

Ground Control Point Survey Report

Florida Peninsular

LiDAR Project

USGS CONTRACT NUMBER: G16PC00020
TASK ORDER NUMBER: 140G0218F0443

PREPARED FOR:
USGS



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9.	Deliverables	Sent via Electronic Transfer
9.1.	Including:	
	a) Point Documentation Report & Photos of Survey Points	
	b) Final Coordinate List in Excel Format	
	c) NGS Data Sheets for Project Control	

1. INTRODUCTION

1.1 Project Summary

Dewberry Consultants LLC is under contract with the United States Geological Survey (USGS) to collect and process LiDAR for peninsular Florida. This survey will be used to evaluate the vertical accuracy of the bare-earth terrain derived from LiDAR. The project area consists of approximately 34,873 square miles. In support of this project Dewberry surveyed 390 ground control points that will be used for LiDAR calibration. The field work was conducted from December 2018 – April 2019.

Existing National Geodetic Survey (NGS) control points were located and surveyed to check the accuracy of the RTK/GPS survey equipment with the results shown in Section 2.4 of this Report.

As an internal QA/QC procedure and to verify that the ground control points meet the 95% confidence level approximately 50% of the points were re-observed and their corresponding coordinate differences are shown in Section 5 of this report.

Final horizontal coordinates are referenced to the Florida State Plane Coordinate System, East Zone, North Zone and West Zone, NAD 83 (2011 Adjustment) in U.S. Survey feet. Final vertical elevations are referenced to NAVD88 in U.S. Survey feet using Geoid model 2012B (Geoid12B).

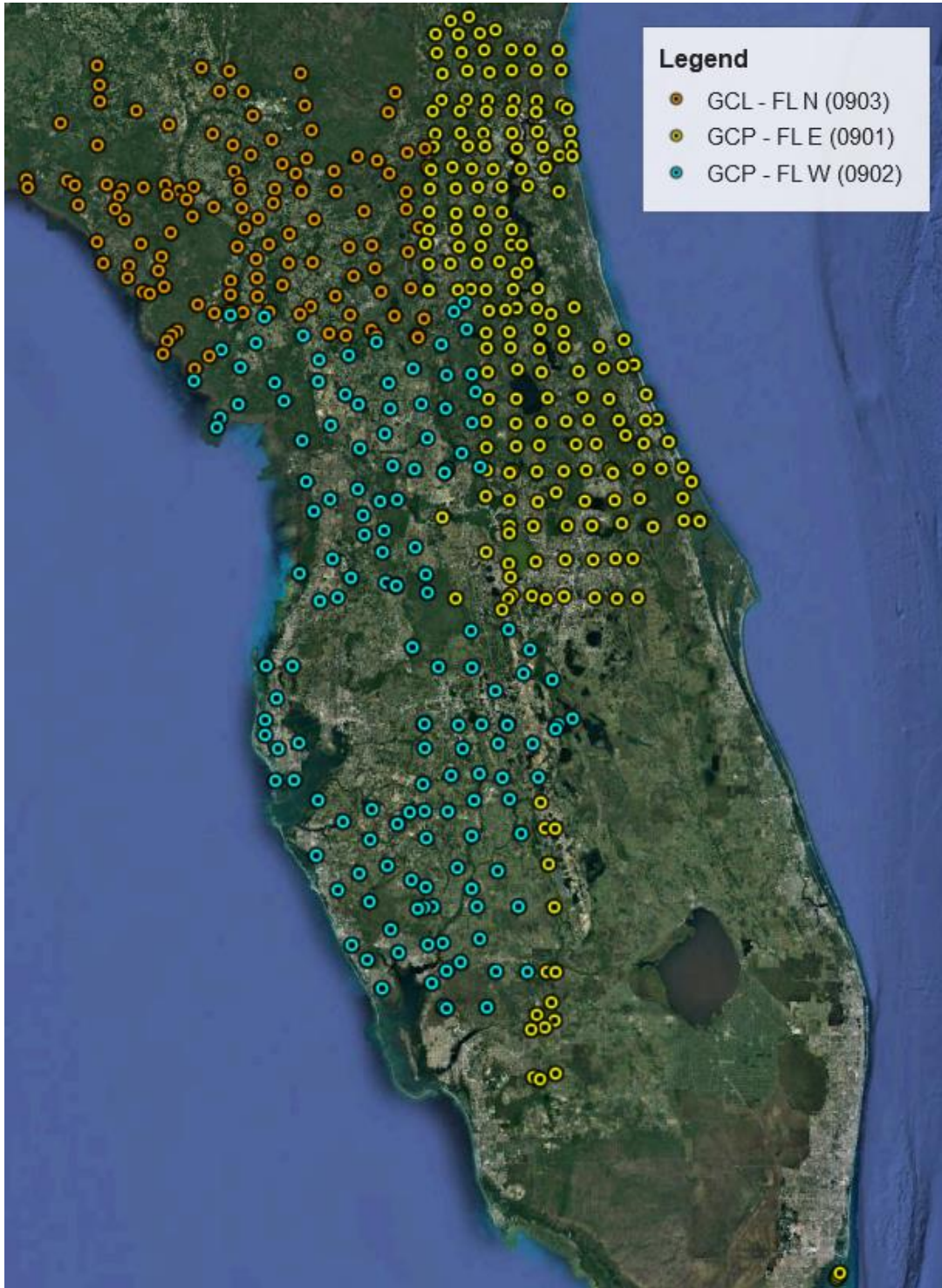
1.2 Point of Contact

Questions regarding the technical aspects of this report should be addressed to:

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1.3 Project Area



Ground Control Point Locations

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2. PROJECT DETAILS

2.1 Survey Equipment

A Spectra Precision SP80 GPS was used to perform the survey observations. A two meter fixed height pole and bi-pod legs were used to mount and stabilize the receiver. A Spectra Precision Ranger 3 Data Collector was used to collect and store the data. The GPS unit is a geodetic-quality dual-frequency GPS receiver.

2.2 Survey Point Details

The 455 LiDAR Ground Control Points (GCP's) were well distributed throughout the project area by the LiDAR acquisition supplier. A sketch was made for each ground control point location and a nail & disk or an iron rod & cap were set at the point. The ground control point locations are detailed on the "Ground Control Point Documentation Report" sheets attached to this report accompanied by site photos.

2.3 Network Design

Two real-time kinematic (RTK) networks were used to establish and verify the accuracy of the observations. The Trimble VRS Now Network and the Florida Permanent Reference Network (FPRN) were used for the observations. The GPS units connected to the networks using a cellular connection and a virtual reference station. The RTK networks provide instant access to RTK corrections utilizing a network of permanent (fixed) continuously operating reference stations. The published accuracy for the networks are less than 2 centimeters. All recorded observations were within 5 centimeters of each other.

2.4 Field Survey Procedures and Analysis

All locations were occupied once with approximately 50% of the locations being re-observed. All re-observations matched the initially derived station positions within the allowable tolerance of ± 5 centimeters or within the 95% confidence level. Each occupation was approximately 1.5 minutes in duration and measured to 90 epochs. The second observation occurred at least four hours after the first observation.

Seventy two (72) existing National Geodetic Survey (NGS) control points with published coordinates were located as an additional QA/QC method to check the accuracy of the networks. A NGS control point was located at the beginning and end of each day to ensure measurement quality. The checks all individually conformed to the required accuracy and the average coordinates for the surveyed NGS control points are shown below and compared to the published coordinates.

NGS PT. ID	Designation	FL State Plane Coordinate Zone	As Surveyed (ft)			Published (ft)			Differences (ft)		
			Northing	Easting	Elevation	Northing	Easting	Elevation	ΔN	ΔE	$\Delta Elevation$
AA1805	LC05	EAST (0901)	1608228.85	371720.62	82.86	1608228.89	371720.64	82.97	-0.04	-0.02	-0.11
AA1807	L CO 7	EAST (0901)	1596768.90	441110.60	76.59	1596768.93	441110.58	76.71	-0.03	0.02	-0.12
AA5115	WF04	WEST (0902)	1517270.58	605601.71	74.16	1517270.59	605601.77	74.26	-0.02	-0.06	-0.10
AA8146	PC 14	EAST (0901)	1938747.62	447423.04	19.45	1938747.58	447423.02	19.52	0.04	0.02	-0.07
AB4002	72 94 GPS 1	EAST (0901)	2171331.46	345992.06	81.89	2171331.47	345992.12	81.98	-0.02	-0.06	-0.09
AB5163	C 427	WEST (0902)	1769331.95	620515.36	104.07	1769331.93	620515.36	104.11	0.02	0.00	-0.05
AC5920	LEVY 22	WEST (0902)	1842594.37	459963.97	78.21	1842594.35	459963.99	78.30	0.02	-0.02	-0.09
AC5933	LEVY 35	WEST (0902)	1812095.68	413390.69	26.01	1812095.61	413390.74	26.08	0.07	-0.05	-0.07
AD7896	FLGPS 58	WEST (0902)	949398.56	782144.65	56.38	949398.56	782144.65	56.44	0.00	0.00	-0.06
AE2705	HERNFAIR	WEST (0902)	1527210.33	524137.94	76.22	1527210.35	524137.92	76.35	-0.02	0.02	-0.13
AE7577	BAKER 24	NORTH (0903)	468144.45	2672620.18	151.30	468144.51	2672620.06	151.30	-0.06	0.12	0.00
AF0486	GARFIELD RESET	WEST (0902)	1289441.38	733273.38	181.96	1289441.44	733273.36	182.09	-0.06	0.02	-0.13
AF6059	X 65	WEST (0902)	1167935.77	715750.93	115.98	1167935.74	715750.99	115.99	0.03	-0.06	-0.01
AF7021	PO 9	WEST (0902)	1321816.11	849728.66	63.92	1321816.17	849728.75	64.01	-0.06	-0.09	-0.09
AF7570	K016	WEST (0902)	1299660.77	664610.74	124.88	1299660.77	664610.73	125.04	0.00	0.01	-0.16
AF7572	K018	WEST (0902)	1204103.83	701875.03	91.27	1204103.81	701875.03	91.30	0.02	0.00	-0.03
AG0485	DESOTO A	WEST (0902)	1201752.58	417580.78	3.80	1201752.42	417580.88	3.96	0.16	-0.10	-0.16
AG0488	DESOTO B AZ MK 1	WEST (0902)	1201245.27	429639.38	6.45	1201245.14	429639.47	6.55	0.13	-0.09	-0.10
AG1924	MURDOCK 2 AZ MK	WEST (0902)	969832.07	598179.52	8.23	969831.96	598179.41	8.26	0.11	0.11	-0.03
AG8531	GILLETTE RM 4	WEST (0902)	1185836.49	485418.13	36.09	1185836.34	485418.24	35.98	0.15	-0.11	0.11
AG9505	068	WEST (0902)	987249.44	548944.27	7.80	987249.42	548944.27	7.83	0.02	0.00	-0.03
AI7287	CITRUS 13	WEST (0902)	1643796.22	513851.33	95.24	1643796.21	513851.32	95.30	0.01	0.01	-0.06
AI7313	HERNCO 10	WEST (0902)	1548795.63	579954.56	52.20	1548795.60	579954.55	52.31	0.03	0.01	-0.11
AI7320	HERNCO 17	WEST (0902)	1523000.59	574760.90	107.34	1523000.54	574760.90	107.45	0.05	0.00	-0.11
AI7321	HERNCO 18	WEST (0902)	1522994.28	576341.01	118.29	1522994.28	576341.01	118.45	-0.01	0.00	-0.16
AI7323	HERNCO 20	WEST (0902)	1519141.43	601876.08	72.79	1519141.44	601876.01	72.95	-0.01	0.07	-0.16
AI7345	SUMTER 14	WEST (0902)	1623294.68	638904.76	65.54	1623294.67	638904.83	65.64	0.01	-0.07	-0.10
AI7368	SUMTER 37	WEST (0902)	1551619.13	638584.38	87.97	1551619.04	638584.32	87.89	0.09	0.06	0.08

2.4 Field Survey Procedures and Analysis (continued)

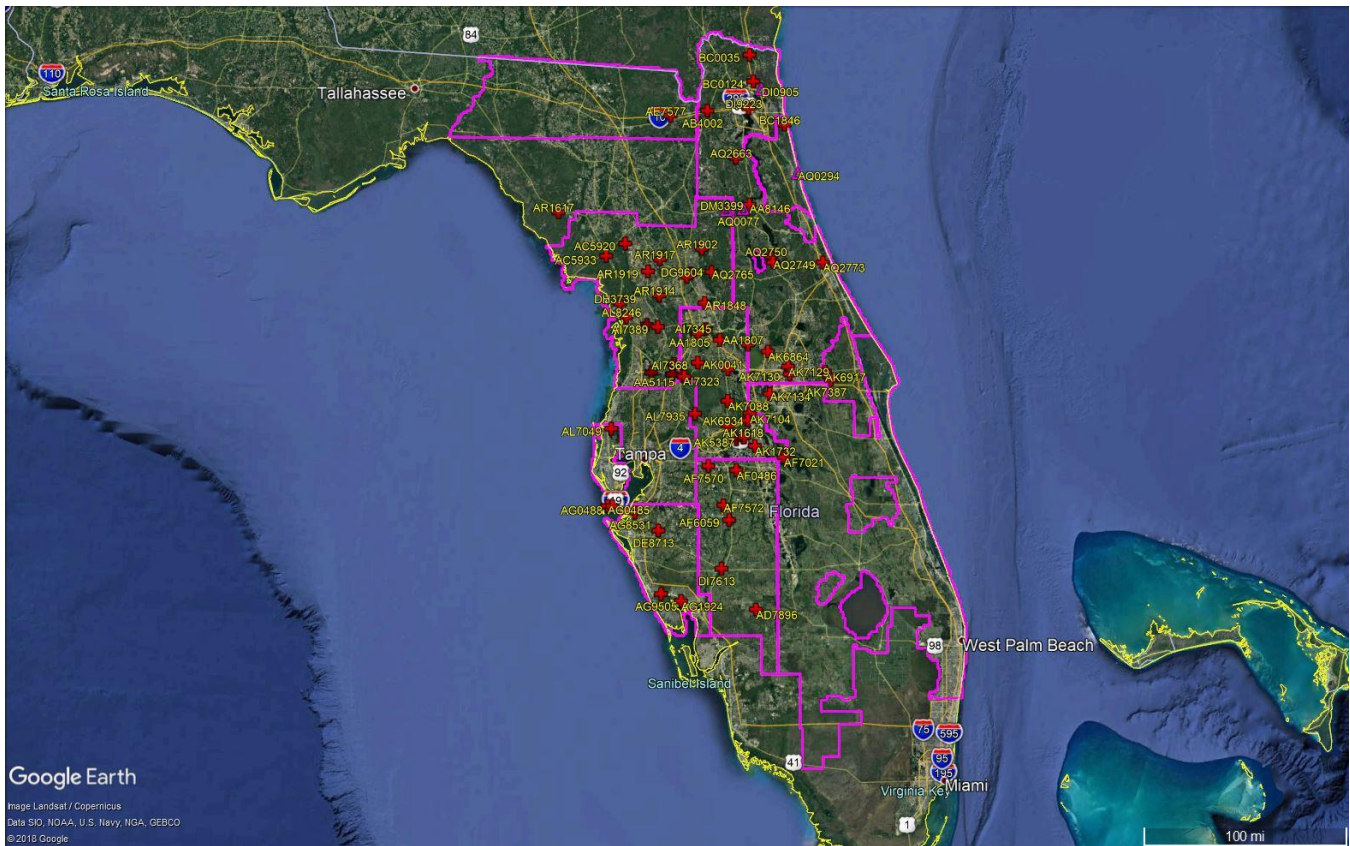
NGS PT. ID	Designation	FL State Plane Coordinate Zone	As Surveyed (ft)			Published (ft)			Differences (ft)		
			Northing	Easting	Elevation	Northing	Easting	Elevation	Δ N	Δ E	Δ Elevation
AI7371	SUMTER 40	WEST (0902)	1633830.11	658190.70	69.21	1633830.12	658190.70	69.36	-0.01	0.00	-0.15
AI7389	CITRUS 43	WEST (0902)	1638788.79	540461.21	89.40	1638788.79	540461.17	89.48	0.00	0.04	-0.08
AK0041	F 55 RESET	EAST (0901)	1536854.50	391218.22	116.07	1536854.44	391218.23	116.19	0.06	-0.01	-0.12
AK1618	I4 72 A40A	WEST (0902)	1411018.83	761344.14	131.74	1411018.71	761344.00	131.78	0.12	0.14	-0.04
AK1732	Y 63	WEST (0902)	1348710.48	778418.74	145.59	1348710.52	778418.71	145.68	-0.04	0.03	-0.09
AK5387	S 531	WEST (0902)	1370402.16	752970.10	134.91	1370402.19	752970.05	134.92	-0.03	0.05	-0.01
AK6864	APOPKA	EAST (0901)	1579383.16	489722.72	154.22	1579383.24	489722.67	154.30	-0.08	0.05	-0.08
AK6917	FLGPS 36	EAST (0901)	1528717.72	629520.50	70.32	1528717.65	629520.54	70.35	0.07	-0.04	-0.03
AK6934	FLGPS 45	WEST (0902)	1398581.79	712621.06	165.19	1398581.75	712620.96	165.13	0.04	0.10	0.06
AK7088	K028	WEST (0902)	1458386.76	711875.14	117.11	1458386.70	711875.10	117.19	0.06	0.04	-0.08
AK7089	K039	WEST (0902)	1364779.80	733145.43	144.53	1364779.77	733145.37	144.43	0.02	0.06	0.10
AK7099	K059	WEST (0902)	1369793.75	750195.54	134.63	1369793.72	750195.51	134.66	0.03	0.03	-0.03
AK7104	K063	WEST (0902)	1427154.73	765812.43	194.06	1427154.62	765812.48	194.04	0.11	-0.05	0.02
AK7129	GIS 0131 KAREN MCKEE	EAST (0901)	1541920.20	539147.50	79.25	1541920.19	539147.47	79.26	0.01	0.03	-0.01
AK7130	GIS 0132 RH HAM JONES	EAST (0901)	1523378.53	543185.36	98.61	1523378.55	543185.33	98.63	-0.03	0.03	-0.02
AK7134	GIS 146 RESET	EAST (0901)	1475306.49	493427.04	106.00	1475306.41	493426.98	105.95	0.08	0.06	0.05
AK7387	F 418	EAST (0901)	1509425.68	644814.73	60.45	1509425.71	644814.68	60.48	-0.03	0.05	-0.03
AL7049	CLARK L	WEST (0902)	1390202.35	426520.01	36.98	1390202.24	426519.91	37.04	0.11	0.10	-0.06
AL7935	14 91 GPS1	WEST (0902)	1427011.99	631658.62	90.94	1427011.91	631658.54	91.03	0.08	0.08	-0.09
AL8246	CR 52	WEST (0902)	1663238.54	462852.23	7.32	1663238.50	462852.19	7.37	0.04	0.04	-0.05
AQ0077	FRANCIS RM 2	EAST (0901)	N/A	N/A	73.38	N/A	N/A	73.39	N/A	N/A	-0.01
AQ0078	FRANCIS RM 1	EAST (0901)	N/A	N/A	70.81	N/A	N/A	70.85	N/A	N/A	-0.04
AQ0294	J 322	EAST (0901)	N/A	N/A	10.21	N/A	N/A	10.14	N/A	N/A	0.07
AQ2663	FLGPS 31 AZ MK	EAST (0901)	2054530.51	415082.71	78.78	2054530.41	415082.68	78.94	0.10	0.03	-0.16
AQ2749	V033	EAST (0901)	1797030.69	504493.09	32.56	1797030.65	504493.02	32.60	0.04	0.07	-0.04
AQ2750	V034	EAST (0901)	1811938.79	499198.74	52.09	1811938.95	499198.70	52.17	-0.16	0.04	-0.08
AQ2765	V059	WEST (0902)	1773217.48	672136.96	66.26	1773217.50	672136.98	66.33	-0.02	-0.02	-0.07
AQ2773	79 90 GPS 5	EAST (0901)	1796518.12	626825.97	17.39	1796518.10	626825.94	17.44	0.02	0.03	-0.05
AR1617	DIX 2	NORTH (0903)	224508.29	2402096.02	34.57	224508.29	2402096.05	34.71	0.00	-0.03	-0.14
AR1848	FLGPS 43	WEST (0902)	1697425.89	655252.31	96.51	1697425.80	655252.30	96.55	0.09	0.01	-0.04
AR1902	V069	WEST (0902)	1830167.25	647940.36	69.08	1830167.25	647940.40	69.18	0.00	-0.04	-0.10
AR1914	V085	WEST (0902)	1715945.78	543854.27	63.46	1715945.80	543854.25	63.50	-0.02	0.02	-0.04
AR1917	V088	WEST (0902)	1804358.26	544722.60	83.65	1804358.26	544722.67	83.70	0.00	-0.08	-0.05
AR1919	V092	WEST (0902)	1774642.02	515856.52	69.39	1774641.93	515856.60	69.29	0.09	-0.08	0.10
BC0035	G 143	EAST (0901)	2309333.42	451410.48	21.67	2309333.35	451410.48	21.53	0.07	0.00	0.14
BC0124	C 143	EAST (0901)	2243601.71	459937.71	35.29	2243601.75	459937.73	35.37	-0.04	-0.02	-0.08

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2.4 Field Survey Procedures and Analysis (continued)

NGS PT. ID	Designation	FL State Plane Coordinate Zone	As Surveyed (ft)			Published (ft)			Differences (ft)		
			Northing	Easting	Elevation	Northing	Easting	Elevation	Δ N	Δ E	Δ Elevation
BC1846	PALM	EAST (0901)	2135598.78	535911.47	11.21	2135598.72	535911.33	11.24	0.06	0.14	-0.04
DE8713	J 559	WEST (0902)	1142192.39	542202.76	65.38	1142192.42	542202.75	65.39	-0.03	0.01	-0.01
DG9604	R 563	WEST (0902)	1761551.15	611233.29	112.56	1761551.19	611233.33	112.66	-0.04	-0.04	-0.10
DH3739	U 592	WEST (0902)	1696012.98	447196.06	15.86	1696012.97	447196.10	15.91	0.01	-0.04	-0.05
DI0905	V 611	EAST (0901)	N/A	N/A	24.01	N/A	N/A	23.97	N/A	N/A	0.04
DI7613	A 624	WEST (0902)	1049242.60	697323.02	33.57	1049242.63	697322.98	33.64	-0.03	0.04	-0.07
DI9223	872 0226 E	EAST (0901)	2176643.50	447373.91	3.67	2176643.48	447373.90	3.75	0.02	0.01	-0.08
DM3399	N 690	EAST (0901)	N/A	N/A	78.52	N/A	N/A	78.52	N/A	N/A	0.00

The above results indicate that the VRS network is providing positional values within the $\pm 5\text{cm}$ parameters for this survey.



NGS Control Points

Legend:

- + Horizontal + Vertical NGS Benchmark
- Vertical NGS Benchmark

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2.5 Adjustment

Adjustment is not necessary for the survey data collected using the RTK GPS Trimble VRS Now Network and the Florida Permanent Reference Network. Both networks are designed to provide final processed coordinates, enabling high-accuracy positioning in real time across a geographic region. Both networks use real-time data streams from the system users and generate correction models for high-accuracy RTK GPS corrections throughout the networks. These corrections are applied to the points as they are being collected, negating the need for a post-process adjustment.

2.6 Data Processing Procedures

After the field data is collected the information is downloaded from the data collectors. Downloaded data is processed in the office to obtain the following reports: points list, point derivations and a vector spreadsheet. The reports are reviewed for point accuracy and precision.

After review of the point data an “ASCII” or “txt” file is created. Point files are loaded into AutoCAD Civil 3D to make a visual check of the point data (Point #, Coordinates, Elevation, and Description). The data is then organized using spreadsheets and imported into the report.

3. FINAL COORDINATES

Florida State Plane Coordinate System, East Zone, NAD 83 (2011) / NAVD88

Point ID	Northing (SPC FL E)	Easting (SPC FL E)	Elevation (Feet)
GCP_AXIS 11	1483898.39	430658.50	120.39
GCP_AXIS 20	1532035.70	442992.24	162.59
GCP_AXIS 25	1596731.86	441126.59	79.29
GCP_AXIS 26	1568871.18	406806.27	89.39
GCP_AXIS 27	1685627.12	594435.77	92.05
GCP_AXIS 31	1686700.68	346206.28	69.38
GCP_AXIS 33E	1651419.56	406301.86	69.35
GCP_AXIS 33W	1619989.63	341818.18	91.98
GCP_AXIS 43	1500507.66	361809.34	104.03
GCP_AXIS 44	1685870.07	441525.65	148.84
GCP_LEG 1	790016.93	486780.92	27.44
GCP_LEG 2	793054.97	477224.89	32.55
GCP_LEG 3	863944.14	473725.03	10.74
GCP_LEG 4	867016.33	493914.68	17.27
GCP_LEG 5	877495.71	508374.01	15.26
GCP_LEG 6	885687.19	482242.47	22.63
GCP_LEG 7	904172.62	503824.47	39.03
GCP_LEG 14	949459.26	496907.02	62.25
GCP_LEG 22	1045436.01	508038.00	88.13
GCP_LEG 26	1108950.88	499712.38	121.02
GCP_LEG 30	1162021.50	494107.54	128.12
GCP_LEG 31	1200016.47	487946.77	115.90
GCP_QSI 1	2357475.83	352540.67	15.87
GCP_QSI 2	2363759.01	379707.82	8.17
GCP_QSI 3	2337849.47	330286.32	18.54
GCP_QSI 4	2337303.50	363991.29	55.92
GCP_QSI 5	2338920.72	396161.90	20.82
GCP_QSI 6	2343877.08	419376.22	13.77
GCP_QSI 7	2309442.24	332183.25	68.04
GCP_QSI 8	2310288.26	368815.76	48.51
GCP_QSI 9	2313799.27	402703.31	22.97
GCP_QSI 10	2314236.34	443277.46	24.55
GCP_QSI 11	2313474.22	470888.16	29.09
GCP_QSI 12	2312901.01	512167.85	8.45
GCP_QSI 13	2278428.33	340516.19	78.92

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3. FINAL COORDINATES (CONTINUED)

Florida State Plane Coordinate System, East Zone, NAD 83 (2011) / NAVD88

Point ID	Northing (SPC FL E)	Easting (SPC FL E)	Elevation (Feet)
GCP_QSI 14	2282885.42	377663.60	64.70
GCP_QSI 15	2280201.06	410642.11	23.96
GCP_QSI 16	2283280.53	443759.25	14.63
GCP_QSI 17	2283420.72	480414.89	9.82
GCP_QSI 18	2283571.05	517165.93	21.55
GCP_QSI 19	2238940.54	339323.20	73.44
GCP_QSI 20	2239314.06	376621.91	77.54
GCP_QSI 21	2238857.29	408104.91	17.34
GCP_QSI 22	2238680.37	447449.56	25.22
GCP_QSI 23	2237707.21	481131.24	25.01
GCP_QSI 24	2230785.16	517728.32	12.70
GCP_QSI 25	2222392.26	326331.84	65.76
GCP_QSI 26	2222429.00	366837.18	73.73
GCP_QSI 27	2222452.05	405997.20	24.16
GCP_QSI 28	2222701.02	444035.87	15.79
GCP_QSI 29	2220802.82	480341.40	24.75
GCP_QSI 30	2225942.77	525907.74	9.70
GCP_QSI 31	2188388.66	330385.71	64.36
GCP_QSI 32	2189442.55	368062.06	82.24
GCP_QSI 33	2189152.18	401672.82	54.77
GCP_QSI 34	2189380.63	444504.93	25.02
GCP_QSI 35	2191640.53	481959.32	29.89
GCP_QSI 36	2192128.18	530510.43	16.52
GCP_QSI 37	2169138.34	327439.01	82.16
GCP_QSI 38	2169761.37	378993.08	91.31
GCP_QSI 39	2169794.15	404188.00	71.53
GCP_QSI 40	2166775.55	451447.44	20.67
GCP_QSI 41	2169031.71	490135.27	41.11
GCP_QSI 42	2170240.57	532265.68	11.56
GCP_QSI 43	2134859.87	324002.74	149.60
GCP_QSI 44	2136487.81	384685.77	64.85
GCP_QSI 45	2135529.45	416241.07	25.72
GCP_QSI 46	2136101.69	457706.81	19.84
GCP_QSI 47	2137861.09	494332.72	44.17
GCP_QSI 48	2106680.74	322321.52	202.23

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3. FINAL COORDINATES (CONTINUED)

Florida State Plane Coordinate System, East Zone, NAD 83 (2011) / NAVD88

Point ID	Northing (SPC FL E)	Easting (SPC FL E)	Elevation (Feet)
GCP_QSI 49	2107095.30	361163.60	86.38
GCP_QSI 50	2109006.60	393888.31	43.59
GCP_QSI 51	2109493.71	429352.34	5.37
GCP_QSI 52	2110492.67	467885.27	17.23
GCP_QSI 53	2101998.44	514148.00	25.14
GCP_QSI 54	2072483.96	321357.56	177.87
GCP_QSI 55	2069933.87	361737.65	87.45
GCP_QSI 56	2072906.92	396195.17	89.47
GCP_QSI 57	2071596.74	429567.15	18.16
GCP_QSI 58	2045300.43	321241.30	175.77
GCP_QSI 59	2046337.99	361978.53	146.47
GCP_QSI 60	2045839.18	405726.74	95.78
GCP_QSI 61	2045819.05	444170.70	20.31
GCP_QSI 62	2024910.81	316150.30	178.15
GCP_QSI 63	2020197.18	366553.80	151.09
GCP_QSI 64	2021287.93	397995.18	98.67
GCP_QSI 65	2022959.03	443225.91	67.86
GCP_QSI 66	2022649.38	459166.42	4.99
GCP_QSI 67	1994733.11	320705.27	168.16
GCP_QSI 68	1995118.50	353066.47	124.50
GCP_QSI 69	1995939.75	392502.46	127.41
GCP_QSI 70	1998062.12	426064.72	108.01
GCP_QSI 71	1996041.63	466937.21	4.83
GCP_QSI 72	1955818.76	320982.64	156.40
GCP_QSI 73	1956071.91	364509.45	102.90
GCP_QSI 74	1957294.99	383595.11	107.51
GCP_QSI 75	1956361.15	406123.44	80.43
GCP_QSI 76	1957109.51	446217.91	31.33
GCP_QSI 77	1958011.62	482939.03	7.45
GCP_QSI 78	1925377.23	410357.97	21.39
GCP_QSI 79	1926636.12	435260.32	60.74
GCP_QSI 80	1929286.58	451617.07	57.36
GCP_QSI 81	1928374.08	481848.17	27.69
GCP_QSI 82	1892646.45	406460.78	29.85
GCP_QSI 83	1893710.21	441099.63	85.46

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3. FINAL COORDINATES (CONTINUED)

Florida State Plane Coordinate System, East Zone, NAD 83 (2011) / NAVD88

Point ID	Northing (SPC FL E)	Easting (SPC FL E)	Elevation (Feet)
GCP_QSI 84	1897810.39	486200.59	25.46
GCP_QSI 85	1894761.19	521684.80	20.96
GCP_QSI 86	1930474.48	537083.96	31.18
GCP_QSI 87	1870042.11	407334.62	30.64
GCP_QSI 88	1870729.31	442487.29	23.46
GCP_QSI 89	1868835.37	485490.06	18.73
GCP_QSI 90	1871402.17	521886.49	21.26
GCP_QSI 91	1871787.37	573654.24	28.57
GCP_QSI 92	1834608.55	408838.55	33.78
GCP_QSI 93	1838695.85	452897.36	22.15
GCP_QSI 94	1834333.08	488623.33	43.17
GCP_QSI 95	1835678.69	543533.39	12.18
GCP_QSI 96	1839981.42	580728.69	23.83
GCP_QSI 97	1882350.95	610818.50	16.32
GCP_QSI 98	1843010.35	609180.84	27.66
GCP_QSI 99	1845634.45	625929.87	17.48
GCP_QSI 100	1794817.78	410422.90	107.10
GCP_QSI 101	1795073.70	451437.11	50.98
GCP_QSI 102	1796107.02	497618.70	12.74
GCP_QSI 103	1797178.18	549620.86	29.84
GCP_QSI 104	1794931.28	588740.61	36.23
GCP_QSI 105	1801547.02	643706.63	18.70
GCP_QSI 106	1761561.48	406418.39	143.18
GCP_QSI 107	1758604.32	450848.14	65.08
GCP_QSI 108	1760550.30	488376.91	5.59
GCP_QSI 109	1761734.48	525107.27	28.77
GCP_QSI 110	1763732.06	558545.71	59.08
GCP_QSI 111	1763073.44	603201.79	36.67
GCP_QSI 112	1763533.71	642872.80	30.17
GCP_QSI 113	1764577.91	660119.92	10.72
GCP_QSI 114	1722939.06	407142.30	104.98
GCP_QSI 115	1724799.00	451222.58	53.28
GCP_QSI 116	1726265.21	485733.83	34.52
GCP_QSI 117	1727729.10	539872.44	33.18
GCP_QSI 118	1728589.18	569781.36	49.08

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3. FINAL COORDINATES (CONTINUED)

Florida State Plane Coordinate System, East Zone, NAD 83 (2011) / NAVD88

Point ID	Northing (SPC FL E)	Easting (SPC FL E)	Elevation (Feet)
GCP_QSI 119	1741115.62	613210.45	36.21
GCP_QSI 120	1729167.56	639986.67	21.94
GCP_QSI 121	1731624.75	676759.53	11.99
GCP_QSI 122	1689604.70	407276.06	81.91
GCP_QSI 123	1687726.16	445171.79	149.52
GCP_QSI 124	1687588.52	482066.08	53.81
GCP_QSI 125	1688360.57	521816.66	51.56
GCP_QSI 126	1689606.32	554880.18	29.52
GCP_QSI 127	1689649.89	590849.13	49.25
GCP_QSI 128	1691249.61	632908.83	41.91
GCP_QSI 129	1691978.64	665922.00	26.39
GCP_QSI 130	1693626.77	698220.21	13.71
GCP_QSI 131	1645366.80	441334.20	91.36
GCP_QSI 132	1642831.48	483548.62	74.09
GCP_QSI 133	1656830.31	510510.41	48.74
GCP_QSI 134	1644143.50	552882.84	21.16
GCP_QSI 135	1645267.17	597035.03	43.04
GCP_QSI 136	1647678.51	634091.98	21.93
GCP_QSI 137	1648764.43	697704.57	9.12
GCP_QSI 138	1672777.38	710734.44	2.95
GCP_QSI 139	1607363.76	441109.54	98.34
GCP_QSI 140	1607155.52	476744.42	108.20
GCP_QSI 141	1607698.31	526591.37	16.93
GCP_QSI 142	1607892.16	563737.20	42.07
GCP_QSI 143	1611241.08	607669.26	18.50
GCP_QSI 144	1606159.06	653590.90	19.27
GCP_QSI 145	1615554.80	699427.60	8.56
GCP_QSI 146	1551909.55	440397.49	107.04
GCP_QSI 147	1554918.32	480378.07	127.80
GCP_QSI 148	1557678.36	524007.07	87.20
GCP_QSI 149	1557314.95	565373.76	76.21
GCP_QSI 150	1559215.16	598410.99	62.45
GCP_QSI 151	1559455.21	623957.36	57.93
GCP_QSI 152	1505697.71	444992.07	209.24
GCP_QSI 153	1504422.92	474919.43	107.85

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3. FINAL COORDINATES (CONTINUED)

Florida State Plane Coordinate System, East Zone, NAD 83 (2011) / NAVD88

Point ID	Northing (SPC FL E)	Easting (SPC FL E)	Elevation (Feet)
GCP_QSI 154	1503493.97	522259.78	98.20
GCP_QSI 155	1501825.00	567678.81	90.56
GCP_QSI 156	1500628.53	600549.68	83.98
GCP_QSI 157	1501604.65	630936.77	73.07
GCP_QSI 158	1617222.76	720856.53	10.67
GCP_QSI 159	1981222.74	451835.14	43.90
GCP_QSI 160	2138679.79	355836.80	84.39
OL 20	1500405.91	439562.97	145.34
OL 23	798542.02	509973.95	34.31
OL 27	949345.45	509973.70	54.48
OL 28	1161328.89	509202.18	147.74
OL 29	1499720.15	495658.06	144.49
OL 30	1614236.59	723099.67	7.74
OL 31	1920249.08	502506.90	18.91
OL 32	2155596.66	514871.44	19.00
OL 33	2155340.73	534083.91	10.41
KB-1	491597.93	928970.60	2.53
KB-2	495331.38	931116.41	2.73
KB-3	499559.29	933769.04	4.86

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3. FINAL COORDINATES (CONTINUED)

Florida State Plane Coordinate System, North Zone, NAD 83 (2011) / NAVD88

Point ID	Northing (SPC FL N)	Easting (SPC FL N)	Elevation (Feet)
GCP_DAS 1	588927.73	2236906.25	168.02
GCP_DAS 2	560064.05	2241491.52	90.71
GCP_DAS 3	535415.02	2242904.98	106.17
GCP_DAS 4	501640.74	2185239.47	66.21
GCP_DAS 5	416265.84	2137029.40	8.21
GCP_DAS 6	415798.78	2199119.87	32.12
GCP_DAS 7	410974.20	2258627.65	44.06
GCP_DAS 8	469737.69	2242322.84	82.94
GCP_DAS 9	522790.80	2298424.54	185.78
GCP_DAS 10	408225.10	2313700.57	89.37
GCP_DAS 11	502909.53	2348094.63	90.66
GCP_DAS 12	412712.77	2346287.42	84.83
GCP_DAS 13	589375.71	2393768.00	150.23
GCP_DAS 14	554511.00	2422263.47	82.49
GCP_DAS 15	490540.24	2414535.13	90.16
GCP_DAS 16	474776.81	2445309.75	101.49
GCP_DAS 17	435355.70	2448985.07	104.63
GCP_DAS 18	410573.50	2389026.10	53.60
GCP_DAS 19	417804.64	2457920.75	103.20
GCP_DAS 20	585199.97	2435941.91	130.89
GCP_DAS 21	554786.61	2457893.48	144.91
GCP_DAS 22	519427.68	2473525.31	149.09
GCP_DAS 23	483798.11	2503457.51	91.33
GCP_DAS 24	460612.21	2472520.40	172.83
GCP_DAS 25	448289.34	2520188.19	98.67
GCP_DAS 26	434596.04	2540859.08	153.87
GCP_DAS 27	411933.46	2550077.89	97.24
GCP_DAS 28	584440.12	2542531.70	126.18
GCP_DAS 29	536406.92	2550665.91	123.75
GCP_DAS 30	499484.70	2561994.42	113.08
GCP_DAS 31	457203.56	2556261.28	141.91
GCP_DAS 32	439777.50	2597767.42	191.87
GCP_DAS 33	462337.59	2632006.79	161.91
GCP_DAS 34	457185.25	2661468.57	163.49
GCP_DAS 35	470036.20	2706129.01	130.92

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3. FINAL COORDINATES (CONTINUED)

Florida State Plane Coordinate System, North Zone, NAD 83 (2011) / NAVD88

Point ID	Northing (SPC FL N)	Easting (SPC FL N)	Elevation (Feet)
GCP_DAS 36	477061.33	2731992.56	163.92
GCP_DAS 37	411321.50	2706332.19	135.98
GCP_DAS 38	438379.70	2680117.70	121.47
GCP_DAS 39	529428.84	2675478.18	114.45
GCP_DAS 40	559535.86	2684905.46	116.34
OL 1	404063.76	2139523.05	4.95
OL 2	408846.65	2210316.73	32.02
OL 3	405089.77	2283186.31	67.42
OL 4	404991.82	2368055.97	56.59
OL 5	408986.38	2458822.52	97.54
OL 6	410535.69	2510445.14	109.08
OL 7	409571.97	2601948.35	150.31
OL 8	448759.79	2737749.61	174.37
OL 9	223861.29	2738945.19	148.71
OL 10	195710.28	2731124.54	64.88
OL 11	194943.75	2669494.69	93.35
OL 12	195637.83	2623783.30	65.66
OL 13	225540.97	2554395.44	93.51
OL 14	225988.24	2469448.02	34.56
OL 15	159755.45	2421413.31	14.59
OL 16	140406.91	2400175.83	3.99
PA 1	394533.64	2278125.27	59.44
PA 2	379737.39	2216683.57	25.72
PA 3	325177.21	2246967.33	18.26
PA 4	397569.32	2349975.90	83.71
PA 5	284659.32	2340922.57	24.64
PA 6	323998.42	2313167.49	40.39
PA 7	381407.97	2419956.17	52.22
PA 8	366351.73	2487167.92	57.41
PA 9	408327.15	2550314.93	92.68
PA 10	381239.70	2644435.52	145.13
PA 11	385697.99	2707197.65	134.93
PA 12	366744.14	2570854.48	83.79
PA 13	322122.28	2712215.43	151.29
PA 14	268471.84	2717904.32	140.76
PA 15	198063.47	2729876.95	69.21

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3. FINAL COORDINATES (CONTINUED)

Florida State Plane Coordinate System, North Zone, NAD 83 (2011) / NAVD88

Point ID	Northing (SPC FL N)	Easting (SPC FL N)	Elevation (Feet)
PA 16	204970.73	2661467.52	79.18
PA 17	198117.68	2598738.40	90.78
PA 18	226598.76	2628953.87	93.47
PA 19	262186.66	2673862.83	151.30
PA 20	284198.18	2632335.29	166.36
PA 21	296755.59	2663528.90	165.62
PA 22	330603.45	2658017.69	133.73
PA 23	327256.43	2624250.99	144.10
PA 24	302992.21	2570557.26	71.81
PA 25	253874.26	2606256.42	94.56
PA 26	237427.25	2569891.24	83.35
PA 27	344114.35	2534374.93	68.25
PA 28	300797.44	2534750.61	59.67
PA 29	268074.52	2526706.39	82.95
PA 30	227668.50	2508451.23	57.05
PA 31	277393.90	2488612.18	68.74
PA 32	327970.54	2504360.85	73.35
PA 33	389382.70	2508760.23	72.03
PA 34	409173.96	2458884.21	95.94
PA 35	380834.93	2462027.39	53.63
PA 36	351086.76	2467609.11	39.80
PA 37	250002.61	2490369.93	53.64
PA 38	323210.82	2457637.48	47.24
PA 39	272496.61	2449339.22	45.45
PA 40	226017.39	2450343.48	18.72
PA 41	251581.01	2449909.72	25.46
PA 42	223700.26	2426785.59	38.00
PA 43	235862.42	2401309.21	41.61
PA 44	260815.92	2350237.25	31.57
PA 45	305609.26	2344801.36	31.47
PA 46	341749.63	2357163.67	59.59
PA 47	366672.62	2388739.22	80.99
PA 48	305856.99	2486212.16	49.55
PA 49	391788.39	2378896.92	71.42
PA 50	375069.37	2272370.03	51.45
PA 51	195179.95	2372054.44	20.17

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3. FINAL COORDINATES (CONTINUED)

Florida State Plane Coordinate System, North Zone, NAD 83 (2011) / NAVD88

Point ID	Northing (SPC FL N)	Easting (SPC FL N)	Elevation (Feet)
PA 52	189302.40	2364282.05	17.33
PA 53	180480.85	2357790.11	12.56
PA 54	161153.25	2351916.83	6.12
PA 55	249826.55	2328983.69	22.52
PA 56	252258.45	2318618.41	17.42
PA 57	272705.85	2294882.19	24.51
PA 58	293615.73	2257621.56	2.61
PA 59	291266.86	2296380.80	37.07
PA 60	359562.03	2287075.34	55.24
PA 61	226945.59	2694946.07	94.46
PA62	359404.57	2727411.64	166.78

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3. FINAL COORDINATES (CONTINUED)

Florida State Plane Coordinate System, West Zone, NAD 83 (2011) / NAVD88

Point ID	Northing (SPC FL W)	Easting (SPC FL W)	Elevation (Feet)
GCP_AI 1	1749038.46	325544.51	9.24
GCP_AI 2	1763392.49	330267.30	6.04
GCP_AI 3	1783627.60	357346.67	18.09
GCP_AI 4	1915845.07	344185.53	23.38
GCP_AI 5	1874802.51	382694.92	39.08
GCP_AI 6	1838267.20	359905.12	26.53
GCP_AI 7	1817753.80	290573.46	4.06
GCP_AI 8	1864231.21	331175.19	15.53
GCP_AI 9	1816073.49	411221.77	28.20
GCP_AI 10	1913179.03	394552.28	56.75
GCP_AI 11	1885855.00	452750.69	84.70
GCP_AI 12	1850139.13	476886.21	88.81
GCP_AI 13	1788978.80	425381.70	12.00
GCP_AI 14	1730730.95	453116.10	40.66
GCP_AI 15	1669982.12	459661.46	7.27
GCP_AI 16	1626359.22	471622.56	5.52
GCP_AI 17	1534373.38	451227.95	5.98
GCP_AI 18	1493892.48	481846.72	69.78
GCP_AI 19	1528605.08	527629.87	97.73
GCP_AI 20	1556339.33	499992.11	96.40
GCP_AI 21	1499207.72	508121.67	65.46
GCP_AI 22	1644122.23	495409.71	52.34
GCP_AI 23	1799326.18	516491.33	61.22
GCP_AI 24	1753409.18	495351.77	138.59
GCP_AI 25	1719483.90	538946.40	63.06
GCP_AI 26	1659365.39	536627.25	62.92
GCP_AI 27	1621032.72	544765.75	100.12
GCP_AI 28	1592251.46	546953.87	110.89
GCP_AI 29	1521828.99	579422.87	67.89
GCP_AI 30	1566855.96	574155.66	55.47
GCP_AI 31	1598736.87	576224.25	49.43
GCP_AI 32	1641703.14	569947.05	44.53
GCP_AI 33	1741593.28	575782.17	68.41
GCP_AI 34	1784554.67	536193.26	78.00
GCP_AI 35	1876955.81	562027.42	107.64

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3. FINAL COORDINATES (CONTINUED)

Florida State Plane Coordinate System, West Zone, NAD 83 (2011) / NAVD88

Point ID	Northing (SPC FL W)	Easting (SPC FL W)	Elevation (Feet)
GCP_AI 36	1857022.46	520898.75	69.35
GCP_AI 37	1818259.89	476063.07	84.19
GCP_AI 38	1816538.32	580625.94	171.75
GCP_AI 39	1778649.79	583125.57	106.18
GCP_AI 40	1694223.61	587826.45	74.84
GCP_AI 41	1689617.98	620506.25	73.93
GCP_AI 42	1735465.91	638861.57	81.90
GCP_AI 43	1786001.68	629623.18	71.51
GCP_AI 44	1837952.28	616809.84	72.13
GCP_AI 45	1874294.54	658396.37	81.52
GCP_AI 46	1689702.56	668631.23	90.89
GCP_AI 47	1779493.28	665684.84	62.43
GCP_AI 48	1922852.64	676435.36	111.42
GCP_AI 49	1936551.68	691874.21	124.25
GCP_AI 50	1896818.83	695693.74	58.78
GCP_AI 51	1830329.83	703727.56	94.15
GCP_AI 52	1828761.49	666527.07	77.14
GCP_AI 53	1713806.90	690089.39	131.18
GCP_AI 54	1693452.18	717495.42	84.05
GCP_AI 55	1758895.80	705020.07	60.91
GCP_AI 56	1804399.97	709826.92	92.86
GCP_AXIS 2	1363981.79	743122.02	144.55
GCP_AXIS 3	1380823.25	827177.07	64.37
GCP_AXIS 4	1398159.41	658607.91	124.58
GCP_AXIS 5	1397852.72	708093.11	149.47
GCP_AXIS 6	1424969.27	793789.68	99.78
GCP_AXIS 7	1517414.65	593971.65	67.91
GCP_AXIS 9	1507816.84	641443.21	91.08
GCP_AXIS 10	1451944.33	706335.81	122.06
GCP_AXIS 15	1314294.40	723264.39	127.33
GCP_AXIS 18	1454261.84	761976.60	124.09
GCP_AXIS 19	1389724.77	784583.60	141.76
GCP_AXIS 21	1534278.51	638626.56	86.91
GCP_AXIS 23	1574344.44	622567.82	80.12
GCP_AXIS 38	1323999.50	857560.58	61.27

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3. FINAL COORDINATES (CONTINUED)

Florida State Plane Coordinate System, West Zone, NAD 83 (2011) / NAVD88

Point ID	Northing (SPC FL W)	Easting (SPC FL W)	Elevation (Feet)
GCP_AXIS 39	1314038.45	638356.39	106.04
GCP_AXIS 42	1426997.61	619739.24	84.19
GCP_DG 1	931277.99	652214.08	16.90
GCP_DG 2	922441.62	578554.00	8.39
GCP_DG 3	1183727.45	617646.31	125.34
GCP_DG 4	1199965.66	481493.64	9.25
GCP_DG 5	1041110.57	630684.22	41.54
GCP_DG 6	1083482.09	621009.78	67.08
GCP_DG 7	986329.13	532997.33	15.88
GCP_DG 8	1118264.22	479254.54	29.55
GCP_DG 9	1142506.70	559235.24	52.48
GCP_DG 10	1050793.10	558904.07	20.85
GCP_DG 11	975915.10	602495.44	13.28
GCP_DG 12	1067445.52	511755.75	35.32
GCP_DG 13	1187409.71	561348.97	91.59
GCP_DG 14	1092429.96	543311.38	42.19
GCP_DG 15	1168548.78	518924.45	34.90
GCP_DG 16	1010056.85	590667.97	24.78
GCP_DG 17	1166253.48	599576.41	96.60
GCP_DG 18	1104297.48	584993.58	69.49
GCP_DG 19	964670.90	556162.06	12.05
GCP_DG 20	1228129.58	417927.77	2.57
GCP_DG 21	1397780.54	441952.85	28.81
GCP_DG 22	1397633.52	402697.77	4.71
GCP_DG 23	1229107.68	445611.32	10.27
GCP_DG 24	1284400.22	452422.79	3.41
GCP_DG 25	1317622.01	401967.82	39.84
GCP_DG 26	1349692.30	418698.60	67.16
GCP_DG 27	1295557.92	401857.01	28.87
GCP_DG 28	1275366.27	421466.03	13.54
GCP_LEG 8	896100.52	734275.66	29.57
GCP_LEG 9	893809.76	674369.87	23.81
GCP_LEG 10	949739.49	674024.43	22.62
GCP_LEG 11	962621.22	694795.41	20.39
GCP_LEG 12	949451.20	747257.07	45.34

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3. FINAL COORDINATES (CONTINUED)

Florida State Plane Coordinate System, West Zone, NAD 83 (2011) / NAVD88

Point ID	Northing (SPC FL W)	Easting (SPC FL W)	Elevation (Feet)
GCP_LEG 13	949354.27	793944.43	61.61
GCP_LEG 15	988228.40	646171.41	26.50
GCP_LEG 16	991044.15	668005.24	18.42
GCP_LEG 17	997531.32	722790.38	49.52
GCP_LEG 18	1044373.45	652989.77	43.52
GCP_LEG 19	1073274.48	642358.71	63.65
GCP_LEG 20	1045137.84	718446.34	62.98
GCP_LEG 21	1045582.31	779930.19	85.34
GCP_LEG 23	1071697.00	710345.27	63.34
GCP_LEG 24	1102344.14	688871.10	58.15
GCP_LEG 25	1098341.36	748700.43	82.46
GCP_LEG 27	1145608.26	642588.59	108.11
GCP_LEG 28	1149570.28	710016.88	85.55
GCP_LEG 29	1153658.34	783170.23	76.60
GCP_LEG 32	1204392.27	765496.74	117.44
GCP_LEG 33	1202108.35	713044.16	120.45
GCP_LEG 34	1185464.22	674334.78	104.89
GCP_LEG 35	1225396.74	637071.75	136.94
GCP_LEG 36	1238446.28	678710.05	144.61
GCP_LEG 37	1241413.36	720494.21	138.91
GCP_LEG 38	1235885.73	754768.58	192.33
GCP_LEG 39	1236826.15	807826.37	122.76
GCP_LEG 40	1278393.09	639212.30	141.11
GCP_LEG 41	1278237.23	695536.57	148.61
GCP_LEG 42	1286192.21	748146.04	172.42
GCP_LEG 43	1286483.09	798961.31	174.13
GCP_LEG 44	1308338.20	832848.84	109.23
GCP_LEG 45	1313528.14	761486.75	123.97
GCP_LEG 46	1312998.60	689143.06	170.85
GCP_LEG 47	1314237.95	638364.50	106.38
OL 17	1684707.14	664717.78	72.19
OL 18	1644444.05	595052.97	50.70
OL 19	1517403.66	595012.08	70.59
OL 21	1316310.79	760390.30	151.88
OL 22	1314928.69	836445.85	56.06

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3. FINAL COORDINATES (CONTINUED)

Florida State Plane Coordinate System, West Zone, NAD 83 (2011) / NAVD88

Point ID	Northing (SPC FL W)	Easting (SPC FL W)	Elevation (Feet)
OL 24	1043052.03	639965.48	43.75
OL 25	1185568.93	639732.63	128.20
OL 26	896240.19	670229.19	23.27

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4. GPS OBSERVATION & RE-OBSERVATION SCHEDULE

Point ID	Observation Date	Julian Date	Time of Day	Re-observation Date	Re-observation Julian Date	Re-observation Time of Day
GCP_AI 1	01/15/2019	15	12:43	N/A	N/A	N/A
GCP_AI 2	01/15/2019	15	12:15	N/A	N/A	N/A
GCP_AI 3	01/15/2019	15	11:49	01/17/2019	17	11:45
GCP_AI 4	01/15/2019	15	14:32	01/17/2019	17	13:51
GCP_AI 5	01/16/2019	16	17:15	01/17/2019	17	12:47
GCP_AI 6	01/16/2019	16	16:44	N/A	N/A	N/A
GCP_AI 7	01/15/2019	15	14:04	N/A	N/A	N/A
GCP_AI 8	01/15/2019	15	15:43	01/17/2019	17	13:36
GCP_AI 9	01/15/2019	15	11:14	01/17/2019	17	11:20
GCP_AI 10	01/16/2019	16	17:42	01/17/2019	17	14:43
GCP_AI 11	01/15/2019	15	13:38	01/17/2019	17	15:20
GCP_AI 12	01/15/2019	15	12:48	01/17/2019	17	15:46
GCP_AI 13	01/15/2019	15	10:40	N/A	N/A	N/A
GCP_AI 14	01/15/2019	15	10:12	01/17/2019	17	10:41
GCP_AI 15	01/17/2019	1	10:52	N/A	N/A	N/A
GCP_AI 16	01/17/2019	17	10:21	01/18/2019	18	11:07
GCP_AI 17	01/16/2019	16	11:22	01/18/2019	18	9:59
GCP_AI 18	01/16/2019	16	10:35	N/A	N/A	N/A
GCP_AI 19	01/16/2019	16	12:31	N/A	N/A	N/A
GCP_AI 20	01/16/2019	16	12:01	01/18/2019	18	10:25
GCP_AI 21	01/16/2019	16	10:06	01/18/2019	18	9:26
GCP_AI 22	01/17/2019	17	11:28	01/18/2019	18	11:36
GCP_AI 23	01/15/2019	15	15:43	01/17/2019	17	16:50
GCP_AI 24	01/16/2019	16	12:16	N/A	N/A	N/A
GCP_AI 25	01/16/2019	16	11:52	01/17/2019	17	17:25
GCP_AI 26	01/17/2019	17	12:10	01/18/2019	18	12:03
GCP_AI 27	01/17/2019	17	9:30	01/18/2019	18	12:26
GCP_AI 28	01/16/2019	16	13:57	N/A	N/A	N/A
GCP_AI 29	01/16/2019	16	9:16	01/17/2019	17	14:05
GCP_AI 30	01/16/2019	16	13:24	N/A	N/A	N/A
GCP_AI 31	01/17/2019	17	8:58	01/17/2019	17	13:35
GCP_AI 32	01/17/2019	17	12:42	N/A	N/A	N/A
GCP_AI 33	01/15/2019	15	16:45	01/16/2019	16	12:23
GCP_AI 34	01/15/2019	15	16:05	01/16/2019	16	17:34
GCP_AI 35	01/15/2019	15	10:53	01/16/2019	16	16:44

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4. GPS OBSERVATION & RE-OBSERVATION SCHEDULE(CONTINUED)

Point ID	Observation Date	Julian Date	Time of Day	Re-observation Date	Re-observation Julian Date	Re-observation Time of Day
GCP_AI 36	01/15/2019	15	12:24	N/A	N/A	N/A
GCP_AI 37	01/15/2019	15	14:56	N/A	N/A	N/A
GCP_AI 38	01/15/2019	15	17:50	01/16/2019	16	17:05
GCP_AI 39	01/15/2019	15	17:19	01/16/2019	16	13:07
GCP_AI 40	01/14/2019	14	10:25	01/16/2019	16	12:52
GCP_AI 41	01/14/2019	14	11:11	N/A	N/A	N/A
GCP_AI 42	01/14/2019	14	11:53	N/A	N/A	N/A
GCP_AI 43	01/14/2019	14	17:38	N/A	N/A	N/A
GCP_AI 44	01/14/2019	14	18:03	N/A	N/A	N/A
GCP_AI 45	01/15/2019	15	9:39	01/16/2019	16	16:02
GCP_AI 46	01/14/2019	14	12:28	01/16/2019	16	13:36
GCP_AI 47	01/14/2019	14	17:17	01/16/2019	16	15:24
GCP_AI 48	02/20/2019	51	11:22	N/A	N/A	N/A
GCP_AI 49	02/20/2019	51	10:55	N/A	N/A	N/A
GCP_AI 50	02/20/2019	51	10:27	N/A	N/A	N/A
GCP_AI 51	01/14/2019	14	16:23	N/A	N/A	N/A
GCP_AI 52	01/14/2019	14	16:52	N/A	N/A	N/A
GCP_AI 53	01/14/2019	14	15:03	01/16/2019	16	14:29
GCP_AI 54	01/14/2019	14	14:24	01/16/2019	16	13:55
GCP_AI 55	01/14/2019	14	15:30	N/A	N/A	N/A
GCP_AI 56	01/14/2019	14	16:01	N/A	N/A	N/A
GCP_AXIS 2	01/03/2019	3	13:20	N/A	N/A	N/A
GCP_AXIS 3	01/04/2019	4	8:33	01/14/2019	14	14:06
GCP_AXIS 4	01/04/2019	4	11:41	01/15/2019	15	10:15
GCP_AXIS 5	01/03/2019	3	12:58	N/A	N/A	N/A
GCP_AXIS 6	01/04/2019	4	7:43	01/14/2019	14	13:24
GCP_AXIS 7	01/03/2019	3	9:37	01/16/2019	16	8:45
GCP_AXIS 9	01/03/2019	3	10:10	01/15/2019	15	10:53
GCP_AXIS 10	01/03/2019	3	11:56	01/04/2019	4	14:07
GCP_AXIS 11	01/03/2019	3	14:15	01/14/2019	14	12:17
GCP_AXIS 15	01/04/2019	4	10:17	01/14/2019	14	15:11
GCP_AXIS 18	01/03/2019	3	14:00	N/A	N/A	N/A
GCP_AXIS 19	01/04/2019	4	8:06	01/15/2019	15	9:16
GCP_AXIS 20	01/03/2019	3	14:51	01/04/2019	4	15:08
GCP_AXIS 21	01/03/2019	3	9:13	N/A	N/A	N/A

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4.GPS OBSERVATION & RE-OBSERVATION SCHEDULE (CONTINUED)

Point ID	Observation Date	Julian Date	Time of Day	Re-observation Date	Re-observation Julian Date	Re-observation Time of Day
GCP_AXIS 23	01/03/2019	3	8:49	01/15/2019	15	11:45
GCP_AXIS 25	01/02/2019	2	15:00	01/04/2019	4	15:41
GCP_AXIS 26	01/03/2019	3	7:54	01/14/2019	16	11:37
GCP_AXIS 27	01/03/2019	3	12:15	N/A	N/A	N/A
GCP_AXIS 31	01/02/2019	2	11:27	N/A	N/A	N/A
GCP_AXIS 33E	01/02/2019	2	14:17	01/14/2019	14	10:48
GCP_AXIS 33W	01/02/2019	2	13:32	N/A	N/A	N/A
GCP_AXIS 38	01/04/2019	4	9:22	N/A	N/A	N/A
GCP_AXIS 39	01/04/2019	4	10:54	N/A	N/A	N/A
GCP_AXIS 42	01/04/2019	4	12:07	N/A	N/A	N/A
GCP_AXIS 43	01/03/2019	3	11:24	N/A	N/A	N/A
GCP_AXIS 44	01/02/2019	2	10:38	01/14/2019	14	9:26
GCP_DAS 1	02/07/2019	38	13:33	N/A	N/A	N/A
GCP_DAS 2	02/07/2019	38	13:55	N/A	N/A	N/A
GCP_DAS 3	02/07/2019	38	14:19	02/08/2019	39	15:33
GCP_DAS 4	02/07/2019	38	16:10	02/08/2019	39	16:40
GCP_DAS 5	02/08/2019	39	13:46	N/A	N/A	N/A
GCP_DAS 6	02/07/2019	38	15:21	02/08/2019	39	12:46
GCP_DAS 7	02/07/2019	38	14:19	N/A	N/A	N/A
GCP_DAS 8	02/07/2019	38	15:46	N/A	N/A	N/A
GCP_DAS 9	02/07/2019	38	14:50	02/08/2019	39	15:53
GCP_DAS 10	02/07/2019	38	13:14	N/A	N/A	N/A
GCP_DAS 11	02/07/2019	38	15:15	N/A	N/A	N/A
GCP_DAS 12	02/07/2019	38	12:50	02/08/2019	39	11:42
GCP_DAS 13	02/07/2019	38	12:14	N/A	N/A	N/A
GCP_DAS 14	02/07/2019	38	10:49	N/A	N/A	N/A
GCP_DAS 15	02/07/2019	38	15:41	02/08/2019	39	16:21
GCP_DAS 16	02/07/2019	38	16:00	02/08/2019	39	11:04
GCP_DAS 17	02/07/2019	38	10:19	02/08/2019	39	10:20
GCP_DAS 18	02/07/2019	38	11:57	N/A	N/A	N/A
GCP_DAS 19	02/07/2019	38	10:44	02/08/2019	39	10:35
GCP_DAS 20	02/07/2019	38	11:23	N/A	N/A	N/A
GCP_DAS 21	02/07/2019	38	10:29	N/A	N/A	N/A
GCP_DAS 22	02/07/2019	38	9:56	N/A	N/A	N/A
GCP_DAS 23	02/06/2019	37	15:33	02/08/2019	39	16:44

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4. GPS OBSERVATION & RE-OBSERVATION SCHEDULE(CONTINUED)

Point ID	Observation Date	Julian Date	Time of Day	Re-observation Date	Re-observation Julian Date	Re-observation Time of Day
GCP_DAS 24	02/06/2019	37	14:51	02/07/2019	38	16:32
GCP_DAS 25	02/06/2019	37	14:22	02/07/2019	38	16:57
GCP_DAS 26	02/06/2019	37	13:48	02/07/2019	38	17:17
GCP_DAS 27	02/06/2019	37	13:17	N/A	N/A	N/A
GCP_DAS 28	02/06/2019	37	17:06	N/A	N/A	N/A
GCP_DAS 29	02/06/2019	37	16:27	02/08/2019	39	17:13
GCP_DAS 30	02/06/2019	37	16:06	02/08/2019	39	17:24
GCP_DAS 31	02/06/2019	37	18:03	02/08/2019	39	9:33
GCP_DAS 32	02/06/2019	37	14:00	02/07/2019	38	18:20
GCP_DAS 33	02/06/2019	37	17:45	02/08/2019	39	9:17
GCP_DAS 34	02/06/2019	37	14:22	N/A	N/A	N/A
GCP_DAS 35	02/06/2019	37	15:25	02/08/2019	39	17:18
GCP_DAS 36	02/06/2019	37	15:40	N/A	N/A	N/A
GCP_DAS 37	02/06/2019	37	15:02	N/A	N/A	N/A
GCP_DAS 38	02/06/2019	37	14:39	02/08/2019	39	17:50
GCP_DAS 39	02/06/2019	37	16:45	02/08/2019	39	17:08
GCP_DAS 40	02/06/2019	37	16:12	N/A	N/A	N/A
GCP_DG 1	12/27/2018	361	9:26	N/A	N/A	N/A
GCP_DG 2	12/27/2018	361	12:47	01/03/2019	38	13:04
GCP_DG 3	12/29/2018	363	9:35	N/A	N/A	N/A
GCP_DG 4	12/29/2018	363	8:00	01/04/2019	4	13:15
GCP_DG 5	12/27/2018	361	10:00	01/03/2019	3	15:10
GCP_DG 6	12/28/2018	362	8:45	N/A	N/A	N/A
GCP_DG 7	12/27/2018	361	15:19	01/03/2019	3	13:56
GCP_DG 8	12/28/2018	362	14:45	N/A	N/A	N/A
GCP_DG 9	12/28/2018	362	7:24	01/03/2019	3	17:02
GCP_DG 10	12/28/2018	362	10:31	N/A	N/A	N/A
GCP_DG 11	12/27/2018	361	11:25	N/A	N/A	N/A
GCP_DG 12	12/28/2018	362	12:30	01/03/2019	3	15:46
GCP_DG 13	12/29/2018	363	8:40	01/04/2019	4	13:52
GCP_DG 14	12/28/2018	362	13:40	N/A	N/A	N/A
GCP_DG 15	12/29/2018	363	11:15	N/A	N/A	N/A
GCP_DG 16	12/27/2018	361	10:20	01/03/2019	3	12:17
GCP_DG 17	12/29/2018	363	10:15	N/A	N/A	N/A
GCP_DG 18	12/28/2018	362	8:01	01/03/2019	3	16:36

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4. GPS OBSERVATION & RE-OBSERVATION SCHEDULE(CONTINUED)

Point ID	Observation Date	Julian Date	Time of Day	Re-observation Date	Re-observation Julian Date	Re-observation Time of Day
GCP_DG 19	12/27/2018	361	14:10	N/A	N/A	N/A
GCP_DG 20	01/02/2019	2	8:37	N/A	N/A	N/A
GCP_DG 21	01/02/2019	2	15:00	01/04/2019	4	8:42
GCP_DG 22	01/02/2019	2	15:30	N/A	N/A	N/A
GCP_DG 23	01/02/2019	2	9:30	01/04/2019	4	12:40
GCP_DG 24	01/02/2019	2	11:03	01/04/2019	4	11:45
GCP_DG 25	01/02/2019	2	13:18	N/A	N/A	N/A
GCP_DG 26	01/02/2019	2	13:45	01/04/2019	4	9:16
GCP_DG 27	01/02/2019	2	12:05	01/04/2019	4	10:27
GCP_DG 28	01/02/2019	2	10:35	N/A	N/A	N/A
GCP_LEG 1	01/05/2019	5	7:55	01/05/2019	5	12:50
GCP_LEG 2	01/05/2019	5	8:20	01/05/2019	5	13:03
GCP_LEG 3	01/05/2019	5	9:17	01/05/2019	5	14:02
GCP_LEG 4	01/05/2019	5	9:50	01/05/2019	5	13:50
GCP_LEG 5	01/05/2019	5	10:15	N/A	N/A	N/A
GCP_LEG 6	01/05/2019	5	10:45	N/A	N/A	N/A
GCP_LEG 7	01/05/2019	5	11:24	N/A	N/A	N/A
GCP_LEG 8	01/05/2019	5	14:35	N/A	N/A	N/A
GCP_LEG 9	01/05/2019	5	17:35	N/A	N/A	N/A
GCP_LEG 10	01/05/2019	5	18:05	01/06/2019	6	8:25
GCP_LEG 11	01/06/2019	6	9:00	N/A	N/A	N/A
GCP_LEG 12	01/05/2019	5	16:30	01/06/2019	6	8:04
GCP_LEG 13	01/05/2019	5	16:05	01/06/2019	6	7:50
GCP_LEG 14	01/05/2019	5	15:45	01/06/2018	6	7:20
GCP_LEG 15	01/06/2019	6	9:51	N/A	N/A	N/A
GCP_LEG 16	01/06/2019	6	10:13	N/A	N/A	N/A
GCP_LEG 17	01/06/2019	6	10:51	N/A	N/A	N/A
GCP_LEG 18	01/06/2019	6	13:43	01/08/2019	8	14:37
GCP_LEG 19	01/06/2019	6	14:08	N/A	N/A	N/A
GCP_LEG 20	01/06/2019	6	12:30	01/08/2019	8	15:32
GCP_LEG 21	01/06/2019	6	12:10	01/08/2019	8	15:15
GCP_LEG 22	01/06/2019	6	11:41	N/A	N/A	N/A
GCP_LEG 23	01/08/2019	8	16:10	N/A	N/A	N/A
GCP_LEG 24	01/08/2019	8	16:38	01/09/2019	9	10:00
GCP_LEG 25	01/08/2019	8	17:16	N/A	N/A	N/A

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4. GPS OBSERVATION & RE-OBSERVATION SCHEDULE(CONTINUED)

Point ID	Observation Date	Julian Date	Time of Day	Re-observation Date	Re-observation Julian Date	Re-observation Time of Day
GCP_LEG 26	01/08/2019	8	6:45	N/A	N/A	N/A
GCP_LEG 27	01/08/2019	8	18:27	01/09/2019	9	10:36
GCP_LEG 28	01/08/2019	8	18:00	01/09/2019	9	11:10
GCP_LEG 29	01/09/2019	9	7:40	N/A	N/A	N/A
GCP_LEG 30	01/09/2019	9	8:30	N/A	N/A	N/A
GCP_LEG 31	01/09/2019	9	14:00	N/A	N/A	N/A
GCP_LEG 32	01/09/2019	9	13:30	N/A	N/A	N/A
GCP_LEG 33	01/09/2019	9	12:40	N/A	N/A	N/A
GCP_LEG 34	01/09/2019	9	11:45	01/14/2019	14	16:50
GCP_LEG 35	01/13/2019	13	7:18	01/14/2019	14	16:21
GCP_LEG 36	01/13/2019	13	6:35	01/14/2019	14	16:00
GCP_LEG 37	01/09/2019	9	15:50	01/14/2019	14	15:33
GCP_LEG 38	01/09/2019	9	15:26	N/A	N/A	N/A
GCP_LEG 39	01/09/2019	9	14:55	N/A	N/A	N/A
GCP_LEG 40	01/13/2019	13	7:50	01/14/2019	14	13:59
GCP_LEG 41	01/13/2019	13	8:23	01/14/2019	14	14:29
GCP_LEG 42	01/13/2019	13	9:06	01/14/2019	14	15:07
GCP_LEG 43	01/13/2019	13	9:40	02/25/2019	56	12:39
GCP_LEG 44	01/13/2019	13	10:07	02/25/2019	56	12:14
GCP_LEG 45	02/22/2019	53	10:15	N/A	N/A	N/A
GCP_LEG 46	01/13/2019	13	11:14	02/25/2019	56	9:25
GCP_LEG 47	01/04/2019	4	11:04	N/A	N/A	N/A
GCP_QSI 1	03/06/2019	65	15:45	03/07/2019	66	13:53
GCP_QSI 2	01/17/2019	17	9:30	01/19/2019	19	14:18
GCP_QSI 3	01/17/2019	17	11:30	01/19/2019	19	13:40
GCP_QSI 4	01/25/2019	25	8:50	N/A	N/A	N/A
GCP_QSI 5	01/25/2019	25	9:57	N/A	N/A	N/A
GCP_QSI 6	04/16/2019	106	9:00	N/A	N/A	N/A
GCP_QSI 7	01/17/2019	17	14:45	01/19/2019	19	12:45
GCP_QSI 8	01/17/2019	17	15:45	01/19/2019	19	15:00
GCP_QSI 9	01/25/2019	25	10:28	03/07/2019	66	14:59
GCP_QSI 10	01/15/2019	15	8:35	01/16/2019	16	13:10
GCP_QSI 11	01/15/2019	15	12:43	01/16/2019	16	15:40
GCP_QSI 12	01/15/2019	15	11:25	01/16/2019	16	14:44
GCP_QSI 13	01/18/2019	18	10:30	01/19/2019	19	12:15

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4. GPS OBSERVATION & RE-OBSERVATION SCHEDULE(CONTINUED)

Point ID	Observation Date	Julian Date	Time of Day	Re-observation Date	Re-observation Julian Date	Re-observation Time of Day
GCP_QSI 14	01/18/2019	18	9:10	N/A	N/A	N/A
GCP_QSI 15	01/25/2019	25	11:20	N/A	N/A	N/A
GCP_QSI 16	01/15/2019	15	8:05	01/16/2019	16	12:32
GCP_QSI 17	01/15/2019	15	9:25	01/16/2019	16	13:47
GCP_QSI 18	01/15/2019	15	10:20	01/16/2019	16	14:15
GCP_QSI 19	01/18/2019	18	11:25	01/19/2019	19	10:30
GCP_QSI 20	01/18/2019	18	14:15	01/19/2019	19	9:45
GCP_QSI 21	01/08/2019	8	9:55	01/08/2019	8	14:27
GCP_QSI 22	01/11/2019	11	8:00	N/A	N/A	N/A
GCP_QSI 23	01/11/2019	11	10:40	N/A	N/A	N/A
GCP_QSI 24	01/11/2019	11	13:20	N/A	N/A	N/A
GCP_QSI 25	01/18/2019	18	12:40	01/19/2019	19	11:10
GCP_QSI 26	01/08/2019	8	8:55	01/08/2019	8	12:59
GCP_QSI 27	01/08/2019	8	10:32	01/08/2019	8	14:30
GCP_QSI 28	01/08/2019	8	12:00	01/08/2019	8	16:05
GCP_QSI 29	01/11/2019	11	8:50	N/A	N/A	N/A
GCP_QSI 30	01/11/2019	11	12:30	N/A	N/A	N/A
GCP_QSI 31	01/25/2019	25	12:58	N/A	N/A	N/A
GCP_QSI 32	01/08/2019	8	8:27	01/08/2019	8	12:43
GCP_QSI 33	01/02/2019	2	10:43	01/03/2019	3	8:30
GCP_QSI 34	01/02/2019	2	9:27	01/03/2019	3	7:48
GCP_QSI 35	12/27/2018	361	11:13	12/28/2018	362	9:29
GCP_QSI 36	12/27/2018	361	11:55	12/28/2018	362	10:02
GCP_QSI 37	01/25/2019	25	13:37	N/A	N/A	N/A
GCP_QSI 38	01/02/2019	2	11:48	01/03/2019	3	9:05
GCP_QSI 39	01/02/2019	2	11:11	01/03/2019	3	8:47
GCP_QSI 40	12/27/2018	361	9:50	12/28/2018	362	7:40
GCP_QSI 41	12/28/2018	362	8:52	12/28/2018	362	13:00
GCP_QSI 42	12/28/2018	362	10:58	01/03/2019	3	10:20
GCP_QSI 43	01/28/2019	28	7:42	N/A	N/A	N/A
GCP_QSI 44	01/14/2019	14	8:50	N/A	N/A	N/A
GCP_QSI 45	01/02/2019	2	12:56	01/03/2019	3	9:29
GCP_QSI 46	12/27/2018	361	10:15	12/28/2018	362	7:50
GCP_QSI 47	12/27/2018	361	10:40	12/28/2018	362	8:31
GCP_QSI 48	01/28/2019	28	9:50	N/A	N/A	N/A

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4. GPS OBSERVATION & RE-OBSERVATION SCHEDULE(CONTINUED)

Point ID	Observation Date	Julian Date	Time of Day	Re-observation Date	Re-observation Julian Date	Re-observation Time of Day
GCP_QSI 49	01/28/2019	28	13:50	N/A	N/A	N/A
GCP_QSI 50	01/14/2019	14	9:33	N/A	N/A	N/A
GCP_QSI 51	01/14/2019	14	10:28	N/A	N/A	N/A
GCP_QSI 52	01/14/2019	14	12:45	N/A	N/A	N/A
GCP_QSI 53	01/14/2019	14	13:43	N/A	N/A	N/A
GCP_QSI 54	01/28/2019	28	11:00	N/A	N/A	N/A
GCP_QSI 55	01/28/2019	28	13:15	N/A	N/A	N/A
GCP_QSI 56	03/08/2019	67	8:50	03/14/2019	73	7:56
GCP_QSI 57	01/14/2019	14	11:10	N/A	N/A	N/A
GCP_QSI 58	01/28/2019	28	12:20	N/A	N/A	N/A
GCP_QSI 59	03/08/2019	67	10:15	N/A	N/A	N/A
GCP_QSI 60	02/20/2019	51	13:51	N/A	N/A	N/A
GCP_QSI 61	01/14/2019	14	11:43	N/A	N/A	N/A
GCP_QSI 62	02/21/2019	52	14:04	N/A	N/A	N/A
GCP_QSI 63	02/20/2019	51	13:10	N/A	N/A	N/A
GCP_QSI 64	02/22/2019	53	11:48	N/A	N/A	N/A
GCP_QSI 65	02/22/2019	53	12:28	N/A	N/A	N/A
GCP_QSI 66	02/22/2019	53	12:56	N/A	N/A	N/A
GCP_QSI 67	02/20/2019	51	12:37	N/A	N/A	N/A
GCP_QSI 68	02/21/2019	52	13:14	N/A	N/A	N/A
GCP_QSI 69	02/21/2019	52	12:44	N/A	N/A	N/A
GCP_QSI 70	02/21/2019	52	12:14	N/A	N/A	N/A
GCP_QSI 71	02/22/2019	53	11:36	N/A	N/A	N/A
GCP_QSI 72	02/07/2019	38	9:50	02/15/2019	46	9:30
GCP_QSI 73	02/07/2019	38	9:15	02/15/2019	46	9:55
GCP_QSI 74	02/07/2019	38	11:00	02/15/2019	46	10:25
GCP_QSI 75	02/07/2019	38	11:30	03/21/2019	80	10:25
GCP_QSI 76	02/07/2019	38	12:20	02/15/2019	46	8:30
GCP_QSI 77	02/07/2019	38	13:35	03/21/2019	80	11:20
GCP_QSI 78	02/06/2019	37	13:35	N/A	N/A	N/A
GCP_QSI 79	02/06/2019	37	14:10	N/A	N/A	N/A
GCP_QSI 80	02/07/2019	38	12:45	03/21/2019	80	10:55
GCP_QSI 81	01/29/2019	29	11:20	N/A	N/A	N/A
GCP_QSI 82	02/06/2019	37	12:55	N/A	N/A	N/A
GCP_QSI 83	02/01/2019	32	13:35	02/06/2019	37	10:47

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4. GPS OBSERVATION & RE-OBSERVATION SCHEDULE(CONTINUED)

Point ID	Observation Date	Julian Date	Time of Day	Re-observation Date	Re-observation Julian Date	Re-observation Time of Day
GCP_QSI 84	02/01/2019	32	12:30	02/06/2019	37	9:55
GCP_QSI 85	02/01/2019	32	11:45	02/06/2019	37	9:00
GCP_QSI 86	02/01/2019	32	10:15	02/05/2019	36	13:37
GCP_QSI 87	02/06/2019	37	12:00	N/A	N/A	N/A
GCP_QSI 88	12/31/2018	365	12:57	02/01/2019	32	13:50
GCP_QSI 89	12/31/2018	365	12:18	02/01/2019	32	14:35
GCP_QSI 90	02/01/2019	32	11:10	02/06/2019	37	8:20
GCP_QSI 91	02/01/2019	32	9:30	02/05/2019	36	12:55
GCP_QSI 92	01/10/2019	10	11:20	N/A	N/A	N/A
GCP_QSI 93	02/22/2019	53	10:19	N/A	N/A	N/A
GCP_QSI 94	12/31/2018	365	11:23	N/A	N/A	N/A
GCP_QSI 95	12/21/2018	355	11:36	12/31/2018	365	10:11
GCP_QSI 96	12/21/2018	355	10:40	12/31/2018	365	9:48
GCP_QSI 97	02/01/2019	32	8:45	02/05/2019	36	12:00
GCP_QSI 98	12/21/2018	355	9:50	12/31/2018	365	8:54
GCP_QSI 99	12/21/2018	355	9:28	12/31/2018	365	8:35
GCP_QSI 100	01/10/2019	10	10:49	N/A	N/A	N/A
GCP_QSI 101	01/10/2019	10	9:52	N/A	N/A	N/A
GCP_QSI 102	12/19/2018	353	16:32	12/21/2018	355	12:18
GCP_QSI 103	12/19/2018	353	15:37	12/21/2018	355	13:09
GCP_QSI 104	12/19/2018	353	14:35	12/21/2018	355	13:32
GCP_QSI 105	12/21/2018	355	8:42	12/31/2018	365	8:11
GCP_QSI 106	01/08/2019	8	10:19	N/A	N/A	N/A
GCP_QSI 107	01/08/2019	8	10:56	01/11/2019	11	11:06
GCP_QSI 108	01/08/2019	8	11:27	N/A	N/A	N/A
GCP_QSI 109	01/08/2019	8	11:59	01/11/2019	11	11:34
GCP_QSI 110	01/08/2019	8	13:06	N/A	N/A	N/A
GCP_QSI 111	01/08/2019	8	15:35	01/11/2019	11	12:34
GCP_QSI 112	01/08/2019	8	14:00	N/A	N/A	N/A
GCP_QSI 113	01/08/2019	8	14:37	01/11/2019	11	13:20
GCP_QSI 114	01/03/2018	3	11:07	N/A	N/A	N/A
GCP_QSI 115	01/11/2019	11	10:43	04/01/2019	100	12:50
GCP_QSI 116	01/03/2019	3	12:56	N/A	N/A	N/A
GCP_QSI 117	01/03/2019	3	14:48	01/11/2019	11	9:01
GCP_QSI 118	01/04/2019	4	9:07	N/A	N/A	N/A

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4. GPS OBSERVATION & RE-OBSERVATION SCHEDULE(CONTINUED)

Point ID	Observation Date	Julian Date	Time of Day	Re-observation Date	Re-observation Julian Date	Re-observation Time of Day
GCP_QSI 119	01/04/2019	4	10:05	01/11/2019	11	8:28
GCP_QSI 120	01/04/2019	4	10:46	04/01/2019	91	14:35
GCP_QSI 121	01/04/2019	4	12:58	N/A	N/A	N/A
GCP_QSI 122	01/03/2019	3	10:16	01/10/2019	10	14:15
GCP_QSI 123	01/03/2019	3	9:41	04/01/2019	91	12:28
GCP_QSI 124	01/02/2019	2	12:22	01/10/2019	10	13:30
GCP_QSI 125	01/02/2019	2	11:23	N/A	N/A	N/A
GCP_QSI 126	01/02/2019	2	10:33	01/10/2019	10	12:58
GCP_QSI 127	01/02/2019	2	9:35	04/01/2019	91	13:57
GCP_QSI 128	01/02/2019	2	8:51	01/10/2019	10	12:11
GCP_QSI 129	12/28/2018	362	14:17	N/A	N/A	N/A
GCP_QSI 130	12/28/2028	362	13:36	01/10/2019	10	11:33
GCP_QSI 131	12/18/2018	352	15:24	12/21/2018	355	9:57
GCP_QSI 132	12/21/2018	355	10:24	N/A	N/A	N/A
GCP_QSI 133	12/31/2018	365	8:02	01/10/2019	10	8:58
GCP_QSI 134	12/31/2018	365	9:19	04/01/2019	91	11:20
GCP_QSI 135	12/31/2018	365	9:59	01/10/2019	10	10:03
GCP_QSI 136	12/31/2018	365	10:28	N/A	N/A	N/A
GCP_QSI 137	12/28/2018	362	14:59	01/10/2019	10	10:53
GCP_QSI 138	12/28/2018	362	13:07	N/A	N/A	N/A
GCP_QSI 139	12/21/2018	355	8:45	N/A	N/A	N/A
GCP_QSI 140	12/21/2018	355	9:23	01/02/2019	2	9:46
GCP_QSI 141	12/21/2018	355	11:11	N/A	N/A	N/A
GCP_QSI 142	12/21/2018	355	11:47	01/02/2019	2	8:41
GCP_QSI 143	12/21/2018	355	10:47	N/A	N/A	N/A
GCP_QSI 144	12/21/2018	355	10:04	01/09/2019	9	12:41
GCP_QSI 145	12/28/2018	362	9:26	N/A	N/A	N/A
GCP_QSI 146	12/19/2018	353	9:48	01/09/2019	9	10:03
GCP_QSI 147	12/19/2018	353	10:26	04/01/2019	91	9:52
GCP_QSI 148	12/19/2018	353	11:12	01/09/2019	9	11:02
GCP_QSI 149	12/19/2018	353	11:54	N/A	N/A	N/A
GCP_QSI 150	12/19/2018	353	12:51	01/09/2019	9	11:58
GCP_QSI 151	12/21/2018	355	9:17	N/A	N/A	N/A
GCP_QSI 152	12/18/2018	352	15:04	N/A	N/A	N/A
GCP_QSI 153	12/18/2018	352	14:20	01/09/2019	9	9:15

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4. GPS OBSERVATION & RE-OBSERVATION SCHEDULE(CONTINUED)

Point ID	Observation Date	Julian Date	Time of Day	Re-observation Date	Re-observation Julian Date	Re-observation Time of Day
GCP_QSI 154	12/18/2018	352	12:42	N/A	N/A	N/A
GCP_QSI 155	12/18/2018	352	11:45	01/09/2019	9	8:32
GCP_QSI 156	12/18/2018	352	11:05	N/A	N/A	N/A
GCP_QSI 157	12/18/2018	352	10:12	01/09/2019	9	8:03
GCP_QSI 158	12/28/2018	362	11:24	N/A	N/A	N/A
GCP_QSI 159	02/21/2019	52	11:10	N/A	N/A	N/A
GCP_QSI 160	01/28/2019	28	8:08	N/A	N/A	N/A
OL 1	02/08/2019	39	14:19	N/A	N/A	N/A
OL 2	02/07/2019	38	14:50	02/08/2019	39	12:35
OL 3	02/07/2019	38	13:42	N/A	N/A	N/A
OL 4	02/07/2019	38	12:24	02/08/2019	39	11:30
OL 5	02/07/2019	38	11:08	02/08/2019	39	10:45
OL 6	02/06/2019	37	12:02	02/07/2019	38	17:38
OL 7	02/06/2019	37	13:28	N/A	N/A	N/A
OL 8	02/06/2019	37	15:57	02/08/2019	39	17:28
OL 9	02/20/2019	51	11:53	N/A	N/A	N/A
OL 10	01/15/2019	15	10:12	N/A	N/A	N/A
OL 11	01/15/2019	15	11:22	N/A	N/A	N/A
OL 12	01/15/2019	15	11:59	01/17/2019	17	16:15
OL 13	01/15/2019	15	14:10	01/17/2019	17	15:05
OL 14	01/15/2019	15	16:40	01/17/2019	17	14:26
OL 15	01/15/2019	15	14:56	N/A	N/A	N/A
OL 16	01/15/2019	15	14:26	N/A	N/A	N/A
OL 17	01/14/2019	14	12:55	01/16/2019	16	13:25
OL 18	01/15/2019	15	13:41	N/A	N/A	N/A
OL 19	01/16/2019	16	8:22	N/A	N/A	N/A
OL 20	01/29/2019	29	8:35	02/25/2019	56	9:30
OL 21	01/29/2019	29	11:25	N/A	N/A	N/A
OL 22	01/29/2019	29	10:39	N/A	N/A	N/A
OL 23	01/05/2019	5	12:00	N/A	N/A	N/A
OL 24	12/28/2018	362	9:20	01/03/2019	3	15:00
OL 25	12/29/2018	363	9:40	01/04/2019	4	14:15
OL 26	12/27/2018	361	8:29	01/03/2019	3	11:08
OL 27	01/05/2019	5	15:29	01/06/2019	6	7:36
OL 28	01/09/2019	9	8:55	02/03/2019	34	8:24

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4. GPS OBSERVATION & RE-OBSERVATION SCHEDULE(CONTINUED)

Point ID	Observation Date	Julian Date	Time of Day	Re-observation Date	Re-observation Julian Date	Re-observation Time of Day
OL 29	01/23/2019	23	8:29	02/25/2019	56	8:39
OL 30	01/25/2019	25	8:56	N/A	N/A	N/A
OL 31	01/29/2019	29	12:10	N/A	N/A	N/A
OL 32	01/29/2019	29	8:27	01/29/2019	29	15:00
OL 33	01/29/2019	29	9:06	01/29/2019	29	15:20
PA 1	11/4/2019	308	11:50	N/A	N/A	N/A
PA 2	11/4/2019	308	13:20	N/A	N/A	N/A
PA 3	11/5/2019	309	8:23	N/A	N/A	N/A
PA 4	11/5/2019	309	17:43	11/6/2019	310	11:27
PA 5	11/4/2019	308	16:40	11/5/2019	309	11:49
PA 6	11/4/2019	308	16:12	N/A	N/A	N/A
PA 7	11/6/2019	310	12:46	N/A	N/A	N/A
PA 8	11/6/2019	310	9:13	11/7/2019	311	9:50
PA 9	10/31/2019	304	13:16	1/3/2020	3	14:49
PA 10	10/17/2019	290	14:21	N/A	N/A	N/A
PA 11	10/17/2019	290	13:40	10/22/2019	295	8:39
PA 12	10/31/2019	304	12:47	1/3/2020	3	14:30
PA 13	10/17/2019	290	11:31	1/3/2020	3	12:30
PA 14	10/17/2019	290	10:55	10/22/2019	295	9:34
PA 15	10/17/2019	290	10:00	10/22/2019	295	9:57
PA 16	10/21/2019	294	12:52	10/22/2019	295	2:01
PA 17	10/31/2019	304	8:59	N/A	N/A	N/A
PA 18	10/31/2019	304	9:39	N/A	N/A	N/A
PA 19	10/21/2019	294	11:43	10/22/2019	295	10:44
PA 20	10/21/2019	294	2:18	N/A	N/A	N/A
PA 21	10/21/2019	294	11:15	1/3/2020	3	11:32
PA 22	10/21/2019	294	10:45	10/22/2019	295	11:15
PA 23	10/21/2019	294	2:49	10/22/2019	295	12:16
PA 24	10/31/2019	304	11:43	1/3/2020	3	15:59
PA 25	10/31/2019	304	10:16	N/A	N/A	N/A
PA 26	10/31/2019	304	10:43	N/A	N/A	N/A
PA 27	10/31/2019	304	12:17	1/3/2020	3	15:25
PA 28	10/31/2019	304	11:21	1/3/2020	3	15:42
PA 29	11/7/2019	311	3:46	N/A	N/A	N/A
PA 30	11/6/2019	310	4:30	11/7/2019	311	15:21
PA 31	11/6/2019	310	5:11	N/A	N/A	N/A

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4. GPS OBSERVATION & RE-OBSERVATION SCHEDULE(CONTINUED)

Point ID	Observation Date	Julian Date	Time of Day	Re-observation Date	Re-observation Julian Date	Re-observation Time of Day
PA 32	11/7/2019	311	12:04	N/A	N/A	N/A
PA 33	11/6/2019	310	8:47	11/7/2019	311	9:17
PA 34	11/6/2019	310	10:34	11/8/2019	312	8:30
PA 35	11/6/2019	310	10:02	11/8/2019	312	10:34
PA 36	11/6/2019	310	9:39	11/7/2019	311	10:25
PA 37	11/6/2019	310	16:50	N/A	N/A	N/A
PA 38	11/6/2019	310	13:16	N/A	N/A	N/A
PA 39	11/6/2019	310	14:04	N/A	N/A	N/A
PA 40	11/6/2019	310	14:58	N/A	N/A	N/A
PA 41	11/6/2019	310	N/A	N/A	N/A	N/A
PA 42	11/6/2019	310	15:29	N/A	N/A	N/A
PA 43	11/5/2019	309	13:00	11/6/2019	310	15:52
PA 44	11/5/2019	309	12:27	N/A	N/A	N/A
PA 45	11/5/2019	309	15:38	N/A	N/A	N/A
PA 46	11/5/2019	309	16:16	N/A	N/A	N/A
PA 47	11/5/2019	309	17:00	11/6/2019	310	12:10
PA 48	11/6/2019	310	17:32	11/7/2019	311	11:44
PA 49	11/5/2019	309	17:22	N/A	N/A	N/A
PA 50	11/4/2019	308	14:40	11/5/2019	309	14:40
PA 51	11/5/2019	309	13:34	N/A	N/A	N/A
PA 52	11/5/2019	309	13:59	N/A	N/A	N/A
PA 53	11/5/2019	309	14:10	N/A	N/A	N/A
PA 54	11/5/2019	309	14:43	N/A	N/A	N/A
PA 55	11/4/2019	308	17:20	11/5/2019	309	11:33
PA 56	11/4/2019	308	17:57	11/5/2019	309	10:55
PA 57	11/5/2019	309	9:51	N/A	N/A	N/A
PA 58	11/5/2019	309	9:00	N/A	N/A	N/A
PA 59	11/5/2019	309	10:20	N/A	N/A	N/A
PA 60	11/4/2019	308	15:50	11/5/2019	309	7:36
PA 61	10/21/2019	294	12:21	1/3/2020	3	17:42
PA 62	10/17/2019	290	12:08	1/3/2020	3	13:13
KB-1	1/2/2020	2	14:52	1/2/2020	2	18:00
KB-2	1/2/2020	2	14:37	1/2/2020	2	17:40
KB-3	1/2/2020	2	14:26	1/2/2020	2	17:27

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5. POINT COMPARISON REPORT

Point comparisons are shown in their respective Florida State Plane Coordinate System Zone, as defined in Section 3 (pages 10-24) of this report/ NAVD88 (U.S. Survey Feet)

Point ID	Check Point ID	Δ North	Δ East	Δ Vertical
GCP_AI 3	CHK_AI 3	-0.023	0.003	0.036
GCP_AI 4	CHK_AI 4	-0.055	0.043	0.091
GCP_AI 5	CHK_AI 5	0.052	-0.040	-0.022
GCP_AI 8	CHK_AI 8	0.010	-0.048	0.053
GCP_AI 9	CHK_AI 9	-0.005	-0.019	-0.062
GCP_AI 10	CHK_AI 10	0.033	-0.027	-0.016
GCP_AI 11	CHK_AI 11	-0.012	-0.017	-0.020
GCP_AI 12	CHK_AI 12	-0.051	0.033	0.009
GCP_AI 14	CHK_AI 14	0.002	0.005	-0.118
GCP_AI 16	CHK_AI 16	-0.022	0.004	0.013
GCP_AI 17	CHK_AI 17	0.005	-0.031	0.142
GCP_AI 20	CHK_AI 20	-0.038	0.077	0.037
GCP_AI 21	CHK_AI 21	-0.014	-0.005	0.062
GCP_AI 22	CHK_AI 22	-0.008	0.019	0.078
GCP_AI 23	CHK_AI 23	0.048	-0.004	-0.027
GCP_AI 25	CHK_AI 25	0.000	-0.019	0.039
GCP_AI 26	CHK_AI 26	0.121	0.013	0.110
GCP_AI 27	CHK_AI 27	0.035	-0.103	-0.006
GCP_AI 29	CHK_AI 29	0.033	0.077	0.007
GCP_AI 33	CHK_AI 33	-0.065	-0.027	0.098
GCP_AI 34	CHK_AI 34	0.004	-0.016	0.038
GCP_AI 35	CHK_AI 35	-0.021	-0.029	0.091
GCP_AI 38	CHK_AI 38	0.026	-0.017	-0.012
GCP_AI 39	CHK_AI 39	0.005	0.061	0.027
GCP_AI 40	CHK_AI 40	-0.024	0.003	0.031
GCP_AI 45	CHK_AI 45	-0.031	0.000	-0.044
GCP_AI 46	CHK_AI 46	0.000	0.000	0.005
GCP_AI 47	CHK_AI 47	-0.034	-0.005	-0.075
GCP_AI 54	CHK_AI 54	0.059	-0.017	0.029
GCP_AXIS 3	CHK_AXIS 3	0.026	0.034	-0.102
GCP_AXIS 4	CHK_AXIS 4	-0.023	-0.021	-0.049
GCP_AXIS 6	CHK_AXIS 6	0.023	0.087	-0.023
GCP_AXIS 7	CHK_AXIS 7	-0.013	0.011	-0.074
GCP_AXIS 9	CHK_AXIS 9	-0.044	0.002	-0.091
GCP_AXIS 10	CHK_AXIS 10	0.040	0.020	-0.104

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5. POINT COMPARISON REPORT (CONTINUED)

Point comparisons are shown in their respective Florida State Plane Coordinate System Zone, as defined in Section 3 (pages 10-24) of this report/ NAVD88 (U.S. Survey Feet)

Point ID	Check Point ID	Δ North	Δ East	Δ Vertical
GCP_AXIS 11	CHK_AXIS 11	0.080	0.008	-0.035
GCP_AXIS 15	CHK_AXIS 15	-0.001	0.039	-0.078
GCP_AXIS 20	CHK_AXIS 20	-0.012	0.011	0.155
GCP_AXIS 23	CHK_AXIS 23	0.038	0.042	-0.065
GCP_AXIS 25	CHK_AXIS 25	-0.008	0.008	0.043
GCP_AXIS 26	CHK_AXIS 26	-0.023	-0.025	0.023
GCP_AXIS 33E	CHK_AXIS 33E	-0.064	0.006	0.148
GCP_DAS 3	CHK_DAS 3	0.064	0.002	0.098
GCP_DAS 4	CHK_DAS 4	0.083	-0.080	-0.134
GCP_DAS 6	CHK_DAS 6	0.036	0.034	0.102
GCP_DAS 9	CHK_DAS 9	-0.082	0.055	-0.053
GCP_DAS 12	CHK_DAS 12	-0.014	0.024	0.158
GCP_DAS 15	CHK_DAS 15	-0.032	-0.005	0.043
GCP_DAS 16	CHK_DAS 16	0.037	-0.059	0.044
GCP_DAS 17	CHK_DAS 17	-0.016	0.003	-0.139
GCP_DAS 19	CHK_DAS 19	0.013	0.023	-0.127
GCP_DAS 23	CHK_DAS 23	-0.009	0.035	-0.094
GCP_DAS 24	CHK_DAS 24	0.045	-0.011	-0.058
GCP_DAS 25	CHK_DAS 25	0.060	-0.046	-0.123
GCP_DAS 26	CHK_DAS 26	-0.016	0.025	-0.069
GCP_DAS 29	CHK_DAS 29	-0.035	0.023	0.041
GCP_DAS 30	CHK_DAS 30	-0.019	-0.008	-0.007
GCP_DAS 31	CHK_DAS 31	0.021	-0.036	-0.057
GCP_DAS 32	CHK_DAS 32	0.030	-0.148	0.146
GCP_DAS 33	CHK_DAS 33	-0.042	0.019	-0.055
GCP_DAS 34	CHK_DAS 34	0.039	-0.033	0.036
GCP_DAS 35	CHK_DAS 35	0.079	0.050	0.078
GCP_DAS 38	CHK_DAS 38	0.005	-0.005	-0.038
GCP_DAS 39	CHK_DAS 39	0.038	0.054	0.037
GCP_DG 2	CHK_DG 2	-0.002	-0.003	0.094
GCP_DG 4	CHK_DG 4	0.008	-0.013	-0.038
GCP_DG 5	CHK_DG 5	-0.079	-0.054	-0.064
GCP_DG 7	CHK_DG 7	0.037	0.006	-0.062
GCP_DG 9	CHK_DG 9	-0.006	-0.012	0.014
GCP_DG 12	CHK_DG 12	0.042	-0.006	0.011

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5. POINT COMPARISON REPORT (CONTINUED)

Point comparisons are shown in their respective Florida State Plane Coordinate System Zone, as defined in Section 3 (pages 10-24) of this report/ NAVD88 (U.S. Survey Feet)

Point ID	Check Point ID	Δ North	Δ East	Δ Vertical
GCP_DG 13	CHK_DG 13	0.023	-0.008	0.013
GCP_DG 16	CHK_DG 16	0.049	-0.044	0.110
GCP_DG 18	CHK_DG 18	-0.016	0.001	0.061
GCP_DG 21	CHK_DG 21	0.016	-0.021	-0.156
GCP_DG 23	CHK_DG 23	0.018	-0.012	-0.008
GCP_DG 24	CHK_DG 24	0.059	0.044	-0.087
GCP_DG 26	CHK_DG 26	-0.008	0.070	-0.015
GCP_DG 27	CHK_DG 27	-0.002	0.001	0.063
GCP_LEG 1	CHK_LEG 1	-0.029	-0.018	0.081
GCP_LEG 2	CHK_LEG 2	-0.035	-0.028	0.121
GCP_LEG 3	CHK_LEG 3	0.015	0.015	0.012
GCP_LEG 4	CHK_LEG 4	0.031	0.009	0.059
GCP_LEG 10	CHK_LEG 10	0.016	0.040	0.060
GCP_LEG 12	CHK_LEG 12	0.022	-0.019	-0.021
GCP_LEG 13	CHK_LEG 13	0.018	-0.057	0.092
GCP_LEG 14	CHK_LEG 14	0.014	-0.053	0.043
GCP_LEG 18	CHK_LEG 18	-0.027	0.017	-0.090
GCP_LEG 20	CHK_LEG 20	0.065	-0.078	0.022
GCP_LEG 21	CHK_LEG 21	-0.024	-0.012	0.148
GCP_LEG 24	CHK_LEG 24	-0.025	-0.002	-0.101
GCP_LEG 27	CHK_LEG 27	-0.025	-0.013	0.003
GCP_LEG 28	CHK_LEG 28	0.008	-0.030	0.029
GCP_LEG 34	CHK_LEG 34	-0.025	0.001	-0.007
GCP_LEG 35	CHK_LEG 35	0.004	-0.034	-0.071
GCP_LEG 36	CHK_LEG 36	0.003	-0.025	-0.019
GCP_LEG 37	CHK_LEG 37	0.000	-0.055	-0.054
GCP_LEG 40	CHK_LEG 40	0.000	0.045	-0.089
GCP_LEG 41	CHK_LEG 41	-0.038	0.003	0.062
GCP_LEG 42	CHK_LEG 42	0.015	-0.026	0.137
GCP_LEG 43	CHK_LEG 43	-0.019	-0.012	-0.045
GCP_LEG 44	CHK_LEG 44	0.041	0.004	-0.042
GCP_LEG 46	CHK_LEG 46	0.032	0.013	-0.053
GCP_QSI 1	CHK_QSI 1	0.019	0.004	-0.012
GCP_QSI 2	CHK_QSI 2	-0.005	0.003	0.038
GCP_QSI 3	CHK_QSI 3	0.045	0.092	-0.099

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5. POINT COMPARISON REPORT (CONTINUED)

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Point ID	Check Point ID	Δ North	Δ East	Δ Vertical
GCP_QSI 7	CHK_QSI 7	-0.067	0.015	-0.015
GCP_QSI 8	CHK_QSI 8	-0.015	0.122	-0.022
GCP_QSI 9	CHK_QSI 9	0.051	-0.060	0.072
GCP_QSI 10	CHK_QSI 10	-0.063	-0.113	-0.111
GCP_QSI 11	CHK_QSI 11	0.006	-0.053	0.083
GCP_QSI 12	CHK_QSI 12	-0.019	-0.028	0.008
GCP_QSI 13	CHK_QSI 13	-0.046	0.016	0.102
GCP_QSI 16	CHK_QSI 16	-0.036	0.049	-0.029
GCP_QSI 17	CHK_QSI 17	0.099	0.004	-0.001
GCP_QSI 18	CHK_QSI 18	-0.030	0.004	-0.108
GCP_QSI 19	CHK_QSI 19	0.048	-0.057	-0.078
GCP_QSI 20	CHK_QSI 20	-0.032	0.063	0.124
GCP_QSI 21	CHK_QSI 21	-0.054	0.030	0.015
GCP_QSI 25	CHK_QSI 25	0.040	0.002	0.003
GCP_QSI 26	CHK_QSI 26	-0.050	0.000	-0.003
GCP_QSI 27	CHK_QSI 27	0.044	0.050	0.061
GCP_QSI 28	CHK_QSI 28	-0.027	0.030	-0.002
GCP_QSI 32	CHK_QSI 32	-0.056	0.038	-0.005
GCP_QSI 33	CHK_QSI 33	0.045	0.005	-0.059
GCP_QSI 34	CHK_QSI 34	0.013	-0.011	0.077
GCP_QSI 35	CHK_QSI 35	-0.008	-0.011	-0.035
GCP_QSI 36	CHK_QSI 36	0.036	-0.010	-0.017
GCP_QSI 38	CHK_QSI 38	0.003	-0.059	-0.052
GCP_QSI 39	CHK_QSI 39	0.048	0.023	0.071
GCP_QSI 40	CHK_QSI 40	-0.023	0.001	-0.061
GCP_QSI 41	CHK_QSI 41	0.013	0.036	-0.055
GCP_QSI 42	CHK_QSI 42	0.016	-0.022	0.010
GCP_QSI 45	CHK_QSI 45	-0.062	-0.009	-0.019
GCP_QSI 46	CHK_QSI 46	0.027	-0.006	0.101
GCP_QSI 47	CHK_QSI 47	-0.002	-0.003	-0.053
GCP_QSI 48	CHK_QSI 48	0.001	0.003	-0.012
GCP_QSI 54	CHK_QSI 54	0.005	0.006	-0.021
GCP_QSI 56	CHK_QSI 56	-0.051	-0.011	-0.036
GCP_QSI 57	CHK_QSI 57	-0.068	0.011	0.033
GCP_QSI 59	CHK_QSI 59	-0.019	-0.056	-0.120

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5. POINT COMPARISON REPORT (CONTINUED)

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Point ID	Check Point ID	Δ North	Δ East	Δ Vertical
GCP_QSI 72	CHK_QSI 72	-0.060	0.020	-0.029
GCP_QSI 73	CHK_QSI 73	0.017	0.006	-0.103
GCP_QSI 74	CHK_QSI 74	0.011	0.037	-0.019
GCP_QSI 75	CHK_QSI 75	-0.006	0.088	-0.044
GCP_QSI 76	CHK_QSI 76	0.034	0.006	-0.062
GCP_QSI 77	CHK_QSI 77	0.008	0.020	0.100
GCP_QSI 80	CHK_QSI 80	0.013	0.052	-0.064
GCP_QSI 83	CHK_QSI 83	0.031	-0.013	-0.143
GCP_QSI 84	CHK_QSI 84	0.060	0.073	-0.046
GCP_QSI 85	CHK_QSI 85	0.069	-0.009	-0.119
GCP_QSI 86	CHK_QSI 86	-0.037	-0.021	0.047
GCP_QSI 88	CHK_QSI 88	-0.034	-0.009	0.000
GCP_QSI 89	CHK_QSI 89	-0.035	0.025	-0.060
GCP_QSI 90	CHK_QSI 90	0.040	-0.002	-0.097
GCP_QSI 91	CHK_QSI 91	0.028	0.003	0.040
GCP_QSI 95	CHK_QSI 95	0.102	0.084	-0.086
GCP_QSI 96	CHK_QSI 96	-0.029	0.023	-0.122
GCP_QSI 97	CHK_QSI 97	-0.052	-0.032	0.010
GCP_QSI 98	CHK_QSI 98	-0.017	0.047	0.087
GCP_QSI 99	CHK_QSI 99	-0.022	0.008	0.091
GCP_QSI 102	CHK_QSI 102	0.090	0.005	-0.083
GCP_QSI 103	CHK_QSI 103	0.021	-0.013	0.048
GCP_QSI 104	CHK_QSI 104	-0.012	-0.043	0.114
GCP_QSI 105	CHK_QSI 105	0.021	0.005	0.004
GCP_QSI 107	CHK_QSI 107	0.050	0.022	-0.102
GCP_QSI 109	CHK_QSI 109	0.022	-0.031	0.059
GCP_QSI 111	CHK_QSI 111	-0.076	0.000	0.062
GCP_QSI 115	CHK_QSI 115	0.025	0.005	-0.070
GCP_QSI 117	CHK_QSI 117	0.006	0.046	-0.114
GCP_QSI 119	CHK_QSI 119	0.013	-0.009	0.092
GCP_QSI 120	CHK_QSI 120	0.020	-0.020	0.053
GCP_QSI 122	CHK_QSI 122	-0.011	-0.023	0.101
GCP_QSI 123	CHK_QSI 123	0.033	-0.006	0.021
GCP_QSI 124	CHK_QSI 124	0.097	0.090	-0.123
GCP_QSI 126	CHK_QSI 126	-0.008	-0.016	-0.026

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5. POINT COMPARISON REPORT (CONTINUED)

Point comparisons are shown in their respective Florida State Plane Coordinate System Zone, as defined in Section 3 (pages 10-24) of this report/ NAVD88 (U.S. Survey Feet)

Point ID	Check Point ID	Δ North	Δ East	Δ Vertical
GCP_QSI 127	CHK_QSI 127	0.037	-0.004	0.121
GCP_QSI 131	CHK_QSI 131	-0.048	-0.016	-0.050
GCP_QSI 133	CHK_QSI 133	-0.044	-0.037	0.025
GCP_QSI 134	CHK_QSI 134	0.002	0.009	0.147
GCP_QSI 135	CHK_QSI 135	0.025	0.018	-0.003
GCP_QSI 137	CHK_QSI 137	-0.002	-0.073	0.070
GCP_QSI 140	CHK_QSI 140	-0.015	-0.021	-0.107
GCP_QSI 142	CHK_QSI 142	-0.014	-0.005	-0.112
GCP_QSI 144	CHK_QSI 144	0.072	-0.019	-0.010
GCP_QSI 146	CHK_QSI 146	-0.043	0.050	-0.123
GCP_QSI 147	CHK_QSI 147	0.005	-0.017	0.138
GCP_QSI 148	CHK_QSI 148	0.007	-0.008	0.072
GCP_QSI 150	CHK_QSI 150	-0.022	0.025	0.005
GCP_QSI 153	CHK_QSI 153	-0.008	0.001	-0.088
GCP_QSI 155	CHK_QSI 155	0.055	0.010	0.097
GCP_QSI 157	CHK_QSI 157	-0.048	0.041	-0.073
OL 2	CHK_OL 2	0.000	0.027	0.139
OL 4	CHK_OL 4	-0.030	-0.021	0.156
OL 5	CHK_OL 5	-0.037	0.018	-0.088
OL 6	CHK_OL 6	0.040	0.026	0.037
OL 8	CHK_OL 8	0.016	-0.023	0.073
OL 12	CHK_OL 12	-0.061	-0.022	0.086
OL 13	CHK_OL 13	-0.005	0.029	-0.049
OL 14	CHK_OL 14	0.003	-0.010	0.100
OL 17	CHK_OL 17	-0.012	-0.007	-0.102
OL 24	CHK_OL 24	0.024	0.034	-0.075
OL 25	CHK_OL 25	0.015	0.030	-0.010
OL 26	CHK_OL 26	-0.010	-0.041	0.059
OL 27	CHK_OL 27	0.010	-0.027	0.066
OL 28	CHK_OL 28	0.014	0.029	-0.076
OL 29	CHK_OL 29	-0.032	0.057	0.036
OL 32	CHK_OL 32	-0.023	0.044	0.082
OL 33	CHK_OL 33	0.037	0.038	-0.102

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5. POINT COMPARISON REPORT (CONTINUED)

Point comparisons are shown in their respective Florida State Plane Coordinate System Zone, as defined in Section 3 (pages 10-24) of this report/ NAVD88 (U.S. Survey Feet)

Point ID	Check Point ID	Δ North	Δ East	Δ Vertical
PA 4	CHK_PA_4	-0.01	0.06	-0.06
PA 5	CHK_PA_5	-0.003	0.101	-0.128
PA 8	CHK_PA_8	0.034	0.024	-0.020
PA 9	CHK_PA_9	-0.072	0.042	0.067
PA 11	CHK_PA_11	-0.048	0.004	-0.087
PA 12	CHK_PA_12	0.038	0.008	-0.077
PA 13	CHK_PA_13	-0.018	0.014	-0.150
PA 14	CHK_PA_14	0.024	0.039	-0.126
PA 15	CHK_PA_15	0.068	-0.045	0.085
PA 16	CHK_PA_16	0.012	0.127	0.156
PA 19	CHK_PA_19	0.064	0.013	0.021
PA 20	CHK_PA_20	0.077	-0.055	0.049
PA 21	CHK_PA_21	-0.001	0.047	-0.003
PA 22	CHK_PA_22	0.014	-0.063	-0.031
PA 23	CHK_PA_23	-0.055	0.132	-0.089
PA 24	CHK_PA_24	0.020	-0.016	-0.026
PA 27	CHK_PA_27	0.034	0.029	0.154
PA 28	CHK_PA_28	-0.054	0.033	0.094
PA 30	CHK_PA_30	-0.080	-0.073	-0.028
PA 33	CHK_PA_33	-0.009	0.014	-0.003
PA 34	CHK_PA_34	-0.012	-0.031	-0.163
PA 35	CHK_PA_35	-0.046	0.057	-0.091
PA 36	CHK_PA_36	0.016	-0.022	-0.106
PA 43	CHK_PA_43	-0.034	-0.045	0.094
PA 47	CHK_PA_47	0.027	-0.056	-0.137
PA 48	CHK_PA_48	-0.021	0.001	0.073
PA 50	CHK_PA_50	-0.037	0.067	0.100
PA 55	CHK_PA_55	-0.016	-0.004	-0.163
PA 56	CHK_PA_56	0.031	0.002	-0.026
PA 60	CHK_PA_60	-0.071	0.107	-0.093
PA 61	CHK_PA_61	-0.005	-0.031	-0.033
PA 62	CHK_PA_62	0.018	-0.028	0.022
KB-1	CHK-KB-1	0.01	-0.033	0.001
KB-2	CHK-KB-2	0.008	-0.018	-0.057
KB-3	CHK-KB-3	-0.023	-0.012	-0.104

COMPANY CONFIDENTIAL AND PROPRIETARY: Use or disclosure of data contained on this sheet is subject to restriction on the title page of this proposal.

6. SURVEY NOTES

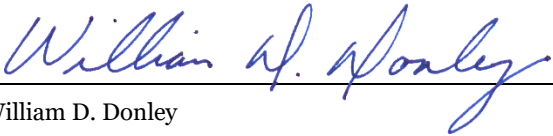
- 1) Coordinates shown hereon are based on the Florida State Plane Coordinate System, East Zone, North Zone and West Zone, North American Datum of 1983 (2011 Adjustment) in U.S. Survey feet.
- 2) Elevations shown hereon are based on the North American Vertical Datum of 1988, in U.S. Survey feet.
- 3) The purpose of this survey was to establish ground control points across the peninsular Florida to be used for LiDAR calibration.

7. GLOSSARY/LEGEND

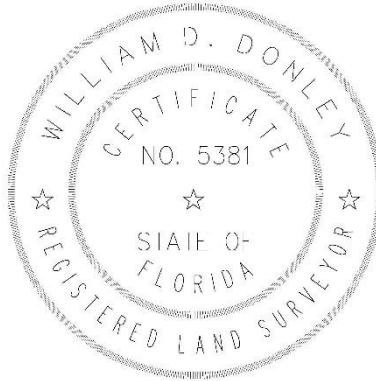
CHK	Check
ELEV	Elevation
FPRN	Florida Permanent Reference Network
ft	feet
GCP	Ground Control Point
GPS	Global Positioning System
ID	Identification
LiDAR	Light Detection and Ranging
LS	Land Surveyor
m	Meter
NAD	North American Datum
NAVD	North American Vertical Datum
NGS	National Geodetic Survey
QA/QC	Quality Assurance/Quality Control
RTK	Real Time Kinematic
RTN	Real-Time Network
SPC	State Plane Coordinate
USGS	United States Geological Survey
VRS	Virtual Reference System

8. SURVEYOR'S CERTIFICATION

I hereby certify this survey report meets the applicable "Standards of Practice" as set forth by the Florida Board of Professional Surveyors and Mappers in rule 5J17.050-.052, Florida Administrative Code.



William D. Donley
Florida Licensed Surveyor & Mapper No. LS 5381



01-8-2020

Date

This Survey is not valid without the signature and original raised seal of a Florida Licensed Surveyor and Mapper.

Certificate of Authorization No. LB8011