

Survey Control Report

Statewide Digital Elevation Program 2020 LiDAR Collection

**Wayne, Seneca, Yates, Tompkins and Schuyler Counties
New York State**

**Prepared for:
The Sanborn Map Company, Inc.**



May 26, 2020

Edited: July 9, 2020

Introduction	3
Purpose	3
Project Area	3
Date of Survey	3
Datum and Coordinate Reference	4
Ground Control/ Geodetic Coordinate Listing	4
Ground Control Coordinates	4
Quality Check Point Coordinates	5
Survey Report.....	9
Methodology.....	9
Equipment.....	22
Quality Assurance	28
Certification.....	29
Appendix	30
Surveyed Coordinate Maps.....	30
Survey Control Recovery Tie Diagrams.....	34
Existing NGS Data Sheets	59

Introduction

Purpose

The purpose of this survey was to establish three-dimensional coordinates for 155 new control points - 25 Photo ID points, 73 non vegetated (NVA) checkpoints and 57 vegetated (VVA) points checkpoints. During the course of the survey, one additional vegetated checkpoint was surveyed for a total of 58 vegetated points, and 156 overall. Said coordinates were surveyed to support the 2020 LiDAR capture as part of New York State's Statewide Digital Elevation Program (DEP).

Project Area

The project area consisted of approximately 1950 sq. miles located in New York's State Plane Central Zone. The area included parts of Wayne, Seneca, Yates, Schuyler, Steuben and Tompkins counties.

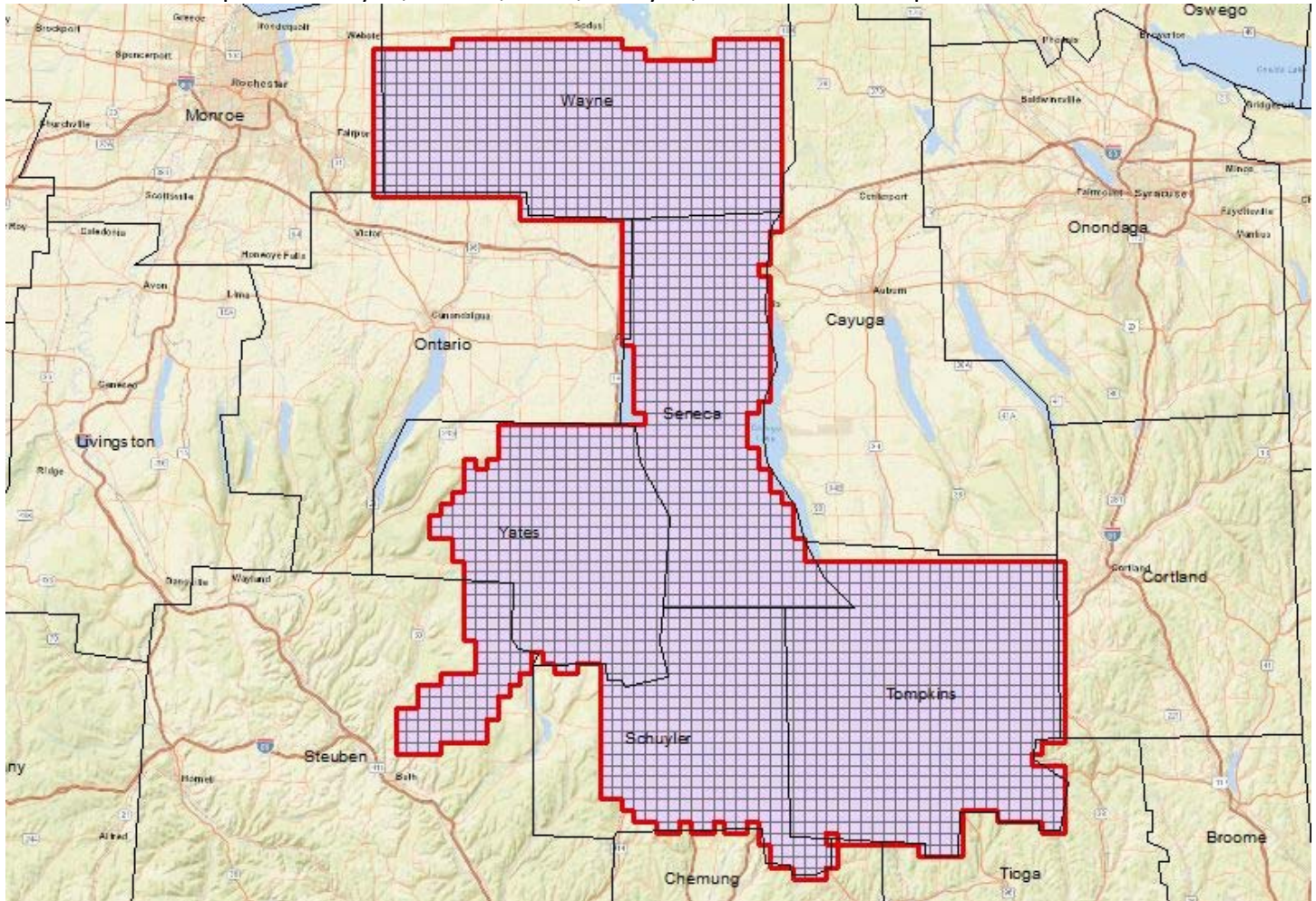


Figure 1. DEP Proposed LiDAR Collection

Date of Survey

Field operations for the project took place between the dates of March 25, 2020 and April 10, 2020.

Datum and Coordinate Reference

The horizontal datum for the project is referenced to NAD 83 (2011), Epoch 2010.0000 UTM Zone 18 North. The vertical datum is referenced to NAVD88 vertical using the geoid model of 2012 (GEOID12B). Coordinate measurements are expressed in meters.

Ground Control/Geodetic Coordinate Listing

Ground Control Coordinates

Table 1 below lists the final calculated coordinates for all ground control points. Survey recovery control documents can be found in the appendix of this document.

Point ID	Northing	Easting	Elevation	Description
GCP001	4771436.180	312590.758	141.086	ASPHALT
GCP002	4787983.651	322523.154	135.262	ASPHALT
GCP003	4779087.243	318302.955	144.189	ASPHALT
GCP004	4694429.811	389082.486	339.959	ASPHALT
GCP005	4716135.073	387865.091	306.911	ASPHALT
GCP006	4710854.704	375742.089	238.773	ASPHALT
GCP007	4701283.546	359334.208	366.114	ASPHALT
GCP008	4688544.702	352823.242	323.823	ASPHALT
GCP009	4709833.572	337735.803	301.873	ASPHALT
GCP010	4720080.445	358779.355	262.840	ASPHALT
GCP011	4718519.903	322885.666	256.582	ASPHALT
GCP012	4693969.379	312395.814	333.293	ASPHALT
GCP013	4727374.530	339561.417	155.720	ASPHALT
GCP014	4691171.071	369003.865	321.179	ASPHALT
GCP015	4742701.425	352227.454	169.669	CONCRETE
GCP016	4751967.476	349647.117	137.629	ASPHALT
GCP017	4758414.415	349448.451	159.684	ASPHALT
GCP018	4767802.771	328791.406	135.481	ASPHALT
GCP019	4783851.476	309518.752	151.915	ASPHALT
GCP020	4769876.362	338761.770	121.317	ASPHALT
GCP021	4769842.010	356709.178	128.680	ASPHALT
GCP022	4786941.698	352692.799	110.877	ASPHALT
GCP023	4786468.973	338976.891	114.026	ASPHALT
GCP024	4771680.856	347650.960	120.241	ASPHALT
GCP025	4775766.399	330845.199	130.526	ASPHALT

Table 1. Final delivered ground control point coordinates.

Quality Check Point Coordinates

Point ID	Northing	Easting	Elevation	Description
NVA001	4775517.852	330888.082	130.093	GRAVEL
NVA002	4767791.879	328736.762	135.633	SHORT GRASS
NVA003	4702332.885	376539.486	117.579	SHORT GRASS
NVA004	4688494.062	352792.456	323.437	GRAVEL
NVA005	4769828.856	338807.787	120.938	ASPHALT
NVA006	4771459.276	312639.083	141.094	SHORT GRASS
NVA007	4767725.226	328796.665	135.515	CONCRETE
NVA008	4769781.360	320760.844	138.788	ASPHALT
NVA009	4727340.059	339545.115	155.992	SHORT GRASS
NVA010	4758538.452	349491.348	160.372	ASPHALT
NVA011	4771633.083	347654.285	120.032	GRAVEL
NVA012	4769825.111	356694.494	127.830	ASPHALT
NVA013	4779065.489	318222.533	144.360	ASPHALT
NVA014	4786440.185	338988.352	114.134	ASPHALT
NVA015	4773960.421	310999.512	167.980	ASPHALT
NVA016	4749001.817	340991.637	140.106	ASPHALT
NVA017	4752001.954	349636.245	137.639	ASPHALT
NVA018	4751723.361	354371.063	140.291	ASPHALT
NVA019	4745804.651	357068.164	136.326	GRAVEL
NVA020	4742700.242	352193.507	169.611	GRAVEL
NVA021	4713768.199	347017.692	263.326	BARE SOIL
NVA022	4712096.295	362485.081	318.204	SHORT GRASS
NVA023	4720161.273	346148.583	136.947	ASPHALT
NVA024	4738994.463	344818.440	177.241	GRAVEL
NVA025	4783296.063	346204.299	116.005	GRAVEL
NVA026	4786952.389	352632.074	113.109	ASPHALT
NVA027	4757241.618	339047.691	153.581	ASPHALT
NVA028	4786914.317	352747.292	112.010	ASPHALT
NVA029	4734853.546	349277.191	220.724	SHORT GRASS
NVA030	4726710.008	350801.603	296.905	ASPHALT
NVA031	4752040.615	349745.343	137.848	ASPHALT
NVA032	4720082.547	358836.879	262.087	ASPHALT
NVA033	4709808.974	337700.198	301.752	ASPHALT
NVA034	4698027.621	347946.638	298.965	ASPHALT
NVA035	4701291.438	359293.649	366.262	GRAVEL
NVA036	4699683.423	365878.270	338.631	GRAVEL
NVA037	4711832.567	368758.797	117.878	ASPHALT
NVA038	4691156.147	368987.527	322.081	CONCRETE
NVA039	4698127.662	377171.404	267.549	SHORT GRASS
NVA040	4687225.952	374066.530	285.680	GRAVEL

Point ID	Northing	Easting	Elevation	Description
NVA041	4683783.855	358641.457	339.088	ASPHALT
NVA042	4698183.193	377119.136	265.216	ASPHALT
NVA043	4694483.228	389129.556	340.638	GRAVEL
NVA044	4701256.640	381537.077	275.948	GRAVEL
NVA045	4704900.233	379776.572	321.615	ASPHALT
NVA046	4710834.004	375708.130	238.738	SHORT GRASS
NVA047	4718337.540	367031.134	221.882	BARE SOIL
NVA048	4685040.230	347431.588	172.628	GRAVEL
NVA049	4691856.185	342190.882	303.902	GRAVEL
NVA050	4699505.187	340995.342	379.542	SHORT GRASS
NVA051	4707052.198	346111.035	257.855	ASPHALT
NVA052	4693948.375	312335.841	334.687	ASPHALT
NVA053	4699930.862	318348.577	426.535	BARE SOIL
NVA054	4704509.933	326011.824	336.695	BARE SOIL
NVA055	4718522.267	322910.357	255.427	SHORT GRASS
NVA056	4783920.296	309503.776	151.035	SHORT GRASS
NVA057	4693779.115	312426.536	339.585	ASPHALT
NVA058	4709881.284	337698.603	301.204	BARE SOIL
NVA059	4727415.771	339545.411	155.912	ASPHALT
NVA060	4710833.056	321686.605	346.880	GRAVEL
NVA061	4719596.406	332857.223	316.392	GRAVEL
NVA062	4723968.281	330993.088	224.191	ASPHALT
NVA063	4725675.481	321065.123	303.511	SHORT GRASS
NVA064	4718540.704	322873.758	256.473	BARE SOIL
NVA065	4710777.154	321686.909	346.571	ASPHALT
NVA066	4704980.734	393302.437	331.659	ASPHALT
NVA067	4716133.174	387813.982	305.287	ASPHALT
NVA068	4718833.823	377219.658	305.056	ASPHALT
NVA069	4704916.692	379892.526	322.323	ASPHALT
NVA070	4705078.090	393425.596	333.071	ASPHALT
NVA071	4704580.326	386227.937	309.723	SHORT GRASS
NVA072	4731310.802	330778.650	337.194	SHORT GRASS
NVA073	4787937.329	322487.106	134.996	ASPHALT
VVA001	4771515.088	312442.906	141.301	FORESTED
VVA002	4773977.541	310973.330	167.431	FORESTED
VVA003	4769841.857	320871.064	138.910	BRUSH
VVA004	4769863.477	338888.089	120.032	BRUSH
VVA005	4786476.609	338997.341	113.925	BRUSH
VVA006	4775508.269	330911.188	129.796	BRUSH
VVA007	4771709.703	347513.729	119.837	FORESTED
VVA008	4769843.019	356730.956	130.520	FORESTED
VVA009	4783873.794	309406.641	156.056	FORESTED

Point ID	Northing	Easting	Elevation	Description
VVA010	4787964.143	322528.028	134.643	BRUSH
VVA012	4786986.232	352630.776	113.280	TALL WEEDS
VVA013	4779051.129	318319.584	142.381	FORESTED
VVA014	4767596.483	328766.105	135.893	FORESTED
VVA015	4713814.149	347029.180	263.819	FORESTED
VVA016	4711782.632	368773.174	117.668	FORESTED
VVA017	4710849.679	375702.799	238.364	FORESTED
VVA018	4693942.116	312461.121	333.224	FORESTED
VVA019	4710493.624	322230.756	316.480	FORESTED
VVA020	4704453.505	326030.680	337.277	FORESTED
VVA021	4699928.707	318358.639	424.374	CROPS
VVA022	4702389.882	376609.325	117.723	FORESTED
VVA023	4683760.899	358749.291	339.192	TALL WEEDS
VVA024	4688571.997	352798.915	323.285	FORESTED
VVA025	4685050.193	347411.960	172.380	TALL WEEDS
VVA026	4698026.658	347934.414	298.707	FORESTED
VVA027	4707055.923	346096.768	257.483	FORESTED
VVA028	4701340.525	359350.421	359.651	TALL WEEDS
VVA029	4698195.261	377146.243	263.812	FORESTED
VVA030	4687198.624	374054.123	283.613	BRUSH
VVA031	4705082.194	393375.846	332.889	FORESTED
VVA032	4718823.798	377236.904	304.413	FORESTED
VVA033	4704918.551	379747.691	322.628	FORESTED
VVA034	4699639.729	365868.703	338.570	BRUSH
VVA035	4694488.948	389112.144	340.444	BRUSH
VVA036	4701264.546	381524.101	275.682	BRUSH
VVA037	4725669.822	321141.317	305.519	FORESTED
VVA038	4699491.227	341007.099	379.485	BRUSH
VVA039	4709868.989	337734.513	302.034	FORESTED
VVA040	4718362.751	367049.945	224.546	BRUSH
VVA041	4712051.535	362506.940	317.905	TALL WEEDS
VVA042	4720139.213	346220.302	138.272	FORESTED
VVA043	4731361.680	330691.914	343.249	FORESTED
VVA044	4718581.149	322889.249	255.560	FORESTED
VVA045	4723941.984	330958.097	223.041	FORESTED
VVA046	4726710.969	350911.187	296.406	FORESTED
VVA047	4720061.055	358827.755	260.971	FORESTED
VVA048	4742660.216	352188.917	169.837	TALL WEEDS
VVA049	4751595.089	354388.498	141.595	FORESTED
VVA050	4734861.331	349300.512	221.901	FORESTED
VVA051	4727259.329	339486.999	153.523	FORESTED
VVA052	4739012.904	344813.951	176.932	BRUSH

Point ID	Northing	Easting	Elevation	Description
VVA053	4752002.269	349610.834	137.243	FORESTED
VVA054	4757249.526	339027.963	152.658	BRUSH
VVA055	4758384.482	349507.544	159.537	BRUSH
VVA056	4691835.308	342186.420	302.936	FORESTED
VVA057	4691139.341	369031.405	322.009	FORESTED
VVA300	4745867.976	357075.840	136.938	TALL WEEDS
VVA301	4748955.273	341013.557	141.950	BRUSH

Table 2. Final delivered quality check points.

Survey Report

Methodology

All coordinates were surveyed using differential dual-frequency Global Positioning System (GPS) receivers. GPS surveys were conducted utilizing real-time kinematic (RTK) survey techniques in accordance with the requirements described in Chapter 10 of the “NYSDOT Land Surveying Standards and Procedures Manual” (<https://www.dot.ny.gov/divisions/engineering/design/designservices/land-survey/standards-procedures>). All GCP’s established are marked with a mag nail, generally at the end or corner of striping, with the exception of GCP001 which is the corner of an existing catch basin, and GCP015 which is the corner of a concrete pad. GdB utilized permanent static GNSS stations from the NYSNet Spatial Reference Network as base stations. Depending on the proximity of the surveyed control point to the closest base station, one of the 5 base stations was used to provide the real-time NYSNET network solution for the coordinate. See table 3 for a full list of base stations used.

NGS Site ID	NYSNet Site #	Position Source	Latitude	Longitude	Ellipsoid Height
NYWL	6	NGS	42.898674	-76.8520284	109.956
NYCP	11	NGS	42.187901	-77.1434246	277.623
NYCL	31	NGS	42.584363	-76.2113313	330.883
NYPF	32	NGS	43.09319	-77.525309	113.481
NYWG	43	NGS	42.351054	-76.8759168	283.562

Table 3. CORs stations used as base stations for RTK survey.

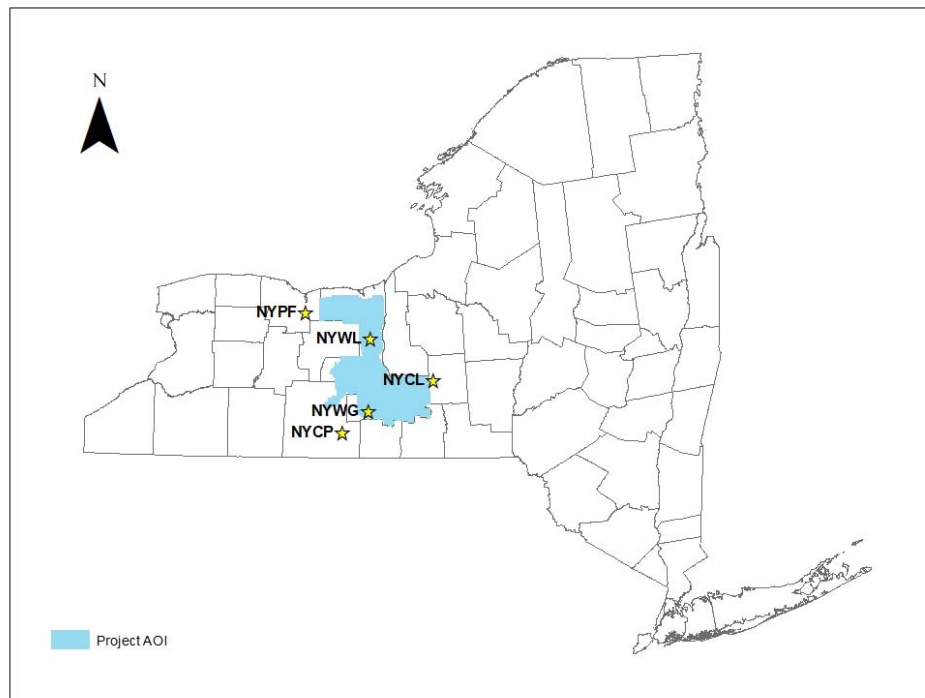


Figure 2. NYSNet Base station locations used for RTK survey.

Independent observations were conducted using a 1-second epoch rate, in a fixed solution RTK mode, on all points over a minimum of a 180 second period. Each occupation was conducted at an antenna height of 2 meter. A minimum of two observations were conducted on each surveyed point. A minimum of 20 minutes was allowed to elapse between observations. The surveyed instrument was removed from the point and re-plumped between each observation. Details about each independent occupation are listed below in table 4.

Point ID	File Name	Session	Satellites Observed	PDOP	HDOP	VDOP	GPS Start Time	GPS End Time	Julian Date	Operator	Receiver Serial Number
AE2168	AE2168A	1	17	1.77	1.02	1.45	Wed, 25 Mar 2020 17:39:32	Wed, 25 Mar 2020 17:42:32	20085	SJ	1122-23494
AE2168	AE2168B	2	24	1.61	0.69	1.45	Wed, 25 Mar 2020 18:01:10	Wed, 25 Mar 2020 18:04:10	20085	SJ	1122-23494
GCP001	GCP001A	1	24	1.14	0.64	0.95	Wed, 25 Mar 2020 16:09:04	Wed, 25 Mar 2020 16:12:05	20085	SJ	1122-23494
GCP001	GCP001B	2	24	1.35	0.70	1.16	Wed, 25 Mar 2020 16:43:36	Wed, 25 Mar 2020 16:46:37	20085	SJ	1122-23494
GCP002	GCP002A	1	14	1.50	0.75	1.30	Wed, 25 Mar 2020 17:29:23	Wed, 25 Mar 2020 17:32:37	20085	JN	1122-23460
GCP002	GCP002B	2	12	2.30	1.02	2.07	Wed, 25 Mar 2020 18:00:18	Wed, 25 Mar 2020 18:03:31	20085	JN	1122-23460
GCP003	GCP003A	1	13	1.60	0.91	1.31	Thu, 26 Mar 2020 13:47:43	Thu, 26 Mar 2020 13:50:55	20086	JN	1122-23460
GCP003	GCP003B	2	14	1.27	0.77	1.01	Thu, 26 Mar 2020 14:13:52	Thu, 26 Mar 2020 14:17:03	20086	JN	1122-23460
GCP004	GCP004A	1	14	1.40	0.84	1.12	Wed, 01 Apr 2020 14:07:36	Wed, 01 Apr 2020 14:10:45	20092	JN	1122-23460
GCP004	GCP004B	2	14	1.56	0.78	1.34	Wed, 01 Apr 2020 14:43:10	Wed, 01 Apr 2020 14:46:20	20092	JN	1122-23460
GCP005	GCP005A	1	22	1.51	0.72	1.33	Thu, 26 Mar 2020 19:09:55	Thu, 26 Mar 2020 19:12:55	20086	SJ	1122-23494
GCP005	GCP005B	2	22	1.45	0.75	1.24	Thu, 26 Mar 2020 19:32:00	Thu, 26 Mar 2020 19:35:00	20086	SJ	1122-23494
GCP006	GCP006A	1	14	1.50	0.87	1.22	Tue, 31 Mar 2020 19:11:36	Tue, 31 Mar 2020 19:14:47	20091	JN	1122-23460
GCP006	GCP006B	2	14	1.17	0.70	0.94	Tue, 31 Mar 2020 19:41:16	Tue, 31 Mar 2020 19:44:26	20091	JN	1122-23460
GCP007	GCP007A	1	21	1.54	0.78	1.33	Wed, 01 Apr 2020 16:18:31	Wed, 01 Apr 2020 16:21:31	20092	SJ	1122-23494
GCP007	GCP007B	2	22	1.89	0.87	1.68	Wed, 01 Apr 2020 16:41:32	Wed, 01 Apr 2020 16:44:32	20092	SJ	1122-23494
GCP008	GCP008A	1	16	1.14	0.64	0.94	Fri, 27 Mar 2020 16:20:21	Fri, 27 Mar 2020 16:23:31	20087	JN	1122-23460
GCP008	GCP008B	2	16	1.37	0.68	1.19	Fri, 27 Mar 2020 16:56:03	Fri, 27 Mar 2020 16:59:31	20087	JN	1122-23460
GCP009	GCP009A	1	20	1.60	0.82	1.37	Mon, 30 Mar 2020 18:52:01	Mon, 30 Mar 2020 18:55:02	20090	SJ	1122-23494
GCP009	GCP009B	2	21	1.54	0.85	1.28	Mon, 30 Mar 2020 19:18:28	Mon, 30 Mar 2020 19:21:28	20090	SJ	1122-23494
GCP010	GCP010A	1	19	1.47	0.87	1.18	Wed, 01 Apr 2020 14:06:26	Wed, 01 Apr 2020 14:09:26	20092	SJ	1122-23494
GCP010	GCP010B	2	21	1.52	0.79	1.29	Wed, 01 Apr 2020 14:33:08	Wed, 01 Apr 2020 14:36:08	20092	SJ	1122-23494
GCP011	GCP011A	1	22	1.39	0.81	1.14	Thu, 02 Apr 2020 19:41:24	Thu, 02 Apr 2020 19:44:24	20093	SJ	1122-23494
GCP011	GCP011B	2	20	1.41	0.81	1.16	Thu, 02 Apr 2020 20:14:20	Thu, 02 Apr 2020 20:17:20	20093	SJ	1122-23494
GCP012	GCP012A	1	21	1.86	0.83	1.66	Thu, 02 Apr 2020 16:54:08	Thu, 02 Apr 2020 16:57:08	20093	SJ	1122-23494
GCP012	GCP012B	2	21	1.43	0.67	1.26	Thu, 02 Apr 2020 17:40:15	Thu, 02 Apr 2020 17:43:15	20093	SJ	1122-23494
GCP013	GCP013A	1	23	1.71	0.73	1.55	Fri, 03 Apr 2020 17:13:43	Fri, 03 Apr 2020 17:16:44	20094	SJ	1122-23494
GCP013	GCP013B	2	22	1.54	0.74	1.35	Fri, 03 Apr 2020 17:50:21	Fri, 03 Apr 2020 17:53:21	20094	SJ	1122-23494
GCP014	GCP014A	1	13	1.80	0.86	1.58	Wed, 01 Apr 2020 16:34:55	Wed, 01 Apr 2020 16:38:06	20092	JN	1122-23460
GCP014	GCP014B	2	12	1.76	0.85	1.54	Wed, 01 Apr 2020 17:23:59	Wed, 01 Apr 2020 17:27:09	20092	JN	1122-23460
GCP015	GCP015A	1	12	2.20	0.99	1.97	Mon, 30 Mar 2020 17:02:30	Mon, 30 Mar 2020 17:05:41	20090	JN	1122-23460
GCP015	GCP015B	2	14	1.79	0.76	1.63	Mon, 30 Mar 2020 17:30:35	Mon, 30 Mar 2020 17:33:46	20090	JN	1122-23460
GCP016	GCP016A	1	16	1.21	0.67	1.01	Thu, 02 Apr 2020 16:00:05	Thu, 02 Apr 2020 16:03:16	20093	JN	1122-23460
GCP016	GCP016B	2	15	1.52	0.75	1.33	Thu, 02 Apr 2020 16:31:09	Thu, 02 Apr 2020 16:34:19	20093	JN	1122-23460
GCP017	GCP017A	1	14	1.48	0.67	1.32	Thu, 02 Apr 2020 17:24:52	Thu, 02 Apr 2020 17:28:03	20093	JN	1122-23460

Point ID	File Name	Session	Satellites Observed	PDOP	HDOP	VDOP	GPS Start Time	GPS End Time	Julian Date	Operator	Receiver Serial Number
GCP017	GCP017B	2	13	1.52	0.78	1.30	Thu, 02 Apr 2020 18:08:36	Thu, 02 Apr 2020 18:11:48	20093	JN	1122-23460
GCP018	GCP018A	1	19	1.47	0.80	1.23	Wed, 25 Mar 2020 19:55:42	Wed, 25 Mar 2020 19:58:42	20085	SJ	1122-23494
GCP018	GCP018B	2	19	1.60	0.82	1.38	Wed, 25 Mar 2020 21:13:12	Wed, 25 Mar 2020 21:17:12	20085	SJ	1122-23494
GCP019	GCP019A	1	13	1.55	0.88	1.28	Wed, 25 Mar 2020 15:19:06	Wed, 25 Mar 2020 15:22:18	20085	JN	1122-23460
GCP019	GCP019B	2	14	1.32	0.74	1.09	Wed, 25 Mar 2020 16:01:17	Wed, 25 Mar 2020 16:04:27	20085	JN	1122-23460
GCP020	GCP020A	1	14	1.45	0.79	1.21	Thu, 26 Mar 2020 21:33:06	Thu, 26 Mar 2020 21:36:14	20086	JN	1122-23460
GCP020	GCP020B	2	14	1.40	0.78	1.16	Thu, 26 Mar 2020 22:02:40	Thu, 26 Mar 2020 22:05:53	20086	JN	1122-23460
GCP021	GCP021A	1	12	1.46	0.88	1.17	Thu, 26 Mar 2020 23:39:52	Thu, 26 Mar 2020 23:43:00	20086	JN	1122-23460
GCP021	GCP021C	2	15	1.35	0.76	1.12	Fri, 27 Mar 2020 00:18:28	Fri, 27 Mar 2020 00:20:55	20087	JN	1122-23460
GCP022	GCP022A	1	13	1.44	0.81	1.20	Wed, 25 Mar 2020 20:53:26	Wed, 25 Mar 2020 20:56:35	20085	JN	1122-23460
GCP022	GCP022C	2	14	1.29	0.74	1.05	Wed, 25 Mar 2020 21:51:33	Wed, 25 Mar 2020 21:54:43	20085	JN	1122-23460
GCP023	GCP023A	1	14	1.88	0.81	1.70	Wed, 25 Mar 2020 18:41:52	Wed, 25 Mar 2020 18:44:58	20085	JN	1122-23460
GCP023	GCP023B	2	16	1.52	0.70	1.35	Wed, 25 Mar 2020 19:09:59	Wed, 25 Mar 2020 19:13:09	20085	JN	1122-23460
GCP024	GCP024A	1	9	2.31	1.16	2.00	Thu, 26 Mar 2020 22:35:15	Thu, 26 Mar 2020 22:38:26	20086	JN	1122-23460
GCP024	GCP024B	2	15	1.60	0.90	1.32	Thu, 26 Mar 2020 23:07:58	Thu, 26 Mar 2020 23:11:05	20086	JN	1122-23460
GCP025	GCP025B	1	10	2.02	0.98	1.77	Thu, 26 Mar 2020 15:44:27	Thu, 26 Mar 2020 15:47:32	20086	JN	1122-23460
GCP025	GCP025C	2	17	1.09	0.61	0.90	Thu, 26 Mar 2020 16:08:50	Thu, 26 Mar 2020 16:12:02	20086	JN	1122-23460
NB0611	NB0611A	1	22	1.28	0.69	1.08	Thu, 26 Mar 2020 14:38:45	Thu, 26 Mar 2020 14:41:36	20086	SJ	1122-23494
NB0611	NB0611C	2	23	1.38	0.71	1.19	Thu, 26 Mar 2020 15:18:26	Thu, 26 Mar 2020 15:21:26	20086	SJ	1122-23494
NB1027	NB1027C	1	18	1.72	1.03	1.38	Mon, 30 Mar 2020 20:06:54	Mon, 30 Mar 2020 20:09:56	20090	SJ	1122-23494
NB1027	NB1027D	2	19	1.59	0.92	1.30	Mon, 30 Mar 2020 20:29:42	Mon, 30 Mar 2020 20:32:52	20090	SJ	1122-23494
NB1641	NB1641A	1	14	1.41	0.81	1.15	Tue, 31 Mar 2020 20:13:18	Tue, 31 Mar 2020 20:16:26	20091	JN	1122-23460
NB1641	NB1641B	2	14	1.39	0.76	1.16	Tue, 31 Mar 2020 20:38:11	Tue, 31 Mar 2020 20:41:19	20091	JN	1122-23460
NB1654	NB1654A	1	22	1.18	0.69	0.96	Thu, 26 Mar 2020 16:12:12	Thu, 26 Mar 2020 16:16:13	20086	SJ	1122-23494
NB1654	NB1654B	2	22	1.38	0.72	1.17	Thu, 26 Mar 2020 16:36:40	Thu, 26 Mar 2020 16:40:41	20086	SJ	1122-23494
NB2146	NB2146A	1	14	1.84	0.97	1.57	Wed, 01 Apr 2020 21:22:16	Wed, 01 Apr 2020 21:25:25	20092	JN	1122-23460
NB2146	NB2146B	2	14	1.45	0.86	1.17	Thu, 02 Apr 2020 13:21:41	Thu, 02 Apr 2020 13:24:46	20093	JN	1122-23460
NVA001	NVA001A	1	14	1.47	0.73	1.28	Thu, 26 Mar 2020 15:17:30	Thu, 26 Mar 2020 15:20:41	20086	JN	1122-23460
NVA001	NVA001B	2	14	1.47	0.79	1.24	Thu, 26 Mar 2020 15:52:22	Thu, 26 Mar 2020 15:55:30	20086	JN	1122-23460
NVA002	NVA002A	1	19	1.36	0.77	1.12	Wed, 25 Mar 2020 20:04:47	Wed, 25 Mar 2020 20:07:47	20085	SJ	1122-23494
NVA002	NVA002B	2	19	1.59	0.81	1.37	Wed, 25 Mar 2020 21:20:27	Wed, 25 Mar 2020 21:23:28	20085	SJ	1122-23494
NVA003	NVA003A	1	15	1.55	0.72	1.37	Wed, 01 Apr 2020 18:44:02	Wed, 01 Apr 2020 18:47:13	20092	JN	1122-23460
NVA003	NVA003B	2	15	1.34	0.69	1.15	Wed, 01 Apr 2020 19:07:44	Wed, 01 Apr 2020 19:10:53	20092	JN	1122-23460
NVA004	NVA004A	1	16	1.32	0.66	1.15	Fri, 27 Mar 2020 16:37:11	Fri, 27 Mar 2020 16:40:18	20087	JN	1122-23460
NVA004	NVA004B	2	14	1.74	0.79	1.55	Fri, 27 Mar 2020 17:05:46	Fri, 27 Mar 2020 17:08:59	20087	JN	1122-23460
NVA005	NVA005A	1	14	1.39	0.78	1.15	Thu, 26 Mar 2020 21:40:35	Thu, 26 Mar 2020 21:43:45	20086	JN	1122-23460
NVA005	NVA005B	2	14	1.48	0.80	1.25	Thu, 26 Mar 2020 22:07:42	Thu, 26 Mar 2020 22:10:53	20086	JN	1122-23460
NVA006	NVA006A	1	23	1.26	0.72	1.03	Wed, 25 Mar 2020 15:57:49	Wed, 25 Mar 2020 16:00:49	20085	SJ	1122-23494
NVA006	NVA006B	2	23	1.13	0.64	0.93	Wed, 25 Mar 2020 16:30:03	Wed, 25 Mar 2020 16:33:03	20085	SJ	1122-23494
NVA007	NVA007A	1	18	1.58	0.90	1.29	Wed, 25 Mar 2020 20:13:18	Wed, 25 Mar 2020 20:16:18	20085	SJ	1122-23494

Point ID	File Name	Session	Satellites Observed	PDOP	HDOP	VDOP	GPS Start Time	GPS End Time	Julian Date	Operator	Receiver Serial Number
NVA007	NVA007B	2	18	1.57	0.80	1.35	Wed, 25 Mar 2020 21:26:54	Wed, 25 Mar 2020 21:29:54	20085	SJ	1122-23494
NVA008	NVA008A	1	21	1.46	0.71	1.28	Wed, 25 Mar 2020 18:35:10	Wed, 25 Mar 2020 18:38:10	20085	SJ	1122-23494
NVA008	NVA008B	2	23	1.60	0.74	1.42	Wed, 25 Mar 2020 18:59:38	Wed, 25 Mar 2020 19:02:38	20085	SJ	1122-23494
NVA009	NVA009A	1	22	1.73	0.73	1.57	Fri, 03 Apr 2020 17:33:30	Fri, 03 Apr 2020 17:36:30	20094	SJ	1122-23494
NVA009	NVA009B	2	22	1.44	0.73	1.24	Fri, 03 Apr 2020 18:02:28	Fri, 03 Apr 2020 18:05:28	20094	SJ	1122-23494
NVA010	NVA010A	1	14	1.65	0.71	1.49	Thu, 02 Apr 2020 17:41:05	Thu, 02 Apr 2020 17:44:16	20093	JN	1122-23460
NVA010	NVA010B	2	14	1.65	0.80	1.45	Thu, 02 Apr 2020 18:21:30	Thu, 02 Apr 2020 18:24:36	20093	JN	1122-23460
NVA011	NVA011A	1	14	1.76	0.89	1.52	Thu, 26 Mar 2020 22:44:30	Thu, 26 Mar 2020 22:47:38	20086	JN	1122-23460
NVA011	NVA011B	2	15	1.59	0.90	1.30	Thu, 26 Mar 2020 23:12:42	Thu, 26 Mar 2020 23:15:50	20086	JN	1122-23460
NVA012	NVA012C	1	13	1.44	0.75	1.23	Thu, 02 Apr 2020 19:05:20	Thu, 02 Apr 2020 19:08:32	20093	JN	1122-23460
NVA012	NVA012D	2	14	1.45	0.81	1.20	Thu, 02 Apr 2020 19:28:59	Thu, 02 Apr 2020 19:32:11	20093	JN	1122-23460
NVA013	NVA013A	1	15	1.19	0.71	0.96	Thu, 26 Mar 2020 13:39:03	Thu, 26 Mar 2020 13:42:12	20086	JN	1122-23460
NVA013	NVA013B	2	11	2.45	1.01	2.23	Thu, 26 Mar 2020 14:04:59	Thu, 26 Mar 2020 14:08:12	20086	JN	1122-23460
NVA014	NVA014A	1	15	1.66	0.76	1.47	Wed, 25 Mar 2020 18:53:09	Wed, 25 Mar 2020 18:56:18	20085	JN	1122-23460
NVA014	NVA014B	2	14	1.58	0.75	1.39	Wed, 25 Mar 2020 19:18:57	Wed, 25 Mar 2020 19:22:07	20085	JN	1122-23460
NVA015	NVA015A	1	20	1.45	0.78	1.23	Wed, 25 Mar 2020 14:42:47	Wed, 25 Mar 2020 14:45:47	20085	SJ	1122-23494
NVA015	NVA015B	2	20	1.46	0.76	1.25	Wed, 25 Mar 2020 15:08:01	Wed, 25 Mar 2020 15:11:01	20085	SJ	1122-23494
NVA016	NVA016A	1	14	1.44	0.75	1.23	Thu, 02 Apr 2020 14:43:17	Thu, 02 Apr 2020 14:46:26	20093	JN	1122-23460
NVA016	NVA016B	2	13	1.52	0.86	1.26	Thu, 02 Apr 2020 15:11:15	Thu, 02 Apr 2020 15:14:27	20093	JN	1122-23460
NVA017	NVA017A	1	15	1.31	0.69	1.11	Thu, 02 Apr 2020 16:09:51	Thu, 02 Apr 2020 16:13:04	20093	JN	1122-23460
NVA017	NVA017B	2	14	1.77	0.83	1.56	Thu, 02 Apr 2020 16:35:59	Thu, 02 Apr 2020 16:39:07	20093	JN	1122-23460
NVA018	NVA018A	1	13	1.56	0.80	1.34	Mon, 30 Mar 2020 19:06:41	Mon, 30 Mar 2020 19:09:51	20090	JN	1122-23460
NVA018	NVA018B	2	12	1.67	0.88	1.42	Mon, 30 Mar 2020 19:29:35	Mon, 30 Mar 2020 19:32:47	20090	JN	1122-23460
NVA019	NVA019A	1	13	1.65	0.79	1.44	Mon, 30 Mar 2020 18:11:12	Mon, 30 Mar 2020 18:14:24	20090	JN	1122-23460
NVA019	NVA019B	2	14	1.66	0.79	1.46	Mon, 30 Mar 2020 18:36:59	Mon, 30 Mar 2020 18:40:12	20090	JN	1122-23460
NVA020	NVA020A	1	13	1.79	0.86	1.56	Mon, 30 Mar 2020 17:09:18	Mon, 30 Mar 2020 17:12:29	20090	JN	1122-23460
NVA020	NVA020B	2	14	1.82	0.75	1.65	Mon, 30 Mar 2020 17:35:14	Mon, 30 Mar 2020 17:38:26	20090	JN	1122-23460
NVA021	NVA021A	1	22	1.40	0.75	1.18	Fri, 27 Mar 2020 16:56:36	Fri, 27 Mar 2020 16:59:36	20087	SJ	1122-23494
NVA021	NVA021B	2	21	1.46	0.75	1.25	Fri, 27 Mar 2020 17:19:46	Fri, 27 Mar 2020 17:22:46	20087	SJ	1122-23494
NVA022	NVA022A	1	22	1.83	0.86	1.61	Wed, 01 Apr 2020 15:19:34	Wed, 01 Apr 2020 15:22:35	20092	SJ	1122-23494
NVA022	NVA022B	2	22	1.19	0.65	1.00	Wed, 01 Apr 2020 15:42:43	Wed, 01 Apr 2020 15:45:43	20092	SJ	1122-23494
NVA023	NVA023A	1	20	1.66	0.89	1.41	Fri, 27 Mar 2020 15:42:26	Fri, 27 Mar 2020 15:45:26	20087	SJ	1122-23494
NVA023	NVA023C	2	21	1.52	0.79	1.30	Fri, 27 Mar 2020 16:29:18	Fri, 27 Mar 2020 16:33:19	20087	SJ	1122-23494
NVA024	NVA024A	1	16	1.19	0.67	0.99	Mon, 30 Mar 2020 13:20:57	Mon, 30 Mar 2020 13:24:11	20090	JN	1122-23460
NVA024	NVA024B	2	12	1.56	0.90	1.27	Mon, 30 Mar 2020 13:47:26	Mon, 30 Mar 2020 13:50:34	20090	JN	1122-23460
NVA025	NVA025A	1	14	1.48	0.80	1.25	Wed, 25 Mar 2020 19:47:12	Wed, 25 Mar 2020 19:50:22	20085	JN	1122-23460
NVA025	NVA025B	2	13	1.58	0.90	1.30	Wed, 25 Mar 2020 20:11:30	Wed, 25 Mar 2020 20:14:38	20085	JN	1122-23460
NVA026	NVA026A	1	13	1.77	0.88	1.53	Wed, 25 Mar 2020 21:12:39	Wed, 25 Mar 2020 21:15:49	20085	JN	1122-23460
NVA026	NVA026B	2	14	1.51	0.79	1.28	Wed, 25 Mar 2020 21:36:19	Wed, 25 Mar 2020 21:39:29	20085	JN	1122-23460
NVA027	NVA027A	1	7	2.55	1.19	2.26	Thu, 02 Apr 2020 13:38:58	Thu, 02 Apr 2020 13:42:05	20093	JN	1122-23460

Point ID	File Name	Session	Satellites Observed	PDOP	HDOP	VDOP	GPS Start Time	GPS End Time	Julian Date	Operator	Receiver Serial Number
NVA027	NVA027B	2	12	1.67	0.85	1.44	Thu, 02 Apr 2020 14:01:25	Thu, 02 Apr 2020 14:04:37	20093	JN	1122-23460
NVA028	NVA028A	1	14	1.62	0.86	1.37	Wed, 25 Mar 2020 21:00:00	Wed, 25 Mar 2020 21:03:10	20085	JN	1122-23460
NVA028	NVA028B	2	12	1.65	0.85	1.41	Wed, 25 Mar 2020 21:30:37	Wed, 25 Mar 2020 21:33:47	20085	JN	1122-23460
NVA029	NVA029B	1	12	1.94	0.95	1.69	Mon, 30 Mar 2020 14:53:48	Mon, 30 Mar 2020 14:56:57	20090	JN	1122-23460
NVA029	NVA029D	2	12	1.95	1.00	1.67	Mon, 30 Mar 2020 15:16:26	Mon, 30 Mar 2020 15:19:34	20090	JN	1122-23460
NVA030	NVA030A	1	16	1.22	0.69	1.01	Mon, 30 Mar 2020 15:59:18	Mon, 30 Mar 2020 16:02:29	20090	JN	1122-23460
NVA030	NVA030B	2	13	1.67	0.82	1.46	Mon, 30 Mar 2020 16:22:21	Mon, 30 Mar 2020 16:25:30	20090	JN	1122-23460
NVA031	NVA031A	1	17	1.10	0.60	0.91	Thu, 02 Apr 2020 15:46:26	Thu, 02 Apr 2020 15:49:37	20093	JN	1122-23460
NVA031	NVA031B	2	14	1.47	0.74	1.27	Thu, 02 Apr 2020 16:51:32	Thu, 02 Apr 2020 16:55:22	20093	JN	1122-23460
NVA032	NVA032A	1	20	1.44	0.83	1.17	Wed, 01 Apr 2020 14:12:28	Wed, 01 Apr 2020 14:15:28	20092	SJ	1122-23494
NVA032	NVA032B	2	21	1.79	0.92	1.54	Wed, 01 Apr 2020 14:38:14	Wed, 01 Apr 2020 14:41:14	20092	SJ	1122-23494
NVA033	NVA033A	1	21	1.68	0.81	1.47	Mon, 30 Mar 2020 18:31:32	Mon, 30 Mar 2020 18:34:32	20090	SJ	1122-23494
NVA033	NVA033B	2	20	1.59	0.81	1.37	Mon, 30 Mar 2020 18:58:58	Mon, 30 Mar 2020 19:01:59	20090	SJ	1122-23494
NVA034	NVA034A	1	15	1.96	0.96	1.71	Fri, 27 Mar 2020 19:07:59	Fri, 27 Mar 2020 19:10:59	20087	SJ	1122-23494
NVA034	NVA034B	2	20	1.52	0.80	1.29	Fri, 27 Mar 2020 19:30:30	Fri, 27 Mar 2020 19:33:30	20087	SJ	1122-23494
NVA035	NVA035A	1	22	1.51	0.77	1.30	Wed, 01 Apr 2020 16:24:17	Wed, 01 Apr 2020 16:27:17	20092	SJ	1122-23494
NVA035	NVA035C	2	21	1.48	0.75	1.27	Wed, 01 Apr 2020 17:10:55	Wed, 01 Apr 2020 17:13:55	20092	SJ	1122-23494
NVA036	NVA036A	1	23	1.72	0.78	1.54	Wed, 01 Apr 2020 17:39:18	Wed, 01 Apr 2020 17:42:18	20092	SJ	1122-23494
NVA036	NVA036B	2	22	1.81	0.84	1.60	Wed, 01 Apr 2020 18:01:35	Wed, 01 Apr 2020 18:04:35	20092	SJ	1122-23494
NVA037	NVA037A	1	22	1.37	0.74	1.16	Wed, 01 Apr 2020 19:13:04	Wed, 01 Apr 2020 19:16:04	20092	SJ	1122-23494
NVA037	NVA037B	2	20	1.31	0.79	1.05	Wed, 01 Apr 2020 19:36:13	Wed, 01 Apr 2020 19:39:13	20092	SJ	1122-23494
NVA038	NVA038A	1	11	2.21	0.96	1.99	Wed, 01 Apr 2020 16:47:53	Wed, 01 Apr 2020 16:50:48	20092	JN	1122-23460
NVA038	NVA038B	2	14	1.54	0.73	1.36	Wed, 01 Apr 2020 17:33:40	Wed, 01 Apr 2020 17:36:51	20092	JN	1122-23460
NVA039	NVA039A	1	14	1.35	0.76	1.12	Wed, 01 Apr 2020 13:12:33	Wed, 01 Apr 2020 13:15:41	20092	JN	1122-23460
NVA039	NVA039B	2	13	1.56	0.89	1.29	Wed, 01 Apr 2020 13:36:30	Wed, 01 Apr 2020 13:39:37	20092	JN	1122-23460
NVA040	NVA040A	1	14	1.30	0.71	1.09	Wed, 01 Apr 2020 15:37:25	Wed, 01 Apr 2020 15:40:34	20092	JN	1122-23460
NVA040	NVA040B	2	14	1.26	0.68	1.06	Wed, 01 Apr 2020 16:01:09	Wed, 01 Apr 2020 16:04:19	20092	JN	1122-23460
NVA041	NVA041A	1	16	1.52	0.70	1.35	Fri, 27 Mar 2020 17:43:20	Fri, 27 Mar 2020 17:46:28	20087	JN	1122-23460
NVA041	NVA041B	2	16	1.38	0.68	1.20	Fri, 27 Mar 2020 18:06:35	Fri, 27 Mar 2020 18:09:45	20087	JN	1122-23460
NVA042	NVA042A	1	15	1.32	0.70	1.11	Wed, 01 Apr 2020 12:56:13	Wed, 01 Apr 2020 12:59:20	20092	JN	1122-23460
NVA042	NVA042B	2	15	1.24	0.72	1.01	Wed, 01 Apr 2020 13:20:44	Wed, 01 Apr 2020 13:23:48	20092	JN	1122-23460
NVA043	NVA043A	1	15	1.32	0.74	1.09	Wed, 01 Apr 2020 14:15:52	Wed, 01 Apr 2020 14:19:05	20092	JN	1122-23460
NVA043	NVA043B	2	14	1.56	0.78	1.36	Wed, 01 Apr 2020 14:48:15	Wed, 01 Apr 2020 14:51:28	20092	JN	1122-23460
NVA044	NVA044A	1	10	2.14	1.07	1.85	Wed, 01 Apr 2020 00:18:22	Wed, 01 Apr 2020 00:21:29	20092	JN	1122-23460
NVA044	NVA044B	2	10	2.56	1.14	2.30	Wed, 01 Apr 2020 00:41:23	Wed, 01 Apr 2020 00:44:31	20092	JN	1122-23460
NVA045	NVA045A	1	13	1.61	0.79	1.40	Tue, 31 Mar 2020 20:59:48	Tue, 31 Mar 2020 21:02:57	20091	JN	1122-23460
NVA045	NVA045B	2	13	1.45	0.80	1.21	Tue, 31 Mar 2020 21:23:26	Tue, 31 Mar 2020 21:26:33	20091	JN	1122-23460
NVA046	NVA046A	1	14	1.37	0.76	1.13	Tue, 31 Mar 2020 19:26:44	Tue, 31 Mar 2020 19:29:50	20091	JN	1122-23460
NVA046	NVA046B	2	12	1.56	0.89	1.28	Tue, 31 Mar 2020 19:51:18	Tue, 31 Mar 2020 19:54:29	20091	JN	1122-23460
NVA047	NVA047A	1	23	1.72	0.80	1.52	Thu, 26 Mar 2020 17:00:45	Thu, 26 Mar 2020 17:03:45	20086	SJ	1122-23494

Point ID	File Name	Session	Satellites Observed	PDOP	HDOP	VDOP	GPS Start Time	GPS End Time	Julian Date	Operator	Receiver Serial Number
NVA047	NVA047B	2	21	1.52	0.77	1.31	Thu, 26 Mar 2020 17:23:31	Thu, 26 Mar 2020 17:26:31	20086	SJ	1122-23494
NVA048	NVA048A	1	13	1.79	0.93	1.53	Fri, 27 Mar 2020 15:06:56	Fri, 27 Mar 2020 15:10:05	20087	JN	1122-23460
NVA048	NVA048B	2	12	1.95	0.99	1.68	Fri, 27 Mar 2020 15:38:14	Fri, 27 Mar 2020 15:41:22	20087	JN	1122-23460
NVA049	NVA049A	1	11	2.01	1.04	1.72	Fri, 27 Mar 2020 19:07:46	Fri, 27 Mar 2020 19:10:54	20087	JN	1122-23460
NVA049	NVA049B	2	11	1.74	0.95	1.45	Fri, 27 Mar 2020 19:31:21	Fri, 27 Mar 2020 19:34:09	20087	JN	1122-23460
NVA050	NVA050A	1	19	2.18	0.92	1.97	Mon, 30 Mar 2020 17:14:43	Mon, 30 Mar 2020 17:17:43	20090	SJ	1122-23494
NVA050	NVA050B	2	24	1.73	0.70	1.59	Mon, 30 Mar 2020 17:39:20	Mon, 30 Mar 2020 17:42:20	20090	SJ	1122-23494
NVA051	NVA051A	1	22	1.70	0.76	1.52	Fri, 27 Mar 2020 18:06:25	Fri, 27 Mar 2020 18:09:25	20087	SJ	1122-23494
NVA051	NVA051B	2	22	2.02	0.92	1.80	Fri, 27 Mar 2020 18:32:49	Fri, 27 Mar 2020 18:35:49	20087	SJ	1122-23494
NVA052	NVA052B	1	22	1.41	0.67	1.24	Thu, 02 Apr 2020 17:46:09	Thu, 02 Apr 2020 17:49:09	20093	SJ	1122-23494
NVA052	NVA052C	2	22	1.58	0.78	1.38	Thu, 02 Apr 2020 18:08:30	Thu, 02 Apr 2020 18:11:30	20093	SJ	1122-23494
NVA053	NVA053A	1	24	1.46	0.73	1.26	Thu, 02 Apr 2020 16:13:23	Thu, 02 Apr 2020 16:16:23	20093	SJ	1122-23494
NVA053	NVA053B	2	21	1.64	0.79	1.44	Thu, 02 Apr 2020 18:52:49	Thu, 02 Apr 2020 18:55:49	20093	SJ	1122-23494
NVA054	NVA054A	1	23	1.16	0.66	0.95	Mon, 30 Mar 2020 16:03:22	Mon, 30 Mar 2020 16:06:22	20090	SJ	1122-23494
NVA054	NVA054B	2	23	1.75	0.86	1.53	Mon, 30 Mar 2020 16:27:04	Mon, 30 Mar 2020 16:30:04	20090	SJ	1122-23494
NVA055	NVA055A	1	19	1.32	0.80	1.06	Thu, 02 Apr 2020 19:49:54	Thu, 02 Apr 2020 19:52:54	20093	SJ	1122-23494
NVA055	NVA055B	2	20	1.37	0.78	1.12	Thu, 02 Apr 2020 20:19:54	Thu, 02 Apr 2020 20:22:54	20093	SJ	1122-23494
NVA056	NVA056A	1	13	1.47	0.83	1.22	Wed, 25 Mar 2020 15:40:06	Wed, 25 Mar 2020 15:43:13	20085	JN	1122-23460
NVA056	NVA056B	2	16	1.16	0.64	0.97	Wed, 25 Mar 2020 16:14:38	Wed, 25 Mar 2020 16:17:49	20085	JN	1122-23460
NVA057	NVA057B	1	23	1.58	0.73	1.41	Thu, 02 Apr 2020 17:17:44	Thu, 02 Apr 2020 17:20:44	20093	SJ	1122-23494
NVA057	NVA057C	2	22	1.58	0.78	1.37	Thu, 02 Apr 2020 18:18:57	Thu, 02 Apr 2020 18:21:57	20093	SJ	1122-23494
NVA058	NVA058A	1	21	1.66	0.84	1.43	Mon, 30 Mar 2020 18:39:35	Mon, 30 Mar 2020 18:42:35	20090	SJ	1122-23494
NVA058	NVA058B	2	21	1.56	0.80	1.35	Mon, 30 Mar 2020 19:06:33	Mon, 30 Mar 2020 19:09:34	20090	SJ	1122-23494
NVA059	NVA059A	1	23	1.76	0.73	1.61	Fri, 03 Apr 2020 17:24:03	Fri, 03 Apr 2020 17:27:04	20094	SJ	1122-23494
NVA059	NVA059B	2	22	1.43	0.72	1.23	Fri, 03 Apr 2020 17:56:05	Fri, 03 Apr 2020 17:59:06	20094	SJ	1122-23494
NVA060	NVA060A	1	21	1.44	0.76	1.23	Thu, 02 Apr 2020 14:44:42	Thu, 02 Apr 2020 14:47:42	20093	SJ	1122-23494
NVA060	NVA060B	2	20	1.53	0.86	1.26	Thu, 02 Apr 2020 15:12:16	Thu, 02 Apr 2020 15:15:16	20093	SJ	1122-23494
NVA061	NVA061A	1	19	1.56	0.86	1.30	Mon, 30 Mar 2020 20:50:51	Mon, 30 Mar 2020 20:53:51	20090	SJ	1122-23494
NVA061	NVA061B	2	18	1.66	0.92	1.38	Mon, 30 Mar 2020 21:13:53	Mon, 30 Mar 2020 21:16:53	20090	SJ	1122-23494
NVA062	NVA062A	1	24	1.11	0.60	0.93	Fri, 03 Apr 2020 15:55:03	Fri, 03 Apr 2020 15:58:03	20094	SJ	1122-23494
NVA062	NVA062C	2	21	1.85	0.85	1.64	Fri, 03 Apr 2020 16:36:57	Fri, 03 Apr 2020 16:39:57	20094	SJ	1122-23494
NVA063	NVA063A	1	19	1.44	0.80	1.20	Thu, 02 Apr 2020 14:02:12	Thu, 02 Apr 2020 14:05:12	20093	SJ	1122-23494
NVA063	NVA063B	2	18	1.83	0.96	1.55	Thu, 02 Apr 2020 21:22:08	Thu, 02 Apr 2020 21:25:08	20093	SJ	1122-23494
NVA064	NVA064A	1	18	1.56	0.88	1.29	Thu, 02 Apr 2020 19:58:24	Thu, 02 Apr 2020 20:01:24	20093	SJ	1122-23494
NVA064	NVA064B	2	20	1.48	0.80	1.24	Thu, 02 Apr 2020 20:26:56	Thu, 02 Apr 2020 20:29:56	20093	SJ	1122-23494
NVA065	NVA065A	1	17	1.98	0.97	1.72	Thu, 02 Apr 2020 14:38:09	Thu, 02 Apr 2020 14:41:09	20093	SJ	1122-23494
NVA065	NVA065B	2	20	1.60	0.90	1.33	Thu, 02 Apr 2020 15:06:25	Thu, 02 Apr 2020 15:09:25	20093	SJ	1122-23494
NVA066	NVA066A	1	13	1.48	0.81	1.24	Tue, 31 Mar 2020 22:19:55	Tue, 31 Mar 2020 22:22:44	20091	JN	1122-23460
NVA066	NVA066B	2	12	1.74	0.98	1.44	Tue, 31 Mar 2020 22:44:34	Tue, 31 Mar 2020 22:47:43	20091	JN	1122-23460
NVA067	NVA067A	1	21	1.57	0.76	1.38	Thu, 26 Mar 2020 19:02:33	Thu, 26 Mar 2020 19:05:33	20086	SJ	1122-23494

Point ID	File Name	Session	Satellites Observed	PDOP	HDOP	VDOP	GPS Start Time	GPS End Time	Julian Date	Operator	Receiver Serial Number
NVA067	NVA067B	2	21	1.49	0.75	1.29	Thu, 26 Mar 2020 19:25:31	Thu, 26 Mar 2020 19:28:31	20086	SJ	1122-23494
NVA068	NVA068A	1	21	1.77	0.73	1.61	Thu, 26 Mar 2020 17:56:43	Thu, 26 Mar 2020 17:59:43	20086	SJ	1122-23494
NVA068	NVA068B	2	22	1.44	0.71	1.26	Thu, 26 Mar 2020 18:19:33	Thu, 26 Mar 2020 18:22:33	20086	SJ	1122-23494
NVA069	NVA069A	1	13	1.47	0.78	1.24	Tue, 31 Mar 2020 21:11:42	Tue, 31 Mar 2020 21:14:51	20091	JN	1122-23460
NVA069	NVA069C	2	15	1.26	0.77	1.00	Tue, 31 Mar 2020 21:39:37	Tue, 31 Mar 2020 21:42:44	20091	JN	1122-23460
NVA070	NVA070A	1	11	1.78	1.01	1.47	Tue, 31 Mar 2020 22:28:54	Tue, 31 Mar 2020 22:32:05	20091	JN	1122-23460
NVA070	NVA070B	2	10	1.95	1.02	1.67	Tue, 31 Mar 2020 22:51:51	Tue, 31 Mar 2020 22:53:53	20091	JN	1122-23460
NVA071	NVA071A	1	15	1.43	0.82	1.18	Tue, 31 Mar 2020 23:29:38	Tue, 31 Mar 2020 23:32:46	20091	JN	1122-23460
NVA071	NVA071B	2	14	1.51	0.85	1.25	Tue, 31 Mar 2020 23:54:41	Wed, 01 Apr 2020 00:03:40	20091	JN	1122-23460
NVA072	NVA072A	1	22	1.48	0.73	1.29	Fri, 03 Apr 2020 14:31:42	Fri, 03 Apr 2020 14:34:42	20094	SJ	1122-23494
NVA072	NVA072C	2	20	1.67	0.89	1.41	Fri, 03 Apr 2020 15:18:07	Fri, 03 Apr 2020 15:21:07	20094	SJ	1122-23494
NVA073	NVA073A	1	15	1.46	0.75	1.25	Wed, 25 Mar 2020 17:44:06	Wed, 25 Mar 2020 17:47:18	20085	JN	1122-23460
NVA073	NVA073B	2	14	1.80	0.85	1.59	Wed, 25 Mar 2020 18:12:48	Wed, 25 Mar 2020 18:15:57	20085	JN	1122-23460
VVA001	VVA001A	1	22	1.26	0.70	1.05	Wed, 25 Mar 2020 16:20:37	Wed, 25 Mar 2020 16:23:37	20085	SJ	1122-23494
VVA001	VVA001C	2	20	2.02	1.01	1.75	Wed, 25 Mar 2020 17:12:20	Wed, 25 Mar 2020 17:14:57	20085	SJ	1122-23494
VVA002	VVA002B	1	20	1.38	0.75	1.15	Wed, 25 Mar 2020 15:24:50	Wed, 25 Mar 2020 15:27:50	20085	SJ	1122-23494
VVA002	VVA002F	2	20	1.90	0.95	1.64	Fri, 10 Apr 2020 17:47:15	Fri, 10 Apr 2020 17:50:46	20101	SJ	1122-23499
VVA003	VVA003B	1	21	1.58	0.75	1.39	Wed, 25 Mar 2020 19:09:51	Wed, 25 Mar 2020 19:12:51	20085	SJ	1122-23494
VVA003	VVA003C	2	21	1.62	0.79	1.42	Wed, 25 Mar 2020 19:31:44	Wed, 25 Mar 2020 19:34:43	20085	SJ	1122-23494
VVA004	VVA004A	1	12	1.61	0.90	1.33	Thu, 26 Mar 2020 21:47:50	Thu, 26 Mar 2020 21:50:58	20086	JN	1122-23460
VVA004	VVA004B	2	11	2.11	1.00	1.85	Thu, 26 Mar 2020 22:13:23	Thu, 26 Mar 2020 22:16:34	20086	JN	1122-23460
VVA005	VVA005A	1	15	1.71	0.76	1.53	Wed, 25 Mar 2020 18:59:40	Wed, 25 Mar 2020 19:02:49	20085	JN	1122-23460
VVA005	VVA005B	2	14	1.47	0.71	1.28	Wed, 25 Mar 2020 19:26:33	Wed, 25 Mar 2020 19:29:41	20085	JN	1122-23460
VVA006	VVA006B	1	12	1.47	0.88	1.18	Thu, 26 Mar 2020 15:58:13	Thu, 26 Mar 2020 16:01:23	20086	JN	1122-23460
VVA006	VVA006C	2	13	1.43	0.83	1.17	Thu, 26 Mar 2020 16:22:48	Thu, 26 Mar 2020 16:25:57	20086	JN	1122-23460
VVA007	VVA007A	1	13	1.83	0.94	1.57	Thu, 26 Mar 2020 22:53:23	Thu, 26 Mar 2020 22:56:32	20086	JN	1122-23460
VVA007	VVA007B	2	14	1.61	0.96	1.29	Thu, 26 Mar 2020 23:19:10	Thu, 26 Mar 2020 23:22:18	20086	JN	1122-23460
VVA008	VVA008C	1	10	2.14	1.08	1.84	Thu, 02 Apr 2020 18:54:11	Thu, 02 Apr 2020 18:57:20	20093	JN	1122-23460
VVA008	VVA008D	2	13	1.48	0.86	1.20	Thu, 02 Apr 2020 19:18:05	Thu, 02 Apr 2020 19:21:17	20093	JN	1122-23460
VVA009	VVA009A	1	11	1.82	1.06	1.47	Wed, 25 Mar 2020 15:53:36	Wed, 25 Mar 2020 15:56:47	20085	JN	1122-23460
VVA009	VVA009B	2	12	1.77	0.94	1.50	Wed, 25 Mar 2020 16:23:49	Wed, 25 Mar 2020 16:27:00	20085	JN	1122-23460
VVA010	VVA010A	1	15	1.44	0.71	1.24	Wed, 25 Mar 2020 17:37:26	Wed, 25 Mar 2020 17:40:36	20085	JN	1122-23460
VVA010	VVA010B	2	13	1.85	0.81	1.66	Wed, 25 Mar 2020 18:07:21	Wed, 25 Mar 2020 18:10:32	20085	JN	1122-23460
VVA012	VVA012A	1	12	1.84	0.90	1.61	Wed, 25 Mar 2020 21:19:49	Wed, 25 Mar 2020 21:23:00	20085	JN	1122-23460
VVA012	VVA012B	2	11	2.51	1.14	2.22	Wed, 25 Mar 2020 21:44:24	Wed, 25 Mar 2020 21:47:34	20085	JN	1122-23460
VVA013	VVA013C	1	12	2.45	1.22	2.11	Thu, 26 Mar 2020 14:23:41	Thu, 26 Mar 2020 14:27:03	20086	JN	1122-23460
VVA013	VVA013F	2	7	2.56	1.17	2.28	Fri, 03 Apr 2020 15:05:20	Fri, 03 Apr 2020 15:08:28	20094	JN	1122-23460
VVA014	VVA014AAA	1	20	1.91	0.91	1.68	Fri, 10 Apr 2020 16:25:17	Fri, 10 Apr 2020 16:28:48	20101	SJ	1122-23495
VVA014	VVA014CCC	2	20	2.07	0.89	1.86	Fri, 10 Apr 2020 16:57:32	Fri, 10 Apr 2020 17:01:03	20101	SJ	1122-23498
VVA015	VVA015A	1	20	1.85	0.89	1.62	Fri, 27 Mar 2020 17:05:22	Fri, 27 Mar 2020 17:08:22	20087	SJ	1122-23494

Point ID	File Name	Session	Satellites Observed	PDOP	HDOP	VDOP	GPS Start Time	GPS End Time	Julian Date	Operator	Receiver Serial Number
VVA015	VVA015C	2	21	1.75	0.81	1.55	Fri, 27 Mar 2020 17:32:32	Fri, 27 Mar 2020 17:36:33	20087	SJ	1122-23494
VVA016	VVA016A	1	17	1.88	1.03	1.57	Wed, 01 Apr 2020 19:18:58	Wed, 01 Apr 2020 19:21:58	20092	SJ	1122-23494
VVA016	VVA016B	2	17	1.96	1.05	1.65	Wed, 01 Apr 2020 19:41:35	Wed, 01 Apr 2020 19:44:35	20092	SJ	1122-23494
VVA017	VVA017A	1	14	1.59	0.84	1.35	Tue, 31 Mar 2020 19:20:43	Tue, 31 Mar 2020 19:23:54	20091	JN	1122-23460
VVA017	VVA017B	2	12	1.63	0.99	1.30	Tue, 31 Mar 2020 19:46:04	Tue, 31 Mar 2020 19:49:15	20091	JN	1122-23460
VVA018	VVA018A	1	20	1.91	0.84	1.71	Thu, 02 Apr 2020 17:02:33	Thu, 02 Apr 2020 17:05:33	20093	SJ	1122-23494
VVA018	VVA018C	2	20	1.77	0.75	1.60	Thu, 02 Apr 2020 17:34:29	Thu, 02 Apr 2020 17:37:29	20093	SJ	1122-23494
VVA019	VVA019B	1	19	1.45	0.81	1.20	Thu, 02 Apr 2020 15:21:56	Thu, 02 Apr 2020 15:24:56	20093	SJ	1122-23494
VVA019	VVA019D	2	22	1.26	0.70	1.05	Thu, 02 Apr 2020 15:44:27	Thu, 02 Apr 2020 15:47:27	20093	SJ	1122-23494
VVA020	VVA020A	1	18	2.15	1.10	1.84	Mon, 30 Mar 2020 16:12:59	Mon, 30 Mar 2020 16:15:59	20090	SJ	1122-23494
VVA020	VVA020C	2	22	1.86	0.92	1.61	Mon, 30 Mar 2020 16:39:47	Mon, 30 Mar 2020 16:42:47	20090	SJ	1122-23494
VVA021	VVA021A	1	25	1.41	0.70	1.23	Thu, 02 Apr 2020 16:17:53	Thu, 02 Apr 2020 16:20:53	20093	SJ	1122-23494
VVA021	VVA021B	2	21	1.55	0.76	1.36	Thu, 02 Apr 2020 18:57:46	Thu, 02 Apr 2020 19:00:46	20093	SJ	1122-23494
VVA022	VVA022B	1	13	1.60	0.80	1.38	Wed, 01 Apr 2020 18:55:46	Wed, 01 Apr 2020 18:58:56	20092	JN	1122-23460
VVA022	VVA022C	2	11	1.74	0.90	1.48	Wed, 01 Apr 2020 19:18:24	Wed, 01 Apr 2020 19:21:35	20092	JN	1122-23460
VVA023	VVA023A	1	16	1.41	0.70	1.22	Fri, 27 Mar 2020 17:36:27	Fri, 27 Mar 2020 17:39:36	20087	JN	1122-23460
VVA023	VVA023B	2	15	1.64	0.72	1.47	Fri, 27 Mar 2020 18:00:57	Fri, 27 Mar 2020 18:04:08	20087	JN	1122-23460
VVA024	VVA024A	1	14	1.39	0.77	1.15	Fri, 27 Mar 2020 16:27:28	Fri, 27 Mar 2020 16:30:39	20087	JN	1122-23460
VVA024	VVA024B	2	10	2.27	1.14	1.97	Fri, 27 Mar 2020 17:01:00	Fri, 27 Mar 2020 17:04:11	20087	JN	1122-23460
VVA025	VVA025A	1	12	1.78	0.92	1.52	Fri, 27 Mar 2020 15:11:55	Fri, 27 Mar 2020 15:15:09	20087	JN	1122-23460
VVA025	VVA025B	2	11	2.54	1.05	2.31	Fri, 27 Mar 2020 15:42:35	Fri, 27 Mar 2020 15:45:44	20087	JN	1122-23460
VVA026	VVA026A	1	13	2.16	1.11	1.85	Fri, 27 Mar 2020 19:13:53	Fri, 27 Mar 2020 19:16:53	20087	SJ	1122-23494
VVA026	VVA026B	2	19	1.38	0.77	1.14	Fri, 27 Mar 2020 19:39:17	Fri, 27 Mar 2020 19:42:17	20087	SJ	1122-23494
VVA027	VVA027A	1	21	1.54	0.73	1.36	Fri, 27 Mar 2020 18:14:32	Fri, 27 Mar 2020 18:17:32	20087	SJ	1122-23494
VVA027	VVA027C	2	20	1.95	0.92	1.72	Fri, 27 Mar 2020 18:43:18	Fri, 27 Mar 2020 18:47:19	20087	SJ	1122-23494
VVA028	VVA028A	1	21	1.62	0.83	1.39	Wed, 01 Apr 2020 16:31:16	Wed, 01 Apr 2020 16:34:17	20092	SJ	1122-23494
VVA028	VVA028B	2	20	1.59	0.79	1.38	Wed, 01 Apr 2020 16:55:05	Wed, 01 Apr 2020 16:58:05	20092	SJ	1122-23494
VVA029	VVA029A	1	14	1.58	0.84	1.34	Wed, 01 Apr 2020 13:02:28	Wed, 01 Apr 2020 13:05:33	20092	JN	1122-23460
VVA029	VVA029C	2	13	1.63	0.94	1.34	Wed, 01 Apr 2020 13:29:40	Wed, 01 Apr 2020 13:32:45	20092	JN	1122-23460
VVA030	VVA030A	1	15	1.18	0.65	0.99	Wed, 01 Apr 2020 15:43:13	Wed, 01 Apr 2020 15:46:19	20092	JN	1122-23460
VVA030	VVA030B	2	12	1.86	0.97	1.59	Wed, 01 Apr 2020 16:06:34	Wed, 01 Apr 2020 16:09:45	20092	JN	1122-23460
VVA031	VVA031B	1	12	1.87	1.16	1.46	Tue, 31 Mar 2020 22:38:35	Tue, 31 Mar 2020 22:40:57	20091	JN	1122-23460
VVA031	VVA031E	2	10	1.99	1.17	1.61	Tue, 31 Mar 2020 23:13:42	Tue, 31 Mar 2020 23:16:50	20091	JN	1122-23460
VVA032	VVA032A	1	19	2.42	0.95	2.22	Thu, 26 Mar 2020 18:04:51	Thu, 26 Mar 2020 18:07:51	20086	SJ	1122-23494
VVA032	VVA032C	2	21	1.81	0.80	1.62	Thu, 26 Mar 2020 18:32:14	Thu, 26 Mar 2020 18:35:14	20086	SJ	1122-23494
VVA033	VVA033B	1	11	1.66	0.94	1.37	Tue, 31 Mar 2020 21:28:50	Tue, 31 Mar 2020 21:31:58	20091	JN	1122-23460
VVA033	VVA033D	2	11	1.79	1.13	1.39	Tue, 31 Mar 2020 21:58:01	Tue, 31 Mar 2020 21:59:37	20091	JN	1122-23460
VVA034	VVA034C	1	21	1.89	0.80	1.72	Wed, 01 Apr 2020 18:14:07	Wed, 01 Apr 2020 18:17:07	20092	SJ	1122-23494
VVA034	VVA034D	2	21	1.65	0.77	1.46	Wed, 01 Apr 2020 18:37:24	Wed, 01 Apr 2020 18:40:24	20092	SJ	1122-23494
VVA035	VVA035A	1	14	1.45	0.79	1.21	Wed, 01 Apr 2020 14:25:47	Wed, 01 Apr 2020 14:29:05	20092	JN	1122-23460

Point ID	File Name	Session	Satellites Observed	PDOP	HDOP	VDOP	GPS Start Time	GPS End Time	Julian Date	Operator	Receiver Serial Number
VVA035	VVA035B	2	14	1.56	0.78	1.36	Wed, 01 Apr 2020 14:52:50	Wed, 01 Apr 2020 14:55:57	20092	JN	1122-23460
VVA036	VVA036A	1	13	1.89	0.85	1.68	Wed, 01 Apr 2020 00:27:30	Wed, 01 Apr 2020 00:30:37	20092	JN	1122-23460
VVA036	VVA036B	2	11	1.91	0.94	1.66	Wed, 01 Apr 2020 00:52:54	Wed, 01 Apr 2020 00:56:04	20092	JN	1122-23460
VVA037	VVA037AA	1	18	2.02	1.01	1.75	Thu, 02 Apr 2020 22:07:04	Thu, 02 Apr 2020 22:11:05	20093	SJ	1122-23494
VVA037	VVA037BB	2	18	1.58	0.84	1.34	Thu, 02 Apr 2020 22:30:26	Thu, 02 Apr 2020 22:34:26	20093	SJ	1122-23494
VVA038	VVA038A	1	20	2.06	0.89	1.86	Mon, 30 Mar 2020 17:20:02	Mon, 30 Mar 2020 17:23:02	20090	SJ	1122-23494
VVA038	VVA038B	2	23	1.80	0.72	1.65	Mon, 30 Mar 2020 17:44:36	Mon, 30 Mar 2020 17:47:36	20090	SJ	1122-23494
VVA039	VVA039A	1	21	1.78	0.94	1.52	Mon, 30 Mar 2020 18:46:54	Mon, 30 Mar 2020 18:49:54	20090	SJ	1122-23494
VVA039	VVA039B	2	20	1.66	0.88	1.41	Mon, 30 Mar 2020 19:12:45	Mon, 30 Mar 2020 19:15:45	20090	SJ	1122-23494
VVA040	VVA040A	1	21	1.81	0.84	1.61	Thu, 26 Mar 2020 17:07:52	Thu, 26 Mar 2020 17:10:52	20086	SJ	1122-23494
VVA040	VVA040B	2	21	1.98	0.87	1.78	Thu, 26 Mar 2020 17:30:30	Thu, 26 Mar 2020 17:33:30	20086	SJ	1122-23494
VVA041	VVA041A	1	23	1.61	0.84	1.37	Wed, 01 Apr 2020 15:26:52	Wed, 01 Apr 2020 15:29:52	20092	SJ	1122-23494
VVA041	VVA041B	2	23	1.21	0.66	1.01	Wed, 01 Apr 2020 15:49:27	Wed, 01 Apr 2020 15:52:27	20092	SJ	1122-23494
VVA042	VVA042A	1	19	2.14	1.00	1.89	Fri, 27 Mar 2020 15:51:01	Fri, 27 Mar 2020 15:54:01	20087	SJ	1122-23494
VVA042	VVA042C	2	19	1.81	1.15	1.39	Fri, 27 Mar 2020 16:19:07	Fri, 27 Mar 2020 16:23:08	20087	SJ	1122-23494
VVA043	VVA043AAA	1	16	2.15	1.15	1.81	Fri, 03 Apr 2020 20:18:22	Fri, 03 Apr 2020 20:21:23	20094	SJ	1122-23494
VVA043	VVA043CCC	2	17	1.79	0.95	1.52	Fri, 03 Apr 2020 20:42:25	Fri, 03 Apr 2020 20:45:25	20094	SJ	1122-23494
VVA044	VVA044A	1	17	1.72	1.02	1.39	Thu, 02 Apr 2020 20:07:32	Thu, 02 Apr 2020 20:10:32	20093	SJ	1122-23494
VVA044	VVA044C	2	17	1.83	0.89	1.60	Thu, 02 Apr 2020 20:55:33	Thu, 02 Apr 2020 20:58:33	20093	SJ	1122-23494
VVA045	VVA045A	1	22	1.37	0.76	1.14	Fri, 03 Apr 2020 16:02:12	Fri, 03 Apr 2020 16:05:12	20094	SJ	1122-23494
VVA045	VVA045B	2	19	2.06	0.91	1.85	Fri, 03 Apr 2020 16:47:03	Fri, 03 Apr 2020 16:50:03	20094	SJ	1122-23494
VVA046	VVA046A	1	12	1.77	1.01	1.45	Mon, 30 Mar 2020 16:05:46	Mon, 30 Mar 2020 16:08:57	20090	JN	1122-23460
VVA046	VVA046B	2	11	1.95	0.96	1.70	Mon, 30 Mar 2020 16:29:22	Mon, 30 Mar 2020 16:32:34	20090	JN	1122-23460
VVA047	VVA047A	1	20	1.59	0.88	1.32	Wed, 01 Apr 2020 14:22:06	Wed, 01 Apr 2020 14:25:06	20092	SJ	1122-23494
VVA047	VVA047B	2	21	1.97	1.08	1.64	Wed, 01 Apr 2020 14:46:20	Wed, 01 Apr 2020 14:49:20	20092	SJ	1122-23494
VVA048	VVA048A	1	13	1.62	0.80	1.41	Mon, 30 Mar 2020 17:14:58	Mon, 30 Mar 2020 17:18:10	20090	JN	1122-23460
VVA048	VVA048B	2	14	1.74	0.70	1.59	Mon, 30 Mar 2020 17:40:34	Mon, 30 Mar 2020 17:43:46	20090	JN	1122-23460
VVA049	VVA049A	1	12	1.65	0.91	1.38	Mon, 30 Mar 2020 19:15:36	Mon, 30 Mar 2020 19:18:47	20090	JN	1122-23460
VVA049	VVA049B	2	10	1.83	1.02	1.52	Mon, 30 Mar 2020 19:38:50	Mon, 30 Mar 2020 19:42:02	20090	JN	1122-23460
VVA050	VVA050A	1	13	1.64	0.89	1.37	Mon, 30 Mar 2020 14:23:16	Mon, 30 Mar 2020 14:26:24	20090	JN	1122-23460
VVA050	VVA050C	2	12	2.01	1.08	1.69	Mon, 30 Mar 2020 15:00:08	Mon, 30 Mar 2020 15:02:41	20090	JN	1122-23460
VVA051	VVA051A	1	22	1.56	0.72	1.38	Fri, 03 Apr 2020 17:42:02	Fri, 03 Apr 2020 17:45:02	20094	SJ	1122-23494
VVA051	VVA051B	2	23	1.56	0.85	1.31	Fri, 03 Apr 2020 18:09:15	Fri, 03 Apr 2020 18:12:16	20094	SJ	1122-23494
VVA052	VVA052A	1	16	1.17	0.67	0.95	Mon, 30 Mar 2020 13:26:24	Mon, 30 Mar 2020 13:29:36	20090	JN	1122-23460
VVA052	VVA052B	2	13	1.50	0.85	1.24	Mon, 30 Mar 2020 13:52:15	Mon, 30 Mar 2020 13:55:35	20090	JN	1122-23460
VVA053	VVA053A	1	11	1.83	0.94	1.57	Thu, 02 Apr 2020 16:17:08	Thu, 02 Apr 2020 16:20:54	20093	JN	1122-23460
VVA053	VVA053B	2	12	2.18	0.88	1.99	Thu, 02 Apr 2020 16:43:04	Thu, 02 Apr 2020 16:47:12	20093	JN	1122-23460
VVA054	VVA054A	1	10	2.47	1.05	2.23	Thu, 02 Apr 2020 13:45:02	Thu, 02 Apr 2020 13:48:13	20093	JN	1122-23460
VVA054	VVA054B	2	14	1.45	0.78	1.22	Thu, 02 Apr 2020 14:07:04	Thu, 02 Apr 2020 14:10:14	20093	JN	1122-23460
VVA055	VVA055A	1	13	1.62	0.69	1.46	Thu, 02 Apr 2020 17:34:44	Thu, 02 Apr 2020 17:37:56	20093	JN	1122-23460

Point ID	File Name	Session	Satellites Observed	PDOP	HDOP	VDOP	GPS Start Time	GPS End Time	Julian Date	Operator	Receiver Serial Number
VVA055	VVA055B	2	13	1.51	0.80	1.28	Thu, 02 Apr 2020 18:13:34	Thu, 02 Apr 2020 18:16:41	20093	JN	1122-23460
VVA056	VVA056A	1	10	2.02	1.15	1.66	Fri, 27 Mar 2020 19:12:42	Fri, 27 Mar 2020 19:15:53	20087	JN	1122-23460
VVA056	VVA056B	2	11	1.68	0.90	1.42	Fri, 27 Mar 2020 19:36:21	Fri, 27 Mar 2020 19:39:34	20087	JN	1122-23460
VVA057	VVA057B	1	10	2.51	1.15	2.24	Wed, 01 Apr 2020 17:38:47	Wed, 01 Apr 2020 17:41:58	20092	JN	1122-23460
VVA057	VVA057F	2	13	2.84	0.92	2.68	Wed, 01 Apr 2020 18:12:30	Wed, 01 Apr 2020 18:14:23	20092	JN	1122-23460
VVA300	VVA300A	1	13	1.79	0.86	1.56	Mon, 30 Mar 2020 18:19:38	Mon, 30 Mar 2020 18:22:50	20090	JN	1122-23460
VVA300	VVA300B	2	15	1.53	0.74	1.34	Mon, 30 Mar 2020 18:43:43	Mon, 30 Mar 2020 18:46:53	20090	JN	1122-23460
VVA301	VVA301A	1	14	1.36	0.73	1.14	Thu, 02 Apr 2020 14:49:24	Thu, 02 Apr 2020 14:52:35	20093	JN	1122-23460
VVA301	VVA301B	2	12	1.59	0.90	1.31	Thu, 02 Apr 2020 15:15:58	Thu, 02 Apr 2020 15:19:10	20093	JN	1122-23460

Table 4. List of independent occupations on all surveyed coordinates.

The final coordinates used are an average of two independent observations that differ no more than 0.026 meters in the X and Y and differ no more than 0.046 meters in the Z. The below table shows the deltas between the two independent coordinates used in calculating the final coordinates.

Point ID	ΔX (m)	ΔY (m)	ΔZ (m)
GCP001	0.005	0.001	0.024
GCP002	0.006	0.003	0.025
GCP003	0.004	0.001	0.009
GCP004	0.012	0.002	0.005
GCP005	0.000	0.023	0.010
GCP006	0.007	0.015	0.013
GCP007	0.002	0.005	0.001
GCP008	0.005	0.004	0.002
GCP009	0.003	0.001	0.006
GCP010	0.014	0.004	0.023
GCP011	0.004	0.014	0.027
GCP012	0.009	0.007	0.011
GCP013	0.015	0.012	0.008
GCP014	0.004	0.003	0.024
GCP015	0.003	0.004	0.012
GCP016	0.009	0.008	0.007
GCP017	0.004	0.004	0.003
GCP018	0.007	0.003	0.042
GCP019	0.014	0.007	0.009
GCP020	0.005	0.002	0.017
GCP021	0.001	0.007	0.011
GCP022	0.002	0.000	0.034
GCP023	0.004	0.005	0.004
GCP024	0.013	0.002	0.007
GCP025	0.011	0.004	0.002

Point ID	ΔX (m)	ΔY (m)	ΔZ (m)
NVA001	0.001	0.002	0.040
NVA002	0.003	0.006	0.020
NVA003	0.004	0.001	0.019
NVA004	0.001	0.000	0.005
NVA005	0.010	0.009	0.011
NVA006	0.011	0.011	0.013
NVA007	0.009	0.003	0.035
NVA008	0.006	0.010	0.015
NVA009	0.006	0.011	0.019
NVA010	0.001	0.003	0.004
NVA011	0.010	0.007	0.003
NVA012	0.007	0.004	0.004
NVA013	0.002	0.005	0.017
NVA014	0.008	0.003	0.004
NVA015	0.003	0.009	0.015
NVA016	0.001	0.001	0.007
NVA017	0.003	0.003	0.013
NVA018	0.001	0.007	0.001
NVA019	0.003	0.001	0.007
NVA020	0.004	0.005	0.002
NVA021	0.004	0.006	0.030
NVA022	0.002	0.003	0.033
NVA023	0.014	0.019	0.014
NVA024	0.003	0.002	0.025
NVA025	0.003	0.002	0.012
NVA026	0.017	0.004	0.001
NVA027	0.020	0.008	0.012
NVA028	0.003	0.007	0.033
NVA029	0.013	0.005	0.004
NVA030	0.010	0.011	0.016
NVA031	0.009	0.002	0.006
NVA032	0.017	0.009	0.012
NVA033	0.013	0.011	0.034
NVA034	0.004	0.009	0.008
NVA035	0.015	0.005	0.014
NVA036	0.002	0.003	0.030
NVA037	0.008	0.015	0.001
NVA038	0.021	0.002	0.013
NVA039	0.005	0.003	0.017
NVA040	0.010	0.006	0.008
NVA041	0.005	0.007	0.014
NVA042	0.000	0.001	0.007

Point ID	ΔX (m)	ΔY (m)	ΔZ (m)
NVA043	0.004	0.002	0.007
NVA044	0.003	0.009	0.014
NVA045	0.004	0.003	0.013
NVA046	0.009	0.004	0.014
NVA047	0.008	0.006	0.029
NVA048	0.002	0.003	0.015
NVA049	0.001	0.004	0.002
NVA050	0.013	0.009	0.044
NVA051	0.008	0.020	0.008
NVA052	0.009	0.007	0.018
NVA053	0.011	0.001	0.005
NVA054	0.003	0.000	0.011
NVA055	0.003	0.010	0.028
NVA056	0.002	0.003	0.014
NVA057	0.002	0.008	0.031
NVA058	0.006	0.006	0.001
NVA059	0.021	0.003	0.002
NVA060	0.003	0.006	0.003
NVA061	0.004	0.003	0.021
NVA062	0.013	0.010	0.018
NVA063	0.014	0.019	0.004
NVA064	0.002	0.004	0.039
NVA065	0.015	0.004	0.025
NVA066	0.001	0.002	0.002
NVA067	0.001	0.008	0.014
NVA068	0.009	0.002	0.007
NVA069	0.009	0.004	0.006
NVA070	0.017	0.007	0.026
NVA071	0.009	0.004	0.019
NVA072	0.018	0.009	0.000
NVA073	0.013	0.005	0.043
VVA001	0.023	0.004	0.002
VVA002	0.007	0.012	0.005
VVA003	0.024	0.002	0.005
VVA004	0.002	0.005	0.002
VVA005	0.002	0.013	0.019
VVA006	0.003	0.008	0.001
VVA007	0.017	0.005	0.012
VVA008	0.007	0.013	0.025
VVA009	0.004	0.024	0.013
VVA010	0.005	0.006	0.014
VVA012	0.002	0.007	0.012

Point ID	ΔX (m)	ΔY (m)	ΔZ (m)
VVA013	0.002	0.002	0.038
VVA014	0.008	0.003	0.017
VVA015	0.001	0.009	0.002
VVA016	0.018	0.014	0.024
VVA017	0.008	0.013	0.028
VVA018	0.005	0.014	0.041
VVA019	0.004	0.010	0.034
VVA020	0.002	0.001	0.002
VVA021	0.007	0.016	0.021
VVA022	0.014	0.011	0.020
VVA023	0.002	0.002	0.018
VVA024	0.008	0.009	0.019
VVA025	0.003	0.004	0.004
VVA026	0.018	0.004	0.005
VVA027	0.016	0.004	0.024
VVA028	0.004	0.003	0.002
VVA029	0.004	0.022	0.009
VVA030	0.005	0.014	0.043
VVA031	0.023	0.026	0.028
VVA032	0.005	0.011	0.010
VVA033	0.022	0.011	0.023
VVA034	0.005	0.005	0.024
VVA035	0.006	0.003	0.016
VVA036	0.023	0.001	0.019
VVA037	0.003	0.005	0.043
VVA038	0.005	0.024	0.020
VVA039	0.014	0.007	0.014
VVA040	0.003	0.004	0.001
VVA041	0.003	0.012	0.024
VVA042	0.012	0.001	0.009
VVA043	0.013	0.009	0.005
VVA044	0.015	0.001	0.009
VVA045	0.011	0.004	0.008
VVA046	0.005	0.021	0.017
VVA047	0.017	0.012	0.008
VVA048	0.006	0.003	0.001
VVA049	0.010	0.014	0.002
VVA050	0.012	0.015	0.009
VVA051	0.013	0.014	0.007
VVA052	0.001	0.004	0.027
VVA053	0.001	0.002	0.015
VVA054	0.013	0.009	0.005

Point ID	ΔX (m)	ΔY (m)	ΔZ (m)
VVA055	0.001	0.003	0.002
VVA056	0.005	0.009	0.008
VVA057	0.001	0.023	0.012
VVA300	0.004	0.001	0.003
VVA301	0.009	0.007	0.014

Table 5. List of directional differences between surveyed coordinates used to calculate final coordinates.

Equipment

Only dual frequency GPS receivers were used for this project. The GdB field crew used two Topcon Hiper V GNSS Receivers and two Carlson Data Collectors. Field crew one (JN) utilized GPS receiver with serial number 1122-23460 solely with the Sureveyor2 data collector (SN 215126). Field crew 2 (SJ) utilized GPS receiver with serial number 1122-23494 solely with the RT3 Geo-Cell data collector (SN 260088). The equipment used for this survey is listed below in table 6. Data sheets for all equipment follows.

Equipment	Manufacturer	Model	Serial Number
GPS	Topcon	HiperV	1122-23494
GPS	Topcon	HiperV	1122-23460
Data Collector	Carlson	Surveyor2	215126
Data Collector	Carlson	RT3 Geo-Cell	260088

Table 6. Equipment used during field operations.

HIPER V



All-Purpose GNSS Receiver

- Vanguard Technology™
- Universal Tracking Technology
- Rugged, magnesium alloy construction
- Integrated form delivering full RTK, Static, Network functionality
- Fence Antenna™ evolution for optimal signal isolation and tracking

Compact, cable-free solution with Vanguard Technology for all GNSS positioning applications

Topcon raises the standard once again by adding Vanguard Technology with 226 channels, Universal Tracking Technology, and the Fence Antenna into the versatile and configurable HiPer V receiver. Universal Tracking Technology is an advanced firmware process that allows each of the 226 channels to be assigned to any satellite signal – providing an all-in-view satellite monitoring ability like never before.

Internal radio configurations

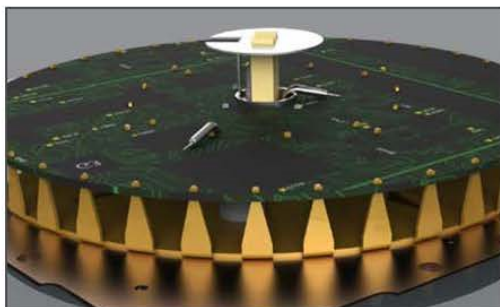
The HiPer V integrated receiver can be configured with the radio and cellular modem that best fits your needs. You can choose from either a far-reaching Digital UHF option or a secure and steady Spread Spectrum radio. Further, you can choose from HSPA, CDMA, or no cellular module. If you start your HiPer V investment with static only receivers, they can later be upgraded to include radio and cellular modules at one of many Topcon service facilities around the globe.

Rugged and waterproof

The HiPer V is designed rugged enough to perform on a real jobsite. It is also waterproof IP67, which means it can be submersed into water. The ports, speaker and battery door are all completely sealed from dust and water.

Voice alerts

Voice status messages keep you informed without having to look at the screen of the field controller, or the status lights above your head. Stay safe in traffic situations by looking at oncoming traffic rather than looking for the word "Fixed".



Fence Antenna™ technology

This superior GNSS antenna element is light-weight, rugged, and sensitive enough to track signals in environments where other receivers fail. Obtain lock sooner, and track longer with Fence Antenna technology.

HIPER V

GNSS Tracking	
Number of Channels	226 Channels with Universal Tracking Technology
GPS	L1, L2, L2C
GLONASS	L1, L2
SBAS	L1 C/A WAAS/MSAS/EGNOS/GAGAN
QZSS	L1 C/A
Positioning Accuracy	
Static/Fast Static	H: 3.0 mm + 0.4 ppm V: 5.0 mm + 0.5 ppm
Precision Static**	H: 3.0 mm + 0.1 ppm V: 3.5 mm + 0.4 ppm
RTK (L1 + L2)	H: 5 mm + 0.5 ppm V: 10 mm + 0.8 ppm
DGPS	< 0.5 m
Communication	
Bluetooth®	V 2.1 + EDR, Class 2, 115,200 bps
Radio	UHF, Spread Spectrum, Cellular (options)
Cellular	Integrated HSPA+/CDMA
Data and Memory	
Real Time Data Output	TPS, RTCM SC104 v2.x, 3.x and MSM, CMR/CMR+
NMEA 0183 Output	Version 2.x, 3.x and 4.x
Physical	
Dimensions (d x h)	184 x 95 mm
Weight	1 kg
Power	
Power Source	External Power (6.7 to 8 VDC) Removeable battery (7.2V, 4300 mAh)
Operating Time	> 7.5 hours
Environmental	
Operating Temp.	-40°C to 65°C
Dust/Water Rating	IP67
Drop and Topple	2 meter pole-drop

** Under nominal observing conditions and strict processing methods, including use of dual frequency GPS, precise ephemerides, calm ionospheric conditions, approved antenna calibration, unobstructed visibility above 10 degrees and an observation duration of at least 3 hours (dependent on baseline length).



Integrated radio and modem options

- Spread Spectrum radio
- Digital UHF II radio
- HSPA cellular modem
- CDMA modem



Project site ruggedness

- Magnesium metal housing
- 2 meter drop design
- Field tested, field ready
- Waterproof



Constellation tracking performance

- Full GPS, GLONASS, and SBAS constellation and signal tracking
- Delivering positional confidence in harsh environments
- Improved repeatability 24/7



Housing features

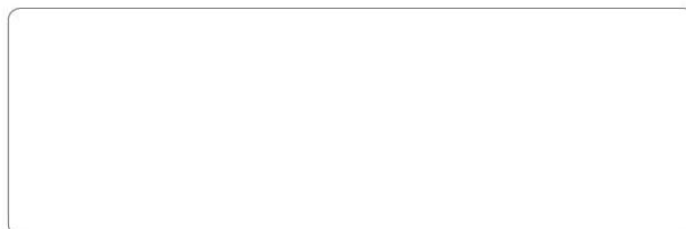
- Multifunction communication
- Sealed power port for full day use
- Sealed external serial port
- Certified slant height measure mark



For more information:
topconpositioning.com/hiper-v

Specifications subject to change without notice.
©2017 Topcon Corporation All rights reserved.
7010-2121 E 4/17

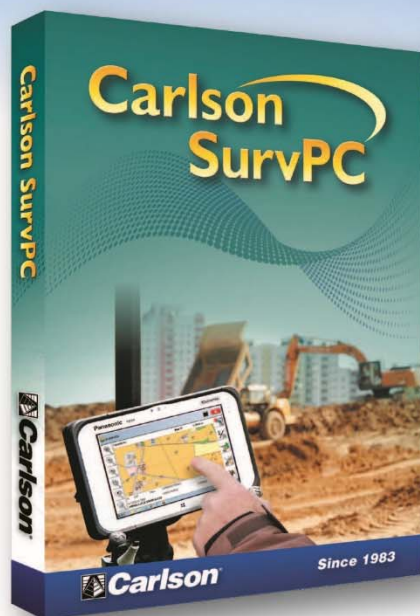
The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by Topcon is under license. Other trademarks and trade names are those of their respective owners.



Carlson RT3

— Ruggedized Tablet

New



The **Carlson RT3** is designed for surveying, stake out, construction layout and GIS mapping and is bundled with **Carlson SurvPC** – the Windows-based data collection program – with the option of running with the **Esri® OEM** program for use in the field. Or use in the office with any Carlson office software. Along with 4 GB of RAM, 64 GB or 128 GB storage options, collect and analyze your data quicker than ever before.

Performance

- Powerful Windows 10 for office-to-field use
- Plenty of memory — 4 GB RAM & up to 128 GB flash storage

Ready For Anything

- Long-range Bluetooth® Smart Ready, Wi-Fi®, USB connectivity
- 4G LTE (GEO CELL model)
- High-performance GNSS receiver and 8 MP rear, 2 MP front camera (GEO & GEO CELL Models)

Illumiview™ High-Visibility Display

- Large, 7-inch display for easy viewing
- IllumiView technology provides extraordinary visibility
- Optically-bonded capacitive touch screen for needle-sharp imagery
- Chemically-strengthened Dragontrail™ glass for excellent impact & scratch resistance

Expandable Battery

- All-day battery runs 8 - 10 hours for minimal downtime
- Optional expansion provides additional 4 - 5 hours
- Operates in extreme temperatures from -4°F to 122°F (-20°C to 50°C)

Juniper Rugged™

- Maximum protection for your data
- Dustproof & waterproof (IP68 rating)
- Designed to MIL-STD-810G for ultra-ruggedness
- 2-year warranty

For more information, visit
www.carlsonsw.com or call 800-989-5028

Since 1983

 **Carlson**
...For the Total Project

Carlson RT3 Ruggedized Tablet

Available Models

- Standard ■ GEO ■ GEO CELL

Bundle with SurvPC – the Windows-based data collection program – with the option of running with the Esri® OEM program for use in the field. Or use in the office with any Carlson office software.

Processor

- Quad-core Intel® Atom™ Z3745

Operating System And Software

- Microsoft® Windows 10
- Multiple languages supported (English, French, Spanish, German, Portuguese)

Memory And Data Storage

- 4 GB RAM (LPDDR3)
- 64 GB or 128 GB flash storage options
- User-accessible MicroSDXC card slot

Graphics

- Intel® HD Graphics

Display

- Active viewing area: 7" (178 mm)
- Resolution: WXGA (1280 x 800)
- High-visibility backlit LCD for best-in-class sunlight view-ability

Touch Screen

- Projected capacitive multi-touch interface for use with gloves, small tip stylus, and in wet conditions
- Optically bonded for increased visibility and strength
- Chemically-strengthened Dragontrail™ High Ion-Exchange (HIE™) coverglass for excellent impact and scratch resistance

Physical

- Size: 5.40" w x 8.48" l x 1.36" d (137 x 215 x 35 mm)
- Weight: 1.5 - 2 lbs (680 - 907 g)
- Durable, chemical- and shock-resistant design
- Easy-to-grip, impact-absorbing, overmolded bumpers
- Lightweight and ergonomic design

Wireless Connectivity Options

- Long-range Bluetooth® 4.0 wireless technology, v4.0 +EDR, Class 1.5, BLE support
- Wi-Fi 802.11 a/b/g/n, 2.4 GHz and 5 GHz
- 4G LTE

Keyboard

- Adjustable LED backlit keys
- Four-way directional navpad
- Windows/home key
- Power key
- Enter key
- Three user-programmable function keys

Ports

- USB 3.0 x 1
- 3.5 mm audio jack
- 12 VDC power input jack
- Docking port connections (Pwr, USB 2.0, & HDMI)
- Loud output speaker for noisy environments
- Dual digital microphone input for improved clarity
- Optional RS-232 9-Pin D-Sub connector with 5VDC power output

Battery

- Removable Li-Ion battery, 39 Whr
- Operates 8 - 10 hours on one charge
- Battery easily changeable in field
- Optimized for strong performance in cold temperatures
- Excellent lifecycle performance
- Optional built-in 19-Whr battery provides additional 4 - 5 hours runtime and hot-swap capability

Juniper Rugged™

- IP68 waterproof and dustproof
- Operating Temperature: -4°F to 122°F (-20°C to 50°C)
- Storage temperature: -22°F to 158°F (-30°C to 70°C)
- Shockproof: multiple drops from 4' (1.2 - 1.5 m) onto concrete
- Designed for MIL-STD-810G test procedures: Method 500.5 Low Pressure (Altitude); Method 501.5 High Temperature; Method 502.5 Low Temperature; Method 503.5 Temperature Shock; Method 506.5 Rain; Method 507.5 Humidity; Method 510.5 Sand and Dust; Method 512.5 Immersion; Method 514.6 Vibration; Method 516.6 Shock

GPS/GNSS (GEO Models)

- 2 to 5 meter typical accuracy
- uBlox NEO-M8N GNSS receiver and integrated antenna
- Integrated real-time SBAS receiver (WAAS, EGNOS, etc.)
- 72 GNSS tracking channels
- Optional: uBlox NEO-M8T w/ post-processing data output and external GNSS antenna pass-through connection for sub-meter accuracy

Camera (GEO Models)

- Rear: 8 MP with LED illumination
- Front: 2 MP
- Juniper Geotagging™: embed photo with date, time, and GNSS position

Other Features

- Ambient light sensor
- Compass
- Accelerometer
- Gyroscope
- TPM (Trusted Platform Module) v2.0

Certifications And Standards

- FCC Class B
- CE Marking (applicable EMC, R&TTE, and LVD directives)
- Industry Canada
- EN60950 Safety
- RoHS 2 Compliant

Warranty

- 2-Year Warranty
- Service Plans Available

Carlson Extra

- Polarized screen protector
- 128 GB instead of 64 GB hard drive in GEO and GEO CELL models
- uBlox M8T GNSS receiver in GEO and GEO CELL models
- additional 19-Whr battery provides additional 4 - 5 hours runtime and hot-swap capability (GEO and GEO CELL models)

© Copyright 2016 Carlson Software, Inc. All rights reserved. Carlson Software is a registered trademark of Carlson Software, Inc. Trademarks provided under license from Esri. All other product names or trademarks belong to their respective holders.

Surveyor – Surveyor+

*The speed you need...
The reliability you deserve*

The fastest, most durable and powerful handheld computer available today

Powered with
Carlson SurvCE

COMPLETELY RUGGEDIZED
IP67 water & dust
resistant; magnesium
housing – a full metal
jacket!

MORE MEMORY
Up to 1 gigabyte with
option to expand

**COMPACT/CONVENIENT
CONNECTIONS**
2 styles of USB
connections located on
top for convenience

EASY TO HOLD/CONTROL
Just 2 pounds! Keys' size
& location optimized for
precise handling

BACK LIT CONTROL KEYS
Easily see when
quick command keys
are activated

LONGER BATTERY LIFE
8-10 hours standard
with option to
add second battery

Find Out More NOW!
Call or visit Carlson Software:
800-989-5028 • www.carlsonsw.com



Specifications

PROCESSOR		MEMORY	
Type: PXA270		Feature	Surveyor
Maximum Clock Speed: 520 Mhz/Surveyor; 624 Mhz/Surveyor+		RAM	64 MB
Both include:		Data Storage	512 MB
• Real Time Clock		Data Storage Expansion	1GB
• Battery Warm Swapping Ability			
• Microphone			
• Speaker			
DISPLAY		BATTERY	
Type: TFT		Battery Type: Li-ion	
Resolution (240x320 pixels): QVGA		Battery Packs: Come standard with one (1) battery pack; user can add a second battery pack	
Color/Mono: Color		Battery Capacity: 3000 mAh (7000 mAh capacity reached when using two battery packs)	
Size: 3.5" diagonal		Battery Life: 8-10 hours standard (battery life is determined by the number of battery packs used, by the amount of time the backlight is on, the backlight brightness, and the type of expansion pack installed)	
Both also include:		Charging Plug: Included	
• Backlight (LCD)		Vehicle Charge Adapter: Included	
• Touchscreen		Warm Swapping: Included	
• Ability to disable Touchscreen from keyboard			
OPERATING SYSTEM — WM 6.1		ENVIRONMENTAL	
Languages: English, Simplified Chinese, Portuguese, French, German, Spanish		Operating Temperature: -30°C to +60°C	
Applications Included: All standard WM6 applications (Word Mobile, Excel Mobile, Outlook Mobile, etc.)		Storage Temperature: -30°C to +60°C	
Bluetooth Audio: A2DP supported		Humidity: MIL-STD-810F (Designed to this standard)	
Speed Switch Utility: Sets processor clock speed to conserve battery		Water Resistance: IP67	
INTERFACE (I/O CONNECTOR)		Shock Resistance: MIL-STD-810F (Designed to withstand 5-foot drop onto concrete)	
RS-232 9 pin D: Two DB-9		Dust Resistance: IP67	
Bluetooth: 2.0 w EDR			
USB 1.1 h/g: Yes for Surveyor+; No for Surveyor		ENCLOSURE	
USB Client: Mini-B connector		Dimensions: 10.2" x 5" x 1.5"	
USB Host: Full-size USB connector		Weight: ~ 2 lbs.	
EXPANSION (Surveyor+ only)		Both include:	
MicroSD Card Slot		• Handstrap	
Expansion Packs for GPS, cell modem, Ciconnet radio, Macstream radio, Futaba radio		• Full-size Stylus	
KEYBOARD		• Stylus Storage	
Type: Elastomer		• Tripod Hook	
Navigation: 9-way (8) navigation pad with center enter		• Magnesium enclosure with elastomer end caps	
Numeric Keys: 0-9 (10)			
Alpha Keys: A-Z (26)		WARRANTY	
Command/Modifier Keys: 10 – Shift, Tab, Control, 2nd, Escape, Alt, Space, Backspace, Delete		• Electronics: 24 months	
Enter Key: Large, easy to use both right- and left-handed		• Battery & Chargers: 90 days	
Left & Right Soft		OPTIONAL ACCESSORIES	
Function Key: Left Soft Function key loads SurvCE		Wall Charger with choice of adapter	
Windows Key: Displays the Start Menu		Stylus	
Power Key		Screen Protectors	
Backlit Control Keys: Alt-Yellow, 2nd-Blue, Control-Green, Shift-Red		Battery Pack – Standard	
LED Enumerates/		Vehicle Charger	
Notification: 2 – One LED displays charging status and the second one can be programmed by the application software		External Battery Charger	
Number of keys: 52		EXPANSION PACKS (For Surveyor+ only)	
		3G Cellular Modem – GSM	
		Surveyor+ GPS System	

Quality Assurance

Existing published NGS monuments were used to assure that there was no discrepancy in the surveyed field observations. The majority of surveyed coordinates agreed with the published coordinates within the project tolerance of 0.024 meters in the X and Y and 0.046 meters in the Z. The differences between the surveyed coordinates and the published coordinates can be seen in table 7 below. NGS data sheets for all monuments used can be found in the appendix of this document.

NGS Point ID	Observation 1 v. Observation 2			Observation 1 vs. Published NGS Coordinates			Observation 2 vs. Published NGS Coordinates		
	ΔY	ΔX	ΔZ	ΔY	ΔX	ΔZ	ΔY	ΔX	ΔZ
NB0611	0.000	0.018	0.061	0.052	0.129	0.041	0.052	0.111	0.020
NB2146	0.015	0.002	0.021	0.002	0.003	0.025	0.013	0.005	0.046
NB1641	0.003	0.005	0.015	0.041	0.004	0.024	0.044	0.001	0.039
AE2168	0.020	0.004	0.028	0.016	0.004	0.025	0.004	0.008	0.003
NB1654	0.004	0.002	0.003	0.018	0.004	0.003	0.022	0.002	0.000
NB1027	0.006	0.001	0.005	0.005	0.012	0.039	0.001	0.013	0.044

Table 7. Positional differences between published NGS coordinates and surveyed coordinates.

The surveyed coordinates for NGS monument NB0611 did not come within the project specifications. Deltas were high in both the X and Y. The monument is a bench mark disk set on top of the concrete monument. A close inspection of the monument determined that the monument may have been disturbed and therefore unreliable as a check. Said monument was replaced with NB1654.



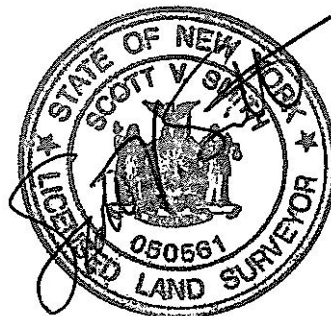
The surveyed coordinates for NGS monument NB1641 did not come within the project specifications. Deltas were high in the Y when compared to the NGS coordinates but were consistent between each other. The monument was an iron rod that extends 1.5 meter in the ground. The monument did not look disturbed, however the rod was off-center in the surrounding housing.



Certification

I hereby certify that this is an accurate survey prepared under my direction from Field Work performed in the field between the dates of March 25, 2020 and April 10, 2020.

Scott V. Smith
New York License No. 050561



Appendix

Surveyed Coordinate Maps

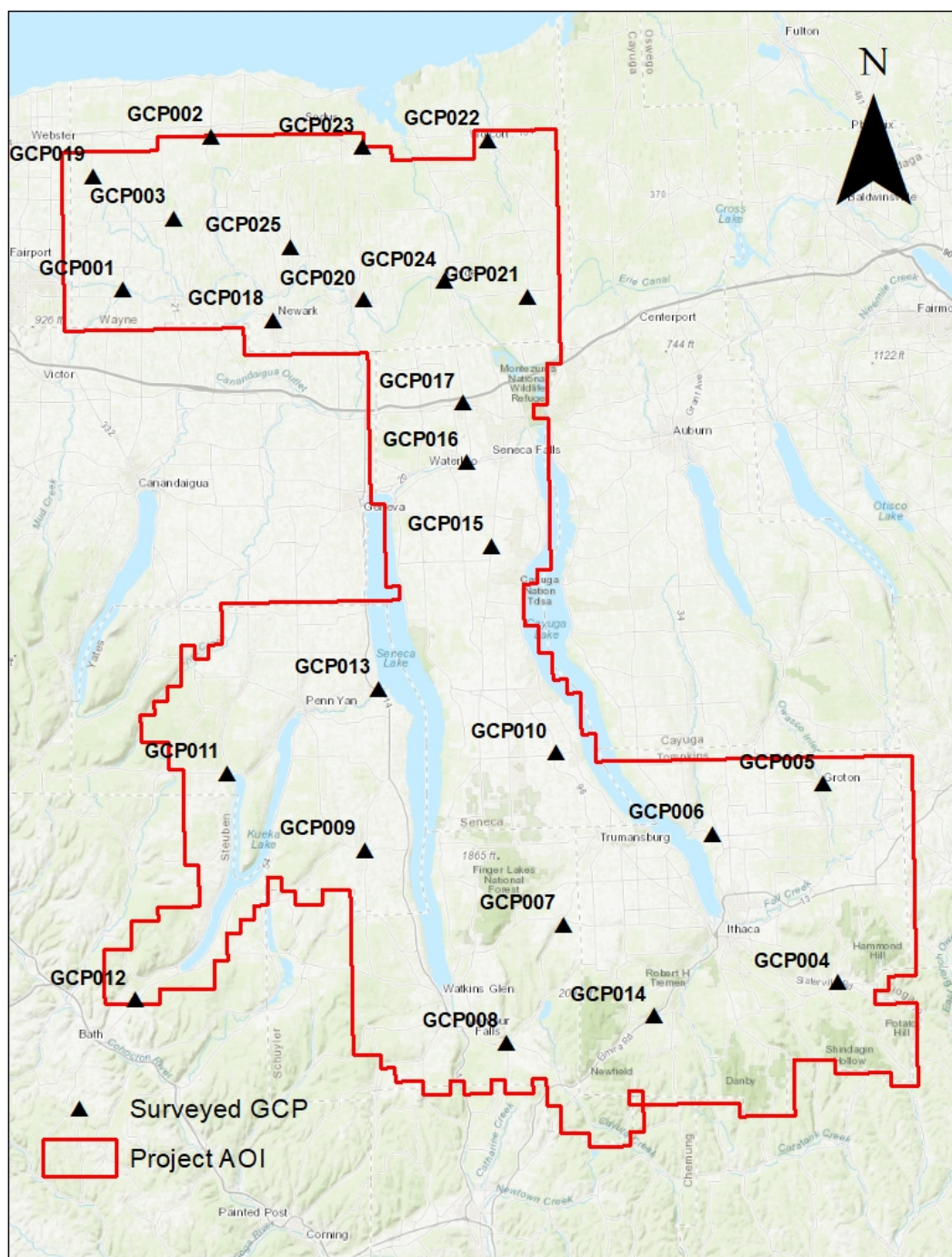


Figure 3. Locations of Surveyed Ground Control Points.

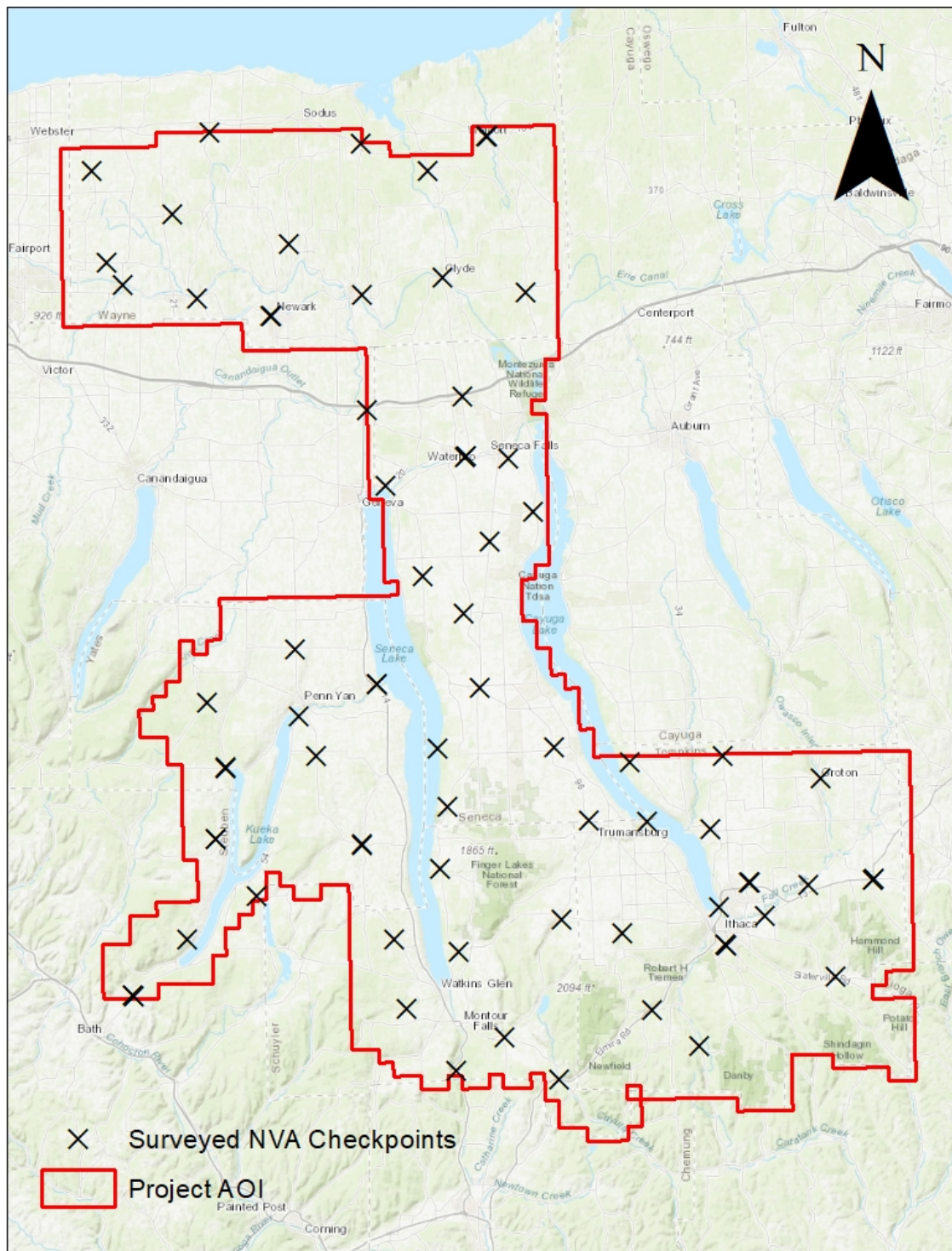


Figure 4. Locations of Surveyed NVA checkpoints.

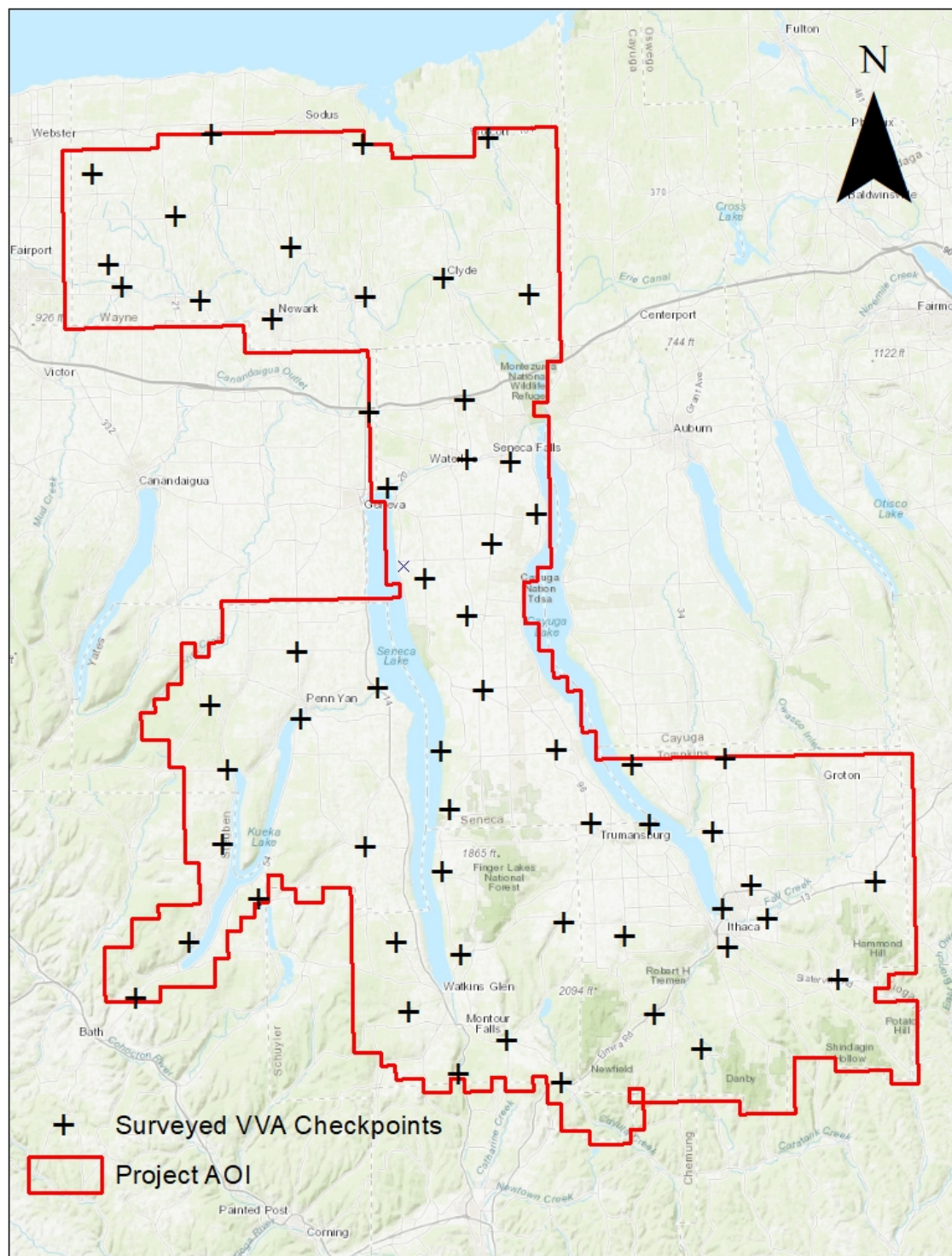


Figure 5. Locations of Surveyed VVA Checkpoints.

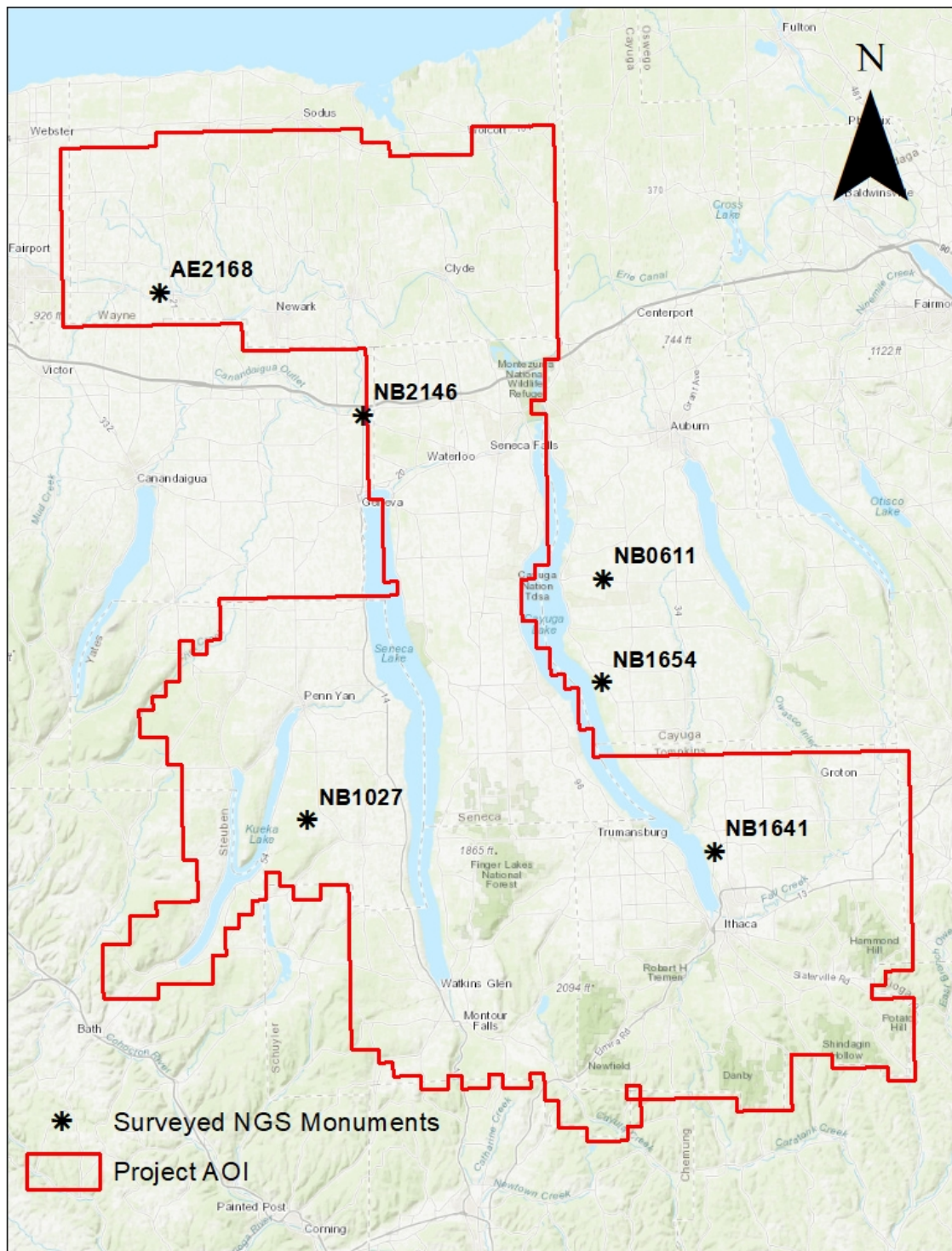
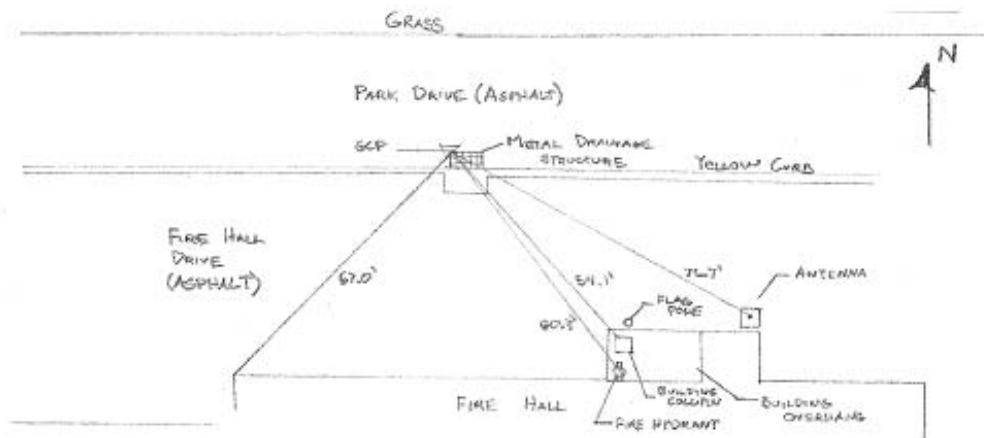


Figure 6. Locations of Surveyed NGS Monuments.

Survey Control Recovery Tie Diagrams

Sanborn LiDAR Control - Sketch Form

Point Number: GCP001	Date:3/25/2020	Julian Day: 20085
Occupation Start: 11:09:04 AM	Occupation End: 11:12:05 AM	Session: 1 of 2
Occupation Start: 11:43:36 AM	Occupation End: 11:46:37 AM	Session: 2 of 2
Operator: Shane Jakubec	Receiver Model: Topcon HiPer V GNSS Receiver	
Receiver Serial #: 1122-23494	Antenna Height: 2 m	
Horizontal Datum: NAD 1983 (2011) UTM Zone 18 North		
Vertical Datum: NAVD88	Geoid: 12B	
Northing (Y): 4771436.180		Easting (X): 312590.758
Orthometric Elevation: 141.086		

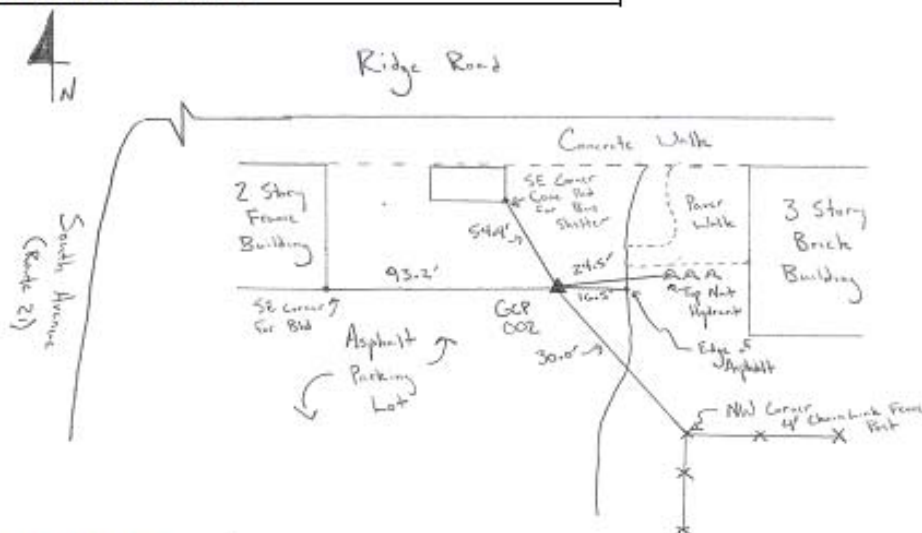


Tie-Diagram :		
Site Photos :		
North	East	Down Facing



Sanborn LiDAR Control - Sketch Form

Point Number: GCP002	Date:3/25/2020	Julian Day: 20085
Occupation Start: 12:29:23 PM	Occupation End: 12:32:37 PM	Session: 1 of 2
Occupation Start: 1:00:18 PM	Occupation End: 1:03:31 PM	Session: 2 of 2
Operator: Jon Navagh	Receiver Model: Topcon HiPer V GNSS Receiver	
Receiver Serial #: 1122-23460	Antenna Height: 2 m	
Horizontal Datum: NAD 1983 (2011) UTM Zone 18 North		
Vertical Datum: NAVD88	Geoid: 12B	
Northing (Y): 4787983.651		Easting (X): 322523.154
Orthometric Elevation: 135.262		



Tie-Diagram :
Site Photos :
North



East

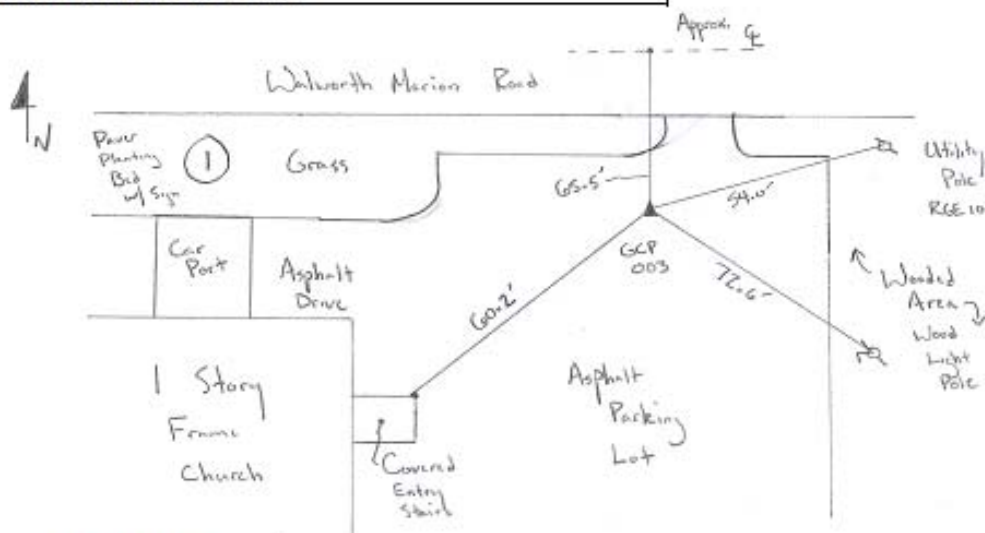


Down Facing



Sanborn LiDAR Control - Sketch Form

Point Number: GCP003	Date: 3/26/2020	Julian Day: 20086
Occupation Start: 8:47:43 AM	Occupation End: 8:50:55 AM	Session: 1 of 2
Occupation Start: 9:13:52 AM	Occupation End: 9:17:03 AM	Session: 2 of 2
Operator: Jon Navagh	Receiver Model: Topcon HiPer V GNSS Receiver	
Receiver Serial #: 1122-23460	Antenna Height: 2 m	
Horizontal Datum: NAD 1983 (2011) UTM Zone 18 North		
Vertical Datum: NAVD88	Geoid: 12B	
Northing (Y): 4779087.243		Easting (X): 318302.955
Orthometric Elevation: 144.189		



Tie-Diagram :
Site Photos :
North



East

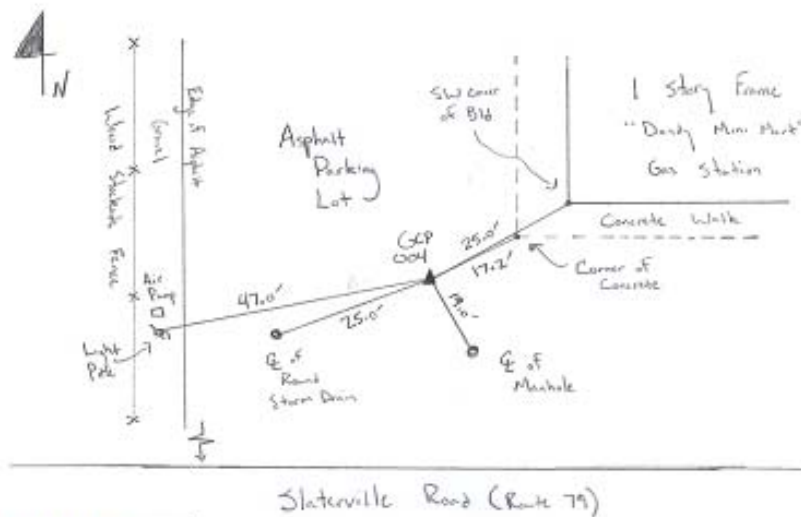


Down Facing



Sanborn LiDAR Control - Sketch Form

Point Number: GCP004	Date: 4/1/2020	Julian Day: 20092
Occupation Start: 9:07:36 AM	Occupation End: 9:10:45 AM	Session: 1 of 2
Occupation Start: 9:43:10 AM	Occupation End: 9:46:20 AM	Session: 2 of 2
Operator: Jon Navagh	Receiver Model: Topcon HiPer V GNSS Receiver	
Receiver Serial #: 1122-23460	Antenna Height: 2 m	
Horizontal Datum: NAD 1983 (2011) UTM Zone 18 North		
Vertical Datum: NAVD88	Geoid: 12B	
Northing (Y): 4694429.811		Easting (X): 389082.486
Orthometric Elevation: 339.959		



Tie-Diagram :
Site Photos :
North



East

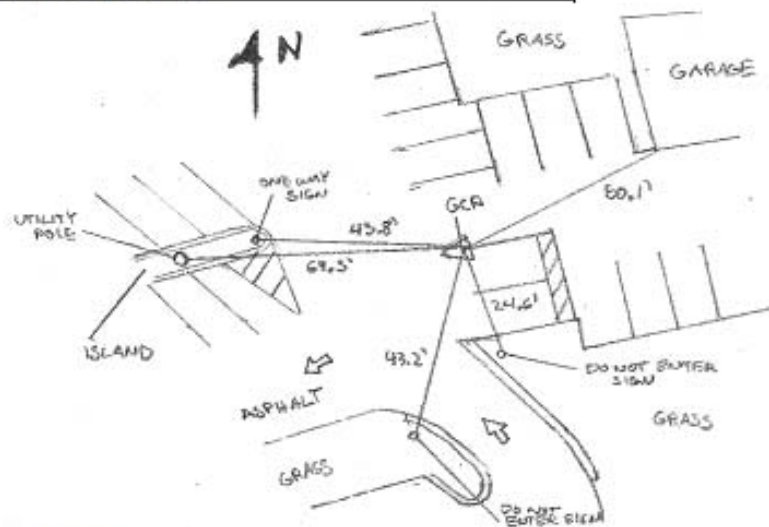


Down Facing



Sanborn LiDAR Control - Sketch Form

Point Number: GCP005	Date:3/26/2020	Julian Day: 20086
Occupation Start: 02:09:55 PM	Occupation End: 02:12:55 PM	Session: 1 of 2
Occupation Start: 02:32:00 PM	Occupation End: 02:35:00 PM	Session: 2 of 2
Operator: Shane Jakubec	Receiver Model: Topcon HiPer V GNSS Receiver	
Receiver Serial #: 1122-23494	Antenna Height: 2 m	
Horizontal Datum: NAD 1983 (2011) UTM Zone 18 North		
Vertical Datum: NAVD88	Geoid: 12B	
Northing (Y): 4716135.073		Easting (X): 387865.091
Orthometric Elevation: 306.911		



Tie-Diagram :
Site Photos :
North

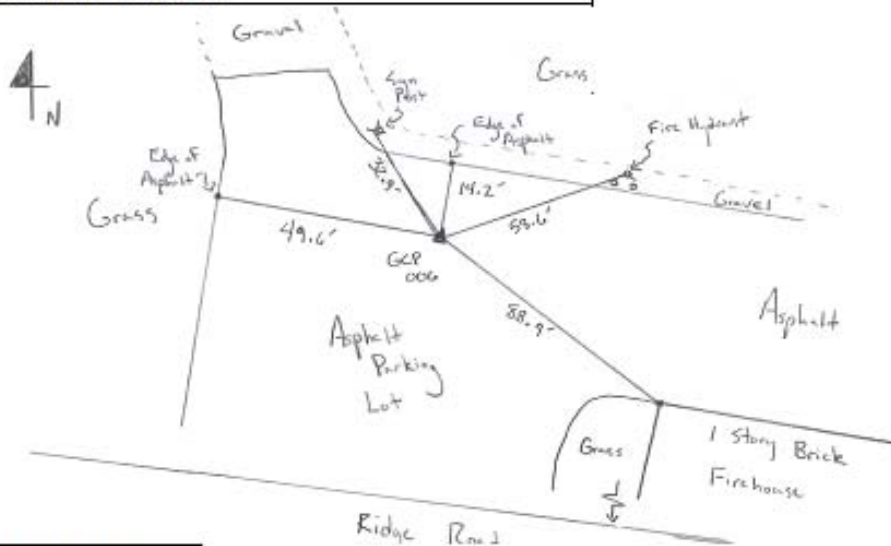
East

Down Facing



Sanborn LiDAR Control - Sketch Form

Point Number: GCP006	Date: 3/31/2020	Julian Day: 20091
Occupation Start: 2:11:36 PM	Occupation End: 2:14:47 PM	Session: 1 of 2
Occupation Start: 2:41:16 PM	Occupation End: 2:44:26 PM	Session: 2 of 2
Operator: Jon Navagh	Receiver Model: Topcon HiPer V GNSS Receiver	
Receiver Serial #: 1122-23460	Antenna Height: 2 m	
Horizontal Datum: NAD 1983 (2011) UTM Zone 18 North		
Vertical Datum: NAVD88	Geoid: 12B	
Northing (Y): 4710854.704		Easting (X): 375742.089
Orthometric Elevation: 238.773		



Tie-Diagram :
Site Photos :
North



East



Down Facing



Sanborn LiDAR Control - Sketch Form

Point Number: GCP007	Date: 04/01/2020	Julian Day: 20092
Occupation Start: 11:18:31 AM	Occupation End: 11:21:31 AM	Session: 1 of 2
Occupation Start: 11:41:32 AM	Occupation End: 11:44:32 AM	Session: 2 of 2
Operator: Shane Jakubec	Receiver Model: Topcon HiPer V GNSS Receiver	
Receiver Serial #: 1122-23494	Antenna Height: 2 m	
Horizontal Datum: NAD 1983 (2011) UTM Zone 18 North		
Vertical Datum: NAVD88	Geoid: 12B	
Northing (Y): 4701283.546		Easting (X): 359334.208
Orthometric Elevation: 366.114		



Tie-Diagram :
Site Photos :
North

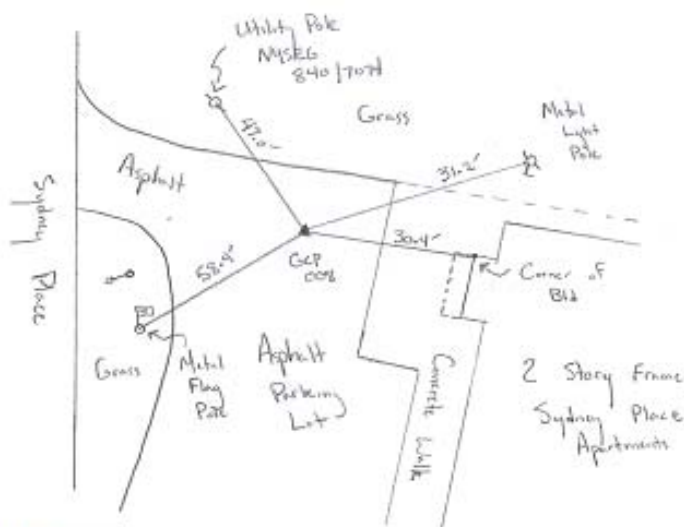
East

Down Facing



Sanborn LiDAR Control - Sketch Form

Point Number: GCP008	Date:3/27/2020	Julian Day: 20087
Occupation Start: 11:20:21 AM	Occupation End: 11:23:31 AM	Session: 1 of 2
Occupation Start: 11:56:03 AM	Occupation End: 11:59:31 AM	Session: 2 of 2
Operator: Jon Navagh	Receiver Model: Topcon HiPer V GNSS Receiver	
Receiver Serial #: 1122-23460	Antenna Height: 2 m	
Horizontal Datum: NAD 1983 (2011) UTM Zone 18 North		
Vertical Datum: NAVD88	Geoid: 12B	
Northing (Y): 4688544.702		Easting (X): 352823.242
Orthometric Elevation: 323.823		



Tie-Diagram :
Site Photos :
North



East

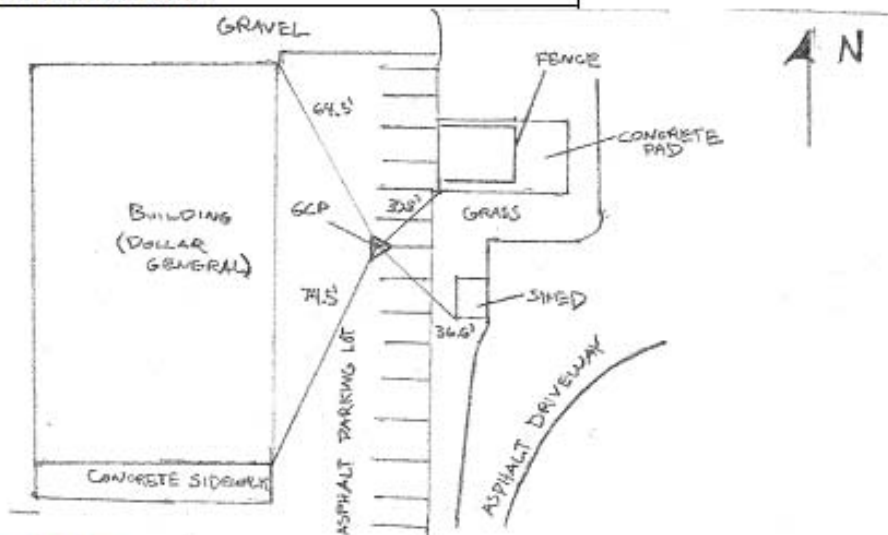


Down Facing



Sanborn LiDAR Control - Sketch Form

Point Number: GCP009	Date: 3/30/2020	Julian Day: 20090
Occupation Start: 01:52:01 PM	Occupation End: 01:55:02 PM	Session: 1 of 2
Occupation Start: 02:18:28 PM	Occupation End: 01:21:28 PM	Session: 2 of 2
Operator: Shane Jakubec	Receiver Model: Topcon HiPer V GNSS Receiver	
Receiver Serial #: 1122-23494	Antenna Height: 2 m	
Horizontal Datum: NAD 1983 (2011) UTM Zone 18 North		
Vertical Datum: NAVD88	Geoid: 12B	
Northing (Y): 4709833.572		Easting (X): 337735.803
Orthometric Elevation: 301.873		

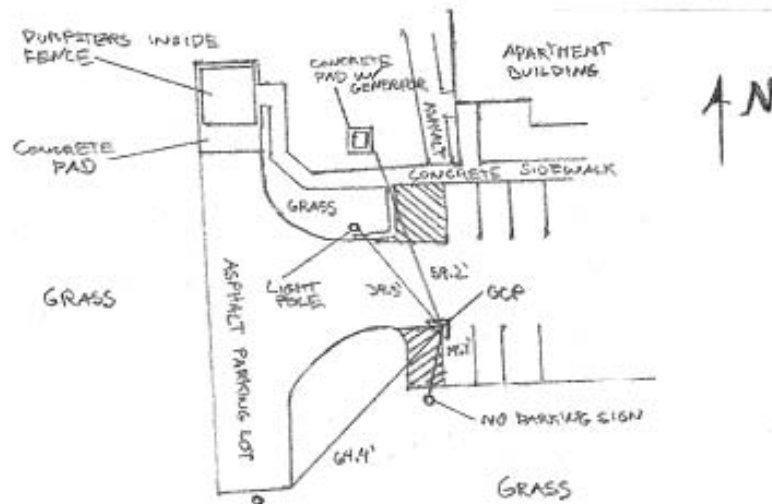


Tie-Diagram :		
Site Photos :		
North	East	Down Facing



Sanborn LiDAR Control - Sketch Form

Point Number: GCP010	Date: 04/01/2020	Julian Day: 20092
Occupation Start: 09:06:26 AM	Occupation End: 09:09:26 AM	Session: 1 of 2
Occupation Start: 09:33:08 AM	Occupation End: 09:36:08	Session: 2 of 2
Operator: Shane Jakubec	Receiver Model: Topcon HiPer V GNSS Receiver	
Receiver Serial #: 1122-23494	Antenna Height: 2 m	
Horizontal Datum: NAD 1983 (2011) UTM Zone 18 North		
Vertical Datum: NAVD88	Geoid: 12B	
Northing (Y): 4720080.445		Easting (X): 358779.355
Orthometric Elevation: 262.840		



Tie-Diagram :
Site Photos :
North

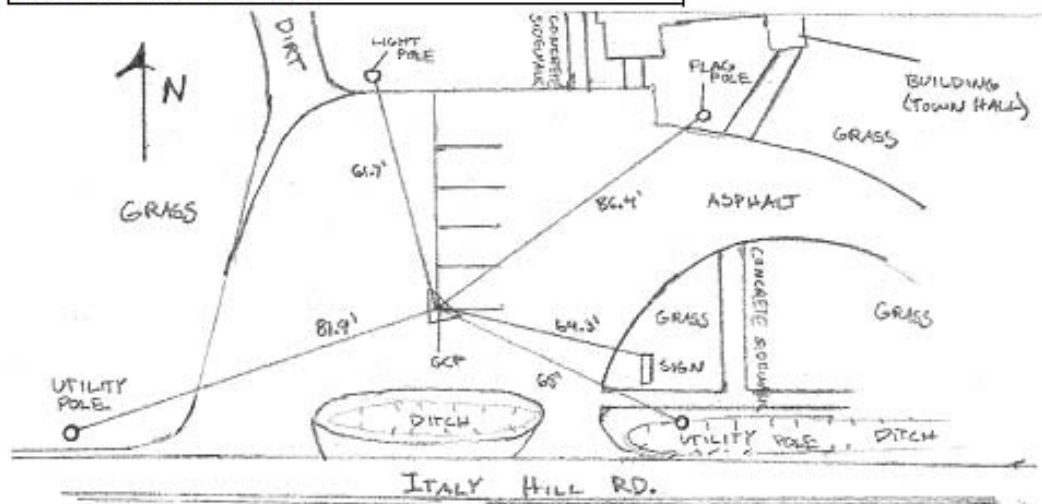
East

Down Facing



Sanborn LiDAR Control - Sketch Form

Point Number: GCP011	Date: 04/02/2020	Julian Day: 20093
Occupation Start: 02:41:24 PM	Occupation End: 02:44:24 PM	Session: 1 of 2
Occupation Start: 03:14:20 PM	Occupation End: 03:17:20 PM	Session: 2 of 2
Operator: Shane Jakubec	Receiver Model: Topcon HiPer V GNSS Receiver	
Receiver Serial #: 1122-23494	Antenna Height: 2 m	
Horizontal Datum: NAD 1983 (2011) UTM Zone 18 North		
Vertical Datum: NAVD88	Geoid: 12B	
Northing (Y): 4718519.903		Easting (X): 322885.666
Orthometric Elevation: 256.582		

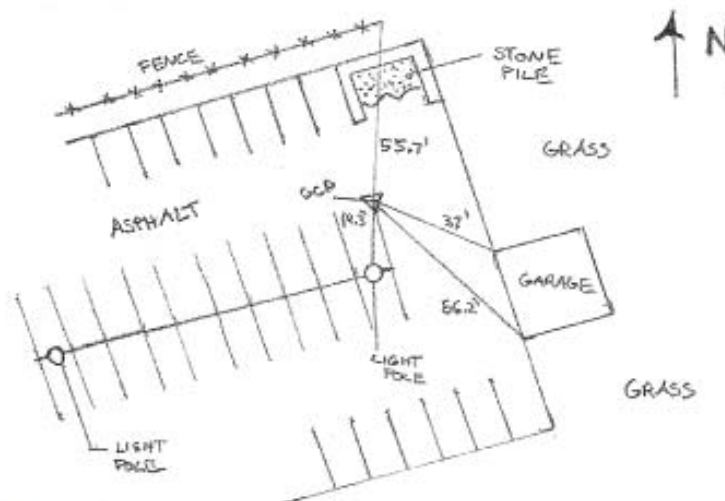


Tie-Diagram :		
Site Photos :		
North	East	Down Facing



Sanborn LiDAR Control - Sketch Form

Point Number: GCP012	Date: 04/02/2020	Julian Day: 20093
Occupation Start: 11:54:08 AM	Occupation End: 11:57:08 AM	Session: 1 of 2
Occupation Start: 12:40:15 PM	Occupation End: 12:43:15 PM	Session: 2 of 2
Operator: Shane Jakubec	Receiver Model: Topcon HiPer V GNSS Receiver	
Receiver Serial #: 1122-23494	Antenna Height: 2 m	
Horizontal Datum: NAD 1983 (2011) UTM Zone 18 North		
Vertical Datum: NAVD88	Geoid: 12B	
Northing (Y): 4693969.379		Easting (X): 312395.814
Orthometric Elevation: 333.293		

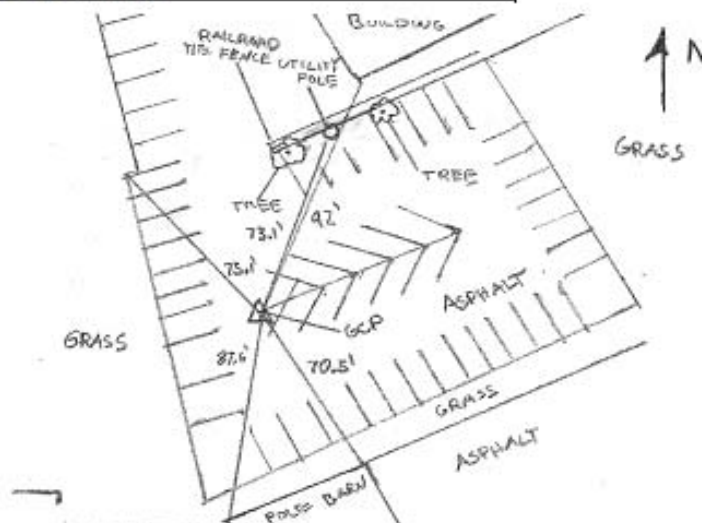


Tie-Diagram :		
Site Photos :		
North	East	Down Facing



Sanborn LiDAR Control - Sketch Form

Point Number: GCP013	Date: 04/03/2020	Julian Day: 20094
Occupation Start: 12:13:43 PM	Occupation End: 12:16:44 PM	Session: 1 of 2
Occupation Start: 12:50:21 PM	Occupation End: 12:53:21 PM	Session: 2 of 2
Operator: Shane Jakubec	Receiver Model: Topcon HiPer V GNSS Receiver	
Receiver Serial #: 1122-23494	Antenna Height: 2 m	
Horizontal Datum: NAD 1983 (2011) UTM Zone 18 North		
Vertical Datum: NAVD88	Geoid: 12B	
Northing (Y): 4727374.530		Easting (X): 339561.417
Orthometric Elevation: 155.720		

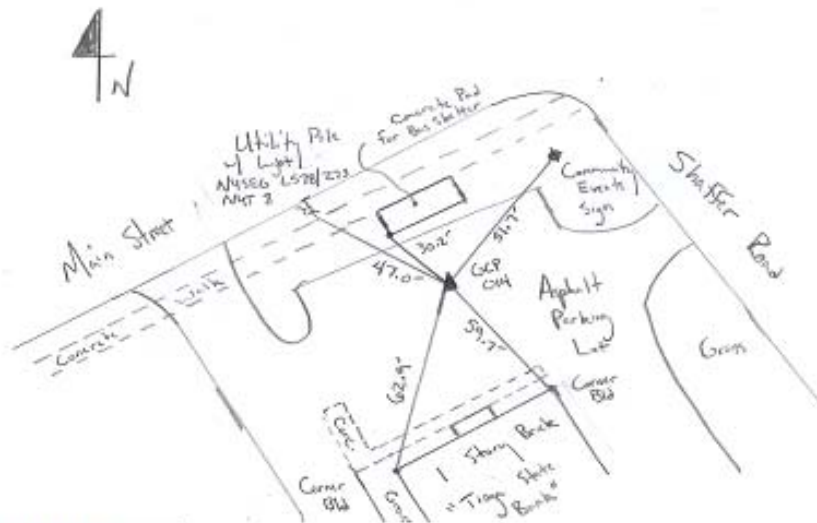


Tie-Diagram :		
Site Photos :		
North	East	Down Facing



Sanborn LiDAR Control - Sketch Form

Point Number: GCP014	Date: 4/1/2020	Julian Day: 20092
Occupation Start: 11:34:55 AM	Occupation End: 11:38:06 AM	Session: 1 of 2
Occupation Start: 12:23:59 PM	Occupation End: 12:27:09 PM	Session: 2 of 2
Operator: Jon Navagh	Receiver Model: Topcon HiPer V GNSS Receiver	
Receiver Serial #: 1122-23460	Antenna Height: 2 m	
Horizontal Datum: NAD 1983 (2011) UTM Zone 18 North		
Vertical Datum: NAVD88	Geoid: 12B	
Northing (Y): 4691171.071		Easting (X): 369003.865
Orthometric Elevation: 321.179		



Tie-Diagram :
Site Photos :
North



East

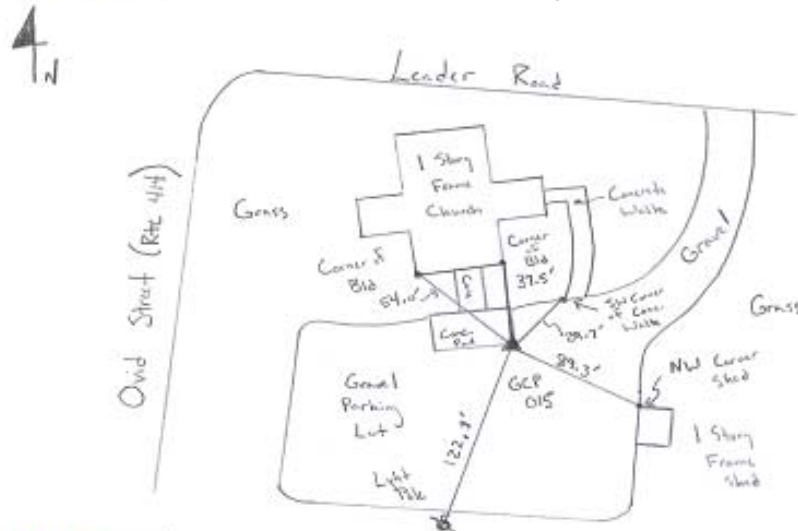


Down Facing



Sanborn LiDAR Control - Sketch Form

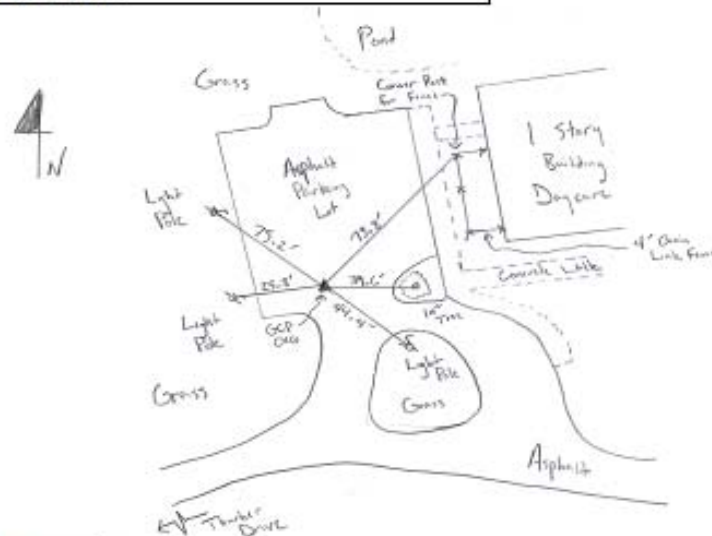
Point Number: GCP015	Date: 3/30/2020	Julian Day: 20090
Occupation Start: 12:02:30 PM	Occupation End: 12:05:41 PM	Session: 1 of 2
Occupation Start: 12:30:35 PM	Occupation End: 12:33:46 PM	Session: 2 of 2
Operator: Jon Navagh	Receiver Model: Topcon HiPer V GNSS Receiver	
Receiver Serial #: 1122-23460	Antenna Height: 2 m	
Horizontal Datum: NAD 1983 (2011) UTM Zone 18 North		
Vertical Datum: NAVD88	Geoid: 128	
Northing (Y): 4742701.425		Easting (X): 352227.454
Orthometric Elevation: 169.669		



Tie-Diagram :			
Site Photos :			
North	East	Down Facing	
			

Sanborn LiDAR Control - Sketch Form

Point Number: GCP016	Date: 4/02/2020	Julian Day: 20093
Occupation Start: 11:00:05 AM	Occupation End: 11:03:16 AM	Session: 1 of 2
Occupation Start: 11:31:09 AM	Occupation End: 11:34:19 AM	Session: 2 of 2
Operator: Jon Navagh	Receiver Model: Topcon HiPer V GNSS Receiver	
Receiver Serial #: 1122-23460	Antenna Height: 2 m	
Horizontal Datum: NAD 1983 (2011) UTM Zone 18 North		
Vertical Datum: NAVD88	Geoid: 12B	
Northing (Y): 4751967.476		Easting (X): 349647.117
Orthometric Elevation: 137.629		



Tie-Diagram :
Site Photos :
North



East

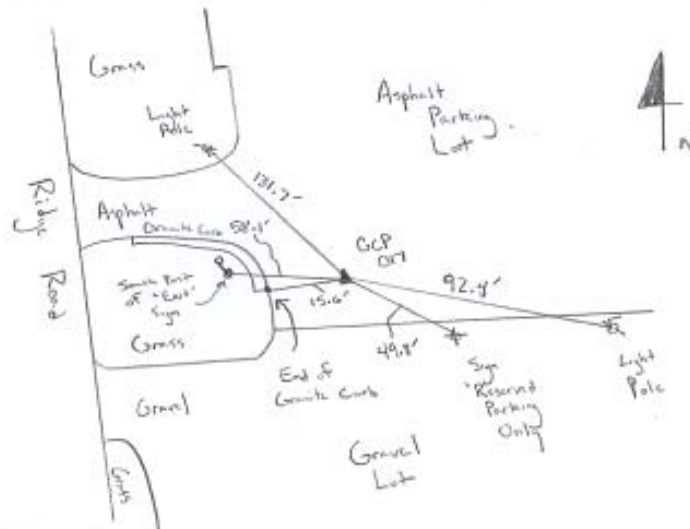


Down Facing



Sanborn LiDAR Control - Sketch Form

Point Number: GCP017	Date: 4/02/2020	Julian Day: 20093
Occupation Start: 12:24:52 PM	Occupation End: 12:28:03 PM	Session: 1 of 2
Occupation Start: 1:08:36 PM	Occupation End: 1:11:48 PM	Session: 2 of 2
Operator: Jon Navagh	Receiver Model: Topcon HiPer V GNSS Receiver	
Receiver Serial #: 1122-23460	Antenna Height: 2 m	
Horizontal Datum: NAD 1983 (2011) UTM Zone 18 North		
Vertical Datum: NAVD88	Geoid: 12B	
Northing (Y): 4758414.415		Easting (X): 349448.451
Orthometric Elevation: 159.684		



Tie-Diagram :
Site Photos :
North



East

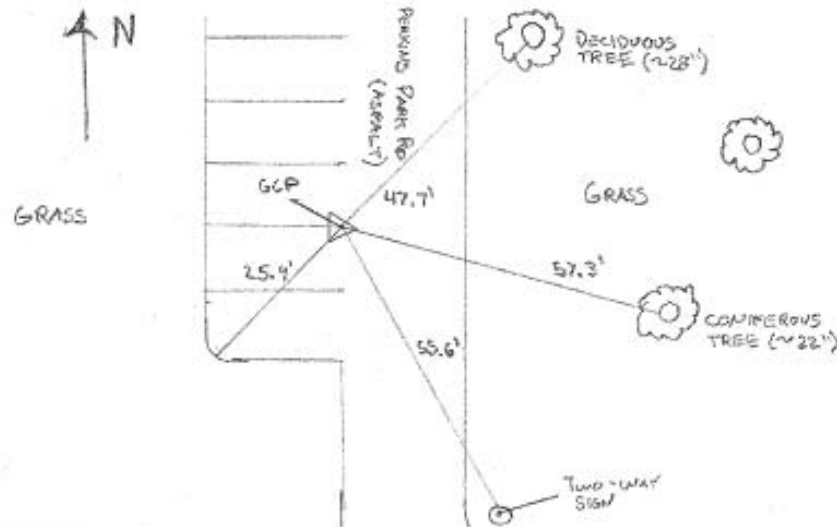


Down Facing



Sanborn LiDAR Control - Sketch Form

Point Number: GCP018	Date: 3/25/2020	Julian Day: 20085
Occupation Start: 02:55:42 PM	Occupation End: 02:58:42 PM	Session: 1 of 2
Occupation Start: 04:13:12 PM	Occupation End: 04:17:12 PM	Session: 2 of 2
Operator: Shane Jakubec	Receiver Model: Topcon HiPer V GNSS Receiver	
Receiver Serial #: 1122-23494	Antenna Height: 2 m	
Horizontal Datum: NAD 1983 (2011) UTM Zone 18 North		
Vertical Datum: NAVD88	Geoid: 12B	
Northing (Y): 4767802.771		Easting (X): 328791.406
Orthometric Elevation: 135.481		

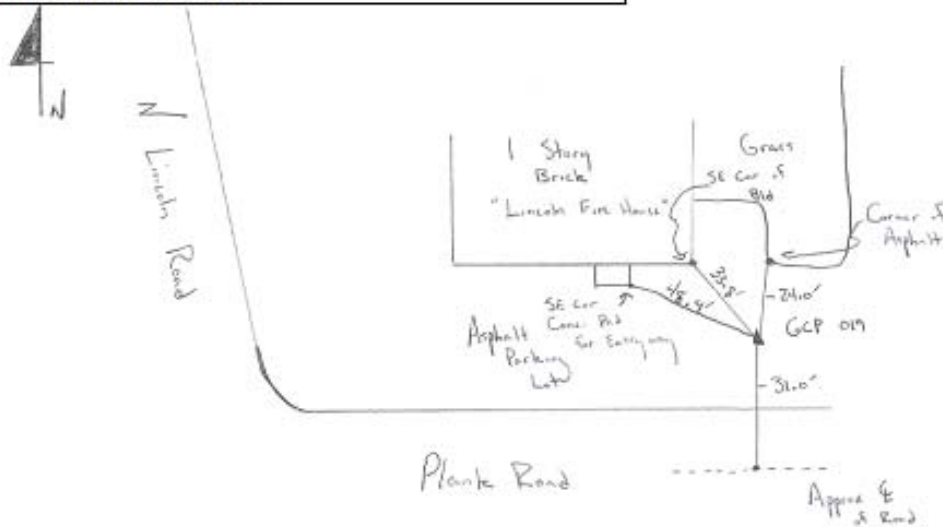


Tie-Diagram :	
Site Photos :	
North	East
	Down Facing



Sanborn LiDAR Control - Sketch Form

Point Number: GCP019	Date: 3/25/2020	Julian Day: 20085
Occupation Start: 10:19:06 AM	Occupation End: 10:22:18 AM	Session: 1 of 2
Occupation Start: 11:01:17 AM	Occupation End: 11:04:27 AM	Session: 2 of 2
Operator: Jon Navagh	Receiver Model: Topcon HiPer V GNSS Receiver	
Receiver Serial #: 1122-23460	Antenna Height: 2 m	
Horizontal Datum: NAD 1983 (2011) UTM Zone 18 North		
Vertical Datum: NAVD88	Geoid: 12B	
Northing (Y): 4783851.476		Easting (X): 309518.752
Orthometric Elevation: 151.915		



Tie-Diagram :
Site Photos :
North



East

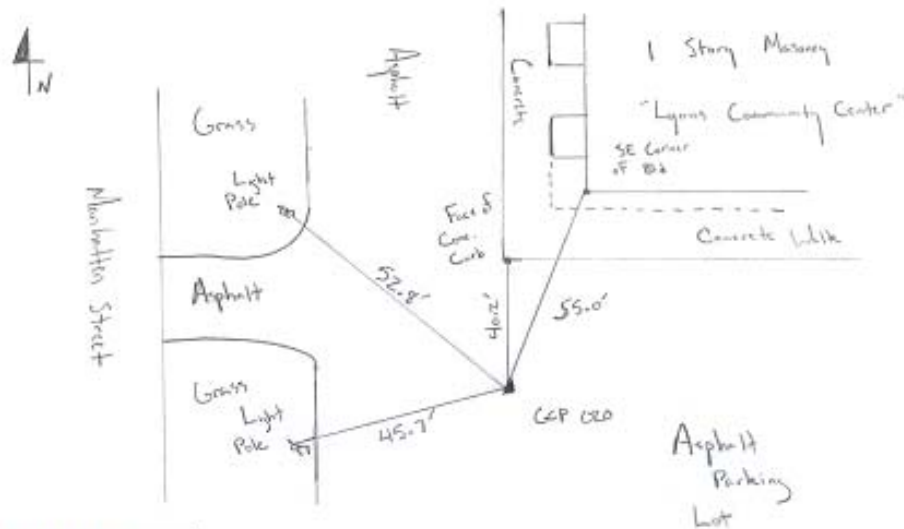


Down Facing



Sanborn LiDAR Control - Sketch Form

Point Number: GCP020	Date: 3/26/2020	Julian Day: 20086
Occupation Start: 4:33:06 PM	Occupation End: 4:36:14 PM	Session: 1 of 2
Occupation Start: 5:02:40 PM	Occupation End: 5:05:53 PM	Session: 2 of 2
Operator: Jon Navagh	Receiver Model: Topcon HiPer V GNSS Receiver	
Receiver Serial #: 1122-23460	Antenna Height: 2 m	
Horizontal Datum: NAD 1983 (2011) UTM Zone 18 North		
Vertical Datum: NAVD88	Geoid: 12B	
Northing (Y): 4769876.362		Easting (X): 338761.770
Orthometric Elevation: 121.317		



Tie-Diagram :
Site Photos :
North



East

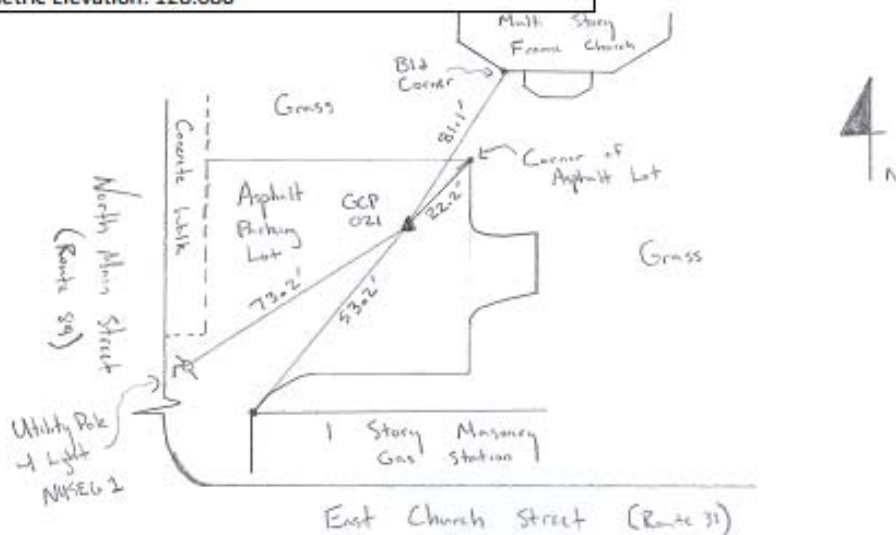


Down Facing



Sanborn LiDAR Control - Sketch Form

Point Number: GCP021	Date: 3/26/2020	Julian Day: 20086
Occupation Start: 6:39:52 PM	Occupation End: 6:43:00 PM	Session: 1 of 2
Occupation Start: 6:18:28 PM	Occupation End: 6:20:55 PM	Session: 2 of 2
Operator: Jon Navagh	Receiver Model: Topcon HiPer V GNSS Receiver	
Receiver Serial #: 1122-23460	Antenna Height: 2 m	
Horizontal Datum: NAD 1983 (2011) UTM Zone 18 North		
Vertical Datum: NAVD88	Geoid: 12B	
Northing (Y): 4769842.010		Easting (X): 356709.178
Orthometric Elevation: 128.680		



Tie-Diagram :
Site Photos :
North



East



Down Facing



Sanborn LiDAR Control - Sketch Form

Point Number: GCP022	Date: 3/25/2020	Julian Day: 20085
Occupation Start: 3:53:26 PM	Occupation End: 3:56:35 PM	Session: 1 of 2
Occupation Start: 4:51:33 PM	Occupation End: 4:54:43 PM	Session: 2 of 2
Operator: Jon Navagh	Receiver Model: Topcon HiPer V GNSS Receiver	
Receiver Serial #: 1122-23460	Antenna Height: 2 m	
Horizontal Datum: NAD 1983 (2011) UTM Zone 18 North		
Vertical Datum: NAVD88	Geoid: 12B	
Northing (Y): 4786941.698		Easting (X): 352692.799
Orthometric Elevation: 110.877		



Tie-Diagram :
Site Photos :
North



East

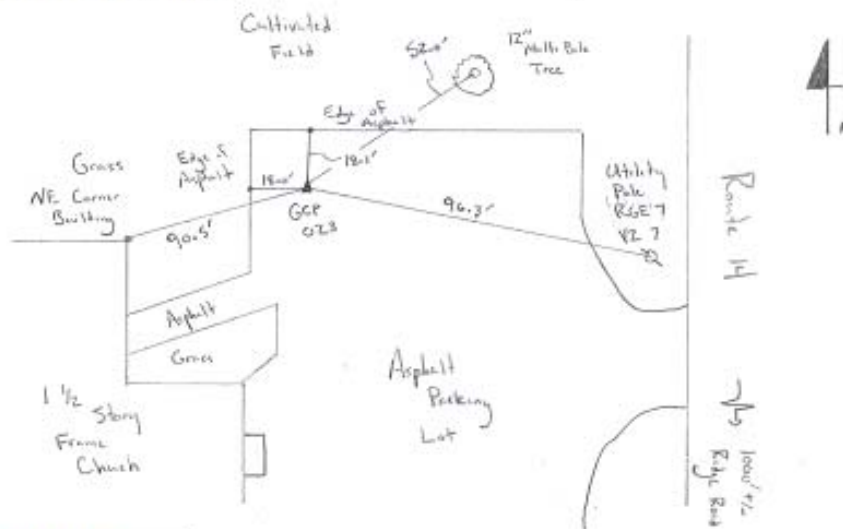


Down Facing



Sanborn LiDAR Control - Sketch Form

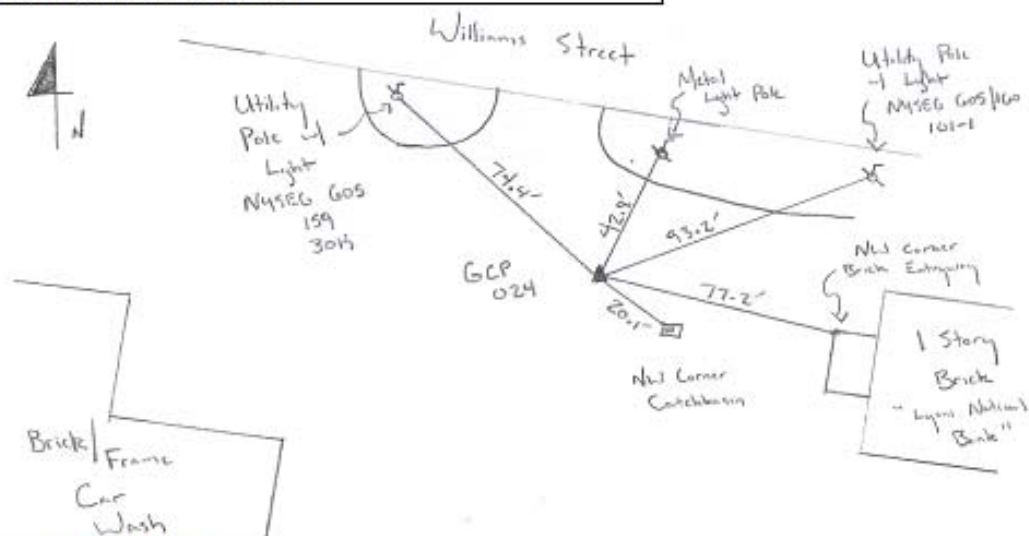
Point Number: GCP023	Date: 3/25/2020	Julian Day: 20085
Occupation Start: 1:41:52 PM	Occupation End: 1:44:58 PM	Session: 1 of 2
Occupation Start: 2:09:59 PM	Occupation End: 2:13:09 PM	Session: 2 of 2
Operator: Jon Navagh	Receiver Model: Topcon HiPer V GNSS Receiver	
Receiver Serial #: 1122-23460	Antenna Height: 2 m	
Horizontal Datum: NAD 1983 (2011) UTM Zone 18 North		
Vertical Datum: NAVD88	Geoid: 12B	
Northing (Y): 4786468.973		Easting (X): 338976.891
Orthometric Elevation: 114.026		



Tie-Diagram :		
Site Photos :		
North	East	Down Facing
		

Sanborn LiDAR Control - Sketch Form

Point Number: GCP024	Date: 3/26/2020	Julian Day: 20086
Occupation Start: 5:35:15 PM	Occupation End: 5:38:26 PM	Session: 1 of 2
Occupation Start: 6:07:58 PM	Occupation End: 6:11:05 PM	Session: 2 of 2
Operator: Jon Navagh	Receiver Model: Topcon HiPer V GNSS Receiver	
Receiver Serial #: 1122-23460	Antenna Height: 2 m	
Horizontal Datum: NAD 1983 (2011) UTM Zone 18 North		
Vertical Datum: NAVD88	Geoid: 12B	
Northing (Y): 4771680.856		Easting (X): 347650.960
Orthometric Elevation: 120.241		



Tie-Diagram :
Site Photos :
North



East

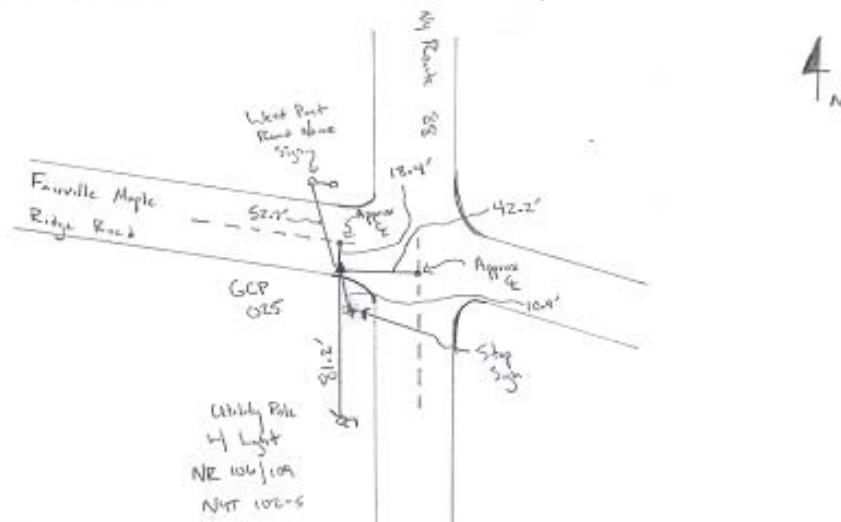


Down Facing



Sanborn LiDAR Control - Sketch Form

Point Number: GCP025	Date: 3/26/2020	Julian Day: 20086
Occupation Start: 10:44:27 AM	Occupation End: 10:47:32 AM	Session: 1 of 2
Occupation Start: 11:08:50 AM	Occupation End: 11:12:02 AM	Session: 2 of 2
Operator: Jon Navagh	Receiver Model: Topcon HiPer V GNSS Receiver	
Receiver Serial #: 1122-23460	Antenna Height: 2 m	
Horizontal Datum: NAD 1983 (2011) UTM Zone 18 North		
Vertical Datum: NAVD88	Geoid: 12B	
Northing (Y): 4775766.399		Easting (X): 330845.199
Orthometric Elevation: 130.526		



Tie-Diagram :
Site Photos :
North



East



Down Facing



Existing NGS Data Sheets

4/7/2020

DATASHEETS

The NGS Data Sheet

See file [dsdata.pdf](#) for more information about the datasheet.

```

PROGRAM = datasheet95, VERSION = 8.12.5.7
Starting Datasheet Retrieval...
1 National Geodetic Survey, Retrieval Date = APRIL 7, 2020
AE2168 *****
AE2168 FBN - This is a Federal Base Network Control Station.
AE2168 DESIGNATION - LOCK 29
AE2168 PID - AE2168
AE2168 STATE/COUNTY- NY/WAYNE
AE2168 COUNTRY - US
AE2168 USGS QUAD - MACEDON (2019)
AE2168
AE2168 *CURRENT SURVEY CONTROL
AE2168
AE2168* NAD 83(2011) POSITION- 43 03 53.73713(N) 077 15 02.81579(W) ADJUSTED
AE2168* NAD 83(2011) ELLIP HT- 101.098 (meters) (06/27/12) ADJUSTED
AE2168* NAD 83(2011) EPOCH - 2010.00
AE2168* NAVD 88 ORTHO HEIGHT - 136.200 (meters) 446.85 (feet) ADJUSTED
AE2168
AE2168 GEOID HEIGHT - -35.106 (meters) GEOID18
AE2168 NAD 83(2011) X - 1,029,955.952 (meters) COMP
AE2168 NAD 83(2011) Y - -4,552,039.040 (meters) COMP
AE2168 NAD 83(2011) Z - 4,332,843.226 (meters) COMP
AE2168 LAPLACE CORR - 2.16 (seconds) DEFLEC18
AE2168 DYNAMIC HEIGHT - 136.164 (meters) 446.73 (feet) COMP
AE2168 MODELED GRAVITY - 980,356.9 (mgal) NAVD 88
AE2168
AE2168 VERT ORDER - SECOND CLASS II
AE2168
AE2168 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
AE2168 Standards:
AE2168 FGDC (95% conf, cm) Standard deviation (cm) CorrNE
AE2168 Horiz Ellip SD_N SD_E SD_h (unitless)
AE2168 -----
AE2168 NETWORK 0.49 1.06 0.22 0.17 0.54 -0.08752285
AE2168 -----
AE2168 Click here for local accuracies and other accuracy information.
AE2168
AE2168
AE2168 The horizontal coordinates were established by GPS observations
AE2168 and adjusted by the National Geodetic Survey in June 2012.
AE2168
AE2168 NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
AE2168 been affixed to the stable North American tectonic plate. See
AE2168 NA2011 for more information.
AE2168
AE2168 The horizontal coordinates are valid at the epoch date displayed above
AE2168 which is a decimal equivalence of Year/Month/Day.
AE2168
AE2168 The orthometric height was determined by differential leveling and
AE2168 adjusted by the NATIONAL GEODETIC SURVEY
AE2168 in August 2006.
AE2168
AE2168 No vertical observational check was made to the station.
AE2168
AE2168 Significant digits in the geoid height do not necessarily reflect accuracy.
AE2168 GEOID18 height accuracy estimate available here.

```


4/7/2020

DATASHEETS

AE2168
AE2168.Click [photographs](#) - Photos may exist for this station.
AE2168
AE2168.The X, Y, and Z were computed from the position and the ellipsoidal ht.
AE2168
AE2168.The Laplace correction was computed from DEFLEC18 derived deflections.
AE2168
AE2168.The ellipsoidal height was determined by GPS observations
AE2168.and is referenced to NAD 83.
AE2168
AE2168.The dynamic height is computed by dividing the NAVD 88
AE2168.geopotential number by the normal gravity value computed on the
AE2168.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
AE2168.degrees latitude (g = 980.6199 gals.).
AE2168
AE2168.The modeled gravity was interpolated from observed gravity values.
AE2168
AE2168. The following values were computed from the NAD 83(2011) position.
AE2168
AE2168;
AE2168;SPC NY C - North East Units Scale Factor Converg.
AE2168;SPC NY C - 1,117,447.75 641,849.86 sFT 0.99997384 -0 27 20.7
AE2168;UTM 18 - 4,770,483.497 316,732.480 MT 1.00001320 -1 32 14.4
AE2168
AE2168! - Elev Factor x Scale Factor = Combined Factor
AE2168!SPC NY C - 0.99998415 x 0.99997384 = 0.99995799
AE2168!UTM 18 - 0.99998415 x 1.00001320 = 0.99999735
AE2168
AE2168_U.S. NATIONAL GRID SPATIAL ADDRESS: 18TUN1673270483(NAD 83)
AE2168
AE2168 SUPERSEDED SURVEY CONTROL
AE2168
AE2168 NAD 83(2007)- 43 03 53.73739(N) 077 15 02.81659(W) AD(2002.00) 0
AE2168 ELLIP H (02/10/07) 101.115 (m) GP(2002.00)
AE2168 ELLIP H (09/18/02) 101.113 (m) GP() 4 2
AE2168 NAD 83(1996)- 43 03 53.73745(N) 077 15 02.81735(W) AD() B
AE2168 ELLIP H (07/22/97) 101.166 (m) GP() 1 1
AE2168 NAVD 88 (07/22/97) 136.1 (m) GEOID96 model used GPS OBS
AE2168
AE2168.Superseded values are not recommended for survey control.
AE2168
AE2168.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
AE2168.See file [dsdata.pdf](#) to determine how the superseded data were derived.
AE2168
AE2168_MARKER: DD = SURVEY DISK
AE2168_SETTING: 37 = SET IN A MASSIVE RETAINING WALL
AE2168_SP_SET: BOLLARD FOUNDATION
AE2168_STAMPING: LOCK 29 CBN 1995
AE2168_MARK LOGO: NYDT
AE2168_PROJECTION: FLUSH
AE2168_MAGNETIC: N = NO MAGNETIC MATERIAL
AE2168_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL
AE2168_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
AE2168+SATELLITE: SATELLITE OBSERVATIONS - June 14, 2018
AE2168
AE2168 HISTORY - Date Condition Report By
AE2168 HISTORY - 1995 MONUMENTED NYDT
AE2168 HISTORY - 19980429 GOOD USPSQD
AE2168 HISTORY - 19980728 GOOD FA
AE2168 HISTORY - 19991201 GOOD JCLS
AE2168 HISTORY - 20010816 GOOD NGS
AE2168 HISTORY - 20030301 GOOD TVGA
AE2168 HISTORY - 20061007 GOOD USPSQD
AE2168 HISTORY - 20071128 GOOD JCLS
AE2168 HISTORY - 20080527 GOOD JCLS

4/7/2020

DATASHEETS

AE2168 HISTORY - 20180614 GOOD WOOLPT
AE2168
AE2168 STATION DESCRIPTION
AE2168
AE2168'DESCRIBED BY NY DEPT OF TRANSP 1995 (KDS)
AE2168'THE STATION IS LOCATED AT LOCK 29 ON THE ERIE CANAL, JUST WEST OF
AE2168'PALMYRA. TO REACH THE STATION FROM THE WESTERN JUNCTION OF NY ROUTES
AE2168'31 AND 21 IN PALMYRA, GO WEST ON NY 31 FOR 1.3 KM (0.81 MI) TO THE
AE2168'ENTRANCE TO THE LOCK 29 PARK ON THE RIGHT, JUST PAST A SIGN MARKING
AE2168'THE MACEDON TOWN LINE. TURN RIGHT AND GO STRAIGHT AHEAD TO AND ACROSS
AE2168'A SINGLE-LANE STEEL BRIDGE, BEAR LEFT TO THE TOP OF THE BANK AND
AE2168'STRAIGHT AHEAD ACROSS THE LAWN TO THE STATION. THE STATION IS BRONZE
AE2168'DISK IN THE SOUTHWEST QUARTER OF THE 1.5 M (4.92 FT) SQUARE CONCRETE
AE2168'FOUNDATION OF THE 5TH BOLLARD WEST FROM THE WEST END OF THE LOCK
AE2168'ITSELF, ON THE SOUTH SIDE OF THE CANAL. IT IS 4.1 M (13.45 FT) SOUTH
AE2168'OF THE WATER EDGE, 3.0 M (9.84 FT) EAST OF THE 1.0 M (3.28 FT) TALL
AE2168'ELECTRICAL OUTLET POST, AND ABOUT EVENLY SPACED BETWEEN THE 2
AE2168'WESTERN-MOST LIGHT POLES, AND FLUSH WITH THE SURFACE.
AE2168
AE2168 STATION RECOVERY (1998)
AE2168
AE2168'RECOVERY NOTE BY US POWER SQUADRON 1998
AE2168'RECOVERED IN GOOD CONDITION.
AE2168
AE2168 STATION RECOVERY (1998)
AE2168
AE2168'RECOVERY NOTE BY FISHER ASSOCIATES 1998 (KR)
AE2168'GOOD.
AE2168
AE2168 STATION RECOVERY (1999)
AE2168
AE2168'RECOVERY NOTE BY JOHN CHANCE LAND SURVEYS INC 1999
AE2168'RECOVERED IN GOOD CONDITION.
AE2168
AE2168 STATION RECOVERY (2001)
AE2168
AE2168'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 2001 (CSM)
AE2168'RECOVERED AS DESCRIBED.
AE2168
AE2168 STATION RECOVERY (2003)
AE2168
AE2168'RECOVERY NOTE BY TVGA ENGINEERING SURVEYING PC 2003 (DD)
AE2168'RECOVERED AS DESCRIBED.
AE2168
AE2168 STATION RECOVERY (2006)
AE2168
AE2168'RECOVERY NOTE BY US POWER SQUADRON 2006 (RJE)
AE2168'RECOVERED IN GOOD CONDITION.
AE2168
AE2168 STATION RECOVERY (2007)
AE2168
AE2168'RECOVERY NOTE BY JOHN CHANCE LAND SURVEYS INC 2007 (MRY)
AE2168'RECOVERED IN GOOD CONDITION.
AE2168
AE2168 STATION RECOVERY (2008)
AE2168
AE2168'RECOVERY NOTE BY JOHN CHANCE LAND SURVEYS INC 2008
AE2168'RECOVERED IN GOOD CONDITION.
AE2168
AE2168 STATION RECOVERY (2018)
AE2168
AE2168'RECOVERY NOTE BY WOOLPERT CONSULTANTS 2018 (JE)
AE2168'RECOVERED IN GOOD CONDITION.

4/7/2020

DATASHEETS

*** retrieval complete.
Elapsed Time = 00:00:02

4/7/2020

DATASHEETS

The NGS Data Sheet

See file [dsdata.pdf](#) for more information about the datasheet.

```

PROGRAM = datasheet95, VERSION = 8.12.5.7
Starting Datasheet Retrieval...
1 National Geodetic Survey, Retrieval Date = APRIL 7, 2020
NB0611 *****
NB0611 CBN - This is a Cooperative Base Network Control Station.
NB0611 DESIGNATION - V 164
NB0611 PID - NB0611
NB0611 STATE/COUNTY- NY/CAYUGA
NB0611 COUNTRY - US
NB0611 USGS QUAD - UNION SPRINGS (2019)
NB0611
NB0611 *CURRENT SURVEY CONTROL
NB0611
NB0611* NAD 83(2011) POSITION- 42 47 06.09859(N) 076 39 20.61446(W) ADJUSTED
NB0611* NAD 83(2011) ELLIP HT- 221.044 (meters) (06/27/12) ADJUSTED
NB0611* NAD 83(2011) EPOCH - 2010.00
NB0611* NAVD 88 ORTHO HEIGHT - 254.834 (meters) 836.07 (feet) ADJUSTED
NB0611
NB0611 GEOID HEIGHT - -33.766 (meters) GEOID18
NB0611 NAD 83(2011) X - 1,082,083.570 (meters) COMP
NB0611 NAD 83(2011) Y - -4,561,787.686 (meters) COMP
NB0611 NAD 83(2011) Z - 4,310,155.606 (meters) COMP
NB0611 LAPLACE CORR - 6.09 (seconds) DEFLEC18
NB0611 DYNAMIC HEIGHT - 254.761 (meters) 835.83 (feet) COMP
NB0611 MODELED GRAVITY - 980,329.4 (mgal) NAVD 88
NB0611
NB0611 VERT ORDER - SECOND CLASS 0
NB0611
NB0611 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
NB0611 Standards:
NB0611 FGDC (95% conf, cm) Standard deviation (cm) CorrNE
NB0611 Horiz Ellip SD_N SD_E SD_h (unitless)
NB0611 -----
NB0611 NETWORK 1.49 2.47 0.69 0.49 1.26 -0.01600758
NB0611 -----
NB0611 Click here for local accuracies and other accuracy information.
NB0611
NB0611
NB0611 The horizontal coordinates were established by GPS observations
NB0611 and adjusted by the National Geodetic Survey in June 2012.
NB0611
NB0611 NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
NB0611 been affixed to the stable North American tectonic plate. See
NB0611 NA2011 for more information.
NB0611
NB0611 The horizontal coordinates are valid at the epoch date displayed above
NB0611 which is a decimal equivalence of Year/Month/Day.
NB0611
NB0611 The orthometric height was determined by differential leveling and
NB0611 adjusted by the NATIONAL GEODETIC SURVEY
NB0611 in June 1991.
NB0611
NB0611 Significant digits in the geoid height do not necessarily reflect accuracy.
NB0611 GEOID18 height accuracy estimate available here.
NB0611
NB0611 Click photographs - Photos may exist for this station.

```


DATASHEETS

SUPERSEDED SURVEY CONTROL

STATION DESCRIPTION

4/7/2020

DATASHEETS

NB0611'PASTURE. IT IS 25. FEET SOUTH OF AND ABOUT 2.2 FEET ABOVE THE CENTER
NB0611'LINE OF THE ROAD, 0.15 MILE WEST OF SCHOOL DISTRICT LEDYARD NO.5,
NB0611'ABOUT 500. FEET WEST OF AND ACROSS THE ROAD FROM A TWO STORY BRICK
NB0611'HOUSE AND 2. FEET WEST OF A 4X4-INCH WOODEN MARKER POST. THE MONUMENT
NB0611'PROJECTS 0.6 FOOT. A STANDARD DISK SET IN THE TOP OF A CONCRETE POST.
NB0611
NB0611 STATION RECOVERY (1982)
NB0611
NB0611'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1982
NB0611'RECOVERED IN GOOD CONDITION.
NB0611
NB0611 STATION RECOVERY (1985)
NB0611
NB0611'RECOVERY NOTE BY US POWER SQUADRON 1985
NB0611'THE MARK PROJECTS 7 INCHES. IT IS LOCATED 3 FEET SOUTHEAST OF A NOAA
NB0611'ORANGE WITNESS POST.
NB0611
NB0611 STATION RECOVERY (1986)
NB0611
NB0611'RECOVERY NOTE BY US POWER SQUADRON 1986 (RHS)
NB0611'RECOVERED IN GOOD CONDITION.
NB0611
NB0611 STATION RECOVERY (1986)
NB0611
NB0611'RECOVERY NOTE BY US POWER SQUADRON 1986 (LIC)
NB0611'RECOVERED IN GOOD CONDITION.
NB0611
NB0611 STATION RECOVERY (1990)
NB0611
NB0611'RECOVERY NOTE BY US POWER SQUADRON 1990 (RHS)
NB0611'RECOVERED IN GOOD CONDITION.
NB0611
NB0611 STATION RECOVERY (2001)
NB0611
NB0611'RECOVERY NOTE BY US POWER SQUADRON 2001 (RS)
NB0611'RECOVERED IN GOOD CONDITION.

*** retrieval complete.
Elapsed Time = 00:00:02

4/7/2020

DATASHEETS

The NGS Data Sheet

See file [dsdata.pdf](#) for more information about the datasheet.

```

PROGRAM = datasheet95, VERSION = 8.12.5.7
Starting Datasheet Retrieval...
1      National Geodetic Survey, Retrieval Date = APRIL 7, 2020
NB1027 *****
NB1027 DESIGNATION - VANGELDER RESET
NB1027 PID - NB1027
NB1027 STATE/COUNTY- NY/YATES
NB1027 COUNTRY - US
NB1027 USGS QUAD - KEUKA PARK (2019)
NB1027
NB1027 *CURRENT SURVEY CONTROL
NB1027
NB1027* NAD 83(2011) POSITION- 42 32 50.20134(N) 077 02 54.66751(W) NO CHECK
NB1027* NAD 83(2011) ELLIP HT- 454.010 (meters) (06/27/12) NO CHECK
NB1027* NAD 83(2011) EPOCH - 2010.00
NB1027* NAVD 88 ORTHO HEIGHT - 487.541 (meters) 1599.54 (feet) ADJUSTED
NB1027
NB1027 GEOID HEIGHT - -33.419 (meters) GEOID18
NB1027 NAD 83(2011) X - 1,054,835.221 (meters) COMP
NB1027 NAD 83(2011) Y - -4,586,710.366 (meters) COMP
NB1027 NAD 83(2011) Z - 4,290,892.315 (meters) COMP
NB1027 LAPLACE CORR - 0.88 (seconds) DEFLEC18
NB1027 DYNAMIC HEIGHT - 487.378 (meters) 1599.01 (feet) COMP
NB1027 MODELED GRAVITY - 980,271.5 (mgal) NAVD 88
NB1027
NB1027 VERT ORDER - SECOND CLASS 0
NB1027
NB1027 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
NB1027 Standards:
NB1027 FGDC (95% conf, cm) Standard deviation (cm) CorrNE
NB1027 Horiz Ellip SD_N SD_E SD_h (unitless)
NB1027 -----
NB1027 NETWORK 1.53 0.82 0.68 0.56 0.42 0.03880054
NB1027 -----
NB1027 Click here for local accuracies and other accuracy information.
NB1027
NB1027
NB1027 The horizontal coordinates were established by GPS observations
NB1027 and adjusted by the National Geodetic Survey in June 2012.
NB1027
NB1027 NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
NB1027 been affixed to the stable North American tectonic plate. See
NB1027 NA2011 for more information.
NB1027
NB1027 The horizontal coordinates are valid at the epoch date displayed above
NB1027 which is a decimal equivalence of Year/Month/Day.
NB1027
NB1027 No horizontal observational check was made to the station.
NB1027
NB1027 The orthometric height was determined by differential leveling and
NB1027 adjusted by the NATIONAL GEODETIC SURVEY
NB1027 in June 1991.
NB1027
NB1027 Significant digits in the geoid height do not necessarily reflect accuracy.
NB1027 GEOID18 height accuracy estimate available here.
NB1027

```

DATASHEETS

https://www.nqs.noaa.gov/cgi-bin/dfs_mark.pl?PidBox=NB1027

4/7/2020

DATASHEETS

NB1027_MARK LOGO: CGS
NB1027_MAGNETIC: N = NO MAGNETIC MATERIAL
NB1027_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
NB1027+STABILITY: SURFACE MOTION
NB1027_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
NB1027+SATELLITE: SATELLITE OBSERVATIONS - October 15, 2008

NB1027	HISTORY	- Date	Condition	Report By
NB1027	HISTORY	- 1939	MONUMENTED	CGS
NB1027	HISTORY	- 1942	SEE DESCRIPTION	CGS
NB1027	HISTORY	- 1964	SEE DESCRIPTION	CGS
NB1027	HISTORY	- 1964	GOOD	CGS
NB1027	HISTORY	- 1972	SEE DESCRIPTION	LOCENG
NB1027	HISTORY	- 1990	GOOD	USPSQD
NB1027	HISTORY	- 19991026	GOOD	NGS
NB1027	HISTORY	- 20010723	GOOD	USPSQD
NB1027	HISTORY	- 20051102	GOOD	CLOHAR
NB1027	HISTORY	- 20081015	GOOD	NYS DOT

NB1027

NB1027 STATION DESCRIPTION

NB1027

NB1027'DESCRIBED BY COAST AND GEODETIC SURVEY 1939 (PLB)
NB1027'STATION IS LOCATED ON THE CULTIVATED RIDGE (ELEVATION 1600 FEET)
NB1027'BY AIR LINE ABOUT 8 MILES SOUTH OF PENN YAN AND 4-1/4 MILES
NB1027'WEST-NORTHWEST OF DUNDEE, ON PROPERTY OF MR. GEORGE VANGELDER, OF
NB1027'PENN YAN. IT IS 30 FEET NORTH OF THE CENTER LINE OF ROAD AND 14
NB1027'FEET WEST OF SOUTHWEST CORNER OF BARN. THE MARK PROJECTS 6
NB1027'INCHES ABOVE THE SURFACE.
NB1027'
NB1027'SURFACE, UNDERGROUND, REFERENCE AND AZIMUTH MARKS ARE STANDARD
NB1027'BRONZE DISKS SET IN CONCRETE AS DESCRIBED IN NOTES 1A, 7A, AND 11A.
NB1027'
NB1027'REFERENCE MARK NO. 1 IS 1 FOOT WEST OF NORTH-SOUTH FENCE LINE
NB1027'IN THE SOUTHEAST CORNER OF THE FIELD.
NB1027'
NB1027'REFERENCE MARK NO. 2 IS ON THE WEST EDGE OF A FIELD ON THE
NB1027'SOUTH SIDE OF THE ROAD.
NB1027'
NB1027'THE AZIMUTH MARK IS 26.0 FEET EAST OF THE CENTER LINE OF THE
NB1027'ROAD AND 114 FEET NORTHEAST OF NORTHEAST CORNER OF HOUSE.
NB1027'
NB1027'TO REACH STATION FROM INTERSECTION OF MAIN AND ELM STREETS
NB1027'IN PENN YAN, GO NORTH ON MAIN STREET FOR 8.2 MILES TO Y WHERE 14A
NB1027'BEARS LEFT. CONTINUE STRAIGHT AHEAD ON NARROW ASPHALT ROAD AND GO
NB1027'0.1 MILE TO CROSS ROAD, TURN RIGHT AND GO 0.7 MILE TO STATION ON
NB1027'NORTH SIDE OF ROAD.
NB1027'
NB1027'A 4- BY 4-INCH WOODEN POST PAINTED WHITE AND STAMPED
NB1027'U.S. TRIANGULATION WAS SET AT STATION. IT PROJECTS 2 FEET ABOVE
NB1027'SURFACE.

NB1027

NB1027'HEIGHT OF LIGHT ABOVE STATION MARK 26.5 METERS.

NB1027

NB1027 STATION RECOVERY (1942)

NB1027

NB1027'RECOVERY NOTE BY COAST AND GEODETIC SURVEY 1942 (CJB)
NB1027'STATION AND REFERENCE MARKS NO. 1 AND 2 WERE RECOVERED AND FOUND
NB1027'TO BE IN GOOD CONDITION. AZIMUTH MARK WAS NOT SEARCHED FOR BY
NB1027'LEVEL PARTY.
NB1027'
NB1027'R.M. NO. 1 IS 396.0 FEET SOUTHEASTERLY FROM STATION AND 1.0
NB1027'FOOT WEST OF RIGHT-OF-WAY FENCE. PROJECTS ABOUT 0.4 FOOT.
NB1027'
NB1027'R.M. NO. 2 IS 250.0 FEET SOUTH-SOUTHEASTERLY FROM THE STATION. THE
NB1027'MONUMENT PROJECTS ABOUT 0.5 FOOT.

4/7/2020

DATASHEETS

NB1027'

NB1027'STATION IS REACHED FROM THE BAPTIST CHURCH IN DUNDEE BY TRAVELING NB1027'3.9 MILES NORTHWESTERLY ALONG STATE HIGHWAY NO. 14-A TO INTERSECTION NB1027'OF COUNTY ASPHALT ROAD LEADING WEST. THENCE, GO 0.7 MILE WESTERLY NB1027'ALONG COUNTY ROAD TO THE TOP OF RIDGE AND THE SITE OF STATION.

NB1027

NB1027 STATION RECOVERY (1964)

NB1027

NB1027'RECOVERY NOTE BY COAST AND GEODETIC SURVEY 1964 (WFD)

NB1027'DETAILED STATEMENT AS TO THE FITNESS OF THE ORIGINAL

NB1027'DESCRIPTION. INCLUDING MARKS FOUND, STAMPINGS, CHANGES MADE,

NB1027'AND OTHER PERTINENT FACTS--

NB1027'

NB1027'SURFACE MARK HAD BEEN DESTROYED, RMS 1 AND 2 RECOVERED, AZIMUTH

NB1027'MARK COULD NOT BE FOUND. A NEW SURFACE MARK WAS SET ABOVE THE

NB1027'UNDERGROUND MARK, WHICH WAS RECOVERED, AND RMS 3 AND 4 SET AND

NB1027'ESTABLISHED.

NB1027'

NB1027'STATION MARK IS A STANDARD DISK (NOTE 1A-7A) SET IN A SQUARE

NB1027'CONCRETE MONUMENT THAT PROJECTS 8 INCHES AND IS STAMPED VANGELDER

NB1027'1939. IT IS 60 FEET EAST OF THE CENTER OF A DRIVEWAY TO A

NB1027'DWELLING, 26 FEET WEST OF TRANSMISSION POLE D.T. AND T. CO. 55 AND

NB1027'F 4 OVER 60, 29 FEET NORTH OF THE CENTER OF THE ROAD AND

NB1027'3.2 FEET NORTHEAST OF A WITNESS POST.

NB1027'

NB1027'RM 1 IS A STANDARD DISK STAMPED VANGELDER NO 1 1939, SET IN A

NB1027'SQUARE CONCRETE MONUMENT THAT PROJECTS 6 INCHES. (NOTE 11A)

NB1027'IT IS IN WILD HEDGEROW NEAR THE INTERSECTION OF 4 FIELDS, IN THE

NB1027'CORNER OF THE (SOUTHEAST) FIELD ACROSS THE ROAD FROM THE STATION

NB1027'AND ABOUT 10 FEET NORTH OF THE CENTER OF THE WIRES OF A

NB1027'HIGH-LINE.

NB1027'

NB1027'RM 2 (NOTE 11A) IS A STANDARD DISK STAMPED VANGELDER NO 2 1939,

NB1027'SET IN A SQUARE CONCRETE MONUMENT THAT PROJECTS 6 INCHES. IT IS

NB1027'IN THE WILD HEDGEROW ALONG THE WEST EDGE OF THE FIELD ACROSS

NB1027'THE ROAD FROM THE STATION AND 210 FEET SOUTH OF THE CENTER OF THE

NB1027'ROAD.

NB1027'

NB1027'RM 3 (NOTE 11A) IS A STANDARD DISK STAMPED VANGELDER NO 3 1939,

NB1027'SET IN A SQUARE CONCRETE MONUMENT THAT PROJECTS 3 INCHES. IT IS

NB1027'28 FEET NORTH OF THE CENTER OF THE ROAD AND AT THE SOUTH EDGE OF

NB1027'A GROVE OF YOUNG CONIFERS.

NB1027'

NB1027'RM 4 (NOTE 11A) IS A STANDARD DISK STAMPED VANGELDER NO 4 1939,

NB1027'SET IN A SQUARE CONCRETE MONUMENT THAT PROJECTS 4 INCHES AND

NB1027'IS 26 FEET SOUTH OF THE CENTER OF THE ROAD.

NB1027'

NB1027'AZIMUTH MARK (NOT RECOVERED) IS DESCRIBED AS A STANDARD DISK

NB1027'STAMPED VANGELDER 1939, SET IN THE TOP OF A SQUARE CONCRETE

NB1027'MONUMENT (NOTE 16A). IT IS 114 FEET NORTHEAST OF THE NORTHEAST

NB1027'CORNER OF A HOUSE AND 26 FEET EAST OF THE CENTER OF A ROAD.

NB1027'

NB1027'TO REACH THE STATION FROM THE JUNCTION OF ROUTES 54 AND 14-A

NB1027'IN PENN YAN, GO SOUTH ON 14-A FOR 7.5 MILES TO A FORK (WHERE 14-A

NB1027'TURNS LEFT), CONTINUE SOUTH FOR 0.1 MILE TO A CROSSROAD, TURN

NB1027'RIGHT AND GO WEST FOR 0.7 MILE TO THE TOP OF THE GRADE AND THE

NB1027'MARK ON THE RIGHT.

NB1027

NB1027 STATION RECOVERY (1964)

NB1027

NB1027'RECOVERY NOTE BY COAST AND GEODETIC SURVEY 1964

NB1027'3.9 MI NW FROM DUNDEE.

NB1027'3.9 MILES NORTHWEST ALONG STATE HIGHWAY 14 A FROM THE BAPTIST CHURCH

NB1027'AT DUNDEE, YATES COUNTY, THENCE 0.7 MILE WEST ALONG A COUNTY ROAD,

NB1027'ON THE GEORGE VANGELDER PROPERTY ON THE TOP OF A CULTIVATED RIDGE, 14

4/7/2020

DATASHEETS

NB1027' FEET EAST OF THE SOUTHEAST CORNER OF A BARN, 30 FEET NORTH OF THE NB1027' CENTERLINE OF THE COUNTY ROAD, AND 4 FEET NORTH OF THE RIGHT-OF-WAY NB1027' FENCE AND A WHITE WOODEN WITNESS POST. A STANDARD TRIANGULATION-NB1027' STATION DISK, STAMPED VANGELDER 1939 AND SET IN THE TOP OF A CONCRETE NB1027' POST PROJECTING 0.4 FOOT ABOVE GROUND.

NB1027

NB1027 STATION RECOVERY (1972)

NB1027

NB1027' RECOVERY NOTE BY LOCAL ENGINEER (INDIVIDUAL OR FIRM) 1972 (JCD)

NB1027' VANGELDER 1939 GOOD.

NB1027'

NB1027' VANGELDER 1939 AZIMUTH MARK FOUND IN GOOD CONDITION. UNABLE

NB1027' TO SIGHT FROM STATION TO AZIMUTH MARK BECAUSE OF THE TREES GROWN

NB1027' UP ON SIGHT LINE.

NB1027

NB1027

STATION RECOVERY (1990)

NB1027

NB1027' RECOVERY NOTE BY US POWER SQUADRON 1990 (RHS)

NB1027' RECOVERED IN GOOD CONDITION.

NB1027

NB1027

STATION RECOVERY (1999)

NB1027

NB1027' RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1999 (AJL)

NB1027' THE STATION IS LOCATED ABOUT 11.2 KM (6.95 MI) SOUTH OF PENN YAN, 10.5

NB1027' KM (6.50 MI) SOUTHEAST OF BRANCHPORT, 6.3 KM (3.90 MI) NORTHWEST OF

NB1027' DUNDEE, IN A GRASSY CLEARING. OWNERSHIP--UNKNOWN. TO REACH FROM THE

NB1027' SOUTH JUNCTION OF STATE HIGHWAYS 14A AND 54, LIBERTY AND LAKE STREETS,

NB1027' IN PENN YAN, GO SOUTHWEST ON HIGHWAY 54 FOR 1.2 KM (0.75 MI) TO A

NB1027' PAVED ROAD ON THE LEFT. TURN LEFT AND GO SOUTH ON COUNTY ROAD 17

NB1027' (BATH ROAD) FOR 11.4 KM (7.10 MI) TO A SIDE ROAD ON THE LEFT. TURN

NB1027' LEFT AND GO EAST ON COUNTY ROAD 38 (PORTERS CORNERS ROAD) FOR 0.64 KM

NB1027' (0.40 MI) TO THE STATION ON THE LEFT. NOTE--THERE IS A RADIO TOWER

NB1027' ACROSS THE ROAD TO THE SOUTH. THE STATION IS A TRIANGULATION STATION

NB1027' DISK STAMPED VANGELDER 1939, SET IN A SQUARE CONCRETE MONUMENT WHICH

NB1027' PROJECTS 15 CM ABOVE THE GROUND LEVEL. IT IS 23.44 M (76.90 FT) EAST

NB1027' OF THE CENTER OF A GRAVEL DRIVE LEADING TO A DWELLING, 17.13 M (56.20

NB1027' FT) WEST OF REFERENCE MARK 3, 16.95 M (55.61 FT) WEST OF A STEEL

NB1027' WITNESS POST FOR RM 3, 9.60 M (31.50 FT) WEST OF THE CENTER OF A

NB1027' GRAVEL FIELD APPROACH, AND 9.36 M (30.71 FT) NORTH OF THE CENTERLINE

NB1027' OF THE ROAD.

NB1027

NB1027

STATION RECOVERY (2001)

NB1027

NB1027' RECOVERY NOTE BY US POWER SQUADRON 2001 (RH)

NB1027' RECOVERED IN GOOD CONDITION.

NB1027

NB1027

STATION RECOVERY (2005)

NB1027

NB1027' RECOVERY NOTE BY CLOUGH HARBOUR AND ASSOCIATES 2005 (CEL)

NB1027' MONUMENT IS NOW APPROXIMATELY FLUSH WITH GROUND AND IN THE FRONT YARD

NB1027' OF PRIVATE PROPERTY, OWNER UNKNOWN, BUT TO BE CONSIDERATE OCCUPANTS OF

NB1027' HOUSE ON PROPERTY SHOULD BE NOTIFIED PRIOR TO OCCUPATION OF MONUMENT

NB1027

NB1027

STATION RECOVERY (2008)

NB1027

NB1027

NB1027' RECOVERY NOTE BY NEW YORK STATE DEPT OF TRANSPORTATION 2008 (DLS)

NB1027' RECOVERED IN GOOD CONDITION.

*** retrieval complete.

Elapsed Time = 00:00:01

4/7/2020

DATASHEETS

The NGS Data Sheet

See file [dsdata.pdf](#) for more information about the datasheet.

```

PROGRAM = datasheet95, VERSION = 8.12.5.7
Starting Datasheet Retrieval...
1 National Geodetic Survey, Retrieval Date = APRIL 7, 2020
NB1641 *****
NB1641 DESIGNATION - D 464
NB1641 PID - NB1641
NB1641 STATE/COUNTY- NY/TOMPKINS
NB1641 COUNTRY - US
NB1641 USGS QUAD - LUDLOWVILLE (2019)
NB1641
NB1641 *CURRENT SURVEY CONTROL
NB1641
NB1641* NAD 83(2011) POSITION- 42 31 02.70310(N) 076 30 26.70944(W) NO CHECK
NB1641* NAD 83(2011) ELLIP HT- 218.680 (meters) (06/27/12) NO CHECK
NB1641* NAD 83(2011) EPOCH - 2010.00
NB1641* NAVD 88 ORTHO HEIGHT - 251.888 (meters) 826.40 (feet) ADJUSTED
NB1641
NB1641 GEOID HEIGHT - -33.206 (meters) GEOID18
NB1641 NAD 83(2011) X - 1,098,587.026 (meters) COMP
NB1641 NAD 83(2011) Y - -4,578,556.076 (meters) COMP
NB1641 NAD 83(2011) Z - 4,288,288.798 (meters) COMP
NB1641 LAPLACE CORR - 5.04 (seconds) DEFLEC18
NB1641 DYNAMIC HEIGHT - 251.803 (meters) 826.12 (feet) COMP
NB1641 MODELED GRAVITY - 980,279.0 (mgal) NAVD 88
NB1641
NB1641 VERT ORDER - FIRST CLASS II
NB1641
NB1641 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
NB1641 Standards:
NB1641 FGDC (95% conf, cm) Standard deviation (cm) CorrNE
NB1641 Horiz Ellip SD_N SD_E SD_h (unitless)
NB1641 -----
NB1641 NETWORK 1.13 3.47 0.54 0.34 1.77 0.00468505
NB1641 -----
NB1641 Click here for local accuracies and other accuracy information.
NB1641
NB1641
NB1641 The horizontal coordinates were established by GPS observations
NB1641 and adjusted by the National Geodetic Survey in June 2012.
NB1641
NB1641 NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
NB1641 been affixed to the stable North American tectonic plate. See
NB1641 NA2011 for more information.
NB1641
NB1641 The horizontal coordinates are valid at the epoch date displayed above
NB1641 which is a decimal equivalence of Year/Month/Day.
NB1641
NB1641 No horizontal observational check was made to the station.
NB1641
NB1641 The orthometric height was determined by differential leveling and
NB1641 adjusted by the NATIONAL GEODETIC SURVEY
NB1641 in June 1991.
NB1641
NB1641 Significant digits in the geoid height do not necessarily reflect accuracy.
NB1641 GEOID18 height accuracy estimate available here.
NB1641

```


DATASHEETS

https://www.nps.noaa.gov/cgi-bin/ds_mark.pl?PidBox=NB1641

4/7/2020

DATASHEETS

NB1641'2.9 KM (1.8 MI) SE FROM SOUTH LANSING.
NB1641'2.9 KM (1.8 MI) SOUTHEAST ALONG STATE HIGHWAY 34 FROM THE
NB1641'JUNCTION OF STATE HIGHWAY 34B IN SOUTH LANSING TO THE MARK
NB1641'ON THE RIGHT, AT THE JUNCTION OF EAST SHORE CIRCLE,
NB1641'14.70 METERS (48.2 FT) NORTHEAST OF THE CENTERLINE OF THE
NB1641'HIGHWAY, 32.50 METERS (106.6 FT) NORTHWEST OF THE CENTER
NB1641'OF EAST SHORE CIRCLE, 0.55 METER (1.8 FT) NORTHEAST OF A
NB1641'UTILITY POLE WITH 3 GUY WIRES. NOTE--SEVERAL ATTEMPTS WERE
NB1641'MADE TO DRIVE THE ROD AND IT WAS DRIVEN TO REFUSAL AND
NB1641'ANCHORED AT 1.9 METERS.
NB1641'THE MARK IS 0.78 METERS N FROM A WITNESS POST.
NB1641'THE MARK IS 0.60 M BELOW HIGHWAY.
NB1641
NB1641 STATION RECOVERY (1990)
NB1641
NB1641'RECOVERY NOTE BY US POWER SQUADRON 1990 (DEZ)
NB1641'RECOVERED IN GOOD CONDITION.
NB1641
NB1641 STATION RECOVERY (1999)
NB1641
NB1641'RECOVERY NOTE BY US POWER SQUADRON 1999
NB1641'RECOVERED IN GOOD CONDITION.
NB1641
NB1641 STATION RECOVERY (2000)
NB1641
NB1641'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 2000 (ALJ)
NB1641'RECOVERED AS DESCRIBED.
NB1641
NB1641 STATION RECOVERY (2006)
NB1641
NB1641'RECOVERY NOTE BY US POWER SQUADRON 2006 (NLH)
NB1641'EAST SHORE CIRCLE HAS 2 ENDS ON 34. THE MARK IS ON THE SOUTH MOST END,
NB1641'OR THE 2ND ONE FROM 34/34B. THE WITNESS POST IS AT THE POLE, AND
NB1641'ACROSS THE ROAD FROM MILE MARKER 34 3604 3040. THERE IS AN ORANGE SIGN
NB1641'ON THE POLE WARNING FOR UNDERGROUND OPTIC CABLE.

*** retrieval complete.
Elapsed Time = 00:00:02

4/7/2020

DATASHEETS

The NGS Data Sheet

See file [dsdata.pdf](#) for more information about the datasheet.

```

PROGRAM = datasheet95, VERSION = 8.12.5.7
Starting Datasheet Retrieval...
1 National Geodetic Survey, Retrieval Date = APRIL 7, 2020
NB1654 *****
NB1654 FBN - This is a Federal Base Network Control Station.
NB1654 DESIGNATION - Q 464
NB1654 PID - NB1654
NB1654 STATE/COUNTY - NY/CAYUGA
NB1654 COUNTRY - US
NB1654 USGS QUAD - SHELDRAKE (2019)
NB1654
NB1654 *CURRENT SURVEY CONTROL
NB1654
NB1654* NAD 83(2011) POSITION- 42 41 00.04435(N) 076 39 24.73149(W) NO CHECK
NB1654* NAD 83(2011) ELLIP HT- 208.748 (meters) (06/27/12) NO CHECK
NB1654* NAD 83(2011) EPOCH - 2010.00
NB1654* NAVD 88 ORTHO HEIGHT - 242.301 (meters) 794.95 (feet) ADJUSTED
NB1654
NB1654 GEOD HEIGHT - -33.578 (meters) GEOD18
NB1654 NAD 83(2011) X - 1,083,759.474 (meters) COMP
NB1654 NAD 83(2011) Y - -4,569,258.985 (meters) COMP
NB1654 NAD 83(2011) Z - 4,301,850.272 (meters) COMP
NB1654 LAPLACE CORR - 5.75 (seconds) DEFLEC18
NB1654 DYNAMIC HEIGHT - 242.231 (meters) 794.72 (feet) COMP
NB1654 MODELED GRAVITY - 980,325.6 (mgal) NAVD 88
NB1654
NB1654 VERT ORDER - FIRST CLASS II
NB1654
NB1654 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
NB1654 Standards:
NB1654 FGDC (95% conf, cm) Standard deviation (cm) CorrNE
NB1654 Horiz Ellip SD_N SD_E SD_h (unitless)
NB1654 -----
NB1654 NETWORK 3.24 5.49 1.53 1.00 2.80 0.11709190
NB1654 -----
NB1654 Click here for local accuracies and other accuracy information.
NB1654
NB1654
NB1654 The horizontal coordinates were established by GPS observations
NB1654 and adjusted by the National Geodetic Survey in June 2012.
NB1654
NB1654 NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
NB1654 been affixed to the stable North American tectonic plate. See
NB1654 NA2011 for more information.
NB1654
NB1654 The horizontal coordinates are valid at the epoch date displayed above
NB1654 which is a decimal equivalence of Year/Month/Day.
NB1654
NB1654 No horizontal observational check was made to the station.
NB1654
NB1654 The orthometric height was determined by differential leveling and
NB1654 adjusted by the NATIONAL GEODETIC SURVEY
NB1654 in June 1991.
NB1654
NB1654 Significant digits in the geoid height do not necessarily reflect accuracy.
NB1654 GEOD18 height accuracy estimate available here.

```

DATASHEETS

STATION DESCRIPTION

4/7/2020

DATASHEETS

NB1654' OF STATE HIGHWAY 34B IN LAKE RIDGE, THENCE 2.2 KM (1.4 MI)
NB1654' NORTHWEST ALONG STATE HIGHWAY 90 TO THE MARK ON THE RIGHT,
NB1654' AT A BUILDING FOR AGRICO FERTILIZER, ALSO 9.25 KM (5.75 MI)
NB1654' SOUTHEAST ALONG STATE HIGHWAY 90 FROM THE POST OFFICE IN
NB1654' AURORA, 17.75 METERS (58.2 FT) NORTHEAST OF THE CENTERLINE
NB1654' OF THE HIGHWAY, 31.00 METERS (101.7 FT) SOUTHWEST OF THE
NB1654' SOUTHWEST CORNER OF THE BUILDING FOR AGRICO FERTILIZER,
NB1654' 0.50 METER (1.6 FT) NORTHWEST OF A UTILITY POLE WITH 1 GUY
NB1654' WIRE NUMBER 21-1/2. NOTE--SEVERAL ATTEMPTS WERE MADE TO
NB1654' DRIVE THE ROD, DRIVEN TO REFUSAL AND EMBEDDED AT 1.5 METERS.
NB1654' THE MARK IS 0.90 METERS E FROM A WITNESS POST.
NB1654' THE MARK IS 0.60 M ABOVE HIGHWAY.
NB1654
NB1654 STATION RECOVERY (1990)
NB1654
NB1654 RECOVERY NOTE BY US POWER SQUADRON 1990 (RHS)
NB1654 RECOVERED IN GOOD CONDITION.
NB1654
NB1654 STATION RECOVERY (2001)
NB1654
NB1654 RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 2001 (CSM)
NB1654 RECOVERED FROM EXISTING DESCRIPTION. THE MARK IS 2.8 MILES NW OF KINGS
NB1654 FERRY ON
NB1654 PROPERTY OF CHARLIE MYRES.
NB1654
NB1654 TO REACH FROM HIGHWAYS 34B AND 90 IN KINGS FERRY, GO 2.8 MILES WEST
NB1654 AND NW ALONG SR 90
NB1654 TO THE MARK ON THE RIGHT, 31.0 M SW OF SW CORNER OF A BUILDING, 17.75
NB1654 M NE OF HIGHWAY C-L
NB1654 AND 0.5 NW OF A POLE WITH GUY WIRE.

*** retrieval complete.
Elapsed Time = 00:00:02

4/7/2020

DATASHEETS

The NGS Data Sheet

See file [dsdata.pdf](#) for more information about the datasheet.

```

PROGRAM = datasheet95, VERSION = 8.12.5.7
Starting Datasheet Retrieval...
1 National Geodetic Survey, Retrieval Date = APRIL 7, 2020
NB2146 *****
NB2146 CBN - This is a Cooperative Base Network Control Station.
NB2146 DESIGNATION - GENEVA
NB2146 PID - NB2146
NB2146 STATE/COUNTY - NY/ONTARIO
NB2146 COUNTRY - US
NB2146 USGS QUAD - GENEVA NORTH (2019)
NB2146
NB2146 *CURRENT SURVEY CONTROL
NB2146
NB2146* NAD 83(2011) POSITION- 42 56 44.18745(N) 076 58 41.74099(W) ADJUSTED
NB2146* NAD 83(2011) ELLIP HT- 114.695 (meters) (06/27/12) ADJUSTED
NB2146* NAD 83(2011) EPOCH - 2010.00
NB2146* NAVD 88 ORTHO HEIGHT - 149.269 (meters) 489.73 (feet) ADJUSTED
NB2146
NB2146 GEOID HEIGHT - -34.586 (meters) GEOID18
NB2146 NAD 83(2011) X - 1,053,634.900 (meters) COMP
NB2146 NAD 83(2011) Y - -4,555,907.178 (meters) COMP
NB2146 NAD 83(2011) Z - 4,323,158.691 (meters) COMP
NB2146 LAPLACE CORR - 2.21 (seconds) DEFLEC18
NB2146 DYNAMIC HEIGHT - 149.229 (meters) 489.60 (feet) COMP
NB2146 MODELED GRAVITY - 980,350.0 (mgal) NAVD 88
NB2146
NB2146 VERT ORDER - SECOND CLASS II
NB2146
NB2146 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
NB2146 Standards:
NB2146 FGDC (95% conf, cm) Standard deviation (cm) CorrNE
NB2146 Horiz Ellip SD_N SD_E SD_h (unitless)
NB2146 -----
NB2146 NETWORK 0.44 1.08 0.20 0.15 0.55 -0.05374536
NB2146 -----
NB2146 Click here for local accuracies and other accuracy information.
NB2146
NB2146
NB2146 The horizontal coordinates were established by GPS observations
NB2146 and adjusted by the National Geodetic Survey in June 2012.
NB2146
NB2146 NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
NB2146 been affixed to the stable North American tectonic plate. See
NB2146 NA2011 for more information.
NB2146
NB2146 The horizontal coordinates are valid at the epoch date displayed above
NB2146 which is a decimal equivalence of Year/Month/Day.
NB2146
NB2146 The orthometric height was determined by differential leveling and
NB2146 adjusted by the NATIONAL GEODETIC SURVEY
NB2146 in August 2006.
NB2146
NB2146 No vertical observational check was made to the station.
NB2146
NB2146 Significant digits in the geoid height do not necessarily reflect accuracy.
NB2146 GEOID18 height accuracy estimate available here.

```

4/7/2020

DATASHEETS

NB2146
NB2146.Click [photographs](#) - Photos may exist for this station.
NB2146
NB2146.The X, Y, and Z were computed from the position and the ellipsoidal ht.
NB2146
NB2146.The Laplace correction was computed from DEFLEC18 derived deflections.
NB2146
NB2146.The ellipsoidal height was determined by GPS observations
NB2146.and is referenced to NAD 83.
NB2146
NB2146.The dynamic height is computed by dividing the NAVD 88
NB2146.geopotential number by the normal gravity value computed on the
NB2146.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
NB2146.degrees latitude (g = 980.6199 gals.).
NB2146
NB2146.The modeled gravity was interpolated from observed gravity values.
NB2146
NB2146. The following values were computed from the NAD 83(2011) position.
NB2146
NB2146;
NB2146;SPC NY C - North East Units Scale Factor Converg.
NB2146;SPC NY C - 1,073,500.20 714,469.66 sFT 0.99995027 -0 16 08.6
NB2146;UTM 18 - 4,756,673.258 338,610.664 MT 0.99992044 -1 20 53.1
NB2146
NB2146! - Elev Factor x Scale Factor = Combined Factor
NB2146!SPC NY C - 0.99998201 x 0.99995027 = 0.99993228
NB2146!UTM 18 - 0.99998201 x 0.99992044 = 0.99990245
NB2146
NB2146_U.S. NATIONAL GRID SPATIAL ADDRESS: 18TUN3861056673(NAD 83)
NB2146
NB2146 SUPERSEDED SURVEY CONTROL
NB2146
NB2146 NAD 83(2007)- 42 56 44.18774(N) 076 58 41.74183(W) AD(2002.00) 0
NB2146 ELLIP H (02/10/07) 114.709 (m) GP(2002.00)
NB2146 ELLIP H (09/18/02) 114.700 (m) GP() 4 2
NB2146 NAD 83(1996)- 42 56 44.18773(N) 076 58 41.74259(W) AD() B
NB2146 ELLIP H (07/24/97) 114.743 (m) GP() 1 1
NB2146 NAD 83(1992)- 42 56 44.18731(N) 076 58 41.74212(W) AD() B
NB2146 NAD 83(1986)- 42 56 44.19467(N) 076 58 41.74071(W) AD() B
NB2146 NAD 83(1992)- 42 56 44.18732(N) 076 58 41.74230(W) AD() B
NB2146 ELLIP H (04/16/93) 114.659 (m) GP() 4 1
NB2146 NAVD 88 (09/18/02) 149.2 (m) GEOID99 model used GPS OBS
NB2146 NAVD 88 (06/10/96) 149.1 (m) UNKNOWN model used GPS OBS
NB2146 NAVD 88 (04/16/93) 149.0 (m) UNKNOWN model used GPS OBS
NB2146
NB2146.Superseded values are not recommended for survey control.
NB2146
NB2146.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
NB2146.See file [dsdata.pdf](#) to determine how the superseded data were derived.
NB2146
NB2146_MARKER: F = FLANGE-ENCASED ROD
NB2146_SETTING: 59 = STAINLESS STEEL ROD IN SLEEVE (10 FT.+)
NB2146_STAMPING: GENEVA 1992
NB2146_MARK LOGO: NGS
NB2146_PROJECTION: FLUSH
NB2146_MAGNETIC: N = NO MAGNETIC MATERIAL
NB2146_STABILITY: A = MOST RELIABLE AND EXPECTED TO HOLD
NB2146+STABILITY: POSITION/ELEVATION WELL
NB2146_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
NB2146+SATELLITE: SATELLITE OBSERVATIONS - May 14, 2010
NB2146_ROD/PIPE-DEPTH: 8.50 meters
NB2146_SLEEVE-DEPTH : 1.00 meters
NB2146
NB2146 HISTORY - Date Condition Report By
NB2146 HISTORY - 1992 MONUMENTED NGS

4/7/2020

DATASHEETS

NB2146 HISTORY - 19950525 GOOD NYDT
 NB2146 HISTORY - 19951120 SEE DESCRIPTION FA
 NB2146 HISTORY - 19960618 GOOD NYDT
 NB2146 HISTORY - 20010716 GOOD NYDT
 NB2146 HISTORY - 2003 GOOD TVGA
 NB2146 HISTORY - 20061028 GOOD USPSQD
 NB2146 HISTORY - 20080327 GOOD GPSSS
 NB2146 HISTORY - 20100514 GOOD JCLS
 NB2146
 NB2146 STATION DESCRIPTION
 NB2146
 NB2146'DESCRIBED BY NATIONAL GEODETIC SURVEY 1992
 NB2146'THE STATION IS LOCATED ABOUT 69.0 KM (42.85 MI) WEST OF SYRACUSE, 8.0
 NB2146'KM (4.95 MI) NORTH OF GENEVA, 1.0 KM (0.60 MI) SOUTH FROM INTERSTATE
 NB2146'HIGHWAY 90 AND IN A TRIANGULAR SHAPED GRASS AREA MADE FROM THE ON AND
 NB2146'OFF BOUND RAMP OF STATE ROUTE 14 AND STATE ROUTE 96.
 NB2146'OWNERSHIP--HIGHWAY RIGHT-OF-WAY.
 NB2146'TO REACH THE STATION FROM THE OVERPASS OF INTERSTATE HIGHWAY 90 AND
 NB2146'STATE HIGHWAY 14 (EXIT 42) ABOUT 8.0 KM (4.95 MI) NORTH FROM GENEVA,
 NB2146'GO SOUTH ON STATE HIGHWAY 14 FOR 0.8 KM (0.50 MI) TO THE OVERPASS OF
 NB2146'STATE ROUTE 96. CONTINUE SOUTH ON STATE ROUTE 14 FOR 0.16 KM
 NB2146'(0.10 MI) TO THE STATION ON THE RIGHT.
 NB2146'LOCATED 31.1 M (102.0 FT) WEST FROM THE CENTERLINE OF HIGHWAY 14, 26.2
 NB2146'M (86.0 FT) SOUTHEAST FROM THE EASTBOUND ON RAMP OF STATE ROUTE 96,
 NB2146'26.0 M (85.3 FT) NORTHEAST FROM THE SOUTHBOUND RAMP OF STATE HIGHWAY
 NB2146'14 AND ABOUT THE CENTER OF A TRIANGLE OF THE RAMP FOR HIGHWAYS.
 NB2146
 NB2146 STATION RECOVERY (1995)
 NB2146
 NB2146'RECOVERY NOTE BY NY DEPT OF TRANSP 1995 (RWB)
 NB2146'RECOVERED AS DESCRIBED.
 NB2146
 NB2146 STATION RECOVERY (1995)
 NB2146
 NB2146'RECOVERY NOTE BY FISHER ASSOCIATES 1995 (KR)
 NB2146'MARKER DESTROYED.
 NB2146
 NB2146 STATION RECOVERY (1996)
 NB2146
 NB2146'RECOVERY NOTE BY NY DEPT OF TRANSP 1996 (KDS)
 NB2146'RECOVERED AS DESCRIBED.
 NB2146
 NB2146 STATION RECOVERY (2001)
 NB2146
 NB2146'RECOVERY NOTE BY NY DEPT OF TRANSP 2001 (TF)
 NB2146'RECOVERED AS DESCRIBED.
 NB2146'
 NB2146
 NB2146 STATION RECOVERY (2003)
 NB2146
 NB2146'RECOVERY NOTE BY TVGA ENGINEERING SURVEYING PC 2003 (JHD)
 NB2146'RECOVERED AS DESCRIBED.
 NB2146
 NB2146 STATION RECOVERY (2006)
 NB2146
 NB2146'RECOVERY NOTE BY US POWER SQUADRON 2006 (DLB)
 NB2146'RECOVERED IN GOOD CONDITION.
 NB2146
 NB2146 STATION RECOVERY (2008)
 NB2146
 NB2146'RECOVERY NOTE BY GPS SALES AND SERVICES 2008 (CJC)
 NB2146'RECOVERED IN GOOD CONDITION.
 NB2146
 NB2146 STATION RECOVERY (2010)
 NB2146

4/7/2020

DATASHEETS

NB2146'RECOVERY NOTE BY JOHN CHANCE LAND SURVEYS INC 2010
NB2146'RECOVERED IN GOOD CONDITION.

*** retrieval complete.
Elapsed Time = 00:00:02