17079SB	0.015	166	0.012	0.014
17079SC	0.013	109	0.013	0.013
17079SD	0.016	75	0.013	0.019
17079SE	0.016	163	0.012	0.013
17079SF	0.016	44	0.015	0.014
17079SG	0.015	9	0.012	0.015
17079SH	0.016	101	0.014	0.015
17079SI	0.016	91	0.014	0.014
17079SJ	0.016	123	0.015	0.015
17079SK	0.018	41	0.013	0.016
17079SL	0.016	36	0.013	0.013
17079SM	0.016	31	0.013	0.014
17079SO	0.017	6	0.013	0.015
17079SP	0.015	106	0.014	0.013
17079WA	0.024	36	0.014	0.018
17079WB	0.018	163	0.013	0.014
17079WC	0.014	115	0.013	0.014
17079WD	0.033	67	0.014	0.019
17079WE	0.021	161	0.013	0.014
17079WF	0.032	157	0.013	0.015
17079WG	0.019	48	0.013	0.015
17079WH	0.018	65	0.014	0.016
17079WI	0.020	75	0.014	0.015
17079WJ	0.020	69	0.014	0.015
17079WK	0.021	112	0.015	0.016
17079WL	0.032	43	0.013	0.013
17079WM	0.032	52	0.013	0.015
17079WO	0.025	157	0.013	0.015
17079WP	0.018	133	0.013	0.014
17079XA	0.013	156	0.012	0.017
17079XB	0.014	156	0.012	0.014
17079XC	0.013	19	0.012	0.013

Station Name	Semi-Major Axis	Azimuth	Semi-Minor Axis	Vertical
17079XD	0.013	11	0.012	0.019
17079XE	0.013	165	0.012	0.013
17079XF	0.015	173	0.012	0.014
17079XG	0.014	15	0.012	0.015
17079XH	0.014	0	0.012	0.015
17079XI	0.014	173	0.012	0.014
17079XJ	0.015	25	0.013	0.015
17079XK	0.015	43	0.012	0.016
17079XL	0.013	169	0.012	0.013
17079XM	0.013	18	0.012	0.014
17079XO	0.014	167	0.012	0.015
17079XP	0.014	174	0.012	0.013
17079YA	0.008	23	0.008	0.010
17079YB	0.010	0	0.010	0.010
17079YC	0.027	61	0.022	0.007
17079YD	0.007	11	0.007	0.008
17079YE	0.013	22	0.012	0.012
17079YF	0.008	7	0.008	0.009
17079YG	0.007	171	0.007	0.009
17079YH	0.007	178	0.007	0.007
17079YI	0.008	43	0.007	0.006
17079YJ	0.010	180	0.010	0.006
17079YK	0.010	14	0.010	0.008
17079YL	0.006	20	0.006	0.007
17079YM	0.006	32	0.005	0.008
17079YN	0.007	122	0.007	0.009
17079YO	0.007	18	0.007	0.009
17079ZA	0.008	10	0.008	0.009
17079ZB	0.007	11	0.006	0.007
17079ZC	0.005	180	0.005	0.006
17079ZD	0.005	27	0.005	0.006
AB9179	0.015	157	0.011	0.000
AB9205	0.011	1	0.010	0.000
P043	0.000	0	0.000	0.006
PU0182	0.011	172	0.010	0.011
PU0378	0.028	61	0.023	0.000
PU1122	0.014	169	0.011	0.000
PU1217	0.012	11	0.012	0.013
PU1218	0.013	12	0.012	0.013
PU1219	0.013	13	0.012	0.013
PU1370	0.022	16	0.013	0.025
PU1406	0.013	6	0.012	0.000
PU1500	0.012	175	0.012	0.000
PU1998	0.012	170	0.011	0.000
PV0616	0.012	174	0.011	0.000
SDRC	0.000	0	0.000	0.005

SUMMARY

A LiDAR ground control network consisting of 65 ground control points (GCP) and 180 QC check points was established in west central South Dakota. The estimated accuracy of the control network is ± 0.03 m with respect to the NAD83 (2011) epoch 2010.0 reference frame and the NAVD88 vertical datum.

Adjusted Coordinates – NAD83 (2011) epoch 2010.0/NAVD88

Ellipsoidal Heights=NAVD88+GEOID12B

UTM Zone: 13

Units: meters

Table 10 - Latitude, Longitude, Ellipsoidal Height, UTM, NAVD88

Station Name	GPSID	Latitude	Longitude	Ellipsoidal Height	NAVD 1988	UTM Northing	UTM Easting
34 058.0	AB9205	44°30'04.58911" N	103°06'31.66865" W	780.026	797.085	4929290.267	650343.638
34 090.10	AB9179	44°34'34.18548" N	102°29'31.03586" W	866.714	885.321	4938929.032	699125.274
BASE	17079YA	44°11'50.91229" N	102°35'15.00906" W	818.491	836.764	4896636.627	692778.837
BASE	17079YB	44°18'45.92936" N	102°12'53.05985" W	821.415	840.748	4910384.363	722131.680
BASE	17079YC	44°24'59.12679" N	102°07'07.81723" W	600.271	619.953	4922163.813	729374.944
BASE	17079YD	44°36'12.10289" N	102°09'17.39704" W	740.534	760.054	4942828.606	725785.847
BASE	17079YE	44°26'37.96440" N	102°33'43.82768" W	781.345	799.900	4924066.027	693988.689
BASE	17079YF	44°13'36.05498" N	102°49'45.56797" W	839.819	857.432	4899341.609	673369.202
BASE	17079YG	44°42'45.19705" N	103°14'36.18310" W	895.466	912.218	4952520.530	639138.935
BASE	17079YH	44°37'09.62467" N	103°21'06.81109" W	846.651	863.094	4941986.411	630753.601
BASE	17079YI	44°30'05.47916" N	103°06'33.36584" W	780.861	797.918	4929316.863	650305.524
BASE	17079YJ	44°25'08.51120" N	103°26'01.45272" W	959.815	975.478	4919608.348	624686.936
BASE	17079YK	44°10'09.50756" N	103°16'38.82585" W	1061.206	1076.870	4892120.365	637711.092
BASE	17079YL	44°13'36.57403" N	103°34'35.46282" W	1519.015	1532.986	4898051.601	613691.092
BASE	17079YM	44°19'21.01625" N	103°42'30.19725" W	1707.104	1720.837	4908504.882	602991.482
BASE	17079YN	44°14'50.96726" N	103°55'32.02748" W	1747.516	1760.501	4899922.966	585783.272
BASE	17079ZA	44°16'30.12891" N	103°09'06.41033" W	941.545	958.054	4904082.206	647493.807
BASE	17079ZB	44°37'09.71632" N	102°39'43.21000" W	959.211	977.327	4943327.092	685486.655
BASE	17079ZC	44°41'19.54959" N	103°51'57.65994" W	927.852	943.202	4949002.338	589857.842
BASE	17079ZD	44°31'23.83858" N	103°51'49.13766" W	1076.019	1090.747	4930623.963	590301.461
BASE	17079ZO	44°13'37.35661" N	103°34'36.21022" W	1519.890	1533.860	4898075.460	613674.091
E 24	PU1406	44°11'28.12251" N	103°20'10.21540" W	1088.249	1103.655	4894449.223	632967.566
E 418	PU1500	44°24'56.42941" N	103°26'51.91398" W	971.858	987.441	4919214.309	623578.134
F 375	PU0378	44°24'54.70532" N	102°07'07.47294" W	597.957	617.638	4922027.656	729387.364
G 407	PU1122	44°37'15.65893" N	103°28'13.33122" W	850.655	866.781	4941989.470	621350.568
GCP101	17079CX	44°29'34.74908" N	103°11'54.38859" W	807.462	824.224	4928208.523	643237.490
GCP102	17079AI	44°34'32.59902" N	102°29'52.58194" W	871.574	890.167	4938865.490	698651.592
GCP103	17079CC	44°18'47.29541" N	102°26'07.35085" W	774.266	793.099	4909852.195	704533.739
GCP104	17079AF	44°43'08.71620" N	102°29'30.31121" W	816.143	834.667	4954805.924	698652.518
GCP105	17079CK	44°36'40.33666" N	102°04'56.17418" W	717.995	737.723	4943903.313	731513.082
GCP106	17079DD	44°14'32.12374" N	103°11'58.57780" W	928.183	944.434	4900356.414	643757.113
GCP107	17079CS	44°34'19.24698" N	103°11'59.24410" W	792.615	809.456	4936984.435	642936.760
GCP108	17079AB	44°23'15.20237" N	103°12'06.61838" W	837.692	854.229	4916491.709	643224.806
GCP109	17079CJ	44°43'08.12232" N	102°05'06.69316" W	689.617	709.301	4955860.642	730852.949
GCP110	17079CG	44°26'19.97126" N	102°05'45.56713" W	584.073	603.828	4924722.619	731105.312
GCP111	17079CL	44°26'42.71651" N	102°30'06.38960" W	796.585	815.294	4924357.711	698790.527
GCP112	17079CB	44°14'38.09811" N	102°29'52.63348" W	737.815	756.432	4902009.091	699777.465
GCP113	17079DE	44°09'17.25674" N	103°11'59.89679" W	989.133	1005.196	4890640.963	643940.700
GCP114	17079CP	44°43'19.35970" N	103°11'39.39976" W	873.944	890.820	4953659.761	643005.218
GCP115	17079AL	44°44'53.98809" N	102°47'46.87368" W	876.795	894.493	4957355.853	674440.108

Station Name	GPSID	Latitude	Longitude	Ellipsoidal Height	NAVD 1988	UTM Northing	UTM Easting
GCP116	17079CO	44°08'53.39484" N	102°49'45.10653" W	855.394	872.954	4890620.729	673609.859
GCP117	17079AC	44°15'23.79756" N	103°03'02.07548" W	904.016	920.883	4902222.536	655618.922
GCP118	17079CD	44°17'04.23451" N	102°39'01.31799" W	796.875	815.108	4906158.314	687478.677
GCP119	17079AJ	44°33'37.36275" N	102°39'45.38007" W	866.369	884.570	4936773.388	685626.591
GCP120	17079CW	44°30'09.97545" N	103°00'17.15867" W	829.774	847.127	4929653.139	658609.684
GCP121	17079CM	44°27'45.06806" N	102°48'48.22540" W	788.504	806.353	4925571.309	673942.287
GCP122	17079AH	44°37'36.45777" N	102°16'53.82409" W	783.467	802.625	4945088.169	715637.549
GCP123	17079CI	44°27'33.62644" N	102°13'30.17138" W	605.105	624.499	4926638.607	720757.479
GCP124	17079AD	44°10'08.42425" N	103°01'48.90597" W	923.522	940.357	4892530.798	657474.798
GCP125	17079CE	44°09'14.29228" N	102°40'06.74043" W	877.207	895.189	4891617.294	686440.337
GCP126	17079CQ	44°44'54.61876" N	103°01'01.52817" W	840.397	857.686	4956925.689	656966.042
GCP127	17079AE	44°43'09.46734" N	102°39'15.09778" W	867.843	885.896	4954445.412	685786.505
GCP128	17079AG	44°43'59.98738" N	102°17'19.52345" W	726.334	745.447	4956903.603	714677.201
GCP129	17079AA	44°22'16.02898" N	103°00'36.51992" W	828.172	845.357	4915019.129	658537.866
GCP130	17079CA	44°08'16.89419" N	102°29'16.98534" W	809.910	828.354	4890271.550	700927.800
GCP131	17079CN	44°16'56.29102" N	102°49'44.06028" W	844.476	862.149	4905520.607	673239.204
GCP132	17079AK	44°36'15.61612" N	102°48'13.44330" W	841.347	859.166	4941345.105	674287.167
GCP133	17079CF	44°21'40.04346" N	102°18'58.73711" W	617.573	636.734	4915486.323	713854.514
GCP134	17079CH	44°31'53.81128" N	102°12'04.09002" W	710.334	729.749	4934731.610	722384.681
GCP135	17079DL	44°15'19.61285" N	103°59'28.35125" W	1948.349	1961.334	4900740.296	580531.246
GCP136	17079DM	44°21'04.57886" N	103°55'53.78064" W	1510.677	1524.111	4911444.056	585150.691
GCP137	17079AT	44°31'04.02725" N	104°00'03.27154" W	1099.157	1113.598	4929870.138	579401.431
GCP138	17079AO	44°38'21.95420" N	103°59'39.56114" W	980.803	995.715	4943388.962	579758.376
GCP139	17079DO	44°11'11.75095" N	103°59'39.81544" W	2008.768	2021.554	4893089.769	580370.647
GCP140	17079AM	44°44'54.82556" N	103°59'39.74113" W	936.418	951.600	4955511.348	579604.752
GCP141	17079AR	44°44'56.00352" N	103°36'30.22759" W	860.271	876.260	4955997.740	610157.767
GCP142	17079AP	44°44'01.79635" N	103°51'13.06337" W	958.603	974.060	4954022.379	590768.995
GCP143	17079CR	44°43'48.49004" N	103°23'05.61186" W	851.864	868.308	4954241.412	627891.513
GCP144	17079DI	44°08'51.60988" N	103°34'38.28277" W	1566.168	1579.984	4889258.386	613780.727
GCP145	17079DN	44°10'35.96297" N	103°52'51.92253" W	1956.815	1969.619	4892102.623	589441.220
GCP146	17079DJ	44°11'46.84199" N	103°30'14.38319" W	1394.112	1408.475	4894768.924	619545.001
GCP147	17079AN	44°38'43.13668" N	103°51'11.08939" W	952.146	967.402	4944190.433	590950.849
GCP148	17079AQ	44°40'10.41473" N	103°41'21.10127" W	894.539	910.174	4947079.375	603903.712
GCP149	17079CU	44°38'01.73747" N	103°29'14.42397" W	860.096	876.196	4943386.144	619977.886
GCP150	17079CV	44°39'45.62998" N	103°20'47.71255" W	818.506	835.005	4946808.603	631076.855
GCP151	17079AS	44°32'22.61810" N	103°51'42.80511" W	1032.952	1047.769	4932439.560	590415.977
GCP152	17079AU	44°31'55.50224" N	103°42'21.83615" W	1043.753	1058.868	4931787.205	602808.604
GCP153	17079CY	44°30'11.57109" N	103°29'17.15781" W	962.133	977.890	4928877.842	620186.358
GCP154	17079CT	44°31'04.72458" N	103°20'48.47444" W	902.424	918.729	4930735.429	631385.744
GCP155	17079XB	44°22'51.33549" N	103°59'28.00654" W	1704.063	1717.598	4914677.846	580367.413
GCP156	17079AW	44°23'21.54922" N	103°42'17.70104" W	1336.771	1350.953	4915930.721	603150.973
GCP157	17079CZ	44°24'45.96981" N	103°31'45.37334" W	1054.947	1070.119	4918771.736	617094.173
GCP158	17079DC	44°24'07.55709" N	103°19'37.30844" W	891.875	907.958	4917895.738	633220.128
GCP159	17079AV	44°27'06.73035" N	103°48'50.65491" W	1275.908	1290.221	4922746.898	594356.370
GCP160	17079DG	44°16'37.05172" N	103°41'46.70600" W	1664.220	1677.800	4903461.167	604035.210
GCP161	17079DA	44°18'57.66346" N	103°32'35.23089" W	1432.614	1447.099	4908005.241	616182.646

Station Name	GPSID	Latitude	Longitude	Ellipsoidal Height	NAVD 1988	UTM Northing	UTM Easting
GCP162	17079DB	44°18'01.54520" N	103°22'47.25670" W	1042.393	1057.910	4906518.163	629241.803
GCP163	17079DK	44°17'40.01102" N	103°49'38.03967" W	1874.584	1887.872	4905246.049	593559.453
GCP164	17079DF	44°12'43.61738" N	103°21'59.94291" W	1059.627	1074.938	4896729.644	630485.392
GCP165	17079DH	44°12'05.85334" N	103°38'43.40908" W	1643.925	1657.497	4895159.507	608236.374
I90 002.39	PV0616	44°32'48.71405" N	104°00'30.41518" W	1043.707	1058.273	4933092.964	578762.999
JUG	PU1218	44°42'45.28253" N	103°14'37.48966" W	894.431	911.182	4952522.548	639110.131
JUG RM 1	PU1219	44°42'45.30025" N	103°14'37.00618" W	894.480	911.230	4952523.324	639120.757
JUG RM 2	PU1217	44°42'45.57321" N	103°14'37.62638" W	894.510	911.261	4952531.452	639106.929
NVAJ01	17079IA	44°11'50.51174" N	102°29'15.97073" W	789.031	807.584	4896863.189	700748.856
NVAJ02	17079IB	44°17'04.12718" N	102°31'40.36360" W	775.460	794.033	4906442.314	697252.268
NVAJ03	17079IC	44°18'47.77218" N	102°31'40.30016" W	801.511	820.102	4909640.274	697157.249
NVAJ04	17079ID	44°18'47.73856" N	102°25'21.99654" W	757.712	776.578	4909897.385	705538.074
NVAJ05	17079IE	44°17'03.53118" N	102°35'18.29718" W	785.667	804.074	4906280.100	692422.436
NVAJ06	17079IF	44°16'11.61302" N	102°35'55.37193" W	781.327	799.692	4904654.085	691647.591
NVAJ07	17079IG	44°12'14.57247" N	102°37'41.44939" W	824.113	842.284	4897271.973	689507.198
NVAJ08	17079IH	44°08'49.40505" N	102°37'42.12345" W	876.033	894.108	4890941.323	689674.937
NVAJ09	17079II	44°11'51.22021" N	102°35'15.22778" W	817.371	835.645	4896645.985	692773.703
NVAJ10	17079IJ	44°28'25.42849" N	102°09'41.42117" W	686.329	705.878	4928410.562	725757.020
NVAJ11	17079IK	44°27'20.75344" N	102°09'40.44562" W	681.243	700.802	4926415.734	725847.887
NVAJ12	17079IL	44°33'57.92643" N	102°09'39.58767" W	740.530	760.043	4938671.414	725440.797
NVAJ13	17079IM	44°37'14.03575" N	102°03'05.96819" W	715.606	735.416	4945030.540	733904.530
NVAJ14	17079IN	44°35'54.10385" N	102°01'31.19300" W	715.604	735.503	4942640.052	736083.152
NVAJ15	17079IO	44°43'03.65996" N	102°11'23.28450" W	716.565	735.959	4955431.457	722572.615
NVAJ16	17079IP	44°40'45.24748" N	102°03'06.52885" W	748.402	768.178	4951547.291	733656.293
NVAJ17	17079IQ	44°31'56.31309" N	102°29'03.05328" W	815.899	834.574	4934076.775	699892.571
NVAJ18	17079IR	44°26'37.15619" N	102°33'44.45292" W	780.022	798.576	4924040.677	693975.612
NVAJ19	17079IS	44°13'35.74006" N	102°49'45.33963" W	838.886	856.498	4899332.027	673374.525
NVAJ20	17079IT	44°43'31.44870" N	103°09'52.91150" W	867.757	884.710	4954085.177	645339.427
NVAJ21	17079IU	44°45'03.96325" N	103°06'51.82426" W	859.562	876.636	4957030.894	649256.759
NVAJ22	17079IV	44°42'44.48158" N	103°14'35.61720" W	894.381	911.133	4952498.722	639151.863
NVAJ23	17079IW	44°42'56.01362" N	103°18'13.07658" W	830.622	847.239	4952753.087	634359.794
NVAJ24	17079IX	44°43'10.89855" N	103°21'07.86145" W	838.663	855.172	4953133.397	630505.004
NVAJ25	17079IY	44°37'09.10023" N	103°19'34.45020" W	833.145	849.658	4942011.685	632789.359
NVAJ26	17079IZ	44°37'08.88974" N	103°16'58.85140" W	809.533	826.168	4942076.479	636218.553
NVAJ27	17079JA	44°34'24.10422" N	103°13'05.89214" W	804.929	821.716	4937102.051	641463.520
NVAJ28	17079JB	44°31'04.28208" N	103°15'36.52482" W	871.961	888.550	4930864.788	638272.666
NVAJ29	17079JC	44°31'04.48554" N	103°17'48.90191" W	882.545	899.015	4930809.485	635350.158
NVAJ30	17079JD	44°33'37.64081" N	103°20'49.24595" W	863.406	879.789	4935453.363	631273.210
NVAJ31	17079JE	44°35'25.68108" N	103°25'55.86372" W	854.676	870.856	4938653.566	624445.176
NVAJ32	17079JF	44°38'53.58141" N	103°25'06.37487" W	840.799	857.103	4945089.534	625411.932
NVAJ33	17079JG	44°39'45.31452" N	103°19'23.01584" W	814.932	831.490	4946836.983	632942.190
NVAJ34	17079JH	44°30'07.07376" N	103°03'31.79431" W	825.255	842.455	4929460.078	654313.885
NVAJ35	17079JI	44°30'54.89007" N	103°09'17.10270" W	785.415	802.346	4930758.792	646655.397
NVAJ36	17079JJ	44°29'17.64853" N	103°12'21.87007" W	810.607	827.338	4927667.533	642642.127
NVAJ37	17079JK	44°30'04.89789" N	103°06'33.64900" W	778.103	795.160	4929298.783	650299.687
NVAJ38	17079JL	44°26'23.62062" N	103°25'41.41263" W	953.169	968.939	4921934.326	625085.574

Station Name	GPSID	Latitude	Longitude	Ellipsoidal Height	NAVD 1988	UTM Northing	UTM Easting
NVAJ39	17079JM	44°28'27.72146" N	103°29'17.30289" W	948.096	963.753	4925673.500	620242.419
NVAJ40	17079JN	44°26'04.31871" N	103°29'14.56216" W	986.902	1002.387	4921249.949	620384.796
NVAJ41	17079JO	44°21'59.08832" N	103°31'09.30144" W	1222.809	1237.720	4913637.071	617985.040
NVAJ42	17079JP	44°19'59.24475" N	103°32'47.32981" W	1479.453	1493.999	4909900.525	615880.942
NVAJ43	17079JQ	44°17'14.45355" N	103°29'49.72035" W	1343.657	1358.339	4904886.967	619907.425
NVAJ44	17079JR	44°16'22.47259" N	103°26'25.76140" W	1112.858	1127.911	4903367.519	624458.259
NVAJ45	17079JS	44°18'01.74824" N	103°15'07.38011" W	948.089	964.214	4906733.674	639431.685
NVAJ46	17079JT	44°23'15.38795" N	103°14'49.20140" W	849.701	866.064	4916419.431	639627.477
NVAJ47	17079JU	44°24'07.57244" N	103°23'38.50583" W	946.392	962.175	4917789.365	627884.873
NVAJ48	17079JV	44°10'31.63069" N	103°16'36.19161" W	1041.888	1057.570	4892804.168	637755.282
NVAJ49	17079JW	44°13'39.84151" N	103°11'30.22524" W	903.503	919.760	4898757.126	644421.502
NVAJ50	17079JX	44°10'58.43373" N	103°11'29.85462" W	953.799	969.959	4893777.275	644539.352
NVAJ51	17079JY	44°08'45.60670" N	103°16'19.57680" W	1017.722	1033.365	4889540.705	638192.965
NVAJ52	17079JZ	44°09'16.62539" N	103°17'28.33185" W	1034.521	1050.080	4890465.821	636645.601
NVAJ53	17079KA	44°11'28.16238" N	103°20'10.11116" W	1087.914	1103.319	4894450.499	632969.855
NVAJ54	17079KB	44°14'06.73892" N	103°34'26.20744" W	1533.089	1547.095	4898985.862	613880.267
NVAJ55	17079KC	44°18'08.19685" N	103°40'41.05900" W	1589.030	1602.782	4906296.636	605445.085
NVAJ56	17079KD	44°14'05.02850" N	103°41'03.18390" W	1717.599	1731.083	4898786.075	605075.144
NVAJ57	17079KE	44°11'11.63502" N	103°36'38.89985" W	1600.930	1614.635	4893532.824	611028.162
NVAJ58	17079KF	44°08'30.89135" N	103°33'33.53431" W	1526.019	1539.923	4888644.191	615230.343
NVAJ59	17079KG	44°10'16.80688" N	103°29'45.55654" W	1383.556	1397.909	4892002.708	620235.707
NVAJ60	17079KH	44°09'06.82522" N	103°27'55.16947" W	1333.744	1348.249	4889888.843	622727.334
NVAJ61	17079KI	44°12'52.78410" N	103°32'07.23261" W	1478.200	1492.401	4896758.347	617003.785
NVAJ62	17079KJ	44°20'43.60175" N	103°43'43.65464" W	1497.695	1511.502	4911027.560	601324.905
NVAJ63	17079KK	44°20'10.86840" N	103°47'12.94573" W	1602.872	1616.453	4909947.367	596705.919
NVAJ64	17079KM	44°14'30.28825" N	103°59'23.18927" W	1954.077	1967.017	4899219.860	580664.437
NVAJ65	17079KN	44°19'08.18398" N	103°59'58.17816" W	1724.444	1737.683	4907784.500	579783.839
NVAJ66	17079KO	44°18'55.00256" N	103°53'05.52354" W	1573.499	1586.795	4907495.718	588930.097
NVAJ67	17079KP	44°14'43.64735" N	103°52'09.68619" W	1875.793	1888.824	4899757.381	590273.890
NVAJ68	17079KQ	44°11'05.08638" N	103°56'11.94473" W	1928.009	1940.777	4892942.227	584988.199
NVAJ69	17079KR	44°11'40.52258" N	104°02'11.82575" W	1965.998	1978.876	4893937.049	576985.496
NVAJ70	17079KS	44°15'03.80678" N	103°47'47.07894" W	1871.628	1884.823	4900462.165	596089.058
NVAJ71	17079KT	44°11'54.36465" N	103°45'40.72875" W	1750.159	1763.323	4894658.873	598979.225
NVAT01	17079EA	44°18'43.28607" N	103°09'05.47216" W	940.915	957.482	4908191.129	647422.009
NVAT02	17079EB	44°18'02.01248" N	103°15'06.98126" W	947.739	963.865	4906742.015	639440.349
NVAT03	17079EC	44°39'18.28781" N	102°39'43.80478" W	940.918	958.994	4947293.915	685359.750
NVAT04	17079ED	44°42'08.86264" N	102°21'31.04105" W	826.521	845.431	4953292.691	709256.450
NVAT05	17079EE	44°34'31.63802" N	102°32'33.39490" W	902.252	920.727	4938728.038	695105.846
NVAT06	17079EF	44°36'57.31367" N	102°33'46.59886" W	887.699	906.086	4943174.553	693357.050
NVAT07	17079EG	44°33'39.28869" N	102°48'13.54801" W	818.715	836.572	4936521.452	674414.708
NVAT08	17079EH	44°42'28.37120" N	102°47'46.37033" W	892.026	909.756	4952862.946	674572.860
NVAT09	17079EI	44°44'01.13217" N	102°41'05.13749" W	892.470	910.435	4955970.276	683320.276
NVAT10	17079EJ	44°42'45.95454" N	103°54'12.61853" W	923.541	938.868	4951627.783	586851.322
NVAT11	17079EK	44°44'50.30339" N	103°57'03.73783" W	933.403	948.695	4955415.114	583036.863
NVAT12	17079EL	44°40'18.07539" N	103°51'17.98606" W	905.750	921.081	4947117.709	590757.777
NVAT13	17079EM	44°38'19.34743" N	103°56'38.23713" W	961.117	976.157	4943359.033	583753.997

Station Name	GPSID	Latitude	Longitude	Ellipsoidal Height	NAVD 1988	UTM Northing	UTM Easting
NVAT14	17079EN	44°36'16.01382" N	104°00'58.13626" W	1085.262	1100.006	4939481.876	578074.237
NVAT15	17079EO	44°39'46.69774" N	103°57'39.90209" W	1008.527	1023.593	4946036.841	582361.147
NVAT16	17079EP	44°40'51.03499" N	103°51'07.29919" W	923.370	938.728	4948138.019	590978.750
NVAT17	17079EQ	44°40'53.11838" N	103°48'51.02374" W	916.432	931.855	4948245.272	593977.836
NVAT18	17079ER	44°40'47.82185" N	103°46'10.87782" W	920.880	936.373	4948134.119	597505.786
NVAT19	17079ES	44°40'37.44392" N	103°44'34.77364" W	899.575	915.113	4947846.194	599626.435
NVAT20	17079ET	44°41'30.82140" N	103°39'51.56857" W	903.192	918.929	4949592.414	605834.428
NVAT21	17079EU	44°27'23.35635" N	103°54'58.49246" W	1434.131	1448.296	4923147.111	586220.012
NVAT22	17079EV	44°33'27.79590" N	103°49'45.40925" W	1005.978	1020.943	4934487.255	592977.818
NVAT23	17079EW	44°29'50.48177" N	103°52'05.99572" W	1080.974	1095.543	4927738.270	589969.226
NVAT24	17079EX	44°31'03.86981" N	104°01'56.32597" W	1139.801	1154.176	4929835.243	576905.693
NVAT25	17079EY	44°33'53.96025" N	103°57'22.13756" W	1029.043	1043.801	4935157.922	582891.622
NVAT26	17079EZ	44°35'00.04483" N	103°54'37.68364" W	990.822	1005.747	4937244.383	586491.968
NVAT27	17079FA	44°34'32.06251" N	103°43'27.01117" W	1006.580	1021.839	4936595.293	601294.666
NVAT28	17079FB	44°23'43.16272" N	103°47'58.83966" W	1483.947	1497.846	4916482.601	595593.654
NVAT29	17079FC	44°24'31.66715" N	103°43'06.60692" W	1423.711	1437.968	4918077.153	602035.090
NVAT30	17079FD	44°23'19.33392" N	103°37'15.34655" W	1263.471	1278.030	4915971.591	609841.590
NVAT31	17079FE	44°22'35.43149" N	103°46'08.79383" W	1487.877	1501.743	4914428.934	598059.530
NVAT32	17079FF	44°24'34.42239" N	103°53'46.69494" W	1322.254	1336.103	4917955.930	587876.981
NVAT33	17079XA	44°25'01.07921" N	103°56'44.35552" W	1646.182	1659.993	4918726.625	583937.086
P043 ARP	P043	43°52'52.10157" N	104°11'08.48432" W	1491.726	1505.597	4858993.624	565416.857
Q 393	PU0182	44°34'17.98931" N	102°09'40.66859" W	717.675	737.186	4939289.642	725395.412
R 403	PU1370	44°45'04.74216" N	103°06'52.79627" W	859.970	877.044	4957054.433	649234.829
S 359	PU1998	44°38'24.26467" N	103°57'52.88516" W	967.998	982.990	4943489.667	582107.549
SDRC ARP	SDRC	44°04'57.97323" N	103°13'32.33746" W	983.111	998.963	4882596.583	642059.839
VVAJ01	17079FA	44°08'41.52035" N	102°29'17.12422" W	802.656	821.110	4891031.267	700901.500
VVAJ02	17079PB	44°16'22.19717" N	102°31'42.18007" W	770.671	789.234	4905147.374	697250.994
VVAJ03	17079PC	44°17'02.87453" N	102°32'52.16677" W	778.706	797.224	4906355.884	695661.947
VVAJ04	17079PD	44°17'05.12038" N	102°38'18.49122" W	792.238	810.506	4906212.911	688427.119
VVAJ05	17079PE	44°27'37.23910" N	102°12'32.10884" W	694.717	714.148	4926793.763	722036.772
VVAJ06	17079PF	44°29'38.60906" N	102°12'11.14688" W	744.154	763.579	4930554.524	722371.810
VVAJ07	17079PG	44°37'06.60359" N	102°00'29.00393" W	698.098	718.032	4944927.279	737372.061
VVAJ08	17079PH	44°32'09.43101" N	102°27'56.97425" W	813.656	832.375	4934526.640	701338.430
VVAJ09	17079PI	44°29'19.13126" N	102°33'46.75996" W	811.263	829.788	4929036.939	693775.620
VVAJ10	17079PJ	44°26'41.36965" N	102°40'56.16290" W	800.361	818.578	4923893.237	684429.254
VVAJ11	17079PK	44°43'47.05890" N	103°23'08.14883" W	852.898	869.341	4954196.146	627836.586
VVAJ12	17079PL	44°36'20.65719" N	103°15'59.36014" W	807.931	824.602	4940615.968	637561.245
VVAJ13	17079PM	44°34'10.01643" N	103°11'24.63469" W	793.544	810.413	4936716.504	643706.410
VVAJ14	17079PN	44°32'46.48656" N	103°11'10.36287" W	798.140	815.000	4934146.140	644078.464
VVAJ15	17079PO	44°31'05.17704" N	103°19'36.76613" W	894.091	910.464	4930781.617	632968.498
VVAJ16	17079PP	44°35'24.40313" N	103°23'13.08496" W	859.100	875.407	4938684.092	628035.010
VVAJ17	17079PQ	44°39'46.20734" N	103°20'47.27986" W	818.594	835.093	4946826.611	631086.022
VVAJ18	17079PR	44°30'09.84499" N	102°58'02.64322" W	804.164	821.625	4929722.327	661580.143
VVAJ19	17079PS	44°28'56.98974" N	103°12'58.83482" W	814.481	831.169	4927012.236	641839.583
VVAJ20	17079PT	44°25'08.30083" N	103°26'01.42166" W	958.444	974.107	4919601.870	624687.747
VVAJ21	17079PU	44°30'12.68243" N	103°28'37.75241" W	955.487	971.287	4928928.289	621055.855

Station Name	GPSID	Latitude	Longitude	Ellipsoidal Height	NAVD 1988	UTM Northing	UTM Easting
VVAJ22	17079FV	44°24'14.31141" N	103°31'22.10360" W	1055.389	1070.540	4917804.196	617626.428
VVAJ23	17079PW	44°18'22.16197" N	103°31'13.23995" W	1397.977	1412.563	4906942.398	618018.693
VVAJ24	17079PX	44°17'28.37419" N	103°25'46.74767" W	1082.082	1097.269	4905417.342	625284.214
VVAJ25	17079PY	44°25'26.45319" N	103°16'06.05574" W	895.143	911.509	4920427.225	637841.502
VVAJ26	17079PZ	44°13'40.15728" N	103°10'16.67623" W	914.950	931.305	4898803.004	646053.009
VVAJ27	17079QA	44°10'24.02497" N	103°11'28.95535" W	1001.509	1017.649	4892716.081	644582.679
VVAJ28	17079QB	44°08'51.36896" N	103°16'16.55639" W	1016.481	1032.132	4889719.900	638256.330
VVAJ29	17079QC	44°11'53.06127" N	103°20'49.37237" W	1074.732	1090.104	4895201.130	632082.832
VVAJ30	17079QD	44°15'58.44619" N	103°38'22.29342" W	1664.695	1678.446	4902343.595	608586.148
VVAJ31	17079QE	44°17'18.57211" N	103°41'27.73004" W	1623.257	1636.904	4904748.930	604435.410
VVAJ32	17079QF	44°10'34.59608" N	103°35'47.45379" W	1648.883	1662.639	4892409.450	612189.823
VVAJ33	17079QG	44°09'09.96298" N	103°32'06.64699" W	1471.957	1486.019	4889883.775	617139.306
VVAJ34	17079QH	44°18'10.68805" N	103°48'02.29809" W	1796.959	1810.347	4906223.232	595667.273
VVAJ35	17079QI	44°18'46.67147" N	103°49'37.17320" W	1935.238	1948.590	4907303.063	593549.240
VVAJ36	17079QJ	44°17'30.92096" N	104°00'07.86816" W	1795.573	1808.700	4904780.937	579605.703
VVAJ37	17079QK	44°19'47.10423" N	103°58'37.17817" W	1658.375	1671.661	4909007.486	581563.089
VVAJ38	17079QL	44°11'08.05013" N	103°54'49.85229" W	1952.507	1965.288	4893057.499	586809.565
VVAJ39	17079QM	44°14'47.70590" N	103°55'30.51572" W	1746.298	1759.282	4899822.780	585818.117
VVAJ40	17079QN	44°43'22.81878" N	103°10'52.45531" W	866.309	883.219	4953789.488	644035.558
VVAT01	17079MA	44°24'52.93237" N	103°07'30.48487" W	871.203	888.065	4919644.173	649265.298
VVAT02	17079MB	44°12'30.10767" N	103°01'48.71359" W	854.117	871.007	4896902.362	657374.274
VVAT03	17079MC	44°43'07.39642" N	102°33'08.34302" W	844.302	862.650	4954619.139	693857.026
VVAT04	17079MD	44°42'34.84227" N	102°25'53.75419" W	826.048	844.746	4953909.308	703449.779
VVAT05	17079ME	44°41'41.52326" N	102°17'21.46517" W	768.202	787.322	4952629.672	714776.817
VVAT06	17079MF	44°41'18.88130" N	103°51'55.61473" W	926.917	942.268	4948982.344	589903.147
VVAT07	17079MG	44°44'12.61117" N	103°59'40.65721" W	951.508	966.667	4954208.521	579600.699
VVAT08	17079MH	44°39'46.59283" N	104°00'44.53075" W	1024.145	1039.068	4945983.056	578295.451
VVAT09	17079MI	44°44'03.65555" N	103°51'08.10862" W	957.202	972.663	4954081.282	590877.162
VVAT10	17079MJ	44°39'44.08752" N	103°43'07.80018" W	886.626	902.181	4946229.660	601567.113
VVAT11	17079MK	44°44'07.80079" N	103°40'14.66989" W	881.608	897.421	4954427.873	605246.885
VVAT12	17079ML	44°41'19.11037" N	103°41'53.36155" W	906.339	921.994	4949187.656	603159.512
VVAT13	17079MM	44°31'20.74638" N	103°51'49.64568" W	1072.729	1087.453	4930528.397	590291.574
VVAT14	17079MN	44°31'27.93165" N	103°50'34.00911" W	1060.885	1075.651	4930773.533	591958.059
VVAT15	17079MO	44°30'39.26914" N	103°57'04.60343" W	1208.333	1222.821	4929155.651	583355.523
VVAT16	17079MP	44°32'48.67716" N	104°00'31.30184" W	1043.078	1057.643	4933091.589	578743.449
VVAT17	17079MQ	44°36'47.65672" N	103°47'44.39984" W	952.562	967.821	4940692.877	595556.400
VVAT18	17079MR	44°30'44.84071" N	103°40'58.72945" W	1084.215	1099.300	4929636.248	604677.974
VVAT19	17079MS	44°29'06.02669" N	103°43'48.83571" W	1115.936	1130.714	4926527.894	600969.715
VVAT20	17079MT	44°27'36.01754" N	103°43'27.38098" W	1160.616	1175.247	4923758.050	601486.945
VVAT21	17079XE	44°17'22.18069" N	103°56'31.53790" W	1871.286	1884.402	4904571.331	584403.318
VVAT22	17079XF	44°16'07.83710" N	103°59'27.39977" W	1978.981	1992.012	4902228.452	580534.054
VVAT23	17079XD	44°19'09.03638" N	103°59'57.05518" W	1723.694	1736.934	4907811.104	579808.393
WOODS SETUP	17079XC	44°21'21.03175" N	103°58'47.76359" W	1766.966	1780.373	4911902.618	581292.588
WOODS SETUP	17079XG	44°12'26.60127" N	104°02'04.53243" W	1977.631	1990.534	4895360.632	577130.689
WOODS SETUP	17079XH	44°10'46.75490" N	103°52'48.51972" W	1966.879	1979.691	4892436.618	589512.242
WOODS SETUP	17079XI	44°13'38.20120" N	103°47'10.07700" W	1828.162	1841.318	4897833.001	596948.680

Station Name	GPSID	Latitude	Longitude	Ellipsoidal Height	NAVD 1988	UTM Northing	UTM Easting
WOODS SETUP	17079XJ	44°17'01.08074" N	103°48'13.45946" W	1773.026	1786.335	4904071.961	595451.288
WOODS SETUP	17079XK	44°20'07.84657" N	103°50'37.28834" W	1952.936	1966.347	4909788.733	592182.168
WOODS SETUP	17079XL	44°11'43.64155" N	103°37'20.27644" W	1672.795	1686.459	4894504.874	610093.011
WOODS SETUP	17079XM	44°09'18.63848" N	103°30'53.52677" W	1466.075	1480.268	4890180.576	618758.734
WOODS SETUP	17079XO	44°18'24.05040" N	103°37'12.10327" W	1548.030	1562.052	4906862.043	610066.763
WOODS SETUP	17079XP	44°16'02.66402" N	103°35'35.00962" W	1617.435	1631.420	4902536.263	612292.755
WOODS SETUP	17079SA	44°25'01.18343" N	103°56'43.08756" W	1648.716	1662.528	4918730.201	583965.085
WOODS SETUP	17079SB	44°22'51.73388" N	103°59'22.95472" W	1703.556	1717.092	4914691.516	580479.047
WOODS SETUP	17079SC	44°21'10.46256" N	103°58'52.85346" W	1782.889	1796.280	4911575.112	581183.966
WOODS SETUP	17079SD	44°19'09.83730" N	103°59'57.25438" W	1727.233	1740.473	4907835.762	579803.679
WOODS SETUP	17079SE	44°17'22.91604" N	103°56'28.34578" W	1873.791	1886.907	4904594.932	584473.769
WOODS SETUP	17079SF	44°16'07.05666" N	103°59'27.08639" W	1980.680	1993.711	4902204.458	580541.297
WOODS SETUP	17079SG	44°12'26.63789" N	104°02'05.56474" W	1979.506	1992.409	4895361.493	577107.766
WOODS SETUP	17079SH	44°10'43.71816" N	103°52'49.09393" W	1965.444	1978.254	4892342.751	589500.769
WOODS SETUP	17079SI	44°13'36.36731" N	103°47'09.93515" W	1829.077	1842.232	4897776.466	596952.663
WOODS SETUP	17079SJ	44°16'59.74371" N	103°48'14.42400" W	1772.918	1786.225	4904030.397	595430.511
WOODS SETUP	17079SK	44°20'07.25736" N	103°50'36.29079" W	1954.719	1968.131	4909770.865	592204.516
WOODS SETUP	17079SL	44°11'43.17994" N	103°37'19.51929" W	1673.961	1687.626	4894490.913	610110.056
WOODS SETUP	17079SM	44°09'19.27952" N	103°30'54.83717" W	1468.396	1482.588	4890199.828	618729.270
WOODS SETUP	17079SO	44°18'23.81333" N	103°37'10.77782" W	1548.358	1562.382	4906855.223	610096.253
WOODS SETUP	17079SP	44°16'04.78022" N	103°35'34.65852" W	1617.258	1631.247	4902601.689	612299.420
WOODS01	17079WA	44°24'59.56204" N	103°56'41.46580" W	1647.870	1661.679	4918680.636	584001.593
WOODS02	17079WB	44°22'52.81221" N	103°59'20.43226" W	1703.144	1716.681	4914725.476	580534.452
WOODS03	17079WC	44°21'10.48330" N	103°58'53.92714" W	1782.853	1796.244	4911575.457	581160.189
WOODS04	17079WD	44°19'11.21542" N	103°59'58.31706" W	1728.962	1742.205	4907877.995	579779.621
WOODS05	17079WE	44°17'23.54629" N	103°56'26.23664" W	1874.863	1887.981	4904614.981	584520.261
WOODS06	17079WF	44°16'06.83638" N	103°59'30.31799" W	1976.720	1989.751	4902196.781	580469.737
WOODS07	17079WG	44°12'27.75384" N	104°02'05.78052" W	1980.778	1993.682	4895395.868	577102.573
WOODS08	17079WH	44°10'43.13603" N	103°52'46.72787" W	1968.233	1981.044	4892325.506	589553.549
WOODS09	17079WI	44°13'35.27082" N	103°47'09.08271" W	1827.962	1841.116	4897742.915	596972.075
WOODS10	17079WJ	44°16'58.87211" N	103°48'12.81759" W	1766.160	1779.466	4904004.024	595466.508
WOODS11	17079WK	44°20'06.49985" N	103°50'38.19823" W	1946.999	1960.409	4909746.897	592162.605
WOODS12	17079WL	44°11'42.16146" N	103°37'18.08600" W	1674.804	1688.470	4894460.023	610142.399
WOODS13	17079WM	44°09'21.36100" N	103°30'56.47192" W	1468.524	1482.714	4890263.393	618691.798
WOODS14	17079WO	44°18'24.86245" N	103°37'09.45413" W	1547.792	1561.818	4906888.086	610125.035
WOODS15	17079WP	44°16'04.98344" N	103°35'32.71347" W	1612.590	1626.582	4902608.699	612342.435

Adjusted Coordinates – NAD83 (2011) epoch 2010.0/NAVD88
 SPC Zone: South Dakota North
 Units: meters & US FT

Table 11 - South Dakota North SPC coordinates & NAVD88 GPS Derived Orthometric Heights

Station Name	GPSID	Northing meters	Easting meters	NAVD 1988 meters	Northing US FT	Easting US FT	NAVD 1988 US FT
34 058.0	AB9205	78969.696	352828.636	797.085	259086.411	1157571.950	2615.103
34 090.10	AB9179	85590.782	402110.680	885.321	280809.090	1319258.121	2904.591
BASE	17079YA	43770.364	393180.896	836.764	143603.268	1289960.991	2745.283
BASE	17079YB	55692.167	423318.253	840.748	182716.718	1388836.634	2758.354
BASE	17079YC	67002.871	431268.447	619.953	219825.252	1414919.898	2033.962
BASE	17079YD	87843.776	428955.586	760.054	288200.788	1407331.785	2493.610
BASE	17079YE	71072.798	396071.117	799.900	233178.005	1299443.321	2624.339
BASE	17079YF	47660.469	373973.003	857.432	156366.056	1226943.094	2813.091
BASE	17079YG	102848.245	343073.937	912.218	337427.950	1125568.408	2992.835
BASE	17079YH	92849.151	334054.538	863.094	304622.589	1095977.264	2831.668
BASE	17079YI	78998.588	352792.226	797.918	259181.202	1157452.496	2617.836
BASE	17079YJ	70882.859	326620.853	975.478	232554.848	1071588.582	3200.381
BASE	17079YK	42640.366	337933.531	1076.870	139895.933	1108703.593	3533.031
BASE	17079YL	50037.933	314317.281	1532.986	164166.118	1031222.614	5029.472
BASE	17079YM	61132.583	304277.887	1720.837	200565.815	998285.035	5645.779
BASE	17079YN	53623.324	286568.621	1760.501	175929.189	940183.884	5775.910
BASE	17079ZA	53981.101	348434.341	958.054	177102.995	1143155.001	3143.215
BASE	17079ZB	90818.776	388769.460	977.327	297961.267	1275487.803	3206.447
BASE	17079ZC	102373.137	293660.118	943.202	335869.201	963449.904	3094.489
BASE	17079ZD	83997.392	292970.334	1090.747	275581.445	961186.836	3578.559
BASE	17079ZO	50062.798	314301.776	1533.860	164247.695	1031171.742	5032.339
E 24	PU1406	45256.709	333340.915	1103.655	148479.720	1093635.985	3620.908
E 418	PU1500	70557.702	325489.676	987.441	231488.061	1067877.377	3239.629
F 375	PU0378	66866.242	431272.490	617.638	219376.994	1414933.162	2026.367
G 407	PU1122	93431.319	324667.926	866.781	306532.585	1065181.355	2843.764
GCP101	17079CX	78326.992	345668.546	824.224	256977.806	1134080.887	2704.142
GCP102	17079AI	85556.484	401634.041	890.167	280696.563	1317694.350	2920.490
GCP103	17079CC	56239.817	405723.227	793.099	184513.467	1331110.288	2602.026
GCP104	17079AF	101464.744	402615.414	834.667	332888.913	1320914.071	2738.403
GCP105	17079CK	88564.247	434736.462	737.723	290564.533	1426297.877	2420.346
GCP106	17079DD	50491.221	344475.200	944.434	165653.282	1130165.718	3098.531
GCP107	17079CS	87105.906	345908.352	809.456	285779.959	1134867.651	2655.690
GCP108	17079AB	66631.452	344935.327	854.229	218606.687	1131675.320	2802.583
GCP109	17079CJ	100536.003	434812.880	709.301	329841.870	1426548.589	2327.098
GCP110	17079CG	69450.080	433152.057	603.828	227854.136	1421099.705	1981.059
GCP111	17079CL	71069.057	400881.421	815.294	233165.730	1315225.129	2674.844
GCP112	17079CB	48703.627	400495.424	756.432	159788.481	1313958.738	2481.727
GCP113	17079DE	40780.938	344061.889	1005.196	133795.460	1128809.714	3297.881
GCP114	17079CP	103747.257	347003.490	890.820	340377.459	1138460.617	2922.632
GCP115	17079AL	105500.286	378607.719	894.493	346128.854	1242148.824	2934.682
GCP116	17079CO	38940.532	373678.389	872.954	127757.394	1225976.515	2864.017

Station Name	GPSID	Northing meters	Easting meters	NAVD 1988 meters	Northing US FT	Easting US FT	NAVD 1988 US FT
GCP117	17079AC	51625.670	356431.130	920.883	169375.218	1169391.132	3021.264
GCP118	17079CD	53599.048	388474.549	815.108	175849.542	1274520.248	2674.233
GCP119	17079AJ	84269.212	388506.104	884.570	276473.241	1274623.776	2902.127
GCP120	17079CW	78823.531	361102.107	847.127	258606.869	1184715.828	2779.282
GCP121	17079CM	73806.661	376155.515	806.353	242147.354	1234103.553	2645.510
GCP122	17079AH	90722.263	418967.698	802.625	297644.624	1374563.189	2633.279
GCP123	17079CI	71996.886	422943.695	624.499	236209.783	1387607.773	2048.877
GCP124	17079AD	41836.892	357688.888	940.357	137259.871	1173517.628	3085.155
GCP125	17079CE	39148.840	386546.632	895.189	128440.820	1268195.076	2936.966
GCP126	17079CQ	106147.209	361140.072	857.686	348251.301	1184840.387	2813.925
GCP127	17079AE	101896.880	389752.879	885.896	334306.679	1278714.237	2906.477
GCP128	17079AG	102571.918	418736.081	745.447	336521.366	1373803.293	2445.687
GCP129	17079AA	64220.331	360130.885	845.357	210696.201	1181529.413	2773.475
GCP130	17079CA	36918.161	400924.469	828.354	121122.332	1315366.362	2717.691
GCP131	17079CN	53836.208	374222.378	862.149	176627.624	1227761.252	2828.567
GCP132	17079AK	89529.520	377469.596	859.166	293731.434	1238414.833	2818.780
GCP133	17079CF	61291.088	415370.815	636.734	201085.843	1362762.416	2089.018
GCP134	17079CH	79972.967	425064.292	729.749	262377.976	1394565.098	2394.185
GCP135	17079DL	54762.730	281375.030	1961.334	179667.390	923144.579	6434.810
GCP136	17079DM	65165.370	286646.379	1524.111	213796.719	940438.996	5000.354
GCP137	17079AT	83916.429	282041.365	1113.598	275315.816	925330.712	3653.529
GCP138	17079AO	97391.545	283231.027	995.715	319525.427	929233.794	3266.775
GCP139	17079DO	47133.815	280743.676	2021.554	154638.190	921073.209	6632.382
GCP140	17079AM	109503.743	283825.156	951.600	359263.529	931183.033	3122.041
GCP141	17079AR	108105.413	314357.414	876.260	354675.843	1031354.283	2874.863
GCP142	17079AP	107328.739	294879.286	974.060	352127.706	967449.792	3195.729
GCP143	17079CR	105259.093	331952.379	868.308	345337.541	1089080.431	2848.774
GCP144	17079DI	41253.258	313866.199	1579.984	135345.064	1029742.689	5183.664
GCP145	17079DN	45589.923	289739.612	1969.619	149572.938	950587.378	6461.992
GCP146	17079DJ	46400.672	319959.943	1408.475	152232.870	1049735.248	4620.972
GCP147	17079AN	97501.747	294454.702	967.402	319886.982	966056.800	3173.885
GCP148	17079AQ	99587.562	307564.186	910.174	326730.193	1009066.835	2986.129
GCP149	17079CU	94910.157	323383.625	876.196	311384.406	1060967.775	2874.653
GCP150	17079CV	97643.023	334674.223	835.005	320350.484	1098010.345	2739.512
GCP151	17079AS	85802.993	293196.529	1047.769	281505.320	961928.946	3437.555
GCP152	17079AU	84388.260	305528.712	1058.868	276863.815	1002388.784	3473.969
GCP153	17079CY	80413.683	322698.329	977.890	263823.893	1058719.433	3208.294
GCP154	17079CT	81578.753	333992.935	918.729	267646.292	1095775.154	3014.197
GCP155	17079XB	68688.677	282069.788	1717.598	225356.101	925423.963	5635.153
GCP156	17079AW	68536.624	304894.158	1350.953	224857.239	1000306.918	4432.252
GCP157	17079CZ	70514.831	318989.323	1070.119	231347.406	1046550.805	3510.882
GCP158	17079DC	68648.251	335034.219	907.958	225223.471	1099191.432	2978.859
GCP159	17079AV	75883.276	296533.466	1290.221	248960.382	972876.879	4233.000
GCP160	17079DG	56032.724	305009.599	1677.800	183834.027	1000685.658	5504.582
GCP161	17079DA	59822.186	317416.922	1447.099	196266.620	1041392.017	4747.691
GCP162	17079DB	57534.530	330363.025	1057.910	188761.204	1083866.024	3470.826

Station Name	GPSID	Northing meters	Easting meters	NAVD 1988 meters	Northing US FT	Easting US FT	NAVD 1988 US FT
GCP163	17079DK	58459.427	294660.305	1887.872	191795.635	966731.349	6193.793
GCP164	17079DF	47685.857	331002.948	1074.938	156449.348	1085965.504	3526.692
GCP165	17079DH	47485.875	308693.444	1657.497	155793.242	1012771.741	5437.971
I90 002.39	PV0616	87173.454	281602.577	1058.273	286001.573	923891.122	3472.017
JUG	PU1218	102852.033	343045.308	911.182	337440.379	1125474.482	2989.436
JUG RM 1	PU1219	102852.154	343055.963	911.230	337440.774	1125509.439	2989.594
JUG RM 2	PU1217	102861.119	343042.661	911.261	337470.188	1125465.796	2989.695
NVAJ01	17079IA	43508.126	401149.606	807.584	142742.911	1316104.999	2649.549
NVAJ02	17079IB	53283.089	398246.892	794.033	174812.935	1306581.679	2605.090
NVAJ03	17079IC	56480.685	398348.177	820.102	185303.714	1306913.978	2690.618
NVAJ04	17079ID	56223.335	406728.347	776.578	184459.391	1334407.919	2547.823
NVAJ05	17079IE	53417.374	393416.391	804.074	175253.502	1290733.608	2638.033
NVAJ06	17079IF	51841.977	392543.304	799.692	170084.888	1287869.156	2623.656
NVAJ07	17079IG	44605.036	389954.352	842.284	146341.690	1279375.238	2763.393
NVAJ08	17079IH	38275.924	389733.821	894.108	125576.927	1278651.711	2933.419
NVAJ09	17079II	43780.019	393176.346	835.645	143634.944	1289946.060	2741.612
NVAJ10	17079IJ	73458.292	428041.442	705.878	241004.412	1404332.632	2315.868
NVAJ11	17079IK	71462.118	428009.708	700.802	234455.299	1404228.516	2299.215
NVAJ12	17079IL	83716.693	428355.876	760.043	274660.516	1405364.237	2493.574
NVAJ13	17079IM	89542.065	437191.940	735.416	293772.590	1434353.891	2412.777
NVAJ14	17079IN	87022.986	439218.902	735.503	285507.913	1441004.015	2413.063
NVAJ15	17079IO	100617.116	426524.118	735.959	330107.986	1399354.542	2414.559
NVAJ16	17079IP	96059.738	437344.801	768.178	315155.990	1434855.400	2520.264
NVAJ17	17079IQ	80701.091	402578.237	834.574	264766.829	1320792.100	2738.098
NVAJ18	17079IR	71048.301	396056.508	798.576	233097.635	1299395.394	2619.995
NVAJ19	17079IS	47650.577	373977.728	856.498	156333.603	1226958.597	2810.027
NVAJ20	17079IT	104028.111	349359.706	884.710	341298.894	1146190.969	2902.586
NVAJ21	17079IU	106727.156	353451.415	876.636	350154.009	1159615.183	2876.097
NVAJ22	17079IV	102825.679	343085.498	911.133	337353.916	1125606.338	2989.276
NVAJ23	17079IW	103374.824	338317.597	847.239	339155.567	1109963.650	2779.650
NVAJ24	17079IX	103991.973	334493.022	855.172	341180.333	1097415.855	2805.677
NVAJ25	17079IY	92749.018	336088.303	849.658	304294.071	1102649.709	2787.586
NVAJ26	17079IZ	92602.541	339515.478	826.168	303813.503	1113893.696	2710.520
NVAJ27	17079JA	87313.989	344444.959	821.716	286462.647	1130066.504	2695.913
NVAJ28	17079JB	81284.065	340875.858	888.550	266679.469	1118356.876	2915.184
NVAJ29	17079JC	81408.701	337955.041	899.015	267088.380	1108774.163	2949.518
NVAJ30	17079JD	86295.456	334170.998	879.789	283121.008	1096359.350	2886.441
NVAJ31	17079JE	89910.545	327551.778	870.856	294981.514	1074642.792	2857.133
NVAJ32	17079JF	96275.886	328913.255	857.103	315865.135	1079109.571	2812.012
NVAJ33	17079JG	97556.458	336538.040	831.490	320066.479	1104125.220	2727.980
NVAJ34	17079JH	78895.009	356802.206	842.455	258841.375	1170608.570	2763.954
NVAJ35	17079JI	80662.486	349237.300	802.346	264640.173	1145789.374	2632.364
NVAJ36	17079JJ	77823.578	345040.949	827.338	255326.188	1132021.848	2714.358
NVAJ37	17079JK	78980.900	352785.287	795.160	259123.169	1157429.728	2608.787
NVAJ38	17079JL	73180.383	327161.929	968.939	240092.641	1073363.761	3178.927
NVAJ39	17079JM	77211.295	322557.055	963.753	253317.389	1058255.937	3161.913

Station Name	GPSID	Northing meters	Easting meters	NAVD 1988 meters	Northing US FT	Easting US FT	NAVD 1988 US FT
NVAJ40	17079JN	72786.414	322426.954	1002.387	238800.092	1057829.097	3288.665
NVAJ41	17079JO	65333.870	319562.786	1237.720	214349.537	1048432.240	4060.753
NVAJ42	17079JP	61732.919	317232.294	1493.999	202535.420	1040786.283	4901.562
NVAJ43	17079JQ	56479.950	320943.818	1358.339	185301.302	1052963.176	4456.484
NVAJ44	17079JR	54683.196	325393.738	1127.911	179406.453	1067562.621	3700.488
NVAJ45	17079JS	57123.359	340548.951	964.214	187412.220	1117284.350	3163.425
NVAJ46	17079JT	66780.468	341339.784	866.064	219095.584	1119878.942	2841.412
NVAJ47	17079JU	68870.217	329701.490	962.175	225951.703	1081695.637	3156.736
NVAJ48	17079JV	43320.316	338019.641	1057.570	142126.738	1108986.105	3469.711
NVAJ49	17079JW	48853.851	345040.231	919.760	160281.344	1132019.490	3017.579
NVAJ50	17079JX	43875.211	344852.083	969.959	143947.255	1131402.208	3182.274
NVAJ51	17079JY	40035.401	338256.197	1033.365	131349.477	1109762.206	3390.298
NVAJ52	17079JZ	41054.000	336768.204	1050.080	134691.330	1104880.349	3445.137
NVAJ53	17079KA	45257.843	333343.279	1103.319	148483.441	1093643.740	3619.806
NVAJ54	17079KB	50959.057	314563.599	1547.095	167188.172	1032030.742	5075.761
NVAJ55	17079KC	58776.906	306591.669	1602.782	192837.234	1005876.167	5258.461
NVAJ56	17079KD	51301.106	305760.277	1731.083	168310.377	1003148.509	5679.395
NVAJ57	17079KE	45690.115	311380.774	1614.635	149901.653	1021588.421	5297.348
NVAJ58	17079KF	40550.943	315275.764	1539.923	133040.884	1034367.235	5052.231
NVAJ59	17079KG	43596.469	320479.523	1397.909	143032.749	1051439.901	4586.306
NVAJ60	17079KH	41332.903	322837.238	1348.249	135606.365	1059175.170	4423.380
NVAJ61	17079KI	48543.091	317545.124	1492.401	159261.790	1041812.629	4896.319
NVAJ62	17079KJ	63753.774	302769.241	1511.502	209165.507	993335.418	4958.986
NVAJ63	17079KK	62959.615	298091.161	1616.453	206560.004	977987.417	5303.313
NVAJ64	17079KM	53236.435	281414.404	1967.017	174659.869	923273.756	6453.455
NVAJ65	17079KN	61842.050	281062.554	1737.683	202893.460	922119.396	5701.048
NVAJ66	17079KO	60990.530	290176.726	1586.795	200099.765	952021.475	5206.010
NVAJ67	17079KP	53181.587	291042.070	1888.824	174479.924	954860.524	6196.917
NVAJ68	17079KQ	46702.277	285345.094	1940.777	153222.387	936169.697	6367.366
NVAJ69	17079KR	48188.205	277415.835	1978.876	158097.470	910155.119	6492.362
NVAJ70	17079KS	53527.396	296891.510	1884.823	175614.466	974051.562	6183.790
NVAJ71	17079KT	47555.388	299420.094	1763.323	156021.303	982347.426	5785.169
NVAT01	17079EA	58087.326	348615.094	957.482	190574.836	1143748.019	3141.339
NVAT02	17079EB	57131.154	340558.113	963.865	187437.793	1117314.408	3162.280
NVAT03	17079EC	94785.663	388886.835	958.994	310975.964	1275872.891	3146.299
NVAT04	17079ED	99302.100	413104.487	845.431	325793.640	1355326.971	2773.718
NVAT05	17079EE	85637.269	398086.918	920.727	280961.605	1306056.830	3020.752
NVAT06	17079EF	90182.481	396614.992	906.086	295873.688	1301227.687	2972.717
NVAT07	17079EG	84707.163	377300.206	836.572	277910.084	1237859.091	2744.653
NVAT08	17079EH	101007.817	378463.566	909.756	331389.814	1241675.884	2984.758
NVAT09	17079EI	103570.584	387385.362	910.435	339797.825	1270946.809	2986.985
NVAT10	17079EJ	105179.644	290820.402	938.868	345076.883	954133.269	3080.269
NVAT11	17079EK	109195.998	287245.733	948.695	358253.869	942405.376	3112.510
NVAT12	17079EL	100436.124	294442.391	921.081	329514.182	966016.411	3021.913
NVAT13	17079EM	97115.338	287218.335	976.157	318619.238	942315.487	3202.608
NVAT14	17079EN	93594.579	281308.733	1100.006	307068.215	922927.069	3608.936

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NVAT15	17079EO	99874.669	285992.832	1023.593	327672.144	938294.817	3358.238
NVAT16	17079EP	101441.135	294725.900	938.728	332811.456	966946.558	3079.810
NVAT17	17079EQ	101363.329	297726.660	931.855	332556.188	976791.549	3057.261
NVAT18	17079ER	101034.889	301241.922	936.373	331478.631	988324.539	3072.084
NVAT19	17079ES	100616.728	303341.303	915.113	330106.714	995212.258	3002.333
NVAT20	17079ET	101977.395	309646.551	918.929	334570.836	1015898.727	3014.853
NVAT21	17079EU	76784.007	288434.821	1448.296	251915.529	946306.575	4751.618
NVAT22	17079EV	87689.510	295880.375	1020.943	287694.668	970734.198	3349.544
NVAT23	17079EW	81136.829	292460.852	1095.543	266196.413	959515.313	3594.294
NVAT24	17079EX	84035.399	279547.453	1154.176	275706.139	917148.600	3786.659
NVAT25	17079EY	88980.640	285851.845	1043.801	291930.650	937832.261	3424.537
NVAT26	17079EZ	90841.838	289574.967	1005.747	298036.929	950047.204	3299.688
NVAT27	17079FA	89281.674	304313.457	1021.839	292918.291	998401.735	3352.483
NVAT28	17079FB	69552.869	297383.006	1497.846	228191.372	975664.078	4914.183
NVAT29	17079FC	70748.267	303912.219	1437.968	232113.273	997085.338	4717.733
NVAT30	17079FD	68165.625	311576.389	1278.030	223640.055	1022230.204	4193.003
NVAT31	17079FE	67350.683	299718.484	1501.743	220966.366	983326.391	4926.968
NVAT32	17079FF	71499.040	289769.392	1336.103	234576.435	950685.082	4383.531
NVAT33	17079XA	72511.184	285883.224	1659.993	237897.109	937935.211	5446.160
P043 ARP	P043	14007.999	263713.162	1505.597	45957.909	865198.931	4939.613
Q 393	PU0182	84336.386	428348.564	737.186	276693.625	1405340.247	2418.584
R 403	PU1370	106752.003	353430.975	877.044	350235.529	1159548.125	2877.435
S 359	PU1998	97347.260	285582.609	982.990	319380.136	936948.944	3225.026
SDRC ARP	SDRC	32865.405	341690.407	998.963	107825.917	1121029.277	3277.431
VVAJ01	17079PA	37678.039	400944.742	821.110	123615.365	1315432.873	2693.925
VVAJ02	17079PB	51990.728	398166.220	789.234	170572.912	1306317.006	2589.345
VVAJ03	17079PC	53294.345	396654.338	797.224	174849.865	1301356.775	2615.559
VVAJ04	17079PD	53595.364	389424.547	810.506	175837.455	1277637.035	2659.135
VVAJ05	17079PE	72073.209	424229.828	714.148	236460.188	1391827.362	2343.001
VVAJ06	17079PF	75805.494	424794.985	763.579	248705.192	1393681.548	2505.175
VVAJ07	17079PG	89225.974	440645.479	718.032	292735.551	1445684.375	2355.743
VVAJ08	17079PH	81061.215	404048.839	832.375	265948.335	1325616.898	2730.884
VVAJ09	17079PI	76047.056	396163.776	829.788	249497.717	1299747.322	2722.396
VVAJ10	17079PJ	71487.452	386519.552	818.578	234538.414	1268106.231	2685.618
VVAJ11	17079PK	105217.290	331894.759	869.341	345200.393	1088891.389	2852.163
VVAJ12	17079PL	91061.927	340765.882	824.602	298759.007	1117996.065	2705.382
VVAJ13	17079PM	86791.081	346660.146	810.413	284747.070	1137334.163	2658.830
VVAJ14	17079PN	84202.380	346873.357	815.000	276253.973	1138033.673	2673.879
VVAJ15	17079PO	81527.452	335575.796	910.464	267477.981	1100968.257	2987.081
VVAJ16	17079PP	89719.965	331137.310	875.407	294356.252	1086406.326	2872.064
VVAJ17	17079PQ	97660.435	334684.483	835.093	320407.611	1098044.007	2739.801
VVAJ18	17079PR	78709.929	364071.405	821.625	258234.159	1194457.603	2695.615
VVAJ19	17079PS	77218.800	344199.502	831.169	253342.014	1129261.200	2726.927
VVAJ20	17079PT	70876.343	326621.264	974.107	232533.468	1071589.931	3195.883
VVAJ21	17079PU	80410.521	323569.461	971.287	263813.516	1061577.474	3186.631
VVAJ22	17079PV	69516.147	319461.157	1070.540	228070.891	1048098.811	3512.263

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VVAJ23	17079FW	58648.158	319184.588	1412.563	192414.832	1047191.434	4634.384
VVAJ24	17079PX	56678.848	326344.348	1097.269	185953.855	1070681.416	3599.957
VVAJ25	17079PY	70891.167	339803.345	911.509	232582.102	1114838.140	2990.509
VVAJ26	17079PZ	48799.454	346671.774	931.305	160102.877	1137372.312	3055.456
VVAJ27	17079QA	42813.149	344830.184	1017.649	140462.805	1131330.360	3338.737
VVAJ28	17079QB	40210.408	338330.460	1032.132	131923.648	1110005.850	3386.253
VVAJ29	17079QC	46061.724	332503.836	1090.104	151120.840	1090889.670	3576.450
VVAJ30	17079QD	54636.980	309484.498	1678.446	179254.825	1015367.058	5506.702
VVAJ31	17079QE	57293.805	305488.388	1636.904	187971.425	1002256.488	5370.409
VVAJ32	17079QF	44497.110	312471.522	1662.639	145987.602	1025166.983	5454.841
VVAJ33	17079QG	41671.229	317257.867	1486.019	136716.358	1040870.187	4875.381
VVAJ34	17079QH	59305.329	296824.939	1810.347	194570.901	973833.153	5939.447
VVAJ35	17079QI	60513.821	294776.724	1948.590	198535.760	967113.301	6392.999
VVAJ36	17079QJ	58854.120	280699.725	1808.700	193090.557	920929.016	5934.043
VVAJ37	17079QK	62953.554	282914.349	1671.661	206540.119	928194.827	5484.441
VVAJ38	17079QL	46705.278	287170.762	1965.288	153232.234	942159.407	6447.782
VVAJ39	17079QM	53521.148	286597.245	1759.282	175593.967	940277.794	5771.911
VVAJ40	17079QN	103813.278	348039.970	883.219	340594.062	1141861.133	2897.694
VVAT01	17079MA	69407.041	351159.045	888.065	227712.934	1152094.301	2913.593
VVAT02	17079MB	46207.029	357856.817	871.007	151597.561	1174068.573	2857.629
VVAT03	17079MC	101573.486	397818.084	862.650	333245.679	1305174.829	2830.211
VVAT04	17079MD	100274.730	407347.728	844.746	328984.677	1336440.005	2771.471
VVAT05	17079ME	98300.857	418572.532	787.322	322508.728	1373266.714	2583.072
VVAT06	17079MF	102350.383	293704.116	942.268	335794.548	963594.254	3091.424
VVAT07	17079MG	108203.286	283740.760	966.667	354996.948	930906.144	3171.473
VVAT08	17079MH	100071.645	281930.404	1039.068	328318.389	924966.665	3409.009
VVAT09	17079MI	107380.876	294990.907	972.663	352298.757	967816.002	3191.145
VVAT10	17079MJ	98883.271	305179.119	902.181	324419.533	1001241.825	2959.905
VVAT11	17079MK	106840.939	309358.058	897.421	350527.313	1014952.227	2944.289
VVAT12	17079ML	101738.185	306951.172	921.994	333786.030	1007055.637	3024.909
VVAT13	17079MM	83902.590	292954.575	1087.453	275270.414	961135.133	3567.752
VVAT14	17079MN	84044.657	294633.464	1075.651	275736.512	966643.288	3529.032
VVAT15	17079MO	82959.420	285945.107	1222.821	272176.030	938138.239	4011.872
VVAT16	17079MP	87173.285	281582.973	1057.643	286001.020	923826.805	3469.950
VVAT17	17079MQ	93726.080	298837.130	967.821	307499.647	980434.816	3175.259
VVAT18	17079MR	82125.714	307262.522	1099.300	269440.779	1008077.124	3606.620
VVAT19	17079MS	79250.840	303368.924	1130.714	260008.796	995302.879	3709.684
VVAT20	17079MT	76453.669	303714.739	1175.247	250831.745	996437.441	3855.790
VVAT21	17079XE	58349.424	285476.983	1884.402	191434.734	936602.400	6182.409
VVAT22	17079XF	56248.417	281469.464	1992.012	184541.683	923454.401	6535.459
VVAT23	17079XD	61867.100	281088.708	1736.934	202975.645	922205.204	5698.591
WOODS SETUP	17079XC	65860.818	282822.574	1780.373	216078.365	927893.729	5841.107
WOODS SETUP	17079XG	49600.684	277648.456	1990.534	162731.577	910918.308	6530.610
WOODS SETUP	17079XH	45919.034	289831.077	1979.691	150652.698	950887.459	6495.036
WOODS SETUP	17079XI	50849.467	297588.007	1841.318	166828.625	976336.651	6041.057
WOODS SETUP	17079XJ	57170.754	296476.891	1786.335	187567.714	972691.268	5860.667

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WOODS SETUP	17079XK	63079.712	293564.834	1966.347	206954.023	963137.293	6451.257
WOODS SETUP	17079XL	46718.117	310506.877	1686.459	153274.355	1018721.311	5532.991
WOODS SETUP	17079XM	41868.032	318892.945	1480.268	137362.034	1046234.604	4856.513
WOODS SETUP	17079XO	59057.060	311240.678	1562.052	193756.372	1021128.789	5124.832
WOODS SETUP	17079XP	54601.355	313196.986	1631.420	179137.946	1027547.111	5352.417
WOODS SETUP	17079SA	72513.031	285911.399	1662.528	237903.168	938027.647	5454.477
WOODS SETUP	17079SB	68695.449	282182.088	1717.092	225378.319	925792.401	5633.493
WOODS SETUP	17079SC	65540.515	282693.952	1796.280	215027.506	927471.740	5893.295
WOODS SETUP	17079SD	61892.010	281085.520	1740.473	203057.369	922194.745	5710.202
WOODS SETUP	17079SE	58368.650	285548.777	1886.907	191497.813	936837.947	6190.627
WOODS SETUP	17079SF	56224.014	281475.219	1993.711	184461.621	923473.282	6541.034
WOODS SETUP	17079SG	49602.955	277625.620	1992.409	162739.027	910843.390	6536.762
WOODS SETUP	17079SH	45826.018	289813.846	1978.254	150347.526	950830.925	6490.322
WOODS SETUP	17079SI	50792.775	297588.505	1842.232	166642.628	976338.287	6044.056
WOODS SETUP	17079SJ	57130.534	296453.589	1786.225	187435.760	972614.817	5860.307
WOODS SETUP	17079SK	63060.497	293586.046	1968.131	206890.980	963206.885	6457.110
WOODS SETUP	17079SL	46703.131	310523.037	1687.626	153225.187	1018774.330	5536.820
WOODS SETUP	17079SM	41889.064	318864.711	1482.588	137431.038	1046141.973	4864.124
WOODS SETUP	17079SO	59048.437	311269.700	1562.382	193728.080	1021224.006	5125.915
WOODS SETUP	17079SP	54666.266	313207.664	1631.247	179350.907	1027582.143	5351.850
WOODS01	17079WA	72461.295	285944.796	1661.679	237733.432	938137.219	5451.692
WOODS02	17079WB	68725.943	282239.499	1716.681	225478.364	925980.755	5632.144
WOODS03	17079WC	65542.323	282670.233	1796.244	215033.439	927393.922	5893.177
WOODS04	17079WD	61935.659	281064.101	1742.205	203200.575	922124.470	5715.884
WOODS05	17079WE	58385.805	285596.431	1887.981	191554.097	936994.291	6194.151
WOODS06	17079WF	56220.756	281403.296	1989.751	184450.929	923237.314	6528.041
WOODS07	17079WG	49637.597	277622.552	1993.682	162852.682	910833.321	6540.938
WOODS08	17079WH	45805.551	289865.483	1981.044	150280.380	951000.340	6499.475
WOODS09	17079WI	50758.082	297605.823	1841.116	166528.806	976395.103	6040.395
WOODS10	17079WJ	57101.987	296487.907	1779.466	187342.102	972727.407	5838.131
WOODS11	17079WK	63039.147	293542.726	1960.409	206820.934	963064.761	6431.775
WOODS12	17079WL	46670.301	310553.429	1688.470	153117.479	1018874.040	5539.589
WOODS13	17079WM	41954.830	318831.206	1482.714	137646.805	1046032.049	4864.538
WOODS14	17079WO	59079.476	311300.457	1561.818	193829.915	1021324.916	5124.065
WOODS15	17079WP	54670.619	313251.040	1626.582	179365.188	1027724.453	5336.544



SD_FY17 NRCS Lidar FUGRO_2017_D17

GCP Pictures



GCP101-1



GCP101-2



GCP102-1



GCP102-2



GCP103-1



GCP103-2



GCP104-1



GCP104-2



GCP105-1



GCP105-2



GCP106-1



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GCP107-1



GCP107-2



GCP108-1



GCP108-2



GCP109-1



GCP109-2



GCP110-1



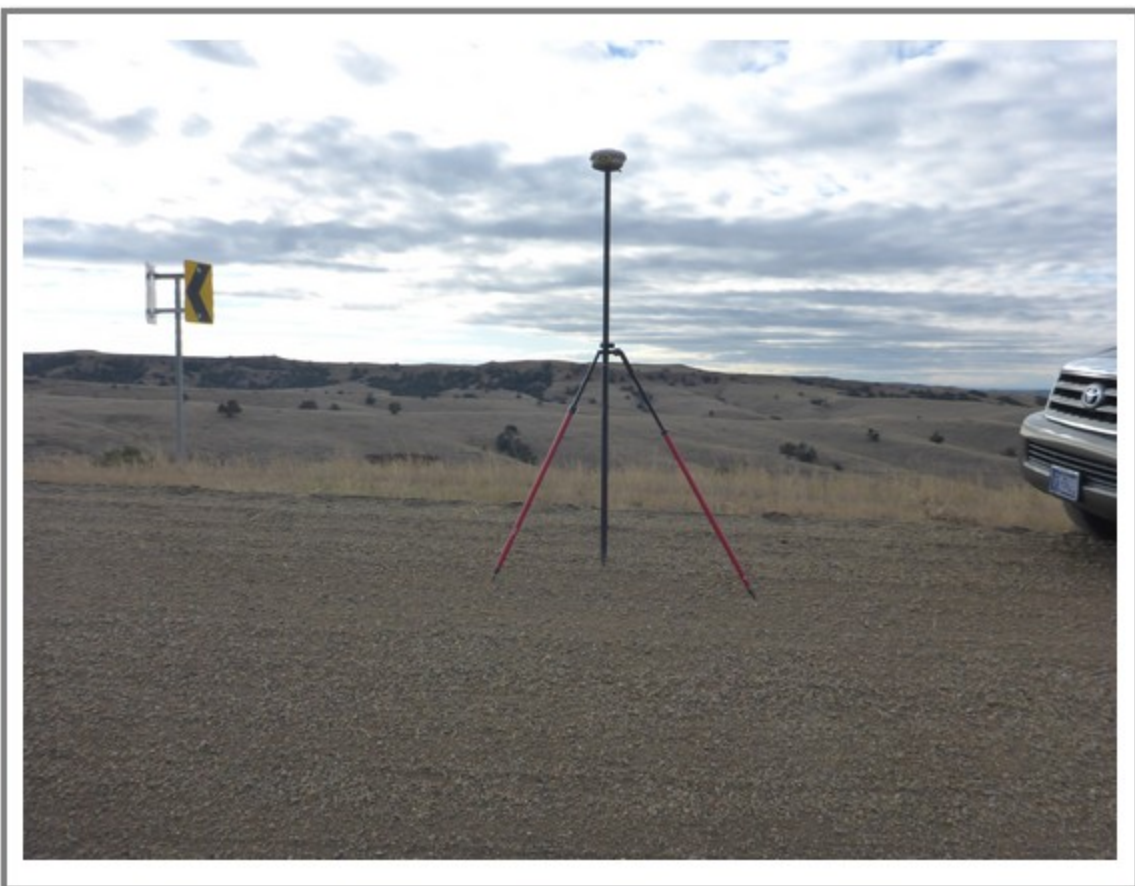
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GCP111-1



GCP111-2



GCP112-1



GCP112-2



GCP113-1



GCP113-2



GCP114-1



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GCP115-1



GCP115-2



GCP116-1



GCP116-2



GCP117-1



GCP117-2



GCP118-1



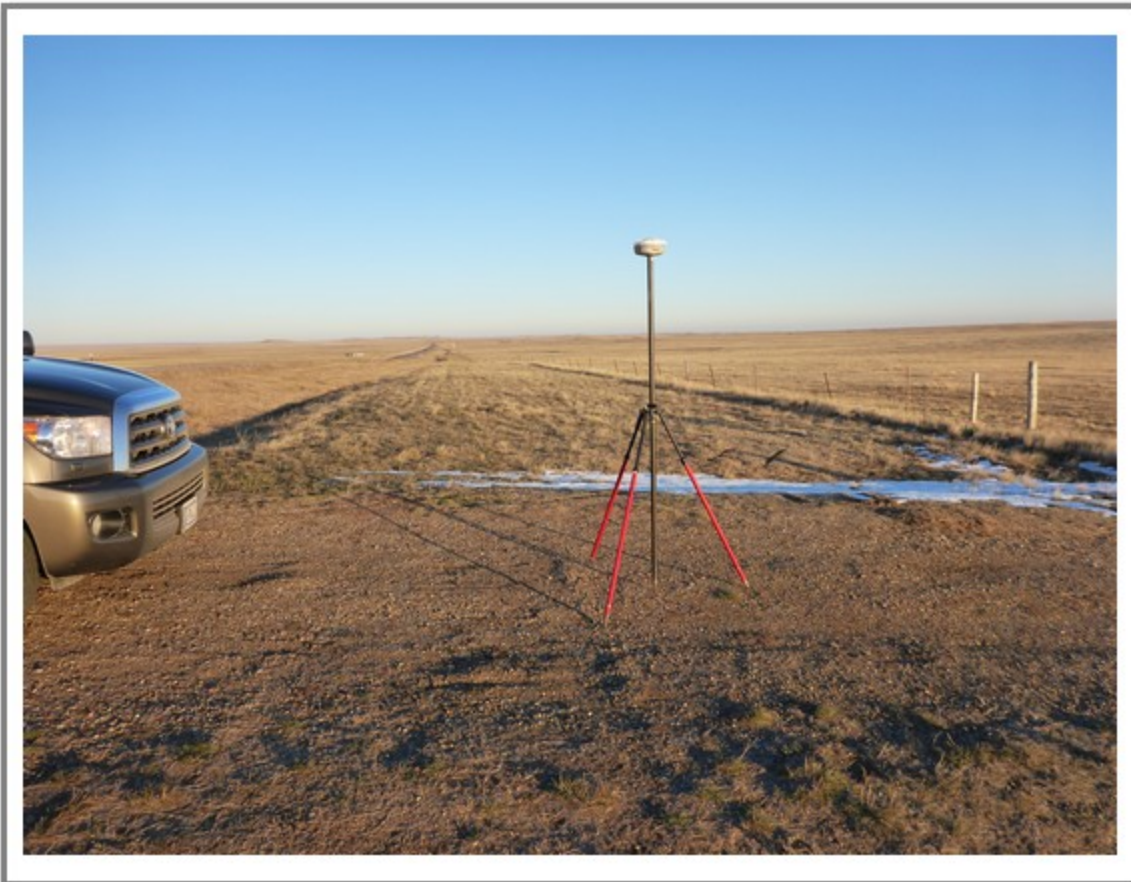
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GCP119-1



GCP119-2



GCP120-1



GCP120-2



GCP121-1



GCP121-2



GCP122-1



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GCP123-1



GCP123-2



GCP124-1



GCP124-2



GCP125-1



GCP125-2



GCP126-1



GCP126-2



GCP127-1



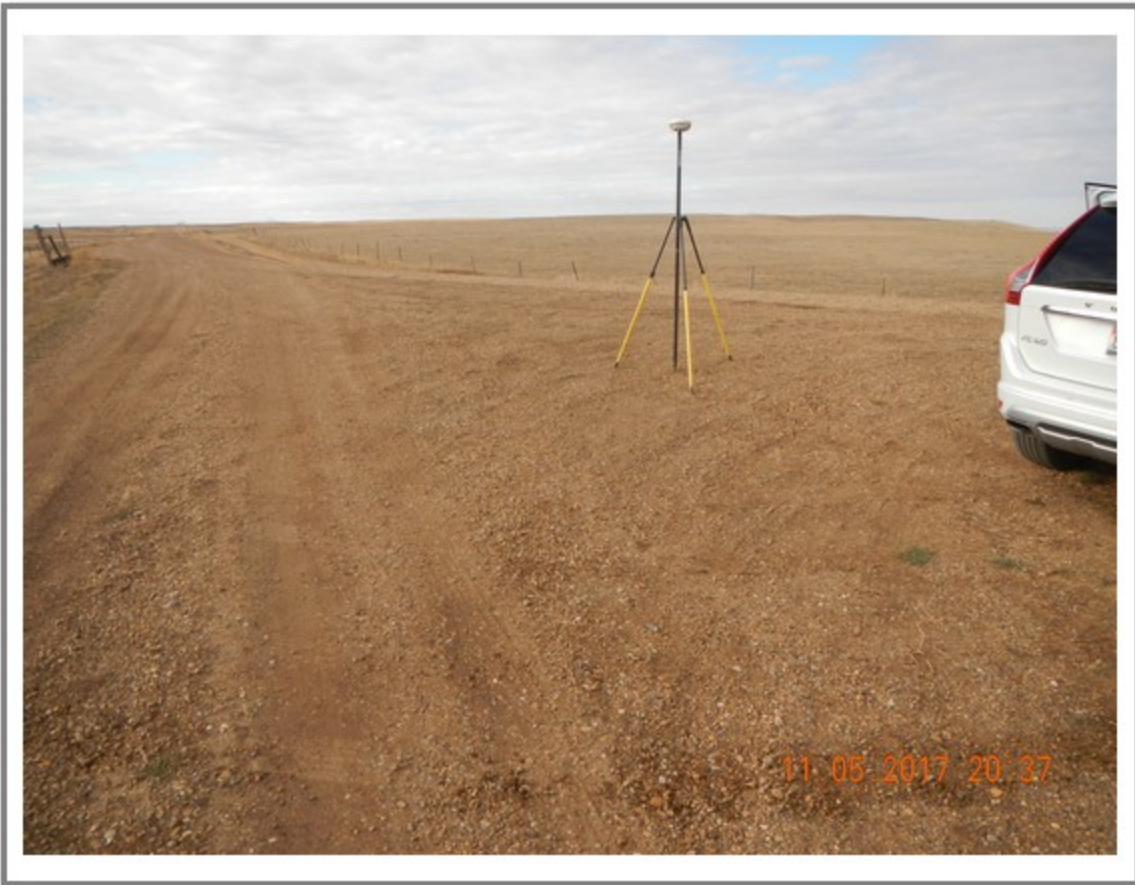
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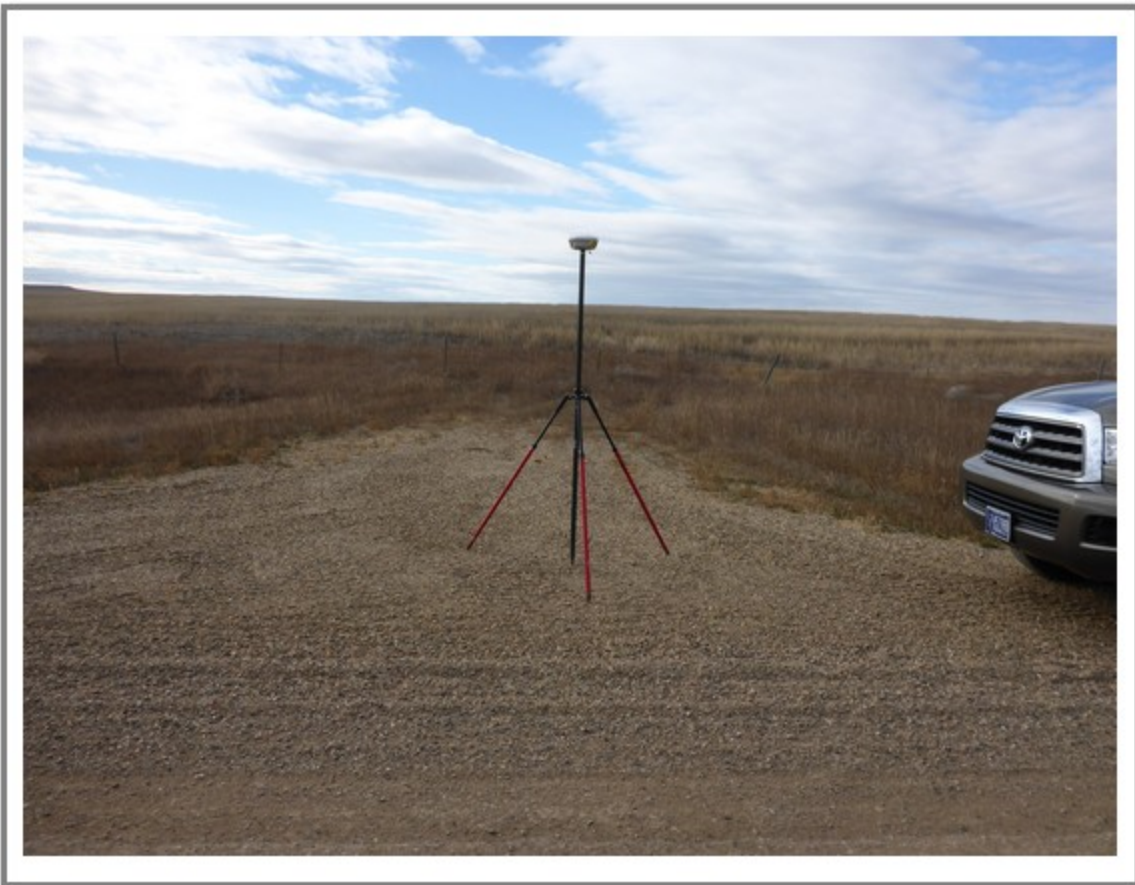
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GCP130-1



GCP130-2



GCP131-1



GCP131-2



GCP132-1



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GCP133-1



GCP133-2



GCP134-1



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GCP136-1



GCP136-2



GCP137-1



GCP137-2



GCP138-1



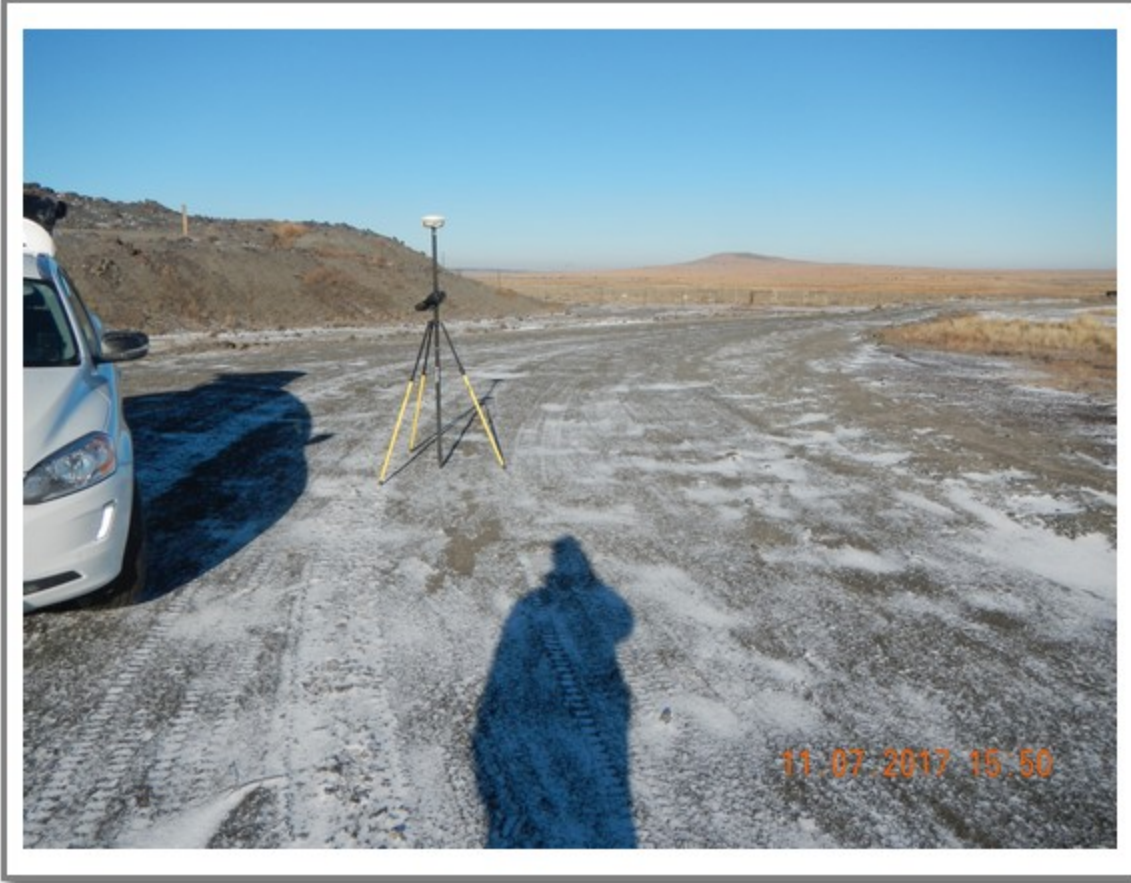
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GCP139-2



GCP140-1



GCP140-2



GCP141-1



GCP141-2



GCP142-1



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GCP143-1



GCP143-2



GCP144-1



GCP144-2



GCP145-1



GCP145-2



GCP146-1



GCP146-2



GCP147-1



GCP147-2



GCP148-1



GCP148-2



GCP149-1



GCP149-2



GCP150-1



GCP150-2



GCP151-1



GCP151-2



GCP152-1



GCP152-2



GCP153-1



GCP153-2



GCP154-1



GCP154-2



GCP155-1



GCP155-2



GCP156-1



GCP156-2



GCP157-1



GCP157-2



GCP158-1



GCP158-2



GCP159-1



GCP159-2



GCP160-1



GCP160-2



GCP161-1



GCP161-2



GCP162-1



GCP162-2



GCP163-1



GCP163-2



GCP164-1



GCP164-2



GCP165-1



GCP165-2



SD_FY17 NRCS Lidar FUGRO_2017_D17

Checkpoint Pictures



NVAJ01-1



NVAJ01-2



NVAJ02-1



NVAJ02-2



NVAJ03-1



NVAJ03-2



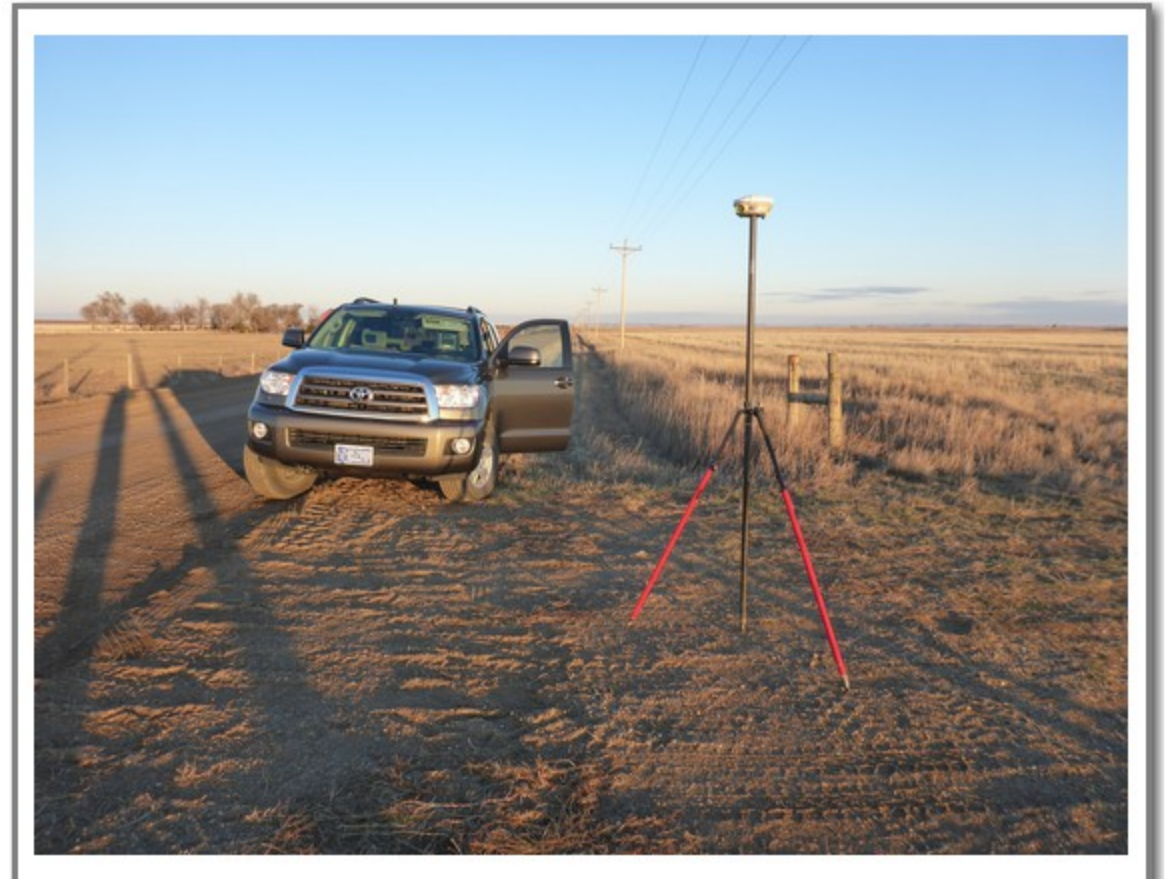
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NVAJ05-1



NVAJ05-2



NVAJ06-1



NVAJ06-2



NVAJ07-1



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NVAJ08-1



NVAJ08-2



NVAJ09-1



NVAJ09-2



NVAJ10-1



NVAJ10-2



NVAJ11-1



NVAJ11-2



NVAJ12-1



NVAJ12-2



NVAJ13-1



NVAJ13-2



NVAJ14-1



NVAJ14-2



NVAJ15-1



NVAJ15-2



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NVAJ17-2



NVAJ18-1



NVAJ18-2



NVAJ19-1



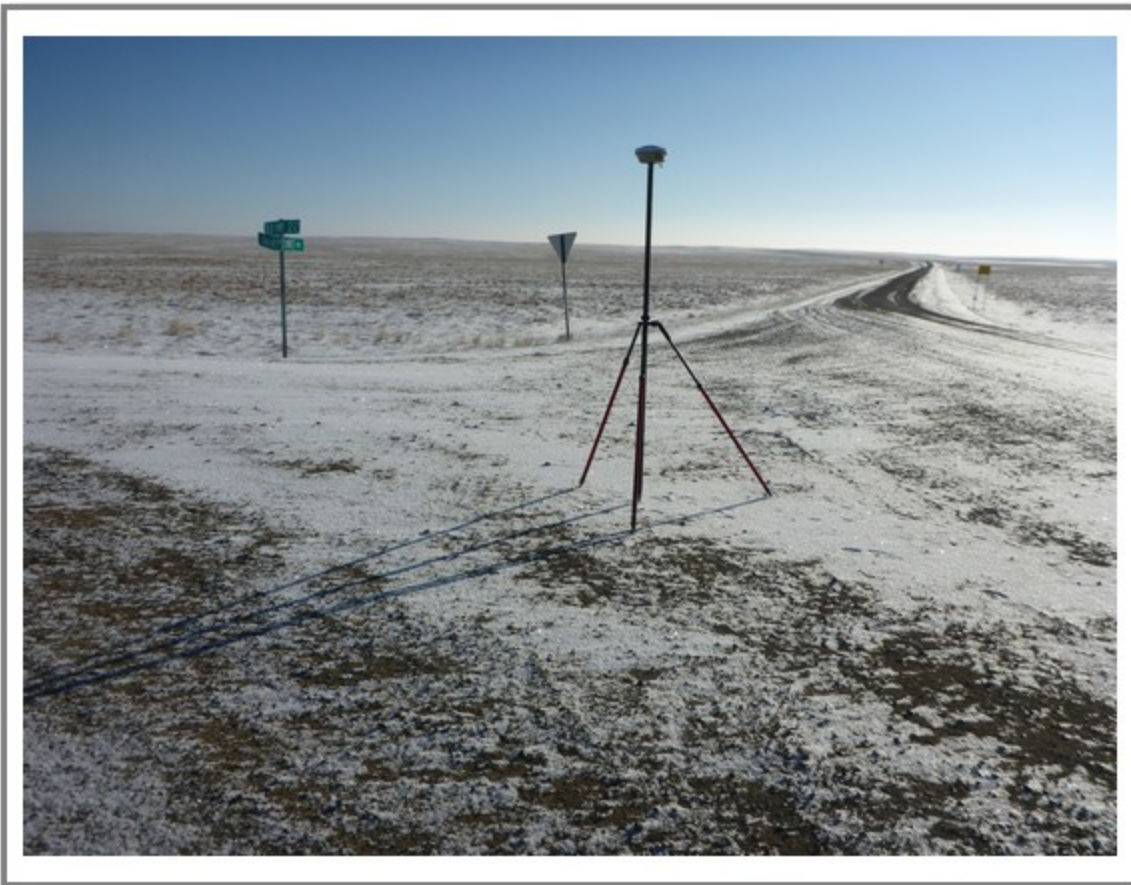
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NVAJ20-2



NVAJ21-1



NVAJ21-2



NVAJ22-1



NVAJ22-2



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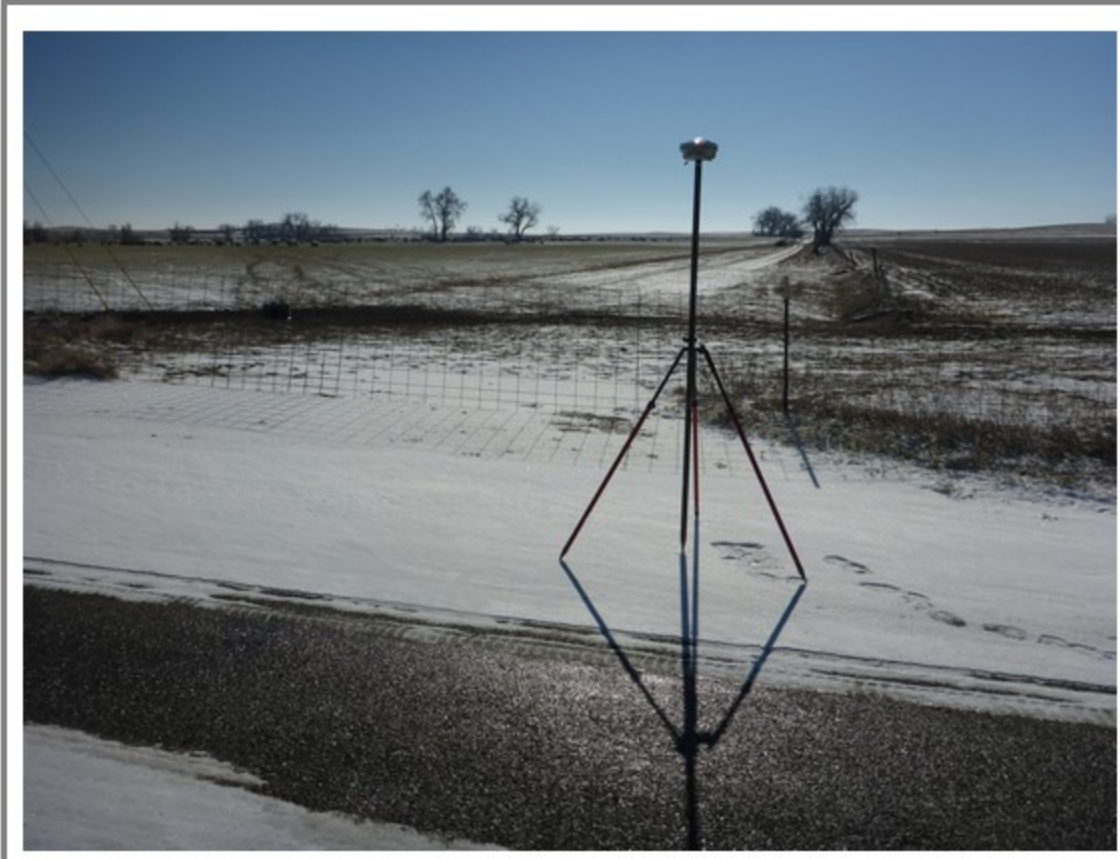
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NVAJ24-2



NVAJ25-1



NVAJ25-2



NVAJ26-1



NVAJ26-2



NVAJ27-1



NVAJ27-2



NVAJ28-1



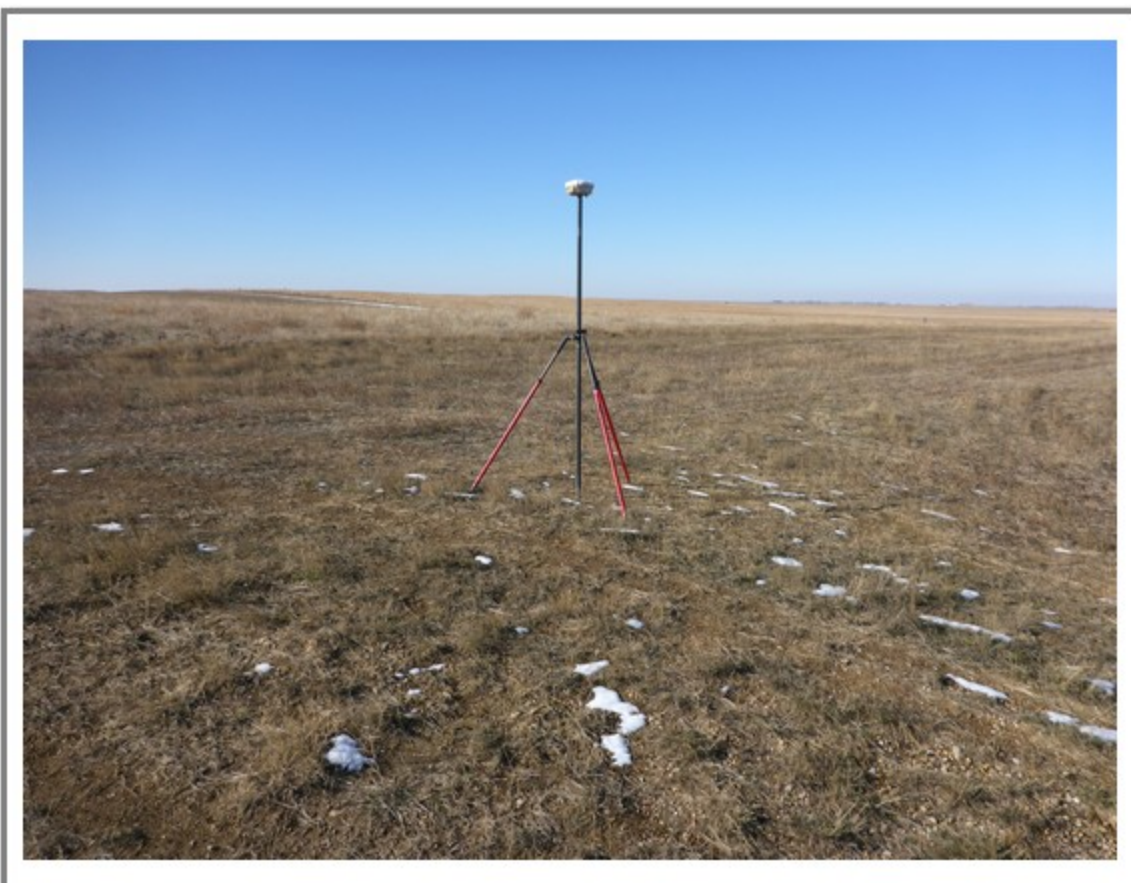
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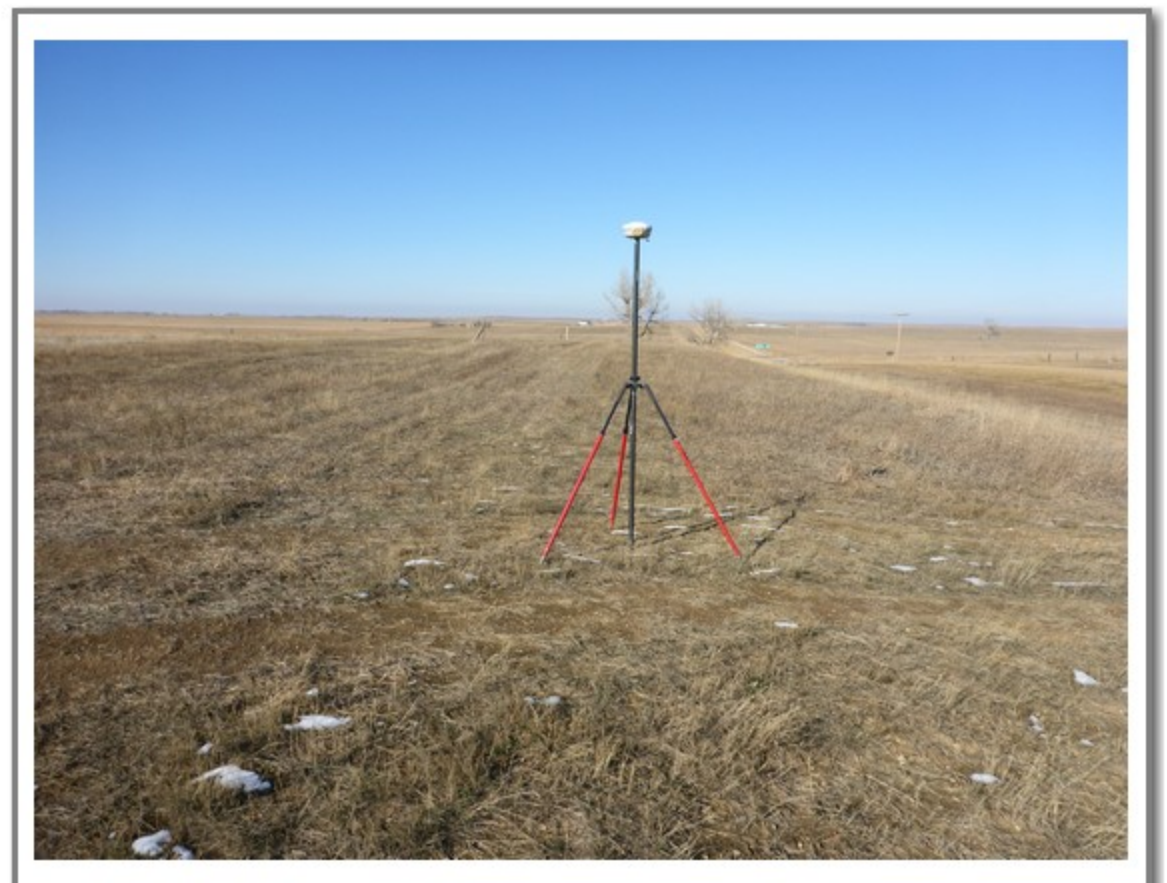
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NVAJ30-2



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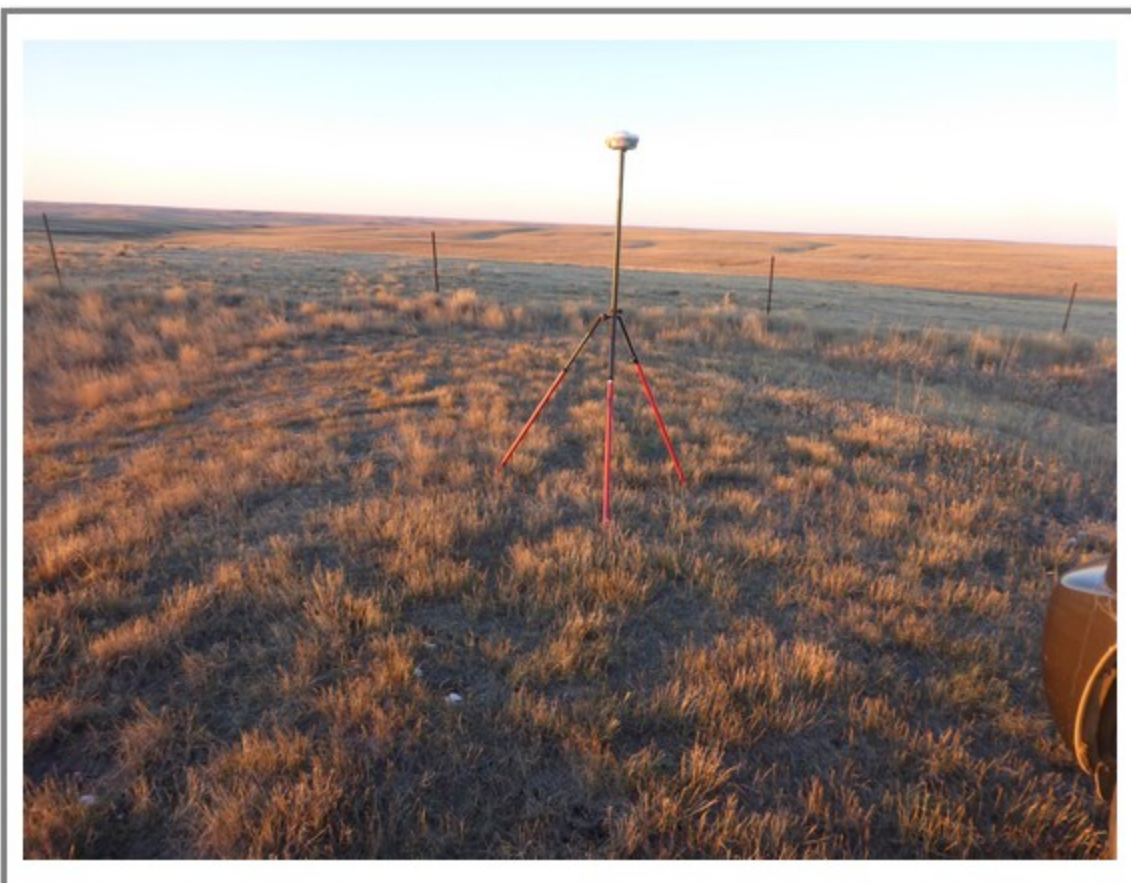
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NVAJ34-2



NVAJ35-1



NVAJ35-2



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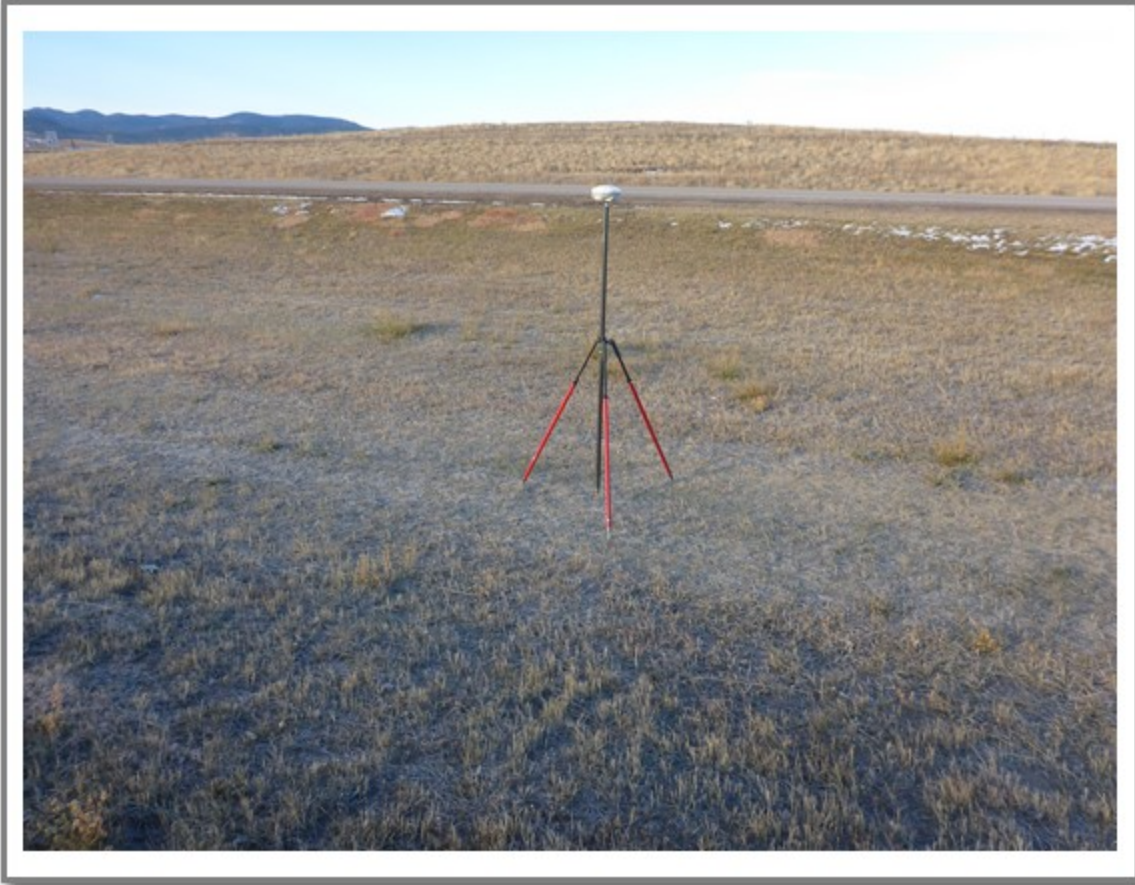
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NVAJ38-2



NVAJ39-1



NVAJ39-2



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NVAJ40-2



NVAJ41-1



NVAJ41-2



NVAJ42-1



NVAJ42-2



NVAJ43-1



NVAJ43-2



NVAJ44-1



NVAJ44-2



NVAJ45-1



NVAJ45-2



NVAJ46-1



NVAJ46-2



NVAJ47-1



NVAJ47-2



NVAJ48-1



NVAJ48-2



NVAJ49-1



NVAJ49-2



NVAJ50-1



NVAJ50-2



NVAJ51-1



NVAJ51-2



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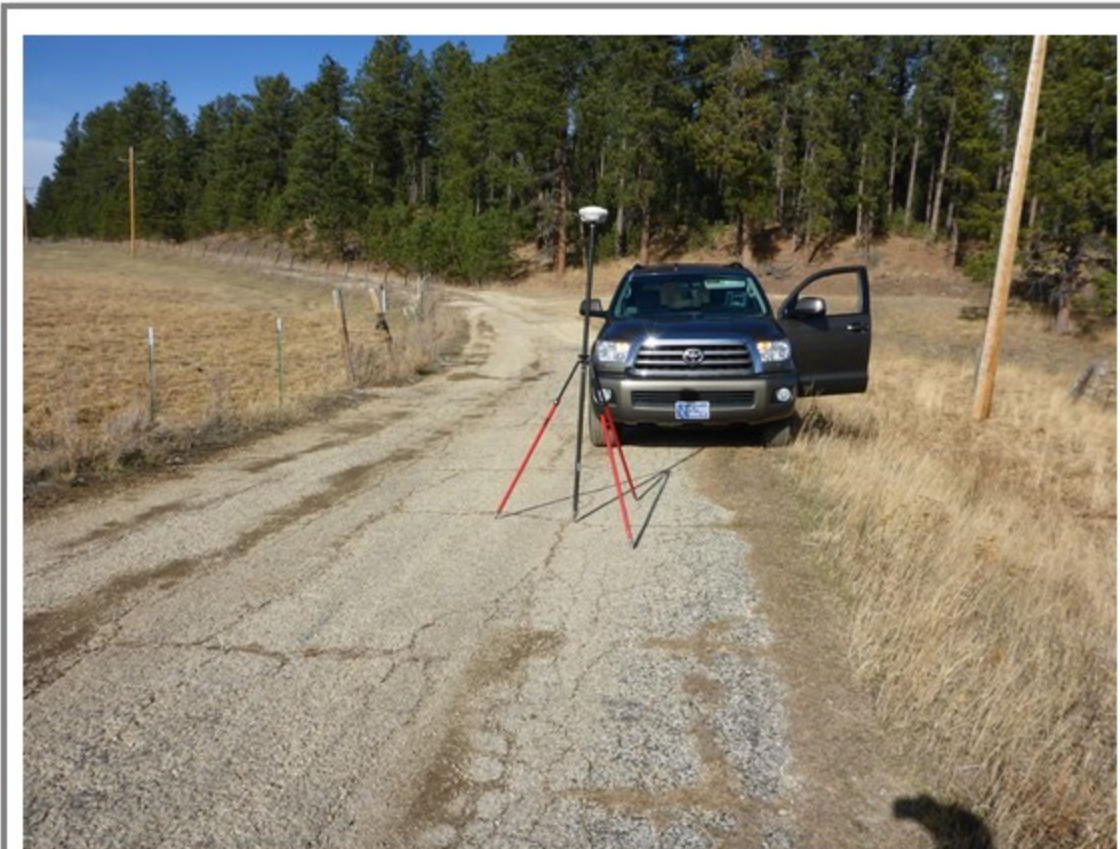
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NVAJ69-1



NVAJ69-2



NVAJ70-1



NVAJ70-2



NVAJ71-1



NVAJ71-2



NVAT01-1



NVAT01-2



NVAT02-1



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NVAT04-2



NVAT05-1



NVAT05-2



NVAT06-1



NVAT06-2



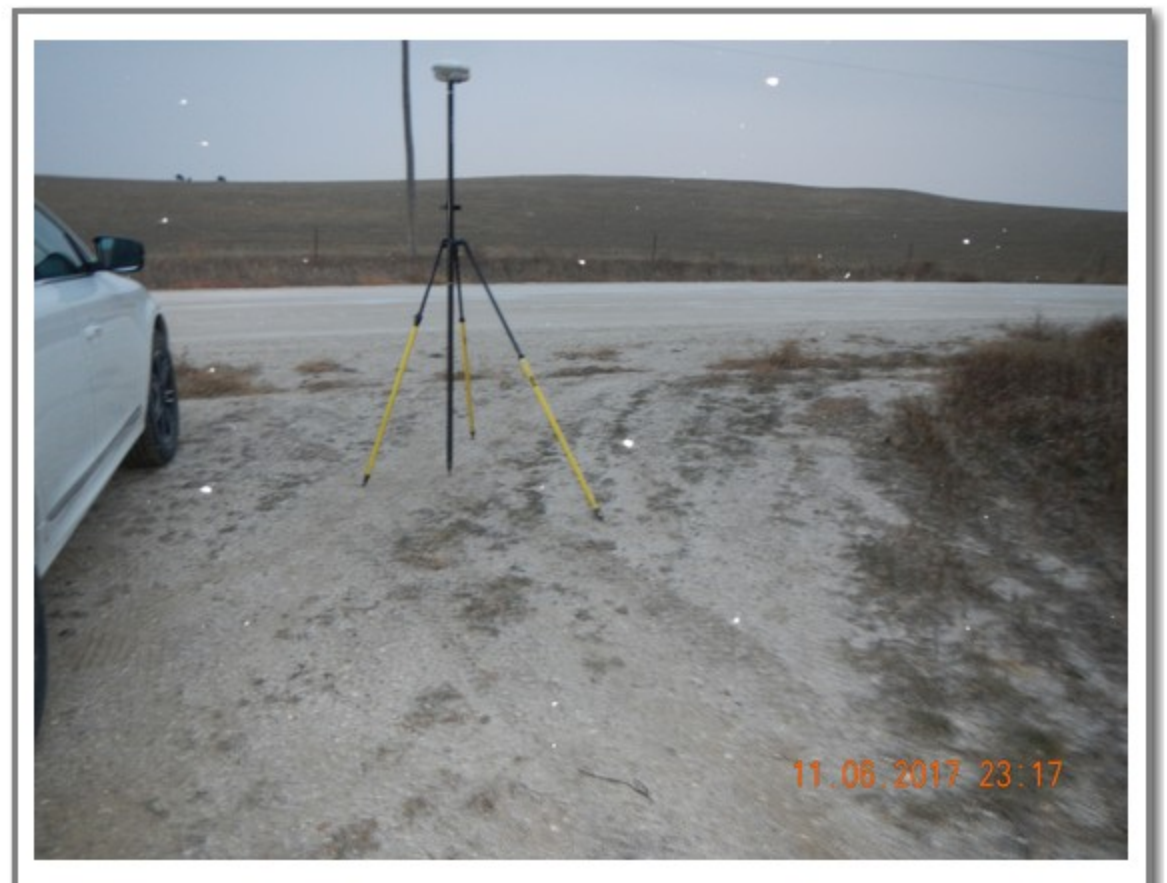
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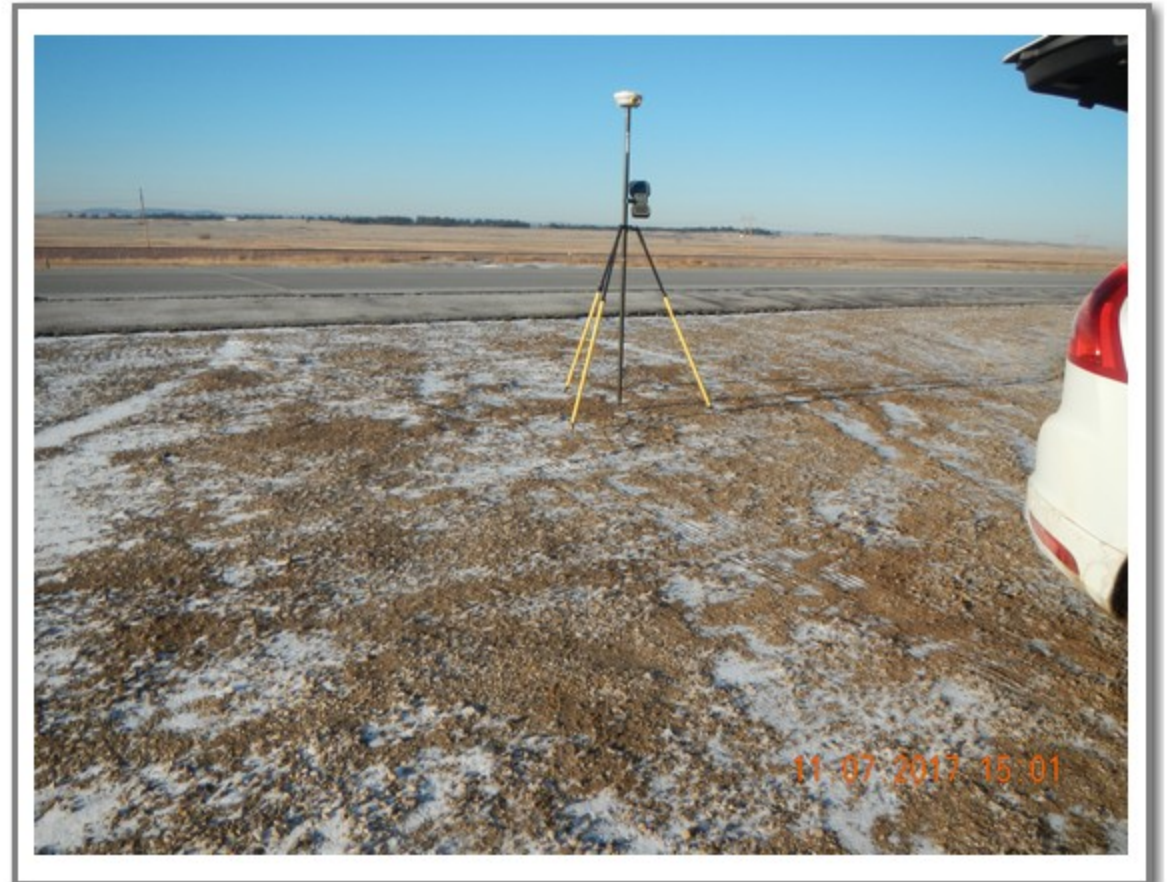
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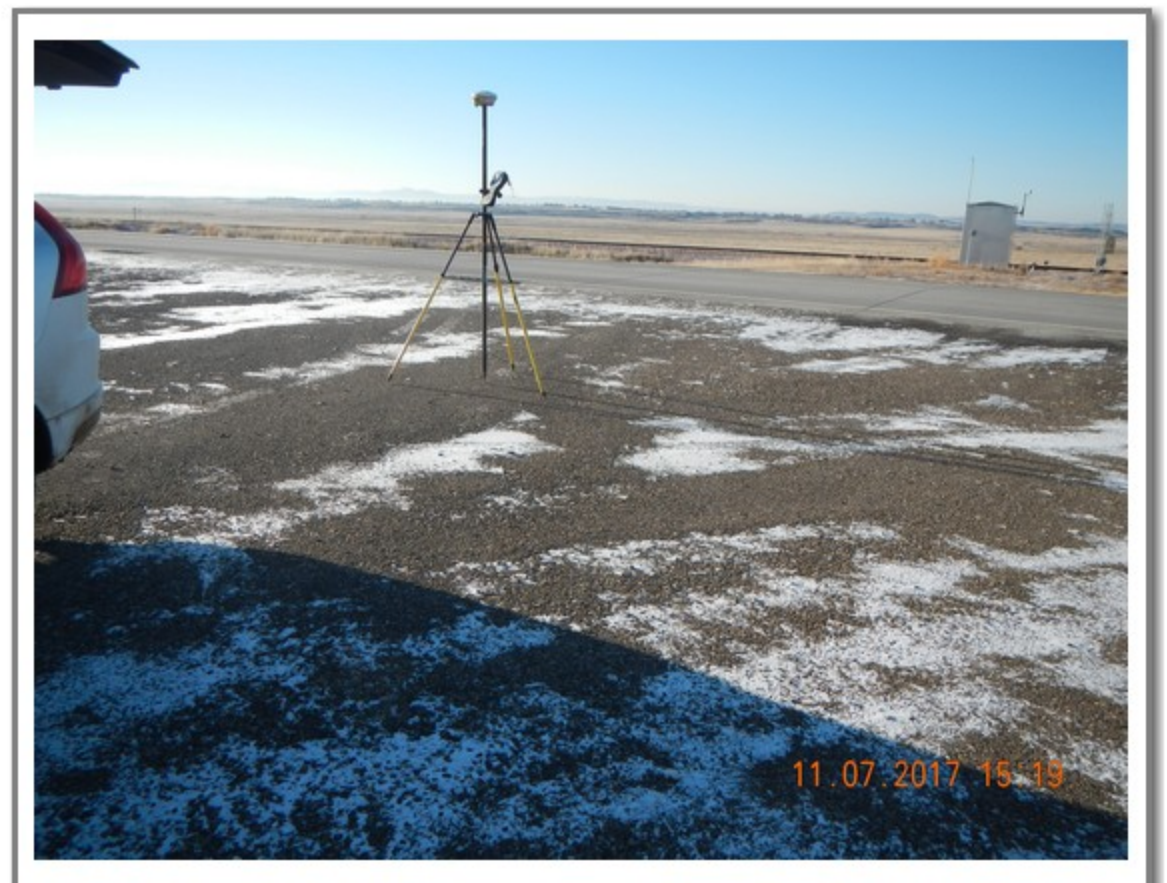
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NVAT11-2



NVAT12-1



NVAT12-2



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NVAT14-2



NVAT15-1



NVAT15-2



NVAT16-1



NVAT16-2



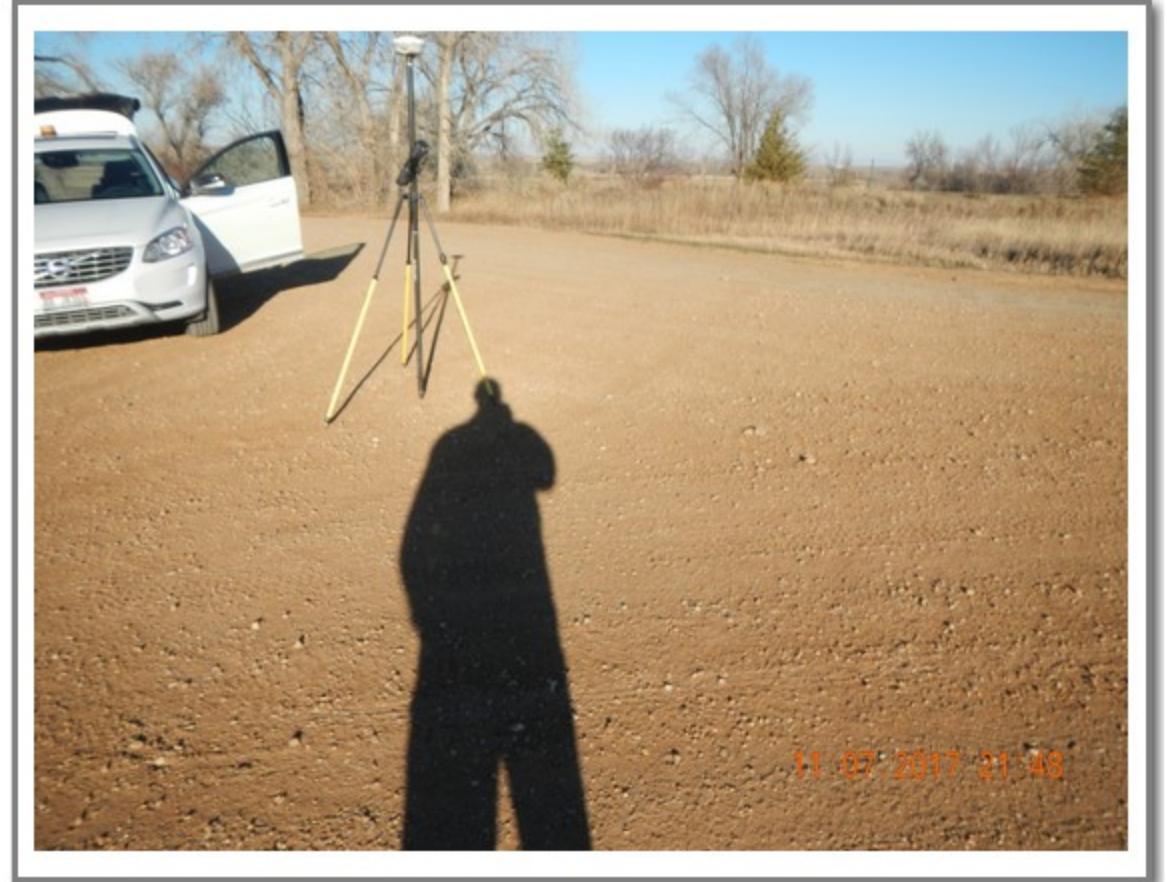
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NVAT22-1



NVAT22-2



NVAT23-1



NVAT23-2



NVAT24-1



NVAT24-2



NVAT25-1



NVAT25-2



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NVAT28-1



NVAT28-2



NVAT29-1



NVAT29-2



NVAT30-1



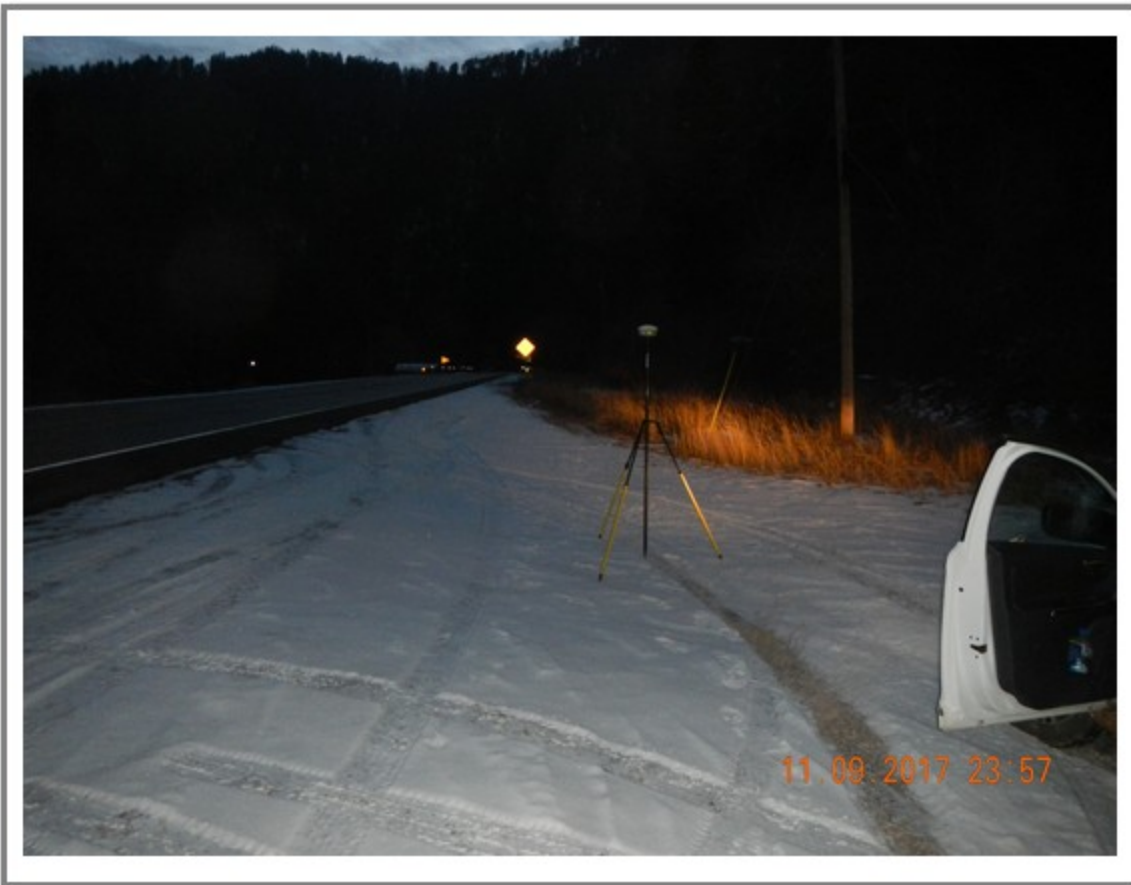
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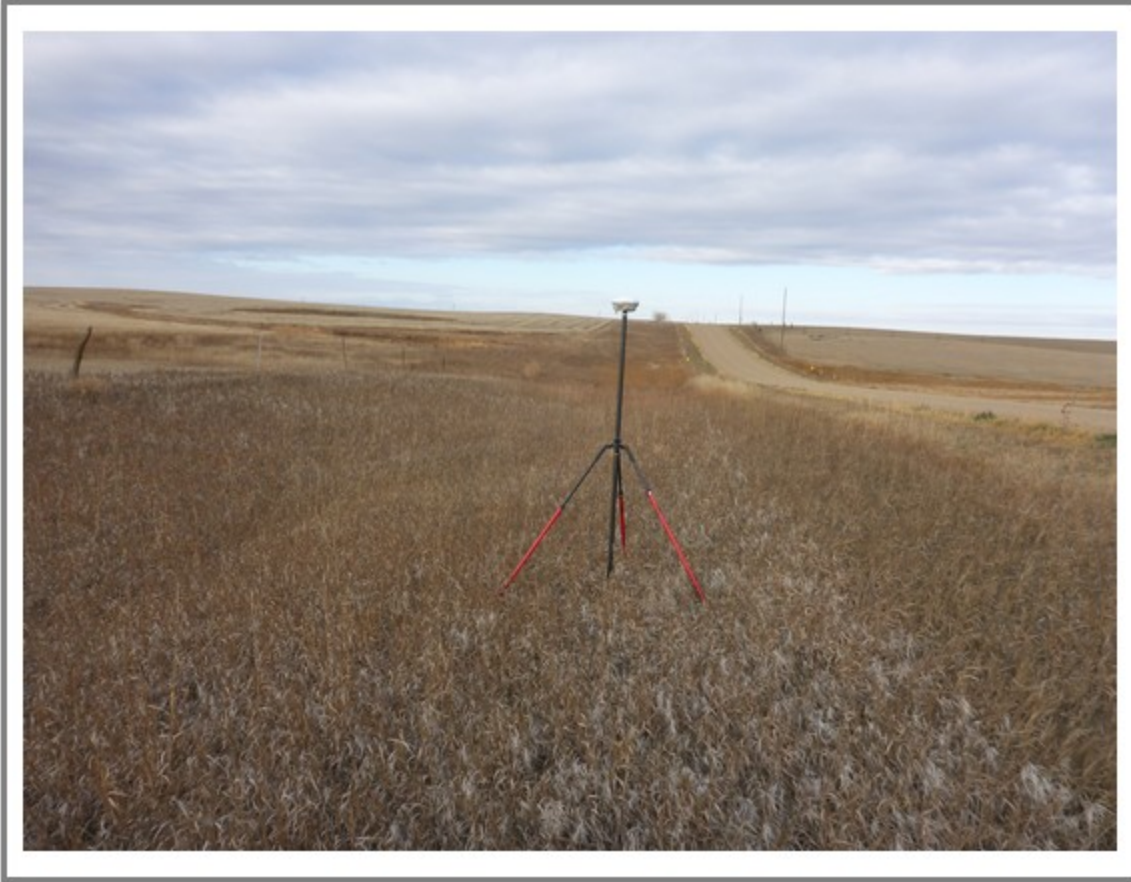
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NVAT33-1



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VVAJ01-2



VVAJ02-1



VVAJ02-2



VVAJ03-1



VVAJ03-2



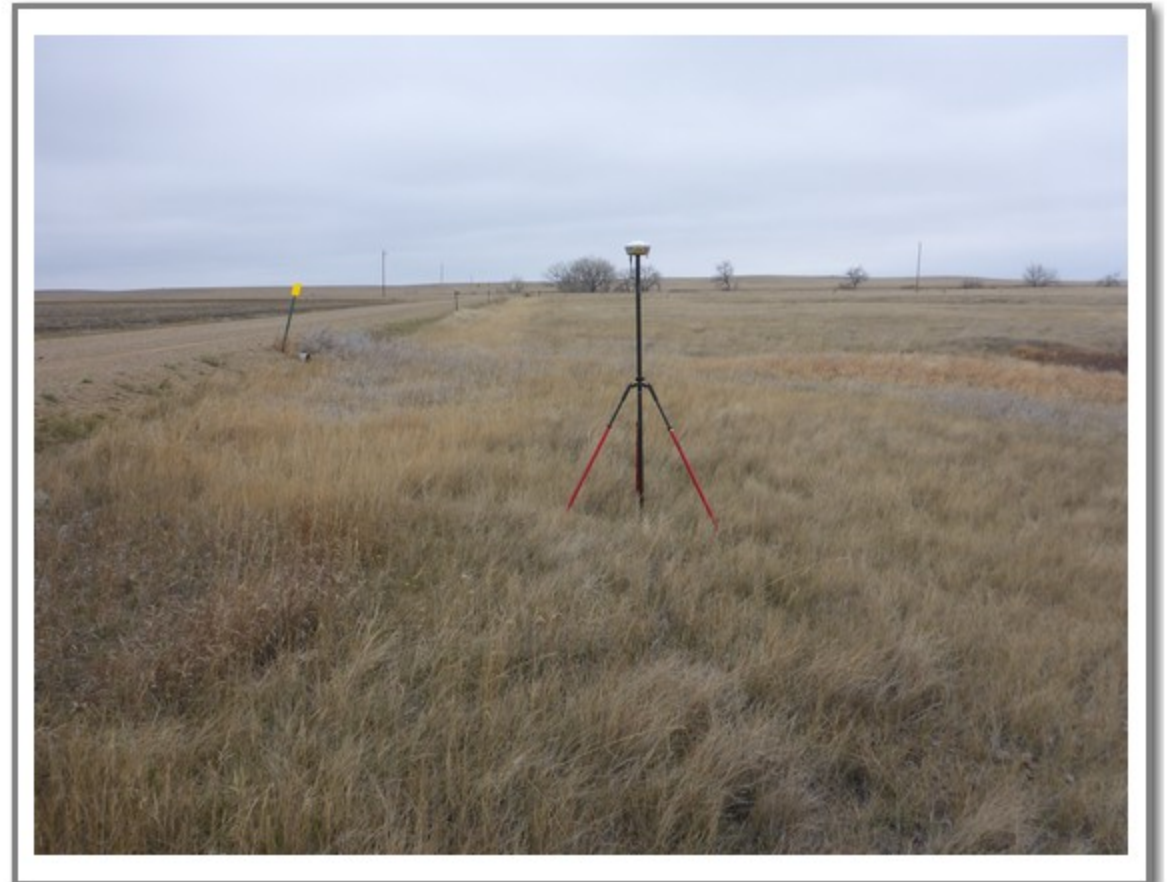
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VVAJ05-1



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VVAJ08-1



VVAJ08-2



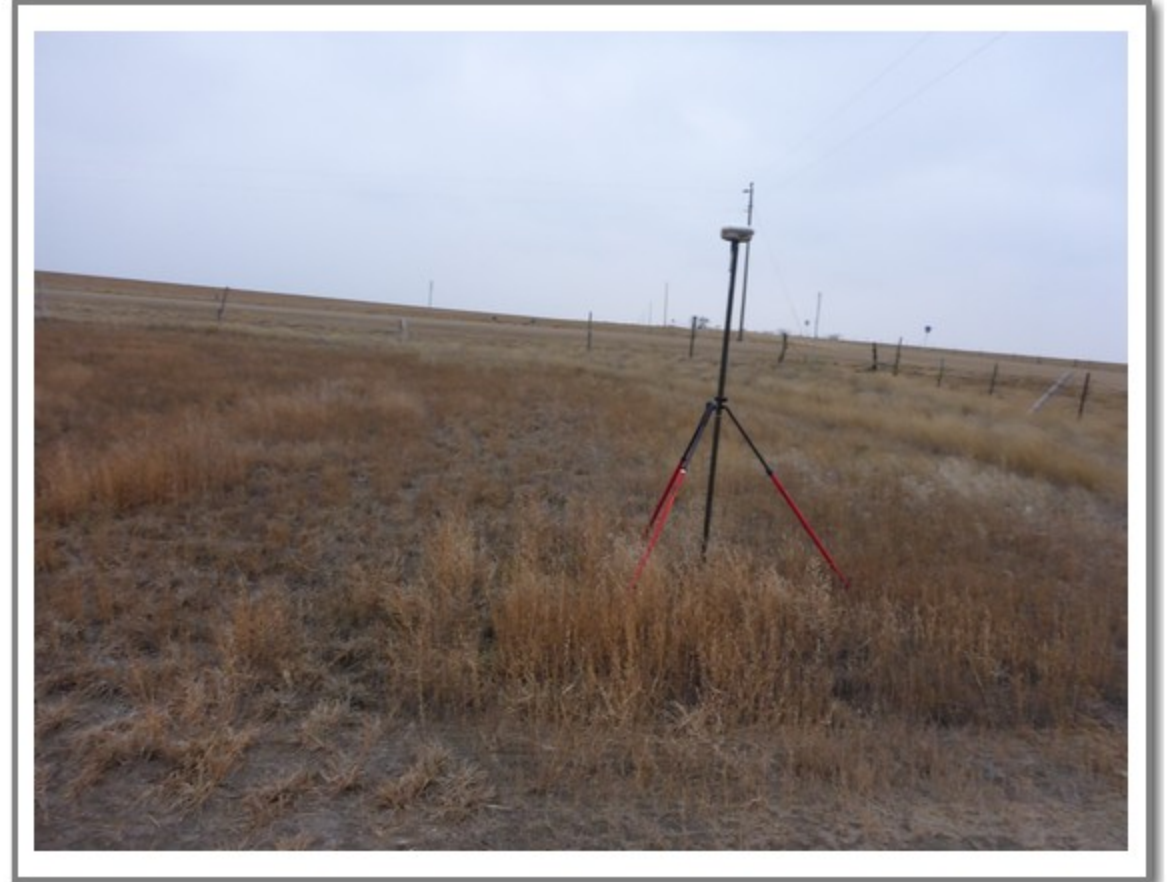
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VVAJ10-1



VVAJ10-2



VVAJ11-1



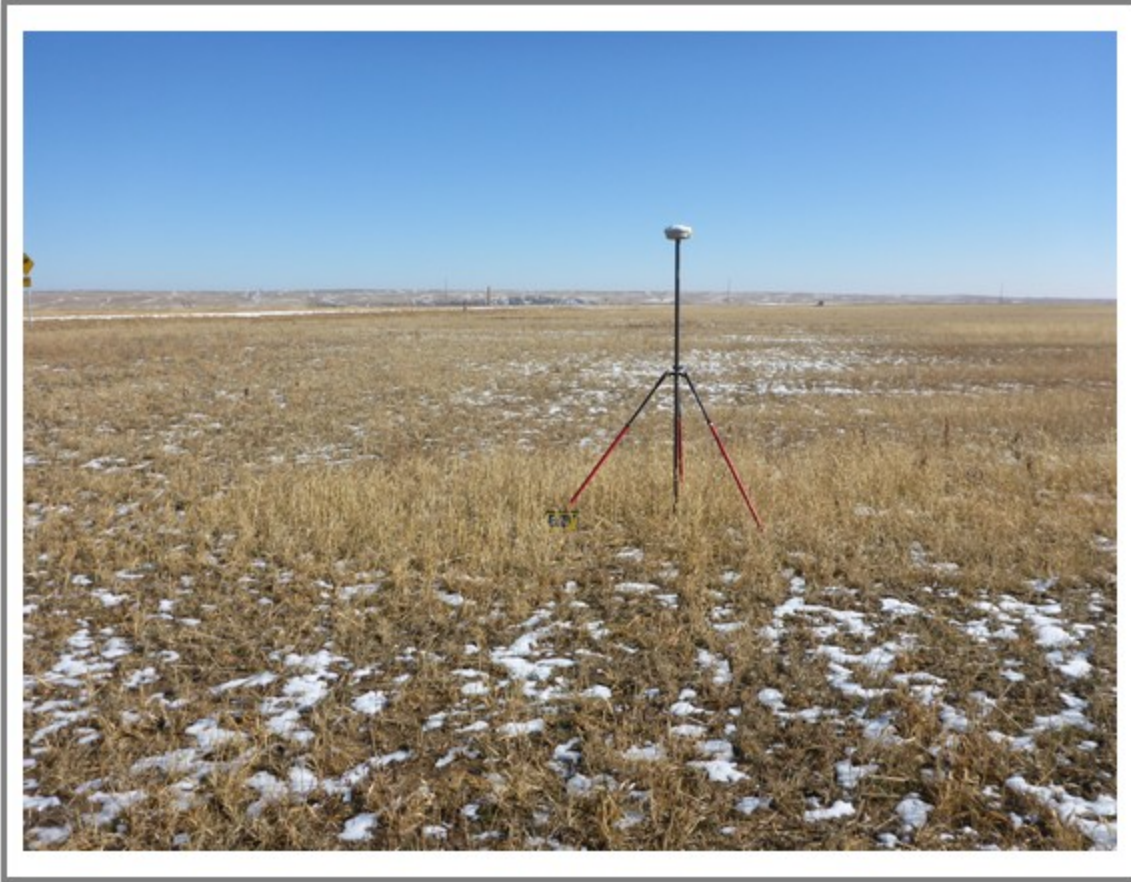
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VVAJ13-1



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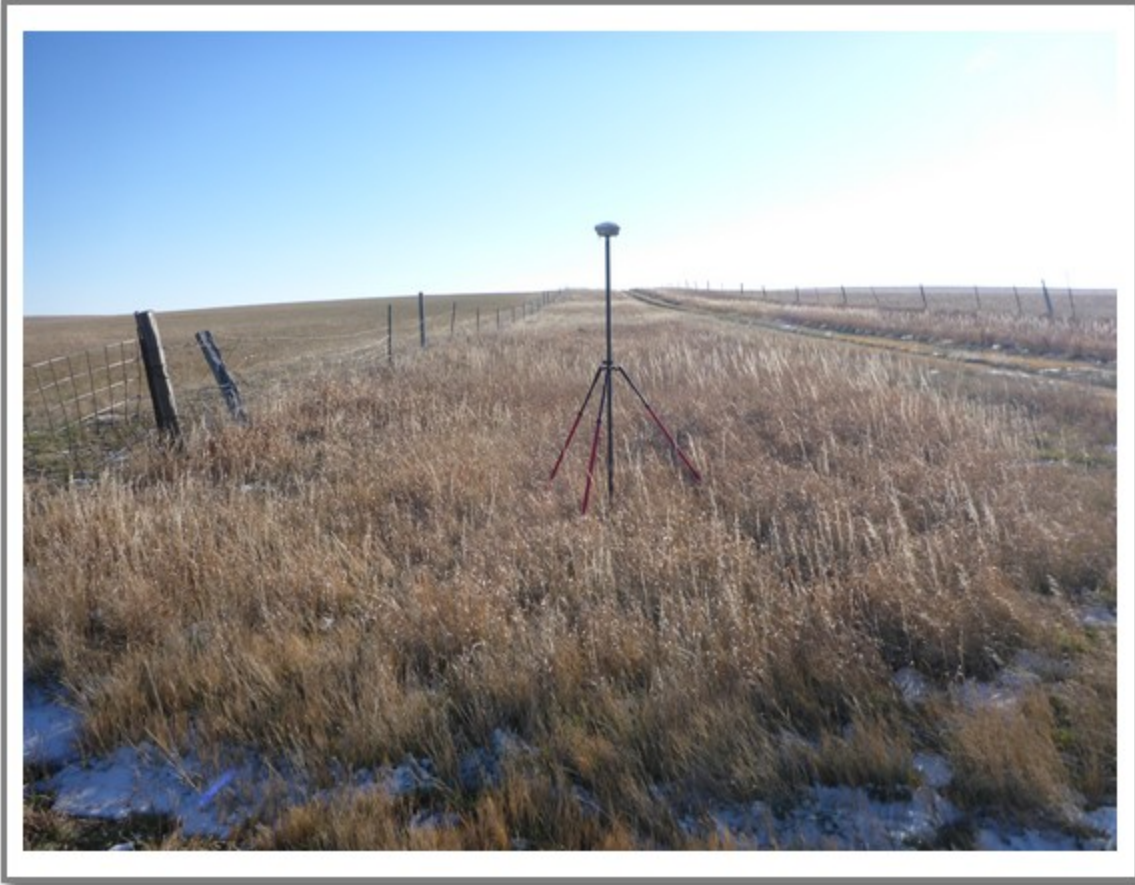
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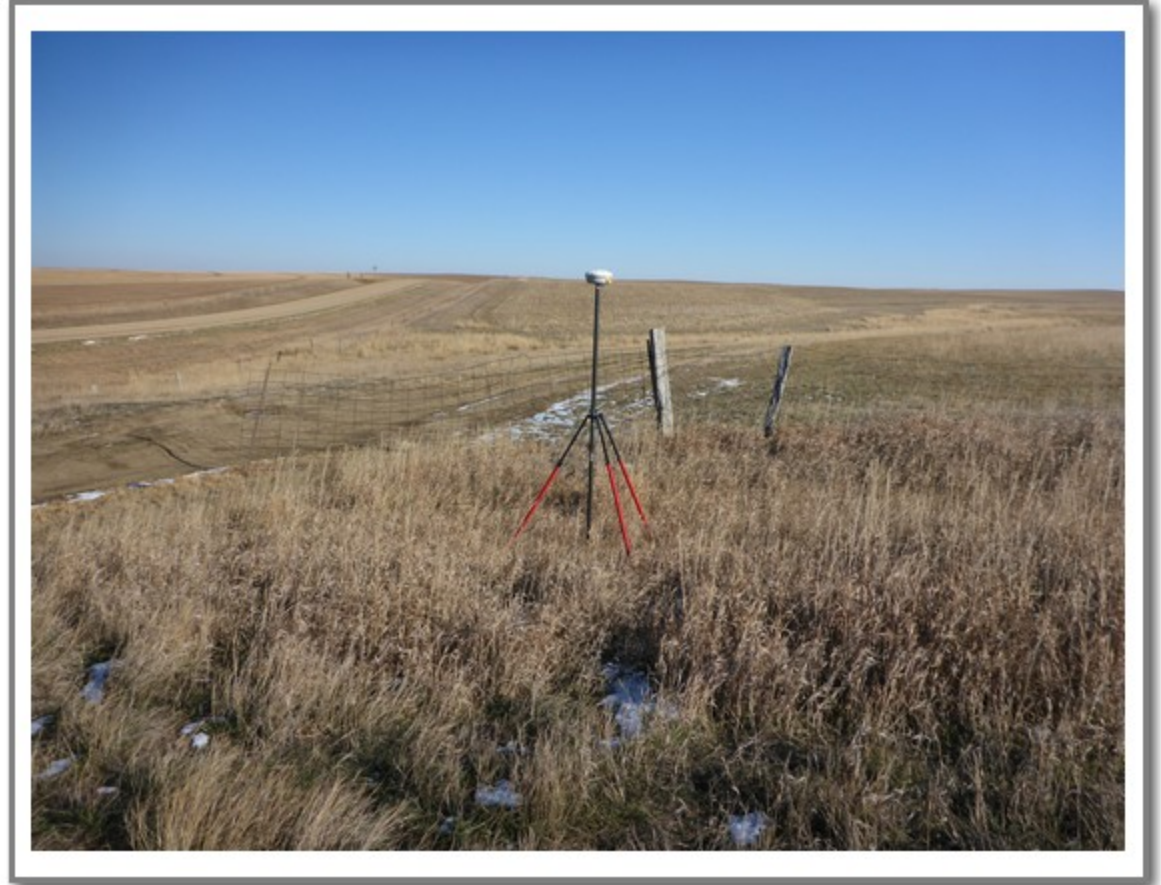
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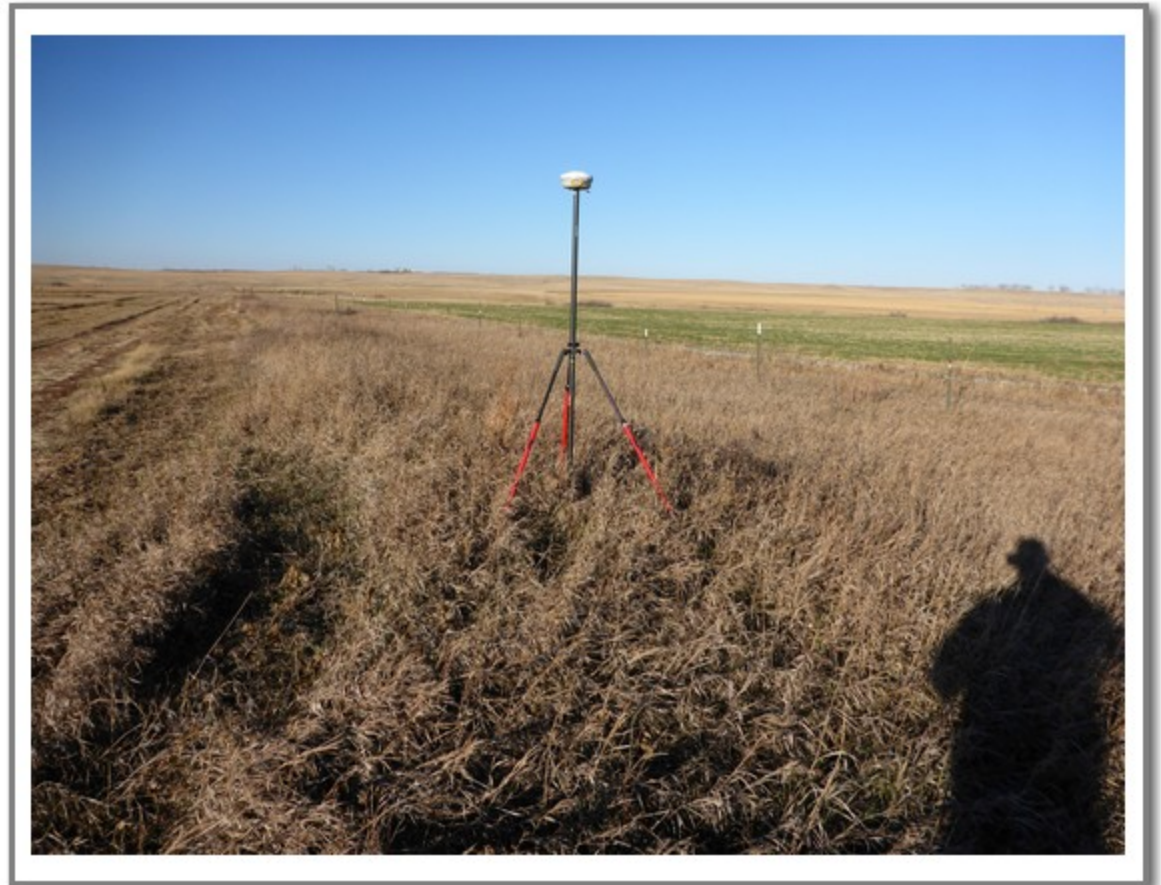
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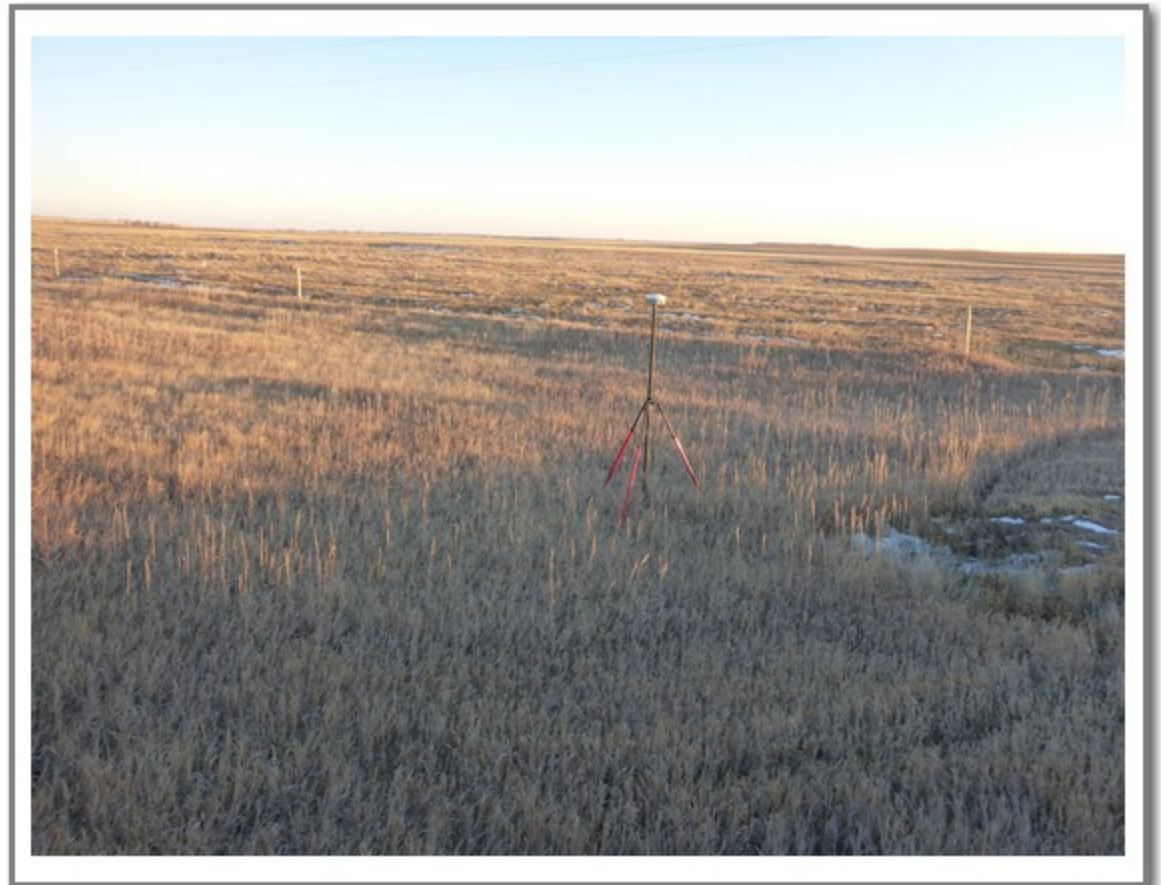
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VVAJ18-2



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VVAJ20-1



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VVAJ21-1



VVAJ21-2



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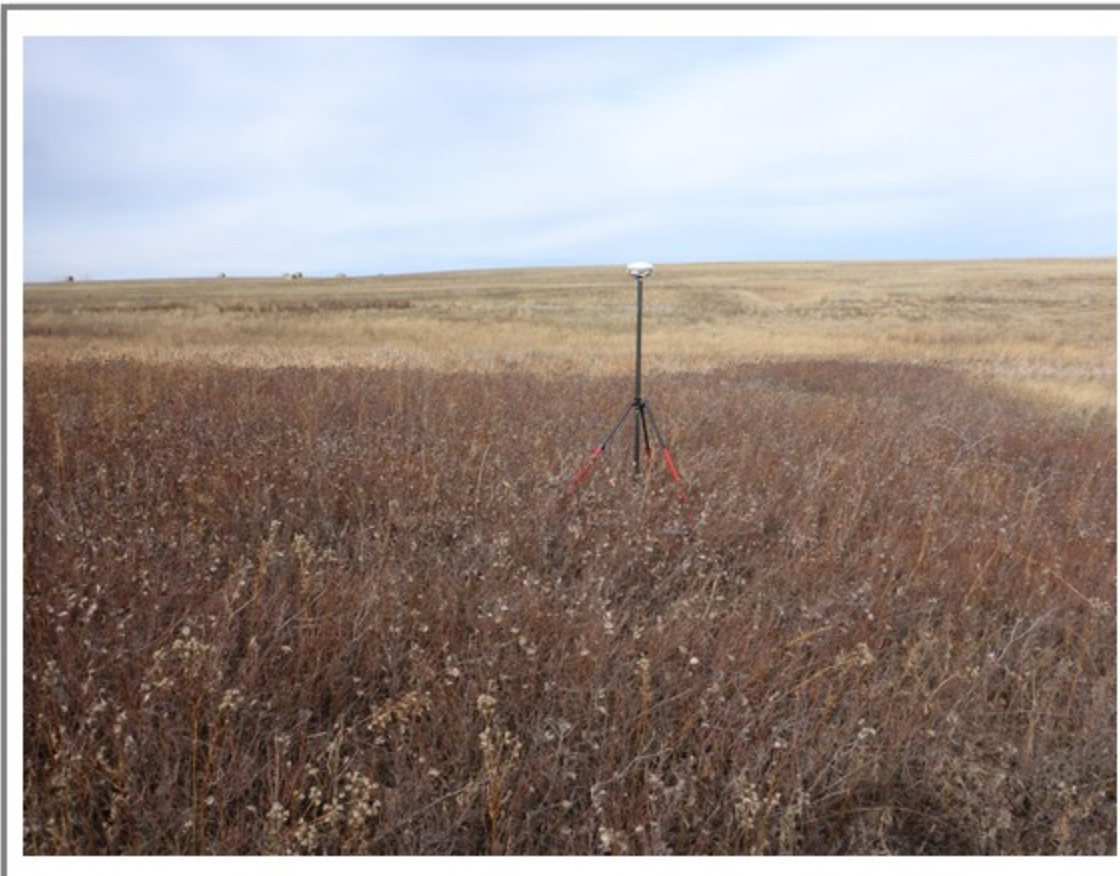
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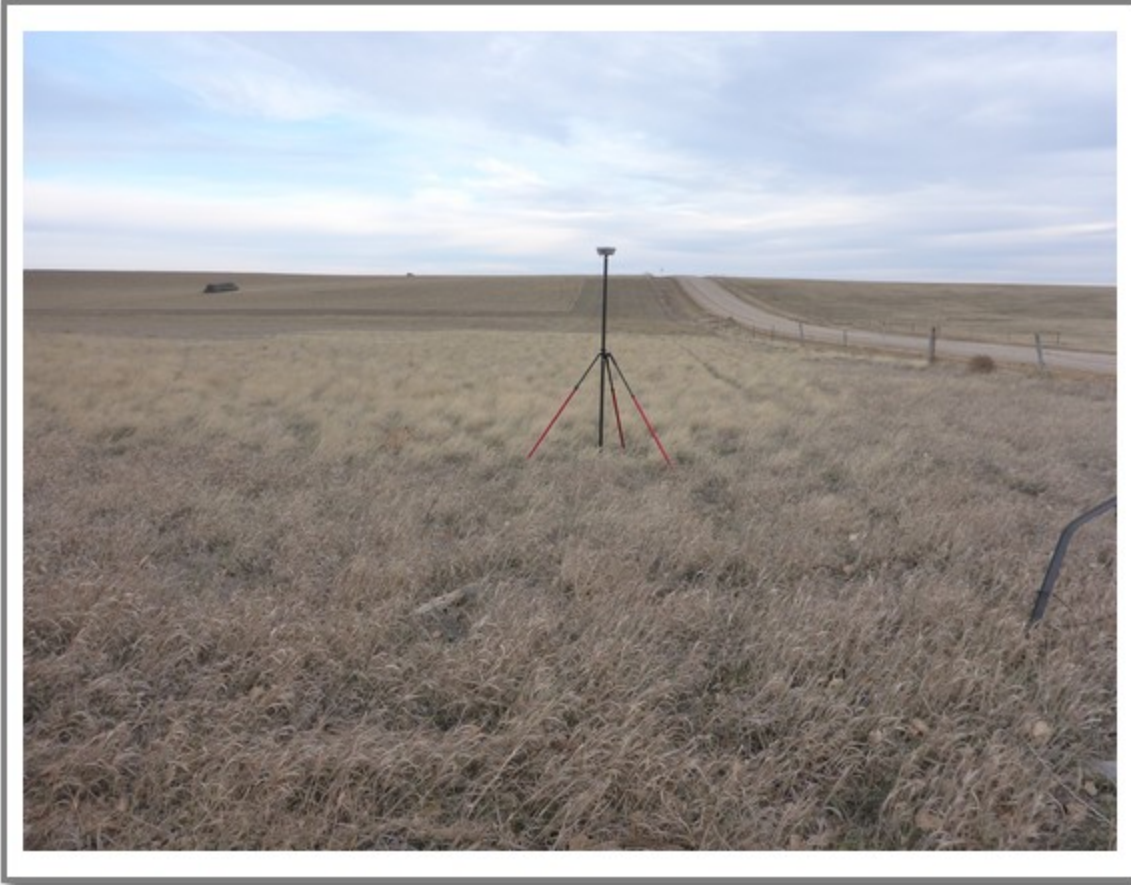
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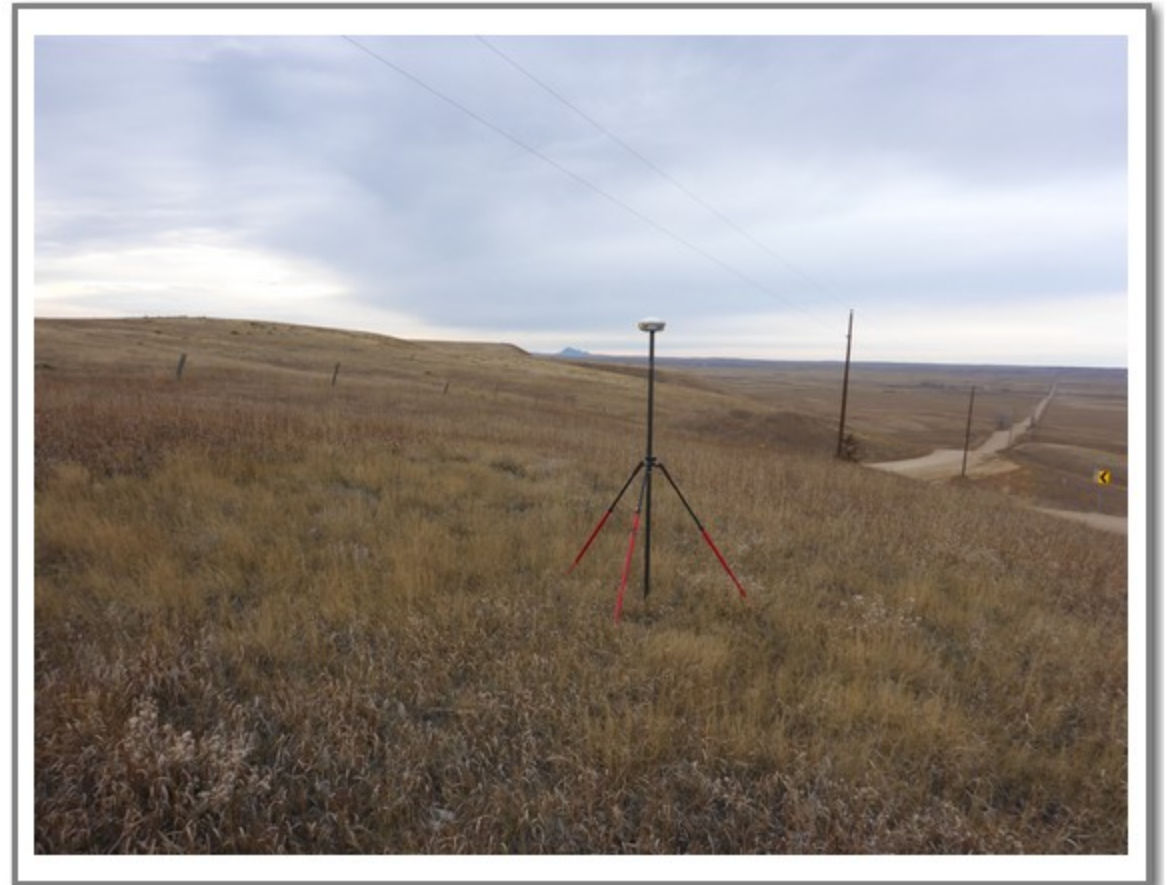
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VVAJ28-1



VVAJ28-2



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VVAJ30-1



VVAJ30-2



VVAJ31-1



VVAJ31-2



VVAJ32-1



VVAJ32-2



VVAJ33-1



VVAJ33-2



VVAJ34-1



VVAJ34-2



VVAJ35-1



VVAJ35-2



VVAJ36-1



VVAJ36-2



VVAJ37-1



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VVAJ39-2



VVAJ40-1



VVAJ40-2



VVAT01-1



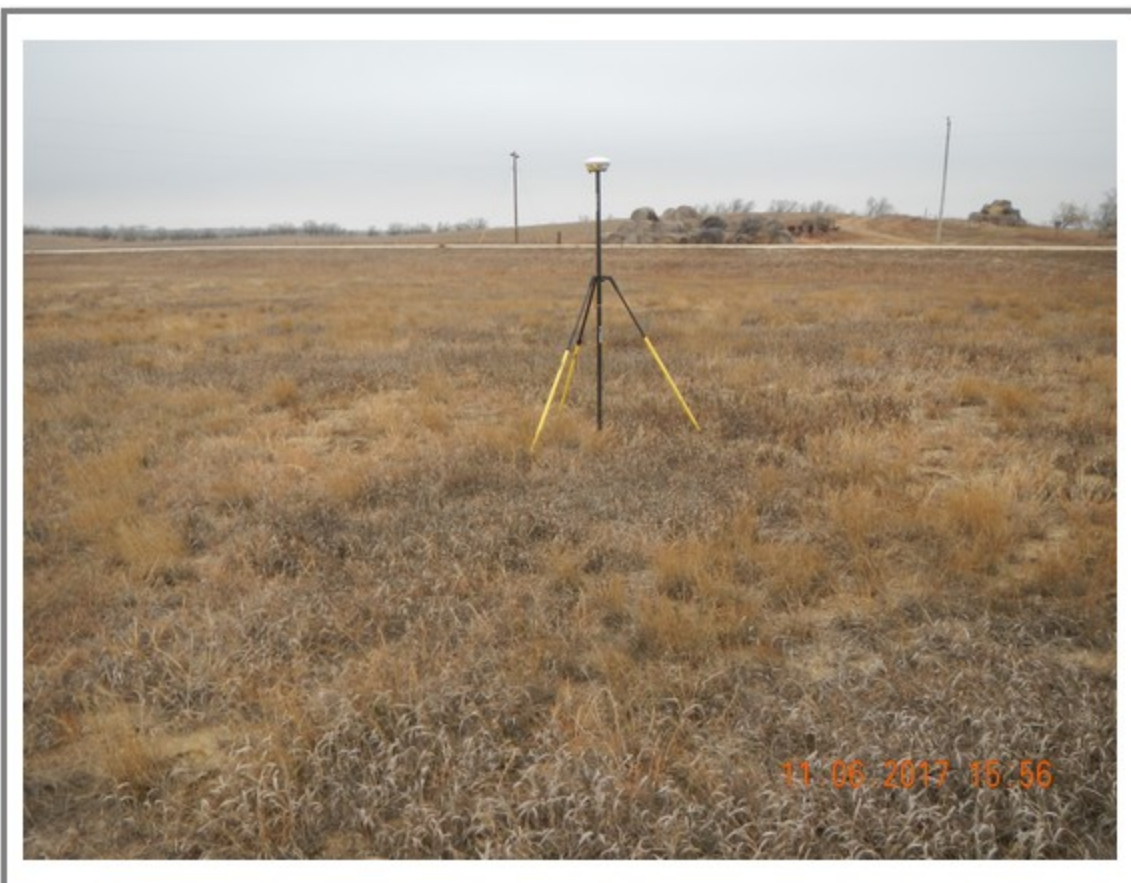
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VVAT03-1



VVAT03-2



VVAT04-1



VVAT04-2



VVAT05-1



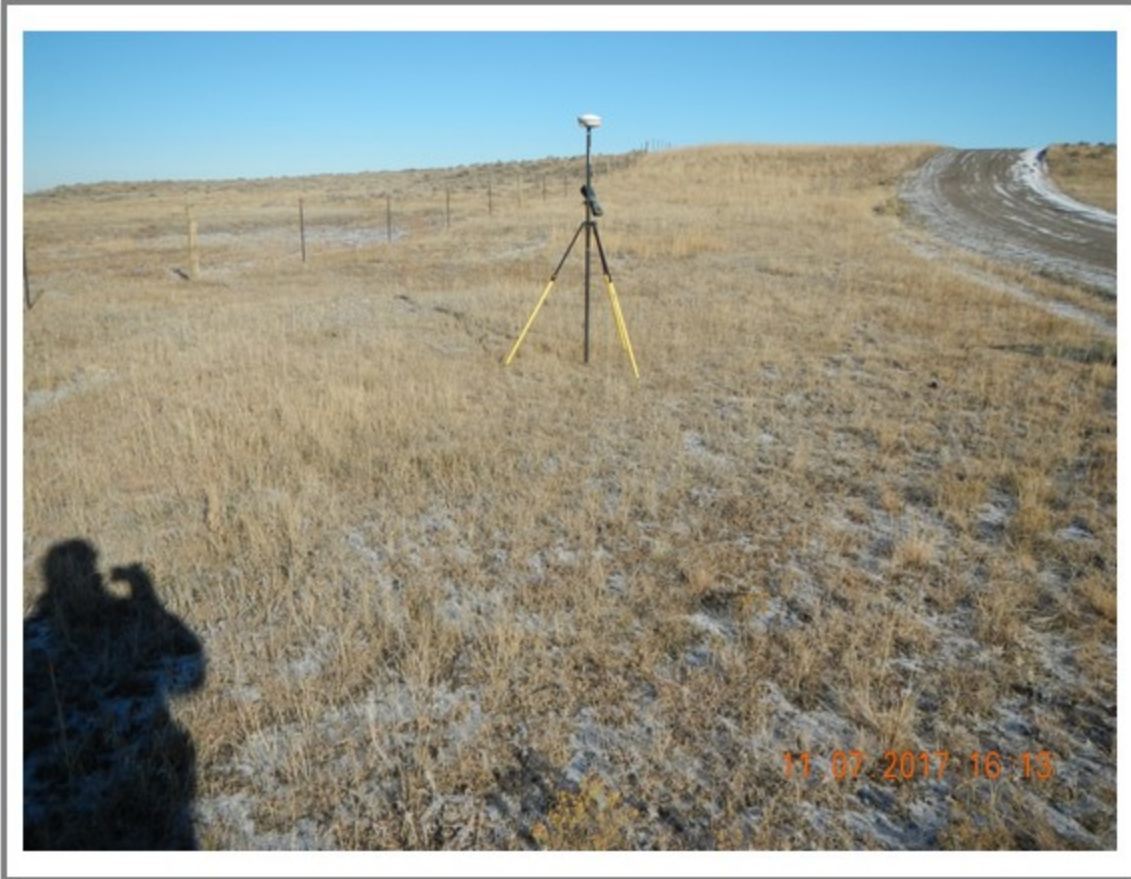
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VVAT06-2



VVAT07-1



VVAT07-2



VVAT08-1



VVAT08-2



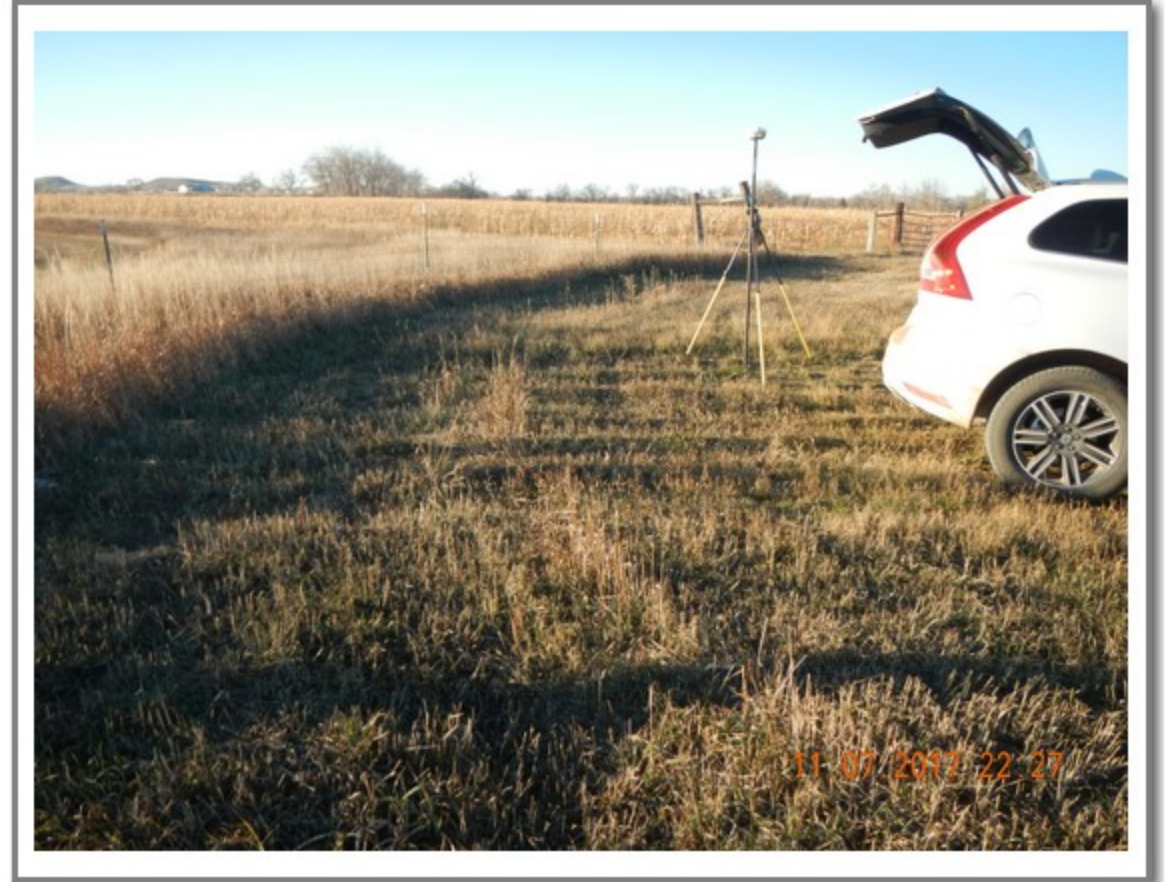
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VVAT10-2



VVAT11-1



VVAT11-2



VVAT12-1



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VVAT13-2



VVAT14-1



VVAT14-2



VVAT15-1



VVAT15-2



VVAT16-1



VVAT16-2



VVAT17-1



VVAT17-2



VVAT18-1



VVAT18-2



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WOODS12-1



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WOODS13-1



WOODS13-2



WOODS14-1



WOODS14-2



WOODS15-1



WOODS15-2