

GPSC3 TO 140G0218F0164-NJ_South_Jersey_Lidar_2018_B18
Southern New Jersey USGS LIDAR QC Ground Control Point

LIDAR SURVEY REPORT

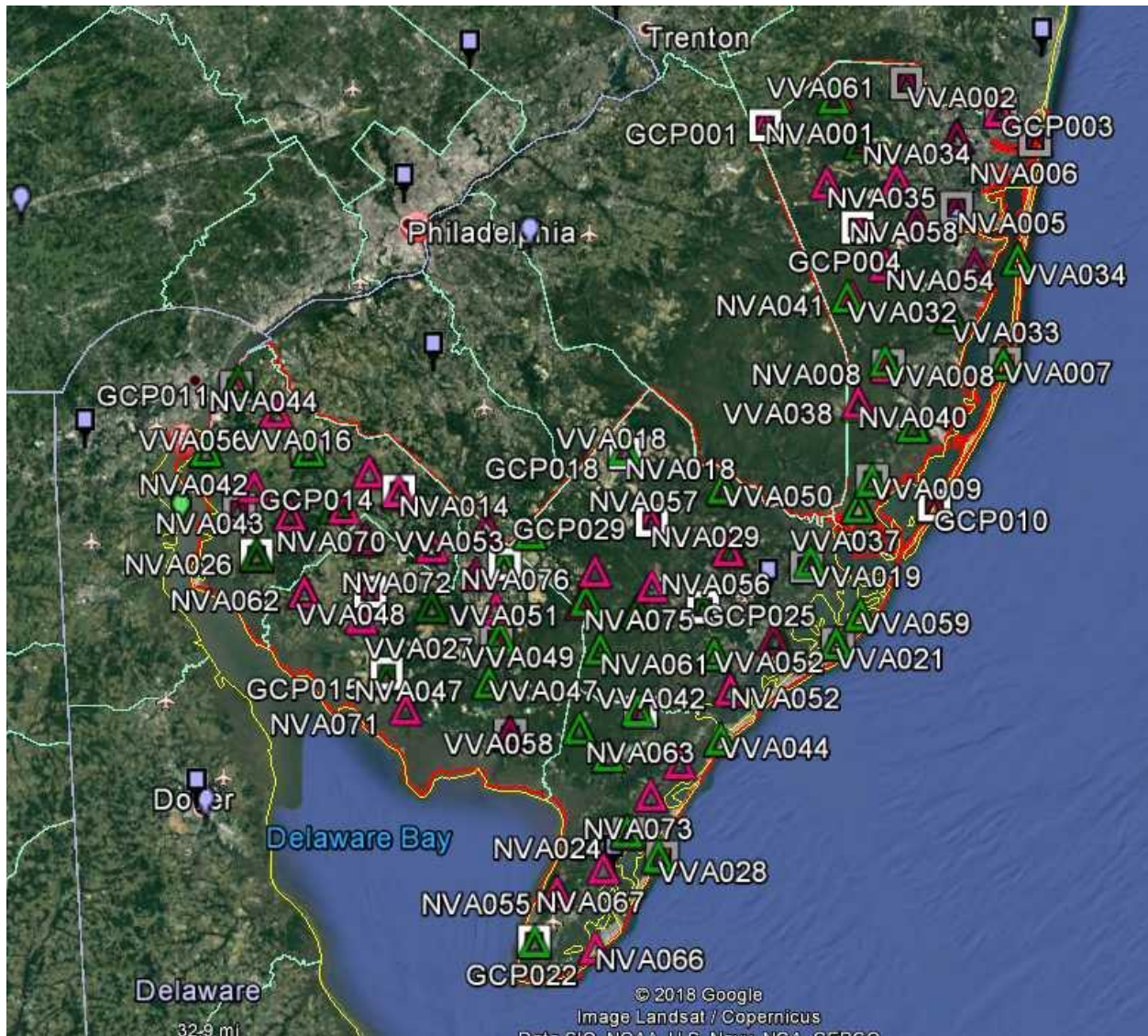
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For: Sanborn Mapping

Field Measurement Date; November 2018

PROJECT LOCATION MAP

Locations were selected to obtain LIDAR GCP gps truthing NVA and VVA x,y,z locations for the Southern New Jersey AOIs. The schematic is as below. As we completed the measurements the locations were adjusted as necessary based on our ability to access each and the SV conditions at each.



Project Kick off and Control Staging

Crews arrived on site in Southern New Jersey greater AOI area on November 06, 2018. Each day they set out to measure and the process was a combination of using the using a fully static gps measured network tied to the local NGS CORS station and always working within the confines of public access areas or where and when we had access to private property. The weather was favorable for the most part. Initial field work was completed by days end on November 15, 2018.

LOCATION METHODS, MEASUREMENTS AND EQUIPMENT

The equipment configuration for this project consists of industry standard gps surveying equipment. The gps equipment used was a combination of Topcon dual frequency(L1/L2) receivers. The Topcon receivers are the Hiper GD and Hiper Plus type. Topcon Tools gps processing software was used to post process all observed gps data. Each gps observation was logged for site id, receiver type, height of antenna, start time and date. Length of vector, time of day, SV configuration and site obstructions determined the length of observation at each site. Data was downloaded to the PC after each day's sessions. Initial processing was performed to verify we had good vector solutions between sites.

The data for the LIDAR ground truthing locations was collected using full static collection procedures and post processed. There is more than one NGS CORS station located in or within close proximity to the AOI.

The coordinate datum is as described below:

Coordinate system: New Jersey State Plane Coordinate System

Horizontal Datum: NAD83 Epoch 2011

Vertical Datum: NAVD88, Geoid 12B Map Units: US Foot

The Topcon Tools processing software reports on static observations the horizontal and vertical precision of every vector measured and summarizes the standard deviation in x, y and z position for each individual control point. For purposes of this report we included all points measured. We have several supplemental additional GCPs that were measured as base stations in VVA areas and serve as additional quality control check points.

Two field crews were utilized to obtain the GCP data. Typically a base station was running and the crews performed with a rover tying the primary vector back to the base. When multiple bases were running simultaneously the rover vector could be processed to both bases, and therefore the network triangle strength was heightened significantly with all the redundant data.

The Topcon Tools processing software summarizes the observed vectors, the raw vector horizontal and vertical RMSE components and the corresponding Residual in northing easting and elevation. Upon final adjustment each point in the network has its corresponding RMSE standard deviation in all 3 directions. We included all points in each daily report.

The points were preselected in the office and grouped into 3 categories. GCP for control calibration points, NVA for non vegetation area points and VVA for vegetation area points.

The coordinate datum was based upon the NGS CORS stations NJCM, NJOC and NJGC. These control locations were supplemented by the 3rd party CORS stations from KEYNETGPS a private Trimble network that covers lots of the Eastern seaboard area. They have their own CORS base stations running and are like other Trimble sites whereby you can generate base station data at Virtual CORS type locations to supplement your post processing calculations. Additionally we sat several of our own static collection base station receivers to keep our vector lengths and thereby our measurements to a reasonable time frame.

Daily downloads of the CORS data were incorporated into the Topcon Tools adjustment.

The full Topcon Adjust Report is included herewith in one composite spreadsheet containing each days worth of gps observations. This spreadsheet is included separately from this report.

A composite coordinate summary spreadsheet is also included herewith to facilitate data retrieval and formatting for the LIDAR QC processing.

We took several pictures of the quality control points and they are labeled by their unique GCP number and then a post script designation like "A" or "B" or "Z" for the first picture at a point, the second picture at a point typically at about 90 degrees to the first and then a zoom of the point measured in case it was a photo identifiable type point and could be more clearly defined. The author is aware that two points have different types of photos designated. NVA20 and NVA36 experienced camera malfunctions that were not noticed until we demobilized from the site. In these two instances we created a Google "top" view of the area as one picture and then a second zoom taken from similar locations to help identify the paint stripe points located.

Final documents were completed and are as contained herewith.

Final Adjusted Coordinates

Name	Grid Northing (USft)	Grid Easting (USft)	Elevation (USft)	Control
Base93	303333.426	545037.503	29.678	None
Base94	51837.949	366364.650	14.305	None
Base95	198250.642	434371.527	14.193	None
Base96	235734.731	373077.605	100.197	None
Base97	195795.456	332031.633	80.657	None
Base98	253085.333	284724.120	123.323	None
Base99	228615.312	267532.516	115.844	None
GCP001R	455070.936	483058.167	105.483	None
GCP002	478497.508	554077.059	124.907	None
GCP003	464535.094	601441.823	32.388	None

GCP004	405352.912	528456.714	143.429	None
GCP004	405352.909	528456.743	143.440	None
GCP005	416356.312	578612.500	55.661	None
GCP006	449800.247	618214.759	1.616	None
GCP007	338830.469	602561.802	6.147	None
GCP008	337381.979	543399.155	138.542	None
GCP009	280631.631	535209.069	14.913	None
GCP010	268422.523	565837.385	3.755	None
GCP011	328812.828	218081.984	4.722	None
GCP012	226947.860	286331.996	88.907	None
GCP013	267926.901	219324.875	4.031	None
GCP014	276464.508	300828.247	120.989	None
GCP015	186549.742	294256.339	46.035	None
GCP016	296919.933	255621.147	54.829	None
GCP017	240115.171	353020.535	95.994	None
GCP018	294672.888	412903.427	84.560	None
GCP019	238487.061	502486.448	43.466	None
GCP020	156113.337	355466.735	20.507	None
GCP021	200172.594	517750.252	7.016	None
GCP022	52001.509	365833.291	13.655	None
GCP023	167375.816	419926.415	10.298	None
GCP023QC	167375.902	419926.431	10.323	None
GCP024	107320.383	413721.350	13.377	None
GCP025	218609.588	451157.550	61.638	None
GCP026	245215.727	227933.108	15.177	None
GCP027	203328.934	348812.946	54.220	None
GCP028	95359.194	430257.368	7.600	None
GCP029	261449.597	426009.062	82.969	None
JJW1	404428.523	492603.726	136.572	Both
NJBL	338746.525	602480.204	25.322	None
NJCM	97501.720	406170.630	32.251	Both
NJGC	345869.380	317946.480	95.239	Both
NJOC	407864.510	578046.080	81.498	Both
NJOC	407864.478	578046.090	81.517	None
NJOC	407864.375	578046.057	81.577	None
NVA001R	455093.757	483114.426	106.246	None
NVA002	478898.668	554336.209	133.131	None
NVA003R	464614.325	600685.014	30.031	None
NVA004	405495.987	528488.681	140.198	None
NVA005	416330.873	579205.146	58.459	None
NVA006	450213.080	618967.495	3.348	None
NVA007	338624.357	602108.332	3.991	None
NVA008	337079.248	542971.027	127.823	None
NVA009	280227.071	535318.736	18.354	None
NVA010	268030.161	565771.532	2.916	None
NVA011	329225.814	217931.271	6.431	None
NVA012	226619.334	286093.673	78.454	None
NVA013	268230.407	218986.815	1.627	None
NVA014	276488.298	301056.863	121.236	None
NVA015R	185028.590	293804.118	28.955	None

NVA016	297018.061	256008.074	55.337	None
NVA017	239799.078	352973.438	98.250	None
NVA018	294409.140	413085.368	81.800	None
NVA019	238473.922	502981.997	39.636	None
NVA020	156934.993	355421.079	20.221	None
NVA021	200455.309	517350.722	7.732	None
NVA022	51794.497	366365.671	13.702	None
NVA023	167353.103	420651.053	9.886	None
NVA024	107600.639	413148.440	15.659	None
NVA025	218095.301	451162.808	63.611	None
NVA026	244753.460	228358.832	13.718	None
NVA027	203267.359	348574.426	53.594	None
NVA028	95037.745	430018.867	7.986	None
NVA029	261021.726	425561.801	84.191	None
NVA030	472520.578	519298.733	155.302	None
NVA031	430891.713	548944.949	62.042	None
NVA032	451857.234	579248.232	61.672	None
NVA033R	388328.459	588044.818	19.664	None
NVA034	450895.926	532004.305	108.715	None
NVA035R	427329.922	512995.786	173.122	None
NVA036	267943.999	528730.924	5.784	None
NVA037	307548.647	555969.900	26.380	None
NVA038	362570.292	576399.617	10.865	None
NVA039A	390845.759	609502.771	3.359	None
NVA040	319407.676	528526.891	83.853	None
NVA041	371197.032	525508.572	146.377	None
NVA042	296893.048	205301.960	7.839	None
NVA043	265008.000	246911.001	32.272	None
NVA044R	314819.346	240133.169	38.929	None
NVA045	279137.996	229202.299	21.914	None
NVA046	253224.136	284486.729	125.400	None
NVA047	182032.011	345197.952	17.178	None
NVA047QC	182031.985	345197.859	17.236	None
NVA048	255204.116	365974.456	114.829	None
NVA049	220930.972	391260.721	97.565	None
NVA050	159169.521	390031.774	45.260	None
NVA051	145481.748	404492.622	35.213	None
NVA052	177955.077	464562.643	7.873	None
NVA053	286093.977	286416.726	134.503	None
NVA054R	387013.735	542134.152	86.033	None
NVA055	78465.925	378185.874	15.087	None
NVA056	246647.296	463917.624	65.448	None
NVA057	276595.122	462124.389	21.853	None
NVA058	410170.419	558819.398	40.798	None
NVA059	216572.811	418797.910	50.514	None
NVA060	249197.560	317471.457	95.861	None
NVA061	198386.712	400302.648	80.329	None
NVA062	226953.165	253936.111	102.424	None
NVA063	152767.653	459784.091	6.108	None
NVA064	195508.419	456597.980	49.552	None

NVA065	219430.436	317264.800	63.454	None
NVA066	50896.759	397415.648	8.652	None
NVA067	90232.842	401394.901	12.556	None
NVA068	141911.996	439448.945	16.977	None
NVA069	203153.458	486081.595	29.735	None
NVA070	268501.692	273713.491	126.432	None
NVA071	169242.665	303868.545	9.566	None
NVA072	235435.820	339217.674	91.007	None
NVA073R	126746.723	426682.454	18.704	None
NVA074	218686.886	348922.077	66.766	None
NVA075	229183.445	426083.257	18.628	None
NVA076	236704.592	397976.966	98.845	None
NVA077	214261.327	282154.935	57.452	None
NVA078	214214.802	528996.869	7.082	None
NVA079	259242.090	344176.469	106.569	None
QuallnnBaseEast	440421.741	469863.589	123.183	None
QuallnnBaseQC	440421.736	469863.630	123.191	None
QuallnnNorth	440591.924	469731.828	121.309	None
QuallnnNorth	440591.924	469731.828	121.309	Both
QuallnnSW	440121.624	469692.782	115.918	None
V016	308135.346	555840.315	112.685	None
V018	440102.500	469572.329	139.704	None
V019	456384.198	483032.150	139.570	None
V020	472485.578	519463.782	172.251	None
V022	478822.351	554553.441	172.315	None
V025	450849.731	532158.262	139.789	None
V026	427149.996	513133.256	172.781	None
V027	430645.928	548917.273	140.510	None
V028	451880.357	579184.533	140.684	None
V029	464922.424	602058.215	140.919	None
V030	450026.842	618838.110	141.246	None
V033	405515.403	528726.620	140.537	None
V036	410333.307	558929.740	140.948	None
V037	416160.644	578530.855	141.304	None
V038	386718.957	542002.979	140.886	None
V043	388167.918	587979.329	141.345	None
V053	361818.266	575987.988	141.388	None
V056	390788.531	609398.400	141.693	None
V058	362325.460	576376.352	141.388	None
V060	297037.584	205064.455	141.871	None
V072	405211.873	528727.060	222.549	None
V074	405716.619	527947.595	206.357	None
V075	280268.652	535170.355	142.818	None
VVA001	456389.481	482902.979	96.388	None
VVA002	478864.746	554413.689	133.760	None
VVA003	464947.623	601901.779	41.864	None
VVA004	405533.966	528643.836	136.111	None
VVA004	405533.966	528643.862	136.121	None
VVA005	416501.598	578630.568	57.029	None
VVA006	450007.328	618726.889	3.163	None

VVA007	338478.936	601812.450	4.857	None
VVA008	339706.035	542057.714	140.649	None
VVA009	280681.685	535194.910	14.373	None
VVA010	267654.025	565585.685	3.119	None
VVA011	331999.727	219231.114	6.683	None
VVA012	225512.496	285948.552	60.901	None
VVA013	269168.456	217630.842	-1.113	None
VVA014	274849.101	300070.803	128.361	None
VVA015	185425.851	294685.464	32.710	None
VVA016	296798.158	256464.832	63.644	None
VVA017	240169.016	352863.659	96.200	None
VVA018	296871.568	412705.332	87.249	None
VVA019	241092.740	504491.951	35.535	None
VVA020	156185.632	355359.852	20.473	None
VVA021	200554.167	517140.783	8.135	None
VVA022	51997.963	366378.895	16.104	None
VVA023	168123.560	418692.585	18.360	None
VVA024	108309.828	413061.674	18.250	None
VVA025	218482.323	451165.811	62.252	None
VVA026	245411.158	228056.848	8.021	None
VVA027	204738.693	350652.894	43.167	None
VVA028	95940.310	428602.249	5.634	None
VVA029	260880.298	425898.663	82.325	None
VVA030	448712.116	531024.408	102.866	None
VVA031	451615.016	579382.655	44.265	None
VVA032R	371128.281	525200.070	151.559	None
VVA033R	362007.873	575821.594	7.681	None
VVA034	390716.857	609473.064	3.199	None
VVA035	410409.001	558787.276	39.934	None
VVA036	307340.310	555552.188	26.543	None
VVA037	267723.946	528433.741	6.241	None
VVA038	317853.983	528696.937	85.453	None
VVA039	216894.373	419114.802	55.245	None
VVA040	245544.750	465880.344	57.534	None
VVA041	77857.201	376683.963	9.955	None
VVA042	177866.480	464797.858	7.243	None
VVA043	265199.565	246539.106	29.178	None
VVA044R	153926.693	459691.367	3.882	None
VVA045	145816.188	404066.493	36.213	None
VVA046	249261.239	315921.297	86.728	None
VVA047	182126.896	345168.188	17.287	None
VVA048	219829.443	316849.661	77.156	None
VVA049	198457.242	400333.939	79.488	None
VVA050	277386.501	462126.653	20.604	None
VVA051	222448.250	393430.694	91.199	None
VVA052	195783.131	456742.278	51.272	None
VVA053	255572.798	365964.409	116.875	None
VVA054	251949.160	283187.094	124.646	None
VVA055R	227103.336	253722.614	93.117	None
VVA056	297082.155	205282.280	7.951	None

VVA057	268938.656	269559.453	135.615	None
VVA058	159231.336	389859.665	46.210	None
VVA059	214544.239	529187.289	4.836	None
VVA060	203006.465	487980.824	4.401	None
VVA061	471318.523	517920.450	153.691	None

Point Classification Descriptions

Name	Class Description
Base93	Base grass
Base94	Base grass
Base95	Base grass
Base96	Base Cor SW
Base97	Base
Base98	Base
Base99	Base
GCP001R	Paint Stripe
GCP002	Tip of Arrow
GCP003	Paint stripe
GCP004	Paint stripe
GCP004	Cor Paint lines
GCP005	Cor of paint lines
GCP006	Paint stripe
GCP007	Cor of paint stripe
GCP008	Asphalt
GCP009	Paint Stripe
GCP010	Cor of paint stripe
GCP011	Concrete Area
GCP012	Paint Stripe
GCP013	Paint Stripe
GCP014	Paint Stripe
GCP015	Paint Stripe
GCP016	Paint Stripe
GCP017	Paint Stripe
GCP018	Paint Stripe
GCP019	Paint Stripe
GCP020	Paint Stripe
GCP021	Cor SW
GCP022	Paint Stripe
GCP023	Paint Stripe
GCP023QC	GCP023QC
GCP024	Paint Stripe
GCP025	Paint Stripe
GCP026	Paint Stripe
GCP027	Cor SW
GCP028	Paint Stripe
GCP029	Paint Stripe
JJW1	3rd Party CORS
NJBL	3rd Party CORS
NJCM	CORS

NJGC	CORS
NJOC	CORS
NJOC	CORS
NJOC	CORS
NVA001R	Cor SW
NVA002	Tip of Arrow
NVA003R	Cor of paint lines
	CL Paint line
NVA004	intersects
NVA005	Paint stripe
NVA006	Paint stripe
NVA007	CL Manhole
NVA008	Paint Stripe
NVA009	Paint Stripe
NVA010	Paint Stripe
NVA011	Cor SW
NVA012	Paint Stripe
NVA013	Paint Stripe
NVA014	Cor SW
NVA015R	Cor SW
NVA016	Paint Stripe
NVA017	Paint Stripe
NVA018	Paint Stripe
NVA019	Cor stop bar
NVA020	Paint Stripe
NVA021	Cor SW
NVA022	Paint Stripe
NVA023	Paint Stripe
NVA024	Paint Stripe
NVA025	Cor of Paint stripe
NVA026	Cor SW
NVA027	Paint Stripe
NVA028	Paint Stripe
NVA029	Paint Stripe
NVA030	Sidewalk and drive
NVA031	Paint stripe
NVA032	Paint stripe
NVA033R	Cor stop bar
	CL Paint line
NVA034	intersects
NVA035R	Tip of Arrow
NVA036	Paint Stripe
NVA037	Paint Stripe
NVA038	Paint stripe
NVA039A	Cor of stop bar
NVA040	Gravel
NVA041	Gravel
NVA042	Paint Stripe
NVA043	Paint Stripe
NVA044R	Cor stop bar
NVA045	Paint Stripe

NVA046	Gravel
NVA047	Paint Stripe
NVA047QC	NVA047QC
NVA048	Paint Stripe
NVA049	Cor of Asphalt
NVA050	Paint Stripe
NVA051	Paint Stripe
NVA052	Paint Stripe
NVA053	Paint Stripe
	CL Paint line
NVA054R	intersects
NVA055	Paint Stripe
NVA056	Paint Stripe
NVA057	Paint Stripe
NVA058	Cor of paint lines
NVA059	Cor of SW
NVA060	Cor SW
NVA061	Gravel
NVA062	Paint Stripe
NVA063	Paint Stripe
NVA064	Paint Stripe
NVA065	Paint Stripe
NVA066	Cor of stop bar
NVA067	Paint Stripe
NVA068	Cor SW
NVA069	Paint Stripe
NVA070	Paint Stripe
NVA071	Paint Stripe
NVA072	Paint Stripe
NVA073R	Cor of metal plate
NVA074	Cor SW
NVA075	Paint Stripe
NVA076	Paint Stripe
NVA077	Paint Stripe
NVA078	Paint Stripe
NVA079	Paint Stripe
QuallnnBaseEast	Paint stripe
QuallnnBaseQC	Paint stripe
QuallnnNorth	Paint stripe
QuallnnNorth	Paint Stripe
QuallnnSW	Paint stripe
V016	Virtual CORS
V018	Virtual CORS
V019	Virtual CORS
V020	Virtual CORS
V022	Virtual CORS
V025	Virtual CORS
V026	Virtual CORS
V027	Virtual CORS
V028	Virtual CORS
V029	Virtual CORS

V030	Virtual CORS
V033	Virtual CORS
V036	Virtual CORS
V037	Virtual CORS
V038	Virtual CORS
V043	Virtual CORS
V053	Virtual CORS
V056	Virtual CORS
V058	Virtual CORS
V060	Virtual Base
V072	Virtual CORS
V074	Virtual CORS
V075	Virtual CORS
VVA001	Trees
VVA002	Grass
VVA003	Brush
VVA004	Grass
VVA004	Grass
VVA005	Grass
VVA006	Grass
VVA007	Grass
VVA008	Grass
VVA009	Grass
VVA010	Grass
VVA011	Trees
VVA012	Grass
VVA013	Grass
VVA014	Grass
VVA015	Grass
VVA016	Grass
VVA017	Grass
VVA018	Tall grass
VVA019	Grass
VVA020	Grass
VVA021	Grass
VVA022	Grass
VVA023	Grass
VVA024	Grass
VVA025	Grass
VVA026	Grass
VVA027	Grass
VVA028	Grass
VVA029	Grass
VVA030	Grass
VVA031	Grass
VVA032R	Tall Grass
VVA033R	Tall Grass
VVA034	Brush
VVA035	Grass
VVA036	Tall Grass

VVA037	Tall grass
VVA038	Tall Grass
VVA039	Grass
VVA040	Grass
VVA041	Grass
VVA042	Tall Grass
VVA043	Grass
VVA044R	Shrub
VVA045	Grass
VVA046	Tall Grass
VVA047	Tall Grass
VVA048	Shrub
VVA049	Grass
VVA050	Grass
VVA051	Tall Grass
VVA052	Grass
VVA053	Grass
VVA054	Tall Grass
VVA055R	Grass
VVA056	Trees
VVA057	Grass
VVA058	Grass
VVA059	Grass
VVA060	Grass
VVA061	Trees

Point RMSE Standard Deviations

Name	Std Dev n (USft)	Std Dev e (USft)	Std Dev u (USft)	Std Dev Hz (USft)	Geoid Separation (USft)
Base93	0.028	0.024	0.069	0.037	-109.162
Base94	0.016	0.009	0.046	0.018	-116.226
Base95	0.014	0.011	0.030	0.018	-111.926
Base96	0.019	0.013	0.034	0.022	-110.898
Base97	0.019	0.014	0.033	0.023	-111.357
Base98	0.016	0.010	0.035	0.019	-110.386
Base99	0.036	0.026	0.073	0.045	-110.726
GCP001R	0.009	0.005	0.024	0.011	-106.559
GCP002	0.029	0.020	0.068	0.035	-106.723
GCP003	0.009	0.008	0.020	0.012	-108.096
GCP004	0.011	0.008	0.029	0.013	-107.720
GCP004	0.022	0.014	0.055	0.026	-107.720
GCP005	0.007	0.006	0.016	0.009	-108.289
GCP006	0.011	0.009	0.022	0.014	-108.435
GCP007	0.017	0.011	0.040	0.020	-109.314
GCP008	0.058	0.025	0.070	0.063	-108.383
GCP009	0.028	0.024	0.069	0.037	-109.783
GCP010	0.033	0.023	0.064	0.040	-110.857
GCP011	0.025	0.017	0.061	0.030	-108.390

GCP012	0.037	0.027	0.074	0.045	-110.725
GCP013	0.032	0.027	0.056	0.042	-110.001
GCP014	0.028	0.019	0.067	0.033	-110.002
GCP015	0.029	0.021	0.050	0.035	-111.452
GCP016	0.019	0.016	0.045	0.025	-109.456
GCP017	0.023	0.014	0.036	0.027	-110.791
GCP018	0.026	0.019	0.054	0.032	-109.550
GCP019	0.035	0.022	0.077	0.042	-110.906
GCP020	0.022	0.017	0.043	0.028	-112.865
GCP021	0.033	0.022	0.079	0.039	-112.727
GCP022	0.017	0.010	0.048	0.020	-116.218
GCP023	0.018	0.013	0.037	0.022	-112.888
GCP023QC	0.016	0.012	0.034	0.020	-112.888
GCP024	0.004	0.003	0.008	0.005	-115.040
GCP025	0.024	0.018	0.053	0.030	-111.335
GCP026	0.032	0.023	0.085	0.040	-110.539
GCP027	0.020	0.015	0.038	0.026	-111.297
GCP028	0.007	0.005	0.016	0.009	-115.587
GCP029	0.026	0.018	0.051	0.031	-110.375
JJW1	0.000	0.000	0.000	0.000	-107.326
NJBL	0.007	0.006	0.016	0.009	-109.314
NJCM	0.000	0.000	0.000	0.000	-115.299
NJGC	0.000	0.000	0.000	0.000	-108.343
NJOC	0.000	0.000	0.000	0.000	-108.348
NJOC	0.005	0.004	0.011	0.006	-108.348
NJOC	0.023	0.022	0.060	0.032	-108.348
NVA001R	0.009	0.005	0.023	0.010	-106.559
NVA002	0.029	0.020	0.067	0.035	-106.719
NVA003R	0.011	0.009	0.024	0.014	-108.082
NVA004	0.331	0.161	0.115	0.368	-107.719
NVA005	0.006	0.005	0.015	0.008	-108.295
NVA006	0.009	0.008	0.019	0.012	-108.436
NVA007	0.017	0.011	0.040	0.020	-109.312
NVA008	0.028	0.015	0.041	0.032	-108.383
NVA009	0.028	0.024	0.069	0.037	-109.800
NVA010	0.034	0.024	0.067	0.041	-110.871
NVA011	0.025	0.018	0.061	0.031	-108.379
NVA012	0.038	0.028	0.079	0.048	-110.729
NVA013	0.032	0.027	0.059	0.042	-109.991
NVA014	0.029	0.019	0.064	0.034	-110.002
NVA015R	0.028	0.020	0.050	0.034	-111.496
NVA016	0.029	0.020	0.060	0.036	-109.455
NVA017	0.024	0.014	0.038	0.028	-110.795
NVA018	0.027	0.020	0.057	0.034	-109.556
NVA019	0.036	0.023	0.078	0.042	-110.911
NVA020	0.022	0.016	0.039	0.027	-112.834
NVA021	0.033	0.022	0.079	0.039	-112.710
NVA022	0.017	0.009	0.048	0.019	-116.227
NVA023	0.017	0.013	0.039	0.021	-112.895
NVA024	0.004	0.003	0.009	0.005	-115.025

NVA025	0.024	0.018	0.054	0.030	-111.348
NVA026	0.033	0.023	0.085	0.040	-110.548
NVA027	0.020	0.016	0.040	0.026	-111.296
NVA028	0.007	0.005	0.016	0.009	-115.595
NVA029	0.026	0.018	0.051	0.031	-110.388
NVA030	0.020	0.019	0.047	0.027	-106.416
NVA031	0.020	0.017	0.040	0.027	-107.681
NVA032	0.012	0.010	0.024	0.016	-107.875
NVA033R	0.038	0.026	0.074	0.046	-108.543
NVA034	0.008	0.009	0.018	0.012	-106.961
NVA035R	0.019	0.011	0.054	0.022	-107.147
NVA036	0.029	0.025	0.071	0.038	-110.153
NVA037	0.019	0.014	0.040	0.024	-109.234
NVA038	0.017	0.015	0.032	0.022	-108.583
NVA039A	0.035	0.021	0.062	0.041	-108.678
NVA040	0.020	0.014	0.037	0.025	-108.565
NVA041	0.019	0.016	0.039	0.025	-108.002
NVA042	0.032	0.027	0.064	0.042	-109.048
NVA043	0.020	0.017	0.045	0.026	-110.198
NVA044R	0.028	0.034	0.103	0.044	-108.950
NVA045	0.018	0.016	0.043	0.024	-109.784
NVA046	0.018	0.011	0.036	0.021	-110.384
NVA047	0.020	0.015	0.036	0.025	-111.847
NVA047QC	0.020	0.015	0.036	0.025	-111.847
NVA048	0.023	0.016	0.047	0.028	-110.574
NVA049	0.030	0.021	0.059	0.036	-111.194
NVA050	0.020	0.016	0.044	0.025	-112.945
NVA051	0.014	0.013	0.033	0.019	-113.545
NVA052	0.022	0.020	0.049	0.030	-112.899
NVA053	0.021	0.013	0.048	0.024	-109.746
NVA054R	0.010	0.008	0.025	0.013	-108.071
NVA055	0.015	0.011	0.037	0.018	-115.647
NVA056	0.036	0.025	0.064	0.043	-110.595
NVA057	0.023	0.016	0.047	0.028	-109.822
NVA058	0.009	0.006	0.023	0.011	-108.117
NVA059	0.022	0.015	0.038	0.027	-111.393
NVA060	0.028	0.019	0.092	0.034	-110.550
NVA061	0.019	0.016	0.049	0.025	-111.731
NVA062	0.036	0.027	0.073	0.045	-110.775
NVA063	0.017	0.015	0.039	0.022	-113.830
NVA064	0.017	0.013	0.035	0.021	-112.114
NVA065	0.026	0.018	0.044	0.032	-110.889
NVA066	0.019	0.013	0.035	0.023	-116.489
NVA067	0.006	0.005	0.013	0.008	-115.478
NVA068	0.018	0.012	0.038	0.022	-114.007
NVA069	0.042	0.028	0.096	0.050	-112.131
NVA070	0.017	0.011	0.037	0.020	-110.120
NVA071	0.026	0.018	0.045	0.032	-112.042
NVA072	0.023	0.015	0.044	0.028	-110.810
NVA073R	0.021	0.014	0.058	0.026	-114.451

NVA074	0.024	0.018	0.047	0.030	-111.039
NVA075	0.024	0.017	0.045	0.029	-111.140
NVA076	0.025	0.017	0.052	0.030	-110.945
NVA077	0.040	0.029	0.080	0.049	-110.895
NVA078	0.039	0.026	0.087	0.047	-112.313
NVA079	0.020	0.014	0.047	0.024	-110.491
QuallnnBaseEast	0.014	0.014	0.038	0.019	-106.667
QuallnnBaseQC	0.011	0.007	0.020	0.013	-106.667
QuallnnNorth	0.008	0.005	0.014	0.010	-106.666
QuallnnNorth	0.000	0.000	0.000	0.000	-106.666
QuallnnSW	0.008	0.005	0.014	0.010	-106.669
V016	0.018	0.013	0.037	0.022	-109.214
V018	0.008	0.005	0.014	0.009	-106.669
V019	0.008	0.007	0.019	0.010	-106.553
V020	0.010	0.006	0.018	0.011	-106.417
V022	0.010	0.006	0.020	0.012	-106.725
V025	0.006	0.007	0.015	0.009	-106.964
V026	0.006	0.006	0.015	0.009	-107.153
V027	0.006	0.006	0.014	0.009	-107.686
V028	0.007	0.006	0.015	0.009	-107.874
V029	0.007	0.007	0.017	0.010	-108.101
V030	0.007	0.007	0.017	0.010	-108.436
V033	0.006	0.005	0.013	0.008	-107.722
V036	0.006	0.005	0.014	0.008	-108.117
V037	0.006	0.005	0.015	0.008	-108.290
V038	0.006	0.006	0.014	0.008	-108.072
V043	0.007	0.006	0.016	0.009	-108.544
V053	0.007	0.006	0.017	0.010	-108.584
V056	0.007	0.006	0.016	0.009	-108.678
V058	0.007	0.006	0.017	0.010	-108.585
V060	0.028	0.025	0.054	0.038	-109.041
V072	0.008	0.007	0.017	0.010	-107.725
V074	0.008	0.006	0.017	0.010	-107.708
V075	0.028	0.024	0.068	0.037	-109.796
VVA001	0.012	0.008	0.028	0.014	-106.554
VVA002	0.029	0.019	0.067	0.034	-106.722
VVA003	0.010	0.008	0.022	0.013	-108.098
VVA004	0.009	0.007	0.026	0.011	-107.720
VVA004	0.023	0.015	0.058	0.027	-107.720
VVA005	0.007	0.006	0.017	0.010	-108.288
VVA006	0.009	0.008	0.018	0.012	-108.436
VVA007	0.016	0.010	0.039	0.019	-109.311
VVA008	0.026	0.014	0.037	0.029	-108.342
VVA009	0.028	0.024	0.068	0.037	-109.781
VVA010	0.032	0.023	0.063	0.039	-110.882
VVA011	0.025	0.018	0.062	0.031	-108.337
VVA012	0.040	0.029	0.081	0.049	-110.744
VVA013	0.031	0.027	0.055	0.041	-109.954
VVA014	0.021	0.016	0.048	0.027	-110.033
VVA015	0.024	0.018	0.043	0.030	-111.486

VVA016	0.018	0.015	0.043	0.024	-109.461
VVA017	0.022	0.014	0.035	0.026	-110.790
VVA018	0.026	0.019	0.053	0.032	-109.500
VVA019	0.033	0.021	0.075	0.040	-110.826
VVA020	0.020	0.014	0.035	0.025	-112.862
VVA021	0.032	0.021	0.078	0.039	-112.703
VVA022	0.017	0.009	0.048	0.019	-116.221
VVA023	0.014	0.011	0.032	0.017	-112.852
VVA024	0.004	0.003	0.008	0.005	-115.000
VVA025	0.023	0.017	0.052	0.029	-111.338
VVA026	0.033	0.023	0.086	0.040	-110.536
VVA027	0.020	0.015	0.037	0.025	-111.280
VVA028	0.007	0.005	0.015	0.008	-115.555
VVA029	0.025	0.018	0.050	0.031	-110.391
VVA030	0.007	0.007	0.016	0.010	-106.992
VVA031	0.011	0.010	0.023	0.015	-107.882
VVA032R	0.020	0.017	0.041	0.026	-108.000
VVA033R	0.021	0.018	0.044	0.028	-108.581
VVA034	0.035	0.021	0.063	0.041	-108.679
VVA035	0.009	0.007	0.022	0.011	-108.115
VVA036	0.020	0.015	0.041	0.025	-109.232
VVA037	0.029	0.025	0.070	0.038	-110.157
VVA038	0.020	0.014	0.037	0.024	-108.597
VVA039	0.022	0.014	0.037	0.026	-111.387
VVA040	0.036	0.025	0.064	0.043	-110.612
VVA041	0.014	0.010	0.034	0.018	-115.655
VVA042	0.022	0.019	0.048	0.029	-112.905
VVA043	0.021	0.018	0.048	0.027	-110.194
VVA044R	0.016	0.014	0.037	0.021	-113.784
VVA045	0.012	0.011	0.029	0.016	-113.529
VVA046	0.030	0.020	0.099	0.036	-110.541
VVA047	0.019	0.015	0.035	0.024	-111.844
VVA048	0.025	0.016	0.041	0.030	-110.883
VVA049	0.019	0.015	0.046	0.024	-111.730
VVA050	0.041	0.032	0.094	0.052	-109.801
VVA051	0.027	0.019	0.053	0.033	-111.179
VVA052	0.016	0.013	0.034	0.021	-112.105
VVA053	0.022	0.015	0.046	0.027	-110.567
VVA054	0.017	0.011	0.036	0.020	-110.402
VVA055R	0.036	0.027	0.073	0.045	-110.774
VVA056	0.034	0.029	0.069	0.045	-109.043
VVA057	0.025	0.016	0.048	0.029	-110.114
VVA058	0.014	0.014	0.036	0.020	-112.942
VVA059	0.040	0.026	0.087	0.047	-112.302
VVA060	0.041	0.027	0.094	0.049	-112.166
VVA061	0.011	0.010	0.024	0.015	-106.424

The NGS Data Sheet

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

PROGRAM = datasheet95, VERSION = 8.12.5.2
 1 National Geodetic Survey, Retrieval Date = NOVEMBER 12, 2018

DF8717

 DF8717 CORS - This is a GPS Continuously Operating Reference Station.
 DF8717 DESIGNATION - NJGC CORS ARP
 DF8717 CORS_ID - NJGC
 DF8717 PID - DF8717
 DF8717 STATE/COUNTY- NJ/GLOUCESTER
 DF8717 COUNTRY - US
 DF8717 USGS QUAD - RUNNEMEDE (1994)
 DF8717
 DF8717 *CURRENT SURVEY CONTROL
 DF8717

DF8717* NAD 83(2011) POSITION- 39 46 52.79148(N) 075 07 11.25002(W)
 ADJUSTED
 DF8717* NAD 83(2011) ELLIP HT- -3.994 (meters) (08/??/11)
 ADJUSTED
 DF8717* NAD 83(2011) EPOCH - 2010.00
 DF8717* [NAVD 88](#) ORTHO HEIGHT - 29.036 (meters) 95.26 (feet)
 ADJUSTED
 DF8717

DF8717 GEOID HEIGHT - -33.023 (meters)
 GEOID12B
 DF8717 NAD 83(2011) X - 1,260,440.053 (meters) COMP
 DF8717 NAD 83(2011) Y - -4,743,675.695 (meters) COMP
 DF8717 NAD 83(2011) Z - 4,059,354.199 (meters) COMP
 DF8717 VERT ORDER - FIRST CLASS II
 DF8717
 DF8717 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
 DF8717 Standards:

DF8717	FGDC (95% conf, cm)		Standard deviation (cm)			CorrNE	
DF8717	Horiz	Ellip	SD_N	SD_E	SD_h	(unitless)	
DF8717	-----	-----	-----	-----	-----	-----	
DF8717	NETWORK	1.30	4.29	0.57	0.48	2.19	0.01712700
DF8717	-----	-----	-----	-----	-----	-----	

DF8717
 DF8717
 DF8717 The coordinates were established by GPS observations
 DF8717 and adjusted by the National Geodetic Survey in August 2011.
 DF8717
 DF8717 NAD 83(2011) refers to NAD 83 coordinates where the reference frame
 has
 DF8717 been affixed to the stable North American Tectonic Plate.
 DF8717
 DF8717 The coordinates are valid at the epoch date displayed above
 DF8717 which is a decimal equivalence of Year/Month/Day.
 DF8717

DF8717.The orthometric height was determined by differential leveling and
 DF8717.adjusted by the NATIONAL GEODETIC SURVEY
 DF8717.in May 2012.

DF8717

DF8717.No vertical observational check was made to the station.

DF8717

DF8717.Significant digits in the geoid height do not necessarily reflect
 accuracy.

DF8717.GEOID12B height accuracy estimate available [here](#).

DF8717

DF8717.The PID for the CORS L1 Phase Center is D07544.

DF8717

DF8717.The XYZ, and position/ellipsoidal ht. are equivalent.

DF8717

DF8717.The ellipsoidal height was determined by GPS observations

DF8717.and is referenced to NAD 83.

DF8717

DF8717. The following values were computed from the NAD 83(2011) position.

DF8717

DF8717;		North	East	Units	Scale Factor	
Converg.						
DF8717;SPC NJ	-	105,421.197	96,910.281	MT	0.99993469	-0 23
47.7						
DF8717;SPC NJ	-	345,869.38	317,946.48	sFT	0.99993469	-0 23
47.7						
DF8717;UTM 18	-	4,403,494.415	489,742.075	MT	0.99960130	-0 04
35.9						

DF8717

DF8717! - Elev Factor x Scale Factor = Combined Factor

DF8717!SPC NJ - 1.00000063 x 0.99993469 = 0.99993532

DF8717!UTM 18 - 1.00000063 x 0.99960130 = 0.99960193

DF8717

DF8717_U.S. NATIONAL GRID SPATIAL ADDRESS: 18SVK8974203494 (NAD 83)

DF8717

DF8717 SUPERSEDED SURVEY CONTROL

DF8717

DF8717	ELLIP H (06/27/12)	-3.986	(m)			GP(2010.00)	0
DF8717	NAD 83(2011)-	39 46 52.79162	(N)	075 07 11.24999	(W)	AD(2010.00)	c
DF8717	ELLIP H (02/10/07)	-3.984	(m)			GP(2002.00)	
DF8717	NAD 83(2007)-	39 46 52.79170	(N)	075 07 11.25056	(W)	AD(2002.00)	c
DF8717	NAD 83(CORS)-	39 46 52.79170	(N)	075 07 11.25056	(W)	AD(2002.00)	c
DF8717	ELLIP H (11/??/03)	-3.984	(m)			GP(2002.00)	c

c

DF8717

DF8717.Superseded values are not recommended for survey control.

DF8717

DF8717.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

DF8717.See file [dsdata.pdf](#) to determine how the superseded data were
 derived.

DF8717

DF8717_MARKER: STATION IS THE ANTENNA REFERENCE POINT OF THE GPS ANTENNA

DF8717

DF8717 STATION DESCRIPTION

DF8717

DF8717'DESCRIBED BY NATIONAL GEODETIC SURVEY 2011

DF8717'STATION IS A GPS CORS. LATEST INFORMATION INCLUDING POSITIONS AND

DI1077
 DI1077
 DI1077.The coordinates were established by GPS observations
 DI1077.and adjusted by the National Geodetic Survey in August 2011.
 DI1077
 DI1077.NAD 83(2011) refers to NAD 83 coordinates where the reference frame
 has
 DI1077.been affixed to the stable North American Tectonic Plate.
 DI1077
 DI1077.The coordinates are valid at the epoch date displayed above
 DI1077.which is a decimal equivalence of Year/Month/Day.
 DI1077
 DI1077.The orthometric height was determined by differential leveling and
 DI1077.adjusted by the NATIONAL GEODETIC SURVEY
 DI1077.in May 2012.
 DI1077
 DI1077.No vertical observational check was made to the station.
 DI1077
 DI1077.Significant digits in the geoid height do not necessarily reflect
 accuracy.
 DI1077.GEOID12B height accuracy estimate available [here](#).
 DI1077
 DI1077.The PID for the CORS L1 Phase Center is D06882.
 DI1077
 DI1077.[Photographs](#) are available for this station.
 DI1077
 DI1077.The XYZ, and position/ellipsoidal ht. are equivalent.
 DI1077
 DI1077.The ellipsoidal height was determined by GPS observations
 DI1077.and is referenced to NAD 83.
 DI1077
 DI1077. The following values were computed from the NAD 83(2011) position.
 DI1077
 DI1077;

	North	East	Units	Scale	Factor
Converg.					
DI1077;SPC NJ	- 124,317.352	176,188.798	MT	0.99990844	+0 11
48.6					
DI1077;SPC NJ	- 407,864.51	578,046.08	sFT	0.99990844	+0 11
48.6					
DI1077;UTM 18	- 4,422,828.117	568,890.553	MT	0.99965842	+0 31
04.5					
DI1077					
DI1077!	- Elev Factor	x	Scale Factor	=	Combined Factor
DI1077!SPC NJ	- 1.00000128	x	0.99990844	=	0.99990972
DI1077!UTM 18	- 1.00000128	x	0.99965842	=	0.99965970
DI1077					
DI1077_U.S. NATIONAL GRID SPATIAL ADDRESS: 18SWK6889022828(NAD 83)					
DI1077					
DI1077	SUPERSEDED SURVEY CONTROL				
DI1077					
DI1077	NAD 83(CORS)-	39 57 10.02338(N)	074 11 36.59353(W)	AD(2002.00)	c
DI1077	ELLIP H (08/??/06)	-8.169 (m)		GP(2002.00)	c

c
 DI1077
 DI1077.Superseded values are not recommended for survey control.
 DI1077
 DI1077.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

DI1077. See file [dsdata.pdf](#) to determine how the superseded data were derived.

DI1077
 DI1077_MARKER: STATION IS THE ANTENNA REFERENCE POINT OF THE GPS ANTENNA
 DI1077
 DI1077 STATION DESCRIPTION
 DI1077
 DI1077'DESCRIBED BY NATIONAL GEODETIC SURVEY 2011
 DI1077'STATION IS A GPS CORS. LATEST INFORMATION INCLUDING POSITIONS AND
 DI1077'VELOCITIES ARE AVAILABLE IN THE COORDINATE AND LOG FILES ACCESSIBLE
 DI1077'BY ANONYMOUS FTP OR THE WORLDWIDE WEB.
 DI1077' ftp://cors.ngs.noaa.gov/cors/README.txt
 DI1077' ftp://cors.ngs.noaa.gov/cors/coord/coord_08
 DI1077' ftp://cors.ngs.noaa.gov/cors/station_log
 DI1077' http://geodesy.noaa.gov/CORS

*** retrieval complete.
 Elapsed Time = 00:00:05

The NGS Data Sheet

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

```
PROGRAM = datasheet95, VERSION = 8.12.5.2
1      National Geodetic Survey,  Retrieval Date = NOVEMBER 12, 2018
DK7749
*****
DK7749  CORS          -  This is a GPS Continuously Operating Reference
Station.
DK7749  DESIGNATION -  NEPTUNE TOWNSHIP CORS ARP
DK7749  CORS_ID      -  NJNT
DK7749  PID          -  DK7749
DK7749  STATE/COUNTY-  NJ/MONMOUTH
DK7749  COUNTRY      -  US
DK7749  USGS QUAD    -  ASBURY PARK (1989)
DK7749
DK7749                                *CURRENT SURVEY CONTROL
DK7749
-----
DK7749* NAD 83(2011) POSITION- 40 12 33.61966(N) 074 02 11.58975(W)
ADJUSTED
DK7749* NAD 83(2011) ELLIP HT-  -15.522 (meters)          (08/??/11)
ADJUSTED
DK7749* NAD 83(2011) EPOCH   - 2010.00
DK7749* NAVD 88 ORTHO HEIGHT - 17.301 (meters)          56.76 (feet)
ADJUSTED
DK7749
-----
DK7749  GEOID HEIGHT   -  -32.827 (meters)
GEOID12B
DK7749  NAD 83(2011) X - 1,341,490.883 (meters)          COMP
DK7749  NAD 83(2011) Y - -4,689,624.213 (meters)          COMP
DK7749  NAD 83(2011) Z - 4,095,754.366 (meters)          COMP
DK7749  VERT ORDER    -  FIRST CLASS II
```

DK7749

DK7749. Formal positional accuracy estimates are not available for this CORS DK7749 because its coordinates were determined in part using modeled DK7749 velocities. Approximate one-sigma accuracies for latitude, longitude, DK7749 and ellipsoid height can be obtained from the [short-term time series](#). DK7749 Additional information regarding modeled velocities is available on DK7749 the [CORS Coordinates](#) and [Multi-Year CORS Solution FAQ](#) web pages.

DK7749

DK7749 The coordinates were established by GPS observations DK7749 and adjusted by the National Geodetic Survey in August 2011.

DK7749

DK7749 NAD 83(2011) refers to NAD 83 coordinates where the reference frame has

DK7749 been affixed to the stable North American Tectonic Plate.

DK7749

DK7749 The coordinates are valid at the epoch date displayed above DK7749 which is a decimal equivalence of Year/Month/Day.

DK7749

DK7749 The orthometric height was determined by differential leveling and DK7749 adjusted by the NATIONAL GEODETIC SURVEY DK7749 in May 2012.

DK7749

DK7749 No vertical observational check was made to the station.

DK7749

DK7749 Significant digits in the geoid height do not necessarily reflect accuracy.

DK7749 GEOID12B height accuracy estimate available [here](#).

DK7749

DK7749 The PID for the CORS L1 Phase Center is DQ1143.

DK7749

DK7749 The XYZ, and position/ellipsoidal ht. are equivalent.

DK7749

DK7749 The ellipsoidal height was determined by GPS observations DK7749 and is referenced to NAD 83.

DK7749

DK7749 The following values were computed from the NAD 83(2011) position.

DK7749

DK7749;		North	East	Units	Scale	Factor	
Converg.							
DK7749;SPC NJ	-	152,859.366	189,450.562	MT	0.99991915		+0 17
57.1							
DK7749;SPC NJ	-	501,506.10	621,555.72	sFT	0.99991915		+0 17
57.1							
DK7749;UTM 18	-	4,451,437.242	581,988.537	MT	0.99968275		+0 37
19.3							

DK7749

DK7749! - Elev Factor x Scale Factor = Combined Factor

DK7749!SPC NJ - 1.00000244 x 0.99991915 = 0.99992158

DK7749!UTM 18 - 1.00000244 x 0.99968275 = 0.99968518

DK7749

DK7749 U.S. NATIONAL GRID SPATIAL ADDRESS: 18TWK8198851437(NAD 83)

DK7749

SUPERSEDED SURVEY CONTROL

DK7749

DK7749 NAD 83(CORS)- 40 12 33.62005(N) 074 02 11.59038(W) AD(2002.00) c

DK7749 ELLIP H (12/??/08) -15.507 (m) GP(2002.00) c

DK7749
 DK7749.Superseded values are not recommended for survey control.
 DK7749
 DK7749.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
 DK7749.See file [dsdata.pdf](#) to determine how the superseded data were derived.
 DK7749
 DK7749_MARKER: STATION IS THE ANTENNA REFERENCE POINT OF THE GPS ANTENNA
 DK7749
 DK7749 STATION DESCRIPTION
 DK7749
 DK7749'DESCRIBED BY NATIONAL GEODETIC SURVEY 2011
 DK7749'STATION IS A GPS CORS. LATEST INFORMATION INCLUDING POSITIONS AND
 DK7749'VELOCITIES ARE AVAILABLE IN THE COORDINATE AND LOG FILES ACCESSIBLE
 DK7749'BY ANONYMOUS FTP OR THE WORLDWIDE WEB.
 DK7749' ftp://cors.ngs.noaa.gov/cors/README.txt
 DK7749' ftp://cors.ngs.noaa.gov/cors/coord/coord_08
 DK7749' ftp://cors.ngs.noaa.gov/cors/station_log
 DK7749' http://geodesy.noaa.gov/CORS

*** retrieval complete.
 Elapsed Time = 00:00:05

The NGS Data Sheet

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

```
PROGRAM = datasheet95, VERSION = 8.12.5.2
1      National Geodetic Survey,  Retrieval Date = NOVEMBER 12, 2018
DI3828
*****
DI3828  CORS          -  This is a GPS Continuously Operating Reference
Station.
DI3828  DESIGNATION -  MIDDLE TOWNSHIP CORS ARP
DI3828  CORS_ID      -  NJCM
DI3828  PID          -  DI3828
DI3828  STATE/COUNTY-  NJ/CAPE MAY
DI3828  COUNTRY      -  US
DI3828  USGS QUAD    -  STONE HARBOR (1972)
DI3828
DI3828                                *CURRENT SURVEY CONTROL
DI3828
```

```
DI3828* NAD 83(2011) POSITION- 39 06 02.39693(N) 074 48 10.42433(W)
ADJUSTED
DI3828* NAD 83(2011) ELLIP HT-  -25.313 (meters)          (08/??/11)
ADJUSTED
DI3828* NAD 83(2011) EPOCH  - 2010.00
DI3828* NAVD 88 ORTHO HEIGHT -  9.846 (meters)          32.30 (feet)
ADJUSTED
DI3828
```

DI3828 GEOID HEIGHT - -35.143 (meters)
 GEOID12B
 DI3828 NAD 83(2011) X - 1,299,237.868 (meters) COMP
 DI3828 NAD 83(2011) Y - -4,782,945.132 (meters) COMP
 DI3828 NAD 83(2011) Z - 4,000,979.917 (meters) COMP
 DI3828 VERT ORDER - FIRST CLASS II

DI3828 Network accuracy estimates per FGDC Geospatial Positioning Accuracy Standards:

	FGDC (95% conf, cm)		Standard deviation (cm)			CorrNE (unitless)
	Horiz	Ellip	SD_N	SD_E	SD_h	
DI3828 NETWORK	2.02	6.86	0.88	0.77	3.50	-0.02994800

DI3828
 DI3828

DI3828.The coordinates were established by GPS observations
 DI3828.and adjusted by the National Geodetic Survey in August 2011.
 DI3828

DI3828.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
 DI3828.been affixed to the stable North American Tectonic Plate.
 DI3828

DI3828.The coordinates are valid at the epoch date displayed above
 DI3828.which is a decimal equivalence of Year/Month/Day.
 DI3828

DI3828.The orthometric height was determined by differential leveling and
 DI3828.adjusted by the NATIONAL GEODETIC SURVEY
 DI3828.in March 2014.
 DI3828

DI3828.No vertical observational check was made to the station.
 DI3828

DI3828.Significant digits in the geoid height do not necessarily reflect accuracy.
 DI3828.GEOID12B height accuracy estimate available [here](#).
 DI3828

DI3828.The PID for the CORS L1 Phase Center is DO6883.
 DI3828

DI3828.The XYZ, and position/ellipsoidal ht. are equivalent.
 DI3828

DI3828.The ellipsoidal height was determined by GPS observations
 DI3828.and is referenced to NAD 83.
 DI3828

DI3828. The following values were computed from the NAD 83(2011) position.
 DI3828

Converg.		North	East	Units	Scale	Factor
DI3828;SPC NJ	-	29,718.584	123,801.055	MT	0.99990845	-0 11
27.7						
DI3828;SPC NJ	-	97,501.72	406,170.63	sFT	0.99990845	-0 11
27.7						
DI3828;UTM 18	-	4,327,966.162	517,043.408	MT	0.99960358	+0 07
27.5						

DI3828
 DI3828!
 DI3828!SPC NJ - Elev Factor x Scale Factor = Combined Factor
 DI3828!UTM 18 - 1.00000397 x 0.99960358 = 0.99960755

DI3828

DI3828_U.S. NATIONAL GRID SPATIAL ADDRESS: 18SWJ1704327966(NAD 83)

DI3828

DI3828

SUPERSEDED SURVEY CONTROL

DI3828

DI3828 NAD 83(CORS)- 39 06 02.39710(N) 074 48 10.42446(W) AD(2002.00) c

DI3828 ELLIP H (03/??/07) -25.289 (m) GP(2002.00) c

c

DI3828

DI3828.Superseded values are not recommended for survey control.

DI3828

DI3828.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

DI3828.See file [dsdata.pdf](#) to determine how the superseded data were derived.

DI3828

DI3828_MARKER: STATION IS THE ANTENNA REFERENCE POINT OF THE GPS ANTENNA

DI3828_MAGNETIC: N = NO MAGNETIC MATERIAL

DI3828

DI3828

STATION DESCRIPTION

DI3828

DI3828'DESCRIBED BY NATIONAL GEODETIC SURVEY 2011

DI3828'STATION IS A GPS CORS. LATEST INFORMATION INCLUDING POSITIONS AND

DI3828'VELOCITIES ARE AVAILABLE IN THE COORDINATE AND LOG FILES ACCESSIBLE

DI3828'BY ANONYMOUS FTP OR THE WORLDWIDE WEB.

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DI3828' ftp://cors.ngs.noaa.gov/cors/coord/coord_08

DI3828' ftp://cors.ngs.noaa.gov/cors/station_log

DI3828' http://geodesy.noaa.gov/CORS

*** retrieval complete.

Elapsed Time = 00:00:05

The KEYNETGPS Data Sheet Info

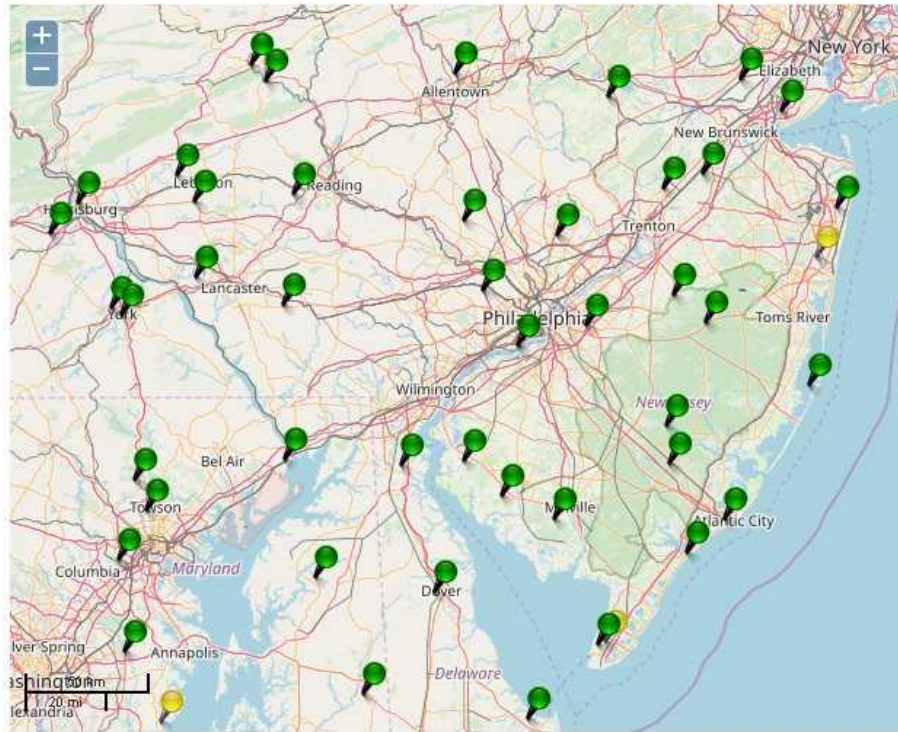


KeyNetGPS

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 - ▶ Sessions
 - ▶ Active Subscriptions
 - ▶ Logout
 - ▼ Documents
 - ▶ Subscriber Agreement
 - ▶ Users Guide
 - ▶ 2017 Network Adjustment
 - ▶ 2017 Coordindate Changes
 - ▼ External Links
 - ▶ Trimble
- Logged in as SAWS/swoodscop
-

Sensor Map



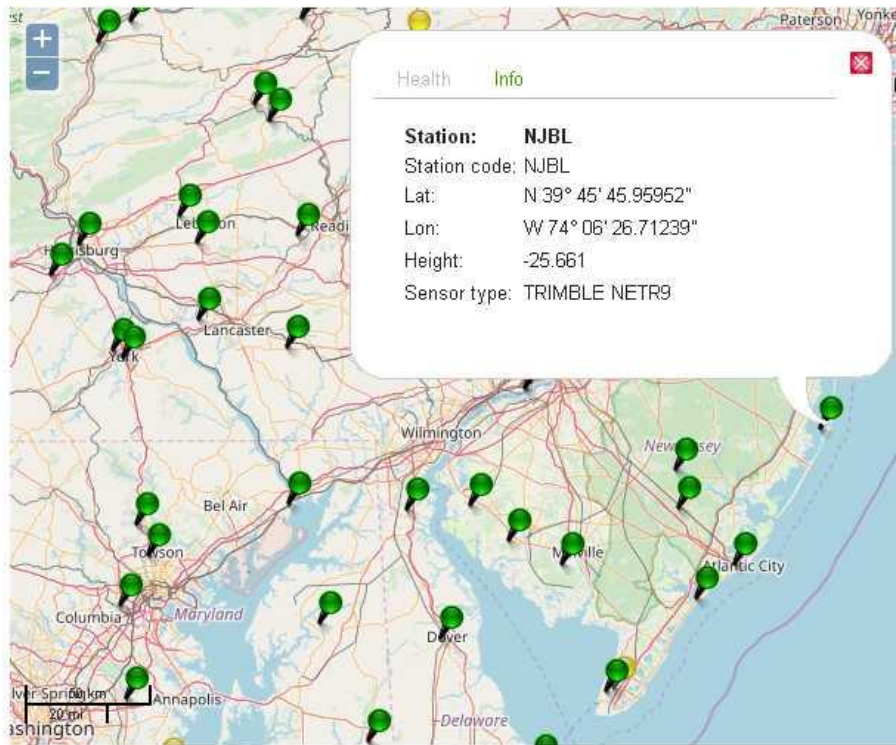


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 - 2017 Coordinate Changes
 - External Links
 - Trimble
- Logged in as: SAW/swoodscop
- 

Sensor Map



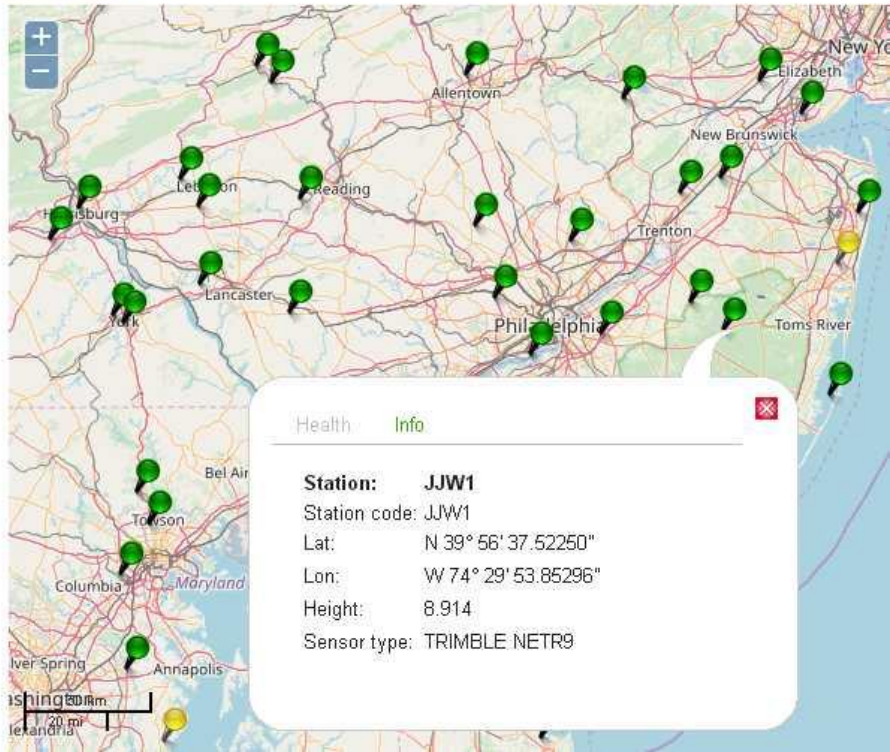


KeyNetGPS

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 - External Links
 - Trimble
- Logged in as SAWS/swoodsep
-

Sensor Map



PROJECT SURVEYOR

Steven A. Wood