



USGS – AK DELTA JUNCTION  
LIDAR MAPPING PROJECT  
GROUND CONTROL SURVEY REPORT

JOB NO. 65221002  
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# USGS – AK DELTA JUNCTION GROUND CONTROL SURVEY REPORT

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## I. INTRODUCTION

This report summarizes the results of a ground control survey for aerial photography and LIDAR mapping in and around Delta Junction, Alaska, including portions of Fairbanks North Star and Southeast Fairbanks Boroughs. This project will support the Natural Resource Conservation Service (NRCS) and the 3DEP mission. The project consists of approximately 1261 square miles.

The base station and ground control field observations were done by Merrick & Company. The survey was started September 7, 2021 and completed September 13, 2021. There were 141 total ground control points surveyed to verify the LIDAR data – 31 calibration points, 61 check points in non-vegetated areas, and 49 check points in vegetated areas.

## II. HORIZONTAL AND VERTICAL CONTROL

The project coordinate system is UTM 6 North Zone based on NAD-83, adjustment of 2011. The geodetic network was tied to existing NGS stations in the mapping area. The vertical control is based on NAVD-88 elevations derived from the ellipsoid height using geoid 12B, published by NGS.

The following existing NGS control points were used as primary control in this survey.

<b>NGS Primary Horizontal Control</b>		
<b>PT# (NGS NAME)</b>	<b>RECORD POSITION NAD-83 (2011)</b>	
	<b>LATITUDE</b>	<b>LONGITUDE</b>
AC71 (CORS)	64°02'57.49879"N	145°42'48.94446"W
FAIR (CORS)	64°58'40.79584"N	147°29'57.16002"W
AC62 (CORS)	63°05'00.98305"N	146°18'45.61100"W
ALRICH 2	63°59'01.32101"N	145°33'07.15887"W

Control point AC71 was held fixed horizontal and ellipsoid height control.

<b>NGS Primary Control Horizontal NAD-83 (2011) Comparisons: Record Versus Measured</b>		
<b>PT# (NGS NAME)</b>	<b>NORTH (Meters)</b>	<b>EAST (Meters)</b>
AC71	FIXED	FIXED
FAIR	-0.049	+0.002
AC62	+0.099	+0.046
ALRICH 2	-0.390	+0.295

<b>NGS Primary Vertical Control</b>		
<b>Comparisons: Record Versus Measured</b>		
<b>PT# (NGS NAME)</b>	<b>RECORD</b>	<b>MEASURED</b>
	<b>ELLIPSOID (meters)</b>	<b>DIFFERENCE (meters)</b>
AC71	363.617	FIXED
FAIR	318.657	-0.069
AC62	1346.707	+0.046
ALRICH RM 2	404.326 (ORTHO HEIGHT)	+0.081
ALRICH AZ MK	394.436 (ORTHO HEIGHT)	+0.245
D 14	407.682 (ORTHO HEIGHT)	+0.342

### III. JOB SUMMARY AND EQUIPMENT

The coordinate system is the Universal Transverse Mercator system and the units are in meters. The system parameters are:

PROJECTION: TRANSVERSE MERCATOR  
 ZONE: 6 NORTH  
 LONGITUDE OF ORIGIN = W 147° 00' 00.000000"  
 LATITUDE OF ORIGIN = N 00° 00' 00.000000"  
 FALSE NORTHING =0.000 meters  
 FALSE EASTING =500000.000 meters

The 3 base stations were processed from CORS station AC71 and checked into other CORS and found NGS monuments with a minimally constrained method. The data was analyzed to check how well the points fit together. A network adjustment was done to tighten up the values for the points.

The 141 check points were tied using PPK methods with 2 base stations to ensure loop closures. The loop closures on the check points are within a maximum closure of 0.050 meters horizontal and 0.050 meters vertical. The data was collected using 2 Trimble R10 receivers and 1 Trimble R10-2 receiver. The data was post-processed using Trimble Business Center version 5.30.

<b>CONTROL AND CHECKS</b>									
Point ID	Latitude (Global)	Longitude (Global)	Ellipsoid Height (Global)	Northing (meters)	Easting (meters)	Elevation (meters)	Feature Code	NOTES	
<b>AC71</b>	<b>64°02'57.49879"N</b>	<b>145°42'48.94446"W</b>	<b>363.617</b>	7103142.41	562806.675	352.643	CORS	<b>HELD GLOBAL VALUES FIXED</b>	
1	64°01'29.79059"N	145°40'55.91982"W	374.123	7100459.285	564395.499	363.081	MS60D	Delta Junction Base Station	
2	63°52'38.92613"N	145°09'13.75599"W	383.905	7084673.44	590686.194	372.469	MS60D	South Base Station	
3	64°15'24.54100"N	146°09'17.65094"W	289.915	7125904.556	540954.796	279.318	MS60D	North Base Station	
7	63°45'41.11958"N	144°41'49.72377"W	425.485	7072476.904	613578.379	413.974	MFAC, GEORGE	NOT NGS	
10	63°59'01.83472"N	145°32'40.76157"W	405.854	7096026.668	571220.422	394.681	MFBC, ALRICH AZ MK	Elev Check = +0.245	
11	63°59'01.30821"N	145°33'07.13778"W	414.852	7096002.209	570862.29	403.678	MFBC, ALRICH 2	Hor Check = -0.390 N, +0.295 E	
12	63°59'01.57524"N	145°33'07.57281"W	415.58	7096010.339	570856.19	404.407	MFBC, ALRICH RM 2	Elev Check = +0.081	
13	63°51'02.03752"N	145°03'02.84927"W	419.491	7081826.034	595837.548	408.024	MFBC, D 14	Elev Check = +0.342	
AC62	63°05'00.98629"N	146°18'45.62256"W	1346.753	6995090.219	534714.776	1331.552	CORS	Check +0.099 N, -0.165 E, +0.046 Ellip.	
FAIR	64°58'40.79439"N	147°29'57.15983"W	318.59	7206095.562	476439.704	309.113	CORS	Check -0.049 N, +0.002 E, -0.069 Ellip.	

CHECKPOINTS										
Point ID	Latitude (Global)	Longitude (Global)	Ellipsoid Height (G	Northing (meters)	Easting (meters)	Elevation (meters)	Feature Code	NOTES		
715	64°01'08.83622"N	145°09'29.24434"W	345.878	7100445.734	590019.057	334.912	NVA	Day 250		
719	63°57'27.29769"N	145°05'12.24733"W	355.928	7093693.488	593713.059	344.83	NVA	Day 250		
740	63°50'07.87727"N	144°59'24.61609"W	430.236	7080242.699	598870.142	418.77	NVA	Day 250		
743	63°55'26.92327"N	145°09'03.18088"W	355.441	7089875.994	590679.744	344.197	NVA	Day 250		
749	63°55'27.22658"N	145°19'28.66211"W	385.813	7089649.962	582160.707	374.483	NVA	Day 250		
766	63°58'59.14135"N	145°32'10.47293"W	397.829	7095952.742	571634.015	386.655	NVA	Day 250		
776	63°52'55.56611"N	145°01'40.66969"W	385.076	7085373.288	596851.069	373.764	NVA	Day 250		
810	63°55'02.02555"N	145°18'02.21753"W	384.654	7088901.274	583358.852	373.305	VVA	Day 250		
815	64°01'50.52045"N	145°09'34.89865"W	343.777	7101733.385	589905.053	332.826	VVA	Day 250		
834	63°53'11.55917"N	145°01'01.81160"W	379.57	7085884.571	597365.669	368.284	VVA	Day 250		
837	63°50'06.31408"N	144°59'18.78624"W	429.305	7080196.842	598951.31	417.84	VVA	Day 250		
853	63°55'26.29463"N	145°08'59.42790"W	355.073	7089858.024	590731.421	343.829	VVA	Day 250		
905	63°58'03.88349"N	145°29'05.95482"W	389.991	7094301.29	574182.645	378.778	CAL	Day 250		
912	64°01'56.26788"N	145°09'34.26023"W	344.082	7101911.483	589908.577	333.133	CAL	Day 250		
913	63°57'24.87434"N	145°05'13.27389"W	355.89	7093618.083	593701.345	344.791	CAL	Day 250		
918	63°55'25.84631"N	145°09'01.28072"W	355.394	7089843.419	590706.589	344.149	CAL	Day 250		
936	63°55'02.65675"N	145°18'01.51668"W	385.532	7088921.061	583367.88	374.185	CAL	Day 250		
709	63°41'34.93708"N	144°36'06.41448"W	426.174	7065034.142	618566.154	414.337	NVA	Day 251		
711	64°00'40.54469"N	145°00'45.77227"W	353.034	7099783.837	597151.32	342.085	NVA	Day 251		
718	63°52'39.85461"N	145°09'15.25438"W	384.566	7084701.579	590664.922	373.13	NVA	Day 251		
734	63°47'30.51190"N	144°48'42.97674"W	415.495	7075662.311	607802.451	404.028	NVA	Day 251		
739	63°55'27.32600"N	144°55'48.12178"W	367.609	7090221.201	601506.964	356.516	NVA	Day 251		
747	63°43'32.95318"N	144°39'53.70669"W	463.554	7068569.561	615312.305	451.855	NVA	Day 251		
754	63°59'30.38263"N	145°00'22.56467"W	356.146	7097622.725	597534.317	345.172	NVA	Day 251		
755	63°41'13.11017"N	144°27'50.80407"W	422.529	7064621.729	625396.616	410.862	NVA	Day 251		
757	63°41'30.91621"N	144°22'14.19649"W	426.172	7065359.376	629995.573	414.661	NVA	Day 251		
758	63°41'37.40199"N	144°21'16.90758"W	459.656	7065592.469	630773.685	448.174	NVA	Day 251		
775	63°42'44.50092"N	144°39'12.16245"W	454.311	7067091.497	615937.066	442.534	NVA	Day 251		
818	63°41'34.10052"N	144°36'04.93912"W	424.789	7065009.023	618587.38	412.95	VVA	Day 251		
820	63°43'32.35949"N	144°39'53.68534"W	462.766	7068551.205	615313.27	451.066	VVA	Day 251		
826	63°52'39.66970"N	145°09'11.65916"W	384.308	7084697.276	590714.133	372.873	VVA	Day 251		
827	64°00'40.74774"N	145°00'46.81104"W	352.616	7099789.68	597137.022	341.668	VVA	Day 251		
843	63°47'30.01129"N	144°48'42.15826"W	414.614	7075647.206	607814.18	403.145	VVA	Day 251		
847	63°45'41.58180"N	144°41'48.57663"W	424.575	7072491.77	613593.574	413.064	VVA	Day 251		
848	63°55'27.61936"N	144°55'49.41248"W	366.989	7090229.707	601489.092	355.897	VVA	Day 251		
849	63°41'37.65007"N	144°21'17.96950"W	459.031	7065599.538	630758.791	447.549	VVA	Day 251		
852	63°41'12.33639"N	144°27'52.74824"W	422.819	7064596.733	625370.872	411.149	VVA	Day 251		
904	64°00'42.38360"N	145°00'45.39950"W	352.691	7099840.895	597154.606	341.744	CAL	Day 251		
908	63°55'29.29918"N	144°55'49.33422"W	367.899	7090281.717	601488.471	356.808	CAL	Day 251		
921	63°41'35.31463"N	144°36'10.53169"W	426.21	7065043.701	618509.194	414.372	CAL	Day 251		
930	63°50'25.48738"N	145°00'33.58936"W	428.404	7080758.044	597910.87	416.94	CAL	Day 251		
931	63°47'29.61961"N	144°48'36.68399"W	415.482	7075637.657	607889.493	404.015	CAL	Day 251		
935	63°44'41.29916"N	144°41'19.03992"W	460.759	7070641.417	614065.612	449.157	CAL	Day 251		
939	63°41'38.73288"N	144°21'13.79964"W	457.828	7065635.403	630814.64	446.349	CAL	Day 251		
701	64°21'49.74084"N	146°48'49.90460"W	358.483	7137569.461	508985.822	348.061	NVA	Day 252		

705	64°19'27.26094"N	146°44'03.28712"W	272.993	7133172.688	512847.72	262.535	NVA	Day 252				
708	64°22'22.12609"N	146°52'54.31888"W	234.737	7138564.1	505706.422	224.357	NVA	Day 252				
720	64°20'23.43218"N	146°51'51.75234"W	234.61	7134891.604	506552.991	224.193	NVA	Day 252				
722	64°17'19.00837"N	146°28'46.00865"W	276.088	7129278.93	525198.218	265.532	NVA	Day 252				
726	64°18'50.11349"N	146°38'41.89659"W	256.524	7132043.879	517170.073	246.039	NVA	Day 252				
744	64°18'04.81213"N	146°30'59.78788"W	397.597	7130682.546	523388.634	387.049	NVA	Day 252				
748	64°18'12.66766"N	146°33'01.73993"W	551.113	7130913.684	521747.889	540.572	NVA	Day 252				
765	64°21'44.48841"N	146°52'21.43550"W	236.626	7137399.875	506149.572	226.234	NVA	Day 252				
774	64°18'37.92551"N	146°31'42.04799"W	348.775	7131703.278	522813.059	338.227	NVA	Day 252				
801	64°21'47.54281"N	146°52'24.82936"W	235.977	7137494.333	506103.87	225.587	VVA	Day 252				
806	64°19'27.82768"N	146°44'02.62966"W	271.783	7133190.269	512856.476	261.326	VVA	Day 252				
819	64°17'18.40511"N	146°28'43.22520"W	274.902	7129260.564	525235.798	264.346	VVA	Day 252				
835	64°21'48.93159"N	146°48'50.28517"W	358.138	7137544.396	508980.792	347.716	VVA	Day 252				
839	64°20'26.17733"N	146°51'55.37110"W	233.487	7134976.477	506504.242	223.071	VVA	Day 252				
840	64°18'09.91746"N	146°33'00.44861"W	555.706	7130828.676	521765.845	545.165	VVA	Day 252				
842	64°18'40.19370"N	146°31'48.55609"W	349.256	7131772.841	522725.1	338.709	VVA	Day 252				
903	64°19'52.51464"N	146°46'15.51528"W	314.071	7133947.501	511069.215	303.618	CAL	Day 252				
920	64°18'10.99104"N	146°33'02.46765"W	553.676	7130861.716	521738.476	543.136	CAL	Day 252				
938	64°21'47.39001"N	146°52'23.51855"W	237.489	7137489.639	506121.458	227.098	CAL	Day 252				
808	64°22'21.48864"N	146°52'51.21259"W	232.975	7138544.446	505748.1	222.594	VVA	Day 252				
906	64°22'18.81094"N	146°52'52.71624"W	235.099	7138461.519	505728.098	224.718	CAL	Day 252				
832	64°18'52.23929"N	146°38'45.78598"W	256.152	7132109.391	517117.457	245.668	VVA	Day 252				
703	64°15'59.90286"N	146°12'01.45907"W	308.479	7126970.596	538736.012	297.873	NVA	Day 253				
710	64°16'16.90839"N	146°06'52.31840"W	308.776	7127552.065	542888.538	298.192	NVA	Day 253				
713	64°12'52.27484"N	145°57'43.83356"W	302.846	7121329.948	550370.978	292.257	NVA	Day 253				
717	64°17'23.59422"N	146°26'24.71340"W	268.608	7129437.019	527096.828	258.045	NVA	Day 253				
727	64°14'08.42560"N	146°02'16.09130"W	294.994	7123629.263	546664.976	284.416	NVA	Day 253				
728	64°15'44.81440"N	146°05'34.86532"W	290.112	7126573.368	543944.741	279.535	NVA	Day 253				
735	64°16'49.66409"N	146°18'45.59291"W	311.103	7128447.301	533281.184	300.507	NVA	Day 253				
751	64°17'20.69953"N	146°21'00.88420"W	282.754	7129388.828	531451.728	272.171	NVA	Day 253				
767	64°11'52.68355"N	145°49'36.69133"W	304.474	7119599.679	556972.096	293.849	NVA	Day 253				
773	64°12'12.47943"N	145°45'06.56513"W	396.261	7120281.683	560603.711	385.642	NVA	Day 253				
777	64°15'30.90582"N	146°07'35.19350"W	287.806	7126120.196	542331.262	277.217	NVA	Day 253				
778	64°16'57.86086"N	146°07'39.58976"W	313.846	7128810.857	542235.17	303.259	NVA	Day 253				
803	64°16'24.91606"N	146°13'54.12509"W	325.423	7127726.141	537210.59	314.813	VVA	Day 253				
811	64°15'30.53806"N	146°07'26.46213"W	288.816	7126110.43	542448.944	278.227	VVA	Day 253				
813	64°12'53.48432"N	145°57'38.66923"W	302.314	7121368.519	550439.987	291.726	VVA	Day 253				
822	64°16'48.53142"N	146°18'50.36141"W	308.24	7128411.548	533217.427	297.644	VVA	Day 253				
824	64°16'16.21335"N	146°06'51.28911"W	308.17	7127530.745	542902.686	297.586	VVA	Day 253				
825	64°17'23.70461"N	146°26'28.15028"W	267.619	7129440.029	527050.588	257.056	VVA	Day 253				
836	64°15'45.37771"N	146°05'37.55918"W	288.945	7126590.287	543908.238	278.368	VVA	Day 253				
838	64°16'53.26511"N	146°07'32.10022"W	307.758	7128669.99	542337.848	297.171	VVA	Day 253				
841	64°11'54.80611"N	145°49'34.87470"W	300.877	7119665.825	556995.388	290.253	VVA	Day 253				
845	64°14'08.74679"N	146°02'14.69622"W	294.319	7123639.488	546683.618	283.742	VVA	Day 253				
854	64°12'11.56429"N	145°45'14.02265"W	396.083	7120251.388	560503.695	385.464	VVA	Day 253				
902	64°16'25.47534"N	146°13'54.50416"W	326.326	7127743.391	537205.281	315.716	CAL	Day 253				
910	64°12'53.46379"N	145°57'31.46238"W	302.685	7121369.472	550537.153	292.096	CAL	Day 253				

914	64°18'36.08817"N	146°31'36.47292"W	352.034	7131646.961	522888.385	341.486	CAL	Day 253				
915	64°12'10.74023"N	145°45'16.27717"W	397.189	7120225.289	560473.79	386.57	CAL	Day 253				
916	64°16'57.31534"N	146°07'40.46729"W	313.675	7128793.81	542223.601	303.087	CAL	Day 253				
932	64°16'48.84673"N	146°18'52.14350"W	307.417	7128421.05	533193.353	296.821	CAL	Day 253				
933	64°17'24.43808"N	146°22'56.44488"W	319.261	7129489.065	529896.815	308.684	CAL	Day 253				
937	64°15'47.83679"N	146°05'34.09521"W	290.254	7126667.066	543953.771	279.677	CAL	Day 253				
723	64°08'06.43045"N	145°44'54.53532"W	331.033	7112669.731	560915.686	320.284	NVA	Day 254				
730	64°09'07.64223"N	145°46'53.64537"W	323.514	7114532.988	559269.163	312.798	NVA	Day 254				
738	64°08'04.38019"N	145°41'01.42171"W	326.425	7112669.832	564068.452	315.693	NVA	Day 254				
742	64°04'13.84142"N	145°42'54.40113"W	354.498	7105503.645	562685.024	343.587	NVA	Day 254				
745	64°06'56.49975"N	145°46'53.34775"W	335.074	7110474.234	559350.867	324.267	NVA	Day 254				
760	64°13'01.45672"N	145°43'20.85917"W	406.957	7121825.807	561998.803	396.349	NVA	Day 254				
768	64°13'13.47057"N	145°41'09.64408"W	389.551	7122233.652	563759.78	378.945	NVA	Day 254				
770	64°08'24.45214"N	145°49'38.99439"W	319.027	7113154.293	557059.756	308.275	NVA	Day 254				
771	64°03'20.45413"N	145°38'20.44587"W	370.019	7103928.49	566432.482	359.072	NVA	Day 254				
772	64°05'54.33283"N	145°39'04.05989"W	330.482	7108678.241	565740.339	319.667	NVA	Day 254				
817	64°04'13.03512"N	145°42'45.19317"W	353.09	7105481.21	562810.299	342.178	VVA	Day 254				
823	64°09'50.48955"N	145°46'55.03965"W	318.959	7115858.747	559224.948	308.269	VVA	Day 254				
828	64°08'04.02985"N	145°40'56.88982"W	325.278	7112660.257	564129.944	314.546	VVA	Day 254				
844	64°17'11.98725"N	146°20'35.94667"W	283.97	7129122.596	531789.814	273.385	VVA	Day 254				
857	64°08'23.19395"N	145°49'37.92289"W	319.264	7113115.619	557074.957	308.511	VVA	Day 254				
858	64°06'56.60915"N	145°46'51.49263"W	334.131	7110478.1	559375.899	323.325	VVA	Day 254				
859	64°05'53.35711"N	145°39'02.92215"W	329.764	7108648.37	565756.38	318.949	VVA	Day 254				
888	64°13'01.40499"N	145°43'20.07496"W	406.348	7121824.419	562009.405	395.741	VVA	Day 254				
889	64°03'19.94769"N	145°38'24.62448"W	371.044	7103911.607	566376.166	360.096	VVA	Day 254				
892	64°13'15.66567"N	145°41'08.35431"W	391.924	7122301.948	563775.759	381.318	VVA	Day 254				
919	64°07'02.80622"N	145°40'02.64832"W	329.354	7110780.715	564902.902	318.585	CAL	Day 254				
922	64°13'15.83839"N	145°41'07.14444"W	390.87	7122307.631	563791.954	380.264	CAL	Day 254				
927	64°08'24.40510"N	145°49'41.83508"W	319.031	7113152.13	557021.386	308.278	CAL	Day 254				
928	64°13'03.24429"N	145°42'32.88702"W	414.349	7121894.184	562644.302	403.741	CAL	Day 254				
929	64°04'12.73426"N	145°42'54.42274"W	354.869	7105469.374	562685.422	343.957	CAL	Day 254				
741	64°10'03.18313"N	145°52'16.29235"W	328.078	7116171.635	554879.381	317.386	NVA	Day 255				
724	64°11'29.94222"N	145°53'53.63830"W	312.634	7118833.861	553518.363	301.998	NVA	Day 255				
851	64°10'03.05478"N	145°52'19.94652"W	324.435	7116166.788	554830.106	313.743	VVA	Day 255				
704	63°58'03.41839"N	145°25'15.32105"W	380.554	7094363.011	577319.465	369.357	NVA	Day 255				
706	64°00'44.59133"N	145°31'01.11174"W	366.008	7099237.91	572500.848	354.931	NVA	Day 255				
707	63°57'23.24212"N	145°17'42.64021"W	364.588	7093278.319	583508.72	353.402	NVA	Day 255				
714	64°03'21.23136"N	145°28'15.91454"W	333.854	7104138.44	574627.54	322.922	NVA	Day 255				
725	64°02'29.12005"N	145°34'04.40763"W	355.412	7102415.91	569939.352	344.426	NVA	Day 255				
729	63°59'52.87528"N	145°24'15.38667"W	360.213	7097770.569	578049.727	349.116	NVA	Day 255				
731	64°01'47.99283"N	145°43'48.31948"W	370.021	7100975.116	562044.384	358.991	NVA	Day 255				
753	63°45'43.13545"N	144°41'50.41384"W	425.857	7072538.928	613566.678	414.349	NVA	Day 255				
759	63°52'07.41409"N	145°12'10.87051"W	387.313	7083629.348	588297.473	375.788	NVA	Day 255				
804	63°58'06.44419"N	145°25'16.63244"W	380.494	7094456.207	577299.312	369.3	VVA	Day 255				
807	63°57'25.11100"N	145°17'47.98811"W	364.309	7093334.207	583434.421	353.123	VVA	Day 255				
814	64°03'20.27526"N	145°28'18.32612"W	332.974	7104108.067	574595.557	322.041	VVA	Day 255				
829	64°01'44.57943"N	145°43'43.73578"W	371.941	7100870.715	562108.692	360.908	VVA	Day 255				

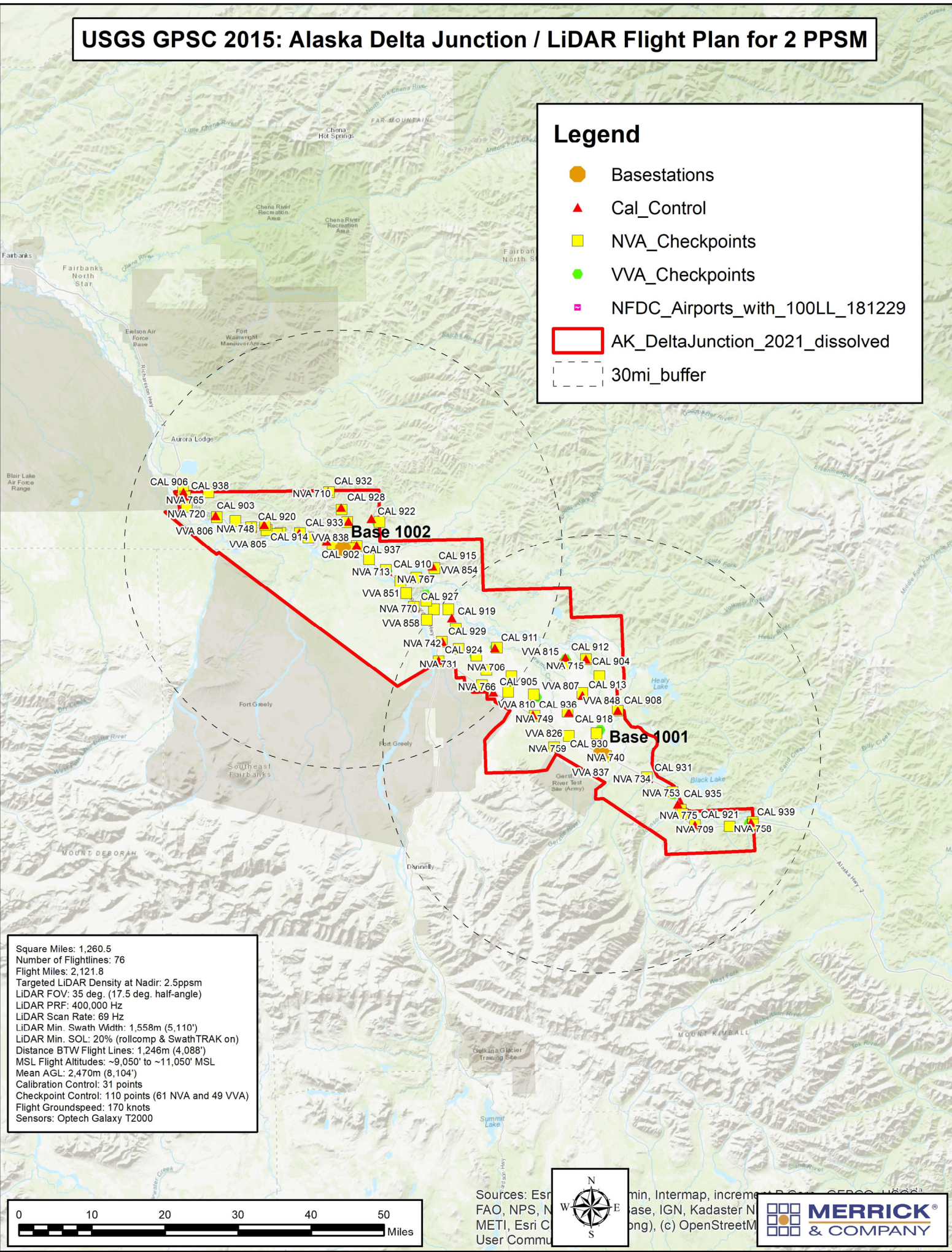


831	63°52'08.04705"N	145°12'10.80922"W	387.655	7083648.958	588297.757	376.13	VVA	Day 255				
860	64°02'29.29241"N	145°34'00.60010"W	353.965	7102422.405	569990.878	342.98	VVA	Day 255				
890	63°52'35.10654"N	145°11'27.51757"W	383.992	7084502.97	588864.78	372.519	VVA	Day 255				
891	63°57'32.53977"N	145°18'04.51338"W	363.902	7093558.092	583203.487	352.721	VVA	Day 255				
924	64°02'01.19980"N	145°43'49.83206"W	367.144	7101383.449	562015.714	356.124	CAL	Day 255				
911	64°03'21.21430"N	145°28'30.12325"W	332.996	7104133.295	574434.931	322.064	CAL	Day 256				
741	64°10'03.18313"N	145°52'16.29235"W	328.078	7116171.635	554879.381	317.386	NVA	Day 254				
724	64°11'29.94222"N	145°53'53.63830"W	312.634	7118833.861	553518.363	301.998	NVA	Day 254				
851	64°10'03.05478"N	145°52'19.94652"W	324.435	7116166.788	554830.106	313.743	VVA	Day 254				

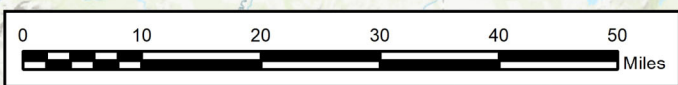
# USGS GPSC 2015: Alaska Delta Junction / LiDAR Flight Plan for 2 PPSM

### Legend

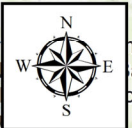
- Basestations
- ▲ Cal\_Control
- NVA\_Checkpoints
- VVA\_Checkpoints
- NFDC\_Airports\_with\_100LL\_181229
- AK\_DeltaJunction\_2021\_dissolved
- 30mi\_buffer



Square Miles: 1,260.5  
 Number of Flightlines: 76  
 Flight Miles: 2,121.8  
 Targeted LiDAR Density at Nadir: 2.5ppsm  
 LiDAR FOV: 35 deg. (17.5 deg. half-angle)  
 LiDAR PRF: 400,000 Hz  
 LiDAR Scan Rate: 69 Hz  
 LiDAR Min. Swath Width: 1,558m (5,110')  
 LiDAR Min. SOL: 20% (rollcomp & SwathTRAK on)  
 Distance BTW Flight Lines: 1,246m (4,088')  
 MSL Flight Altitudes: ~9,050' to ~11,050' MSL  
 Mean AGL: 2,470m (8,104')  
 Calibration Control: 31 points  
 Checkpoint Control: 110 points (61 NVA and 49 VVA)  
 Flight Groundspeed: 170 knots  
 Sensors: Optech Galaxy T2000



Sources: Esri, NOAA, NPS, NAD 83, Intermap, increment P, CGPS, USGS  
 FAO, NPS, NAD 83, Intermap, increment P, CGPS, USGS  
 METI, Esri Company, IGN, Kadaster Nederland, (b), (c) OpenStreetMap  
 User Community



- [Summary](#)

Project File Data		Coordinate System	
Name:	C:\PROJECTS\GWV Lidar\65221002 - USGS-AK Delta Junction\TBC\CONTROL.vce	Name:	World wide/UTM
Size:	148 KB	Datum:	NAD 1983 (Alaska)
Modified:	9/30/2021 2:11:46 PM (UTC:-8)	Zone:	6 North
Time zone:	Alaskan Standard Time	Geoid:	GEOID12B (Alaska)
Reference number:		Vertical datum:	
Description:		Calibrated site:	
Comment 1:			
Comment 2:			
Comment 3:			

### GNSS Loop Closure Results

#### Summary

Legs in loop: 3  
 Number of Loops: 90  
 Number Passed: 90  
 Number Failed: 0

	Length (Meter)	A3D (Meter)	ΔHoriz (Meter)	ΔVert (Meter)	PPM
Pass/Fail Criteria			0.050	0.051	
Best		0.001	0.001	0.000	0.003
Worst		0.054	0.044	-0.050	0.811
Average Loop	244141.657	0.021	0.012	0.015	0.200
Standard Error	151961.990	0.024	0.015	0.019	0.244

Date: 9/30/2021 2:14:40 PM	Project: C:\PROJECTS\GWV Lidar\65221002 - USGS-AK Delta Junction\TBC\CONTROL.vce	Trimble Business Center
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- [Summary](#)

Project File Data		Coordinate System	
Name:	C:\PROJECTS\GWV Lidar\65221002 - USGS-AK Delta Junction\TBC\Day 250 Checkpoints.vce	Name:	World wide/UTM
Size:	112 KB	Datum:	NAD 1983 (Alaska)
Modified:	9/14/2021 12:47:58 PM (UTC:-8)	Zone:	6 North
Time zone:	Alaskan Standard Time	Geoid:	GEOID12B (Alaska)
Reference number:		Vertical datum:	
Description:		Calibrated site:	
Comment 1:			
Comment 2:			
Comment 3:			

### GNSS Loop Closure Results

#### Summary

Legs in loop: 3  
 Number of Loops: 17  
 Number Passed: 17  
 Number Failed: 0

	Length (Meter)	$\Delta$ 3D (Meter)	$\Delta$ Horiz (Meter)	$\Delta$ Vert (Meter)	PPM
Pass/Fail Criteria			0.050	0.050	
Best		0.008	0.004	0.001	0.103
Worst		0.048	0.031	0.042	0.780
Average Loop	68546.509	0.023	0.013	0.017	0.346
Standard Error	6357.052	0.026	0.014	0.022	0.190

Date: 10/1/2021 6:50:27 AM	Project: C:\PROJECTS\GWV Lidar\65221002 - USGS-AK Delta Junction\TBC\Day 250 Checkpoints.vce	Trimble Business Center
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- [Summary](#)

Project File Data		Coordinate System	
Name:	C:\PROJECTS\GWV Lidar\65221002 - USGS-AK Delta Junction\TBC\Day 251 Checkpoints.vce	Name:	World wide/UTM
Size:	142 KB	Datum:	NAD 1983 (Alaska)
Modified:	10/1/2021 7:23:24 AM (UTC:-8)	Zone:	6 North
Time zone:	Alaskan Standard Time	Geoid:	GEOID12B (Alaska)
Reference number:		Vertical datum:	
Description:		Calibrated site:	
Comment 1:			
Comment 2:			
Comment 3:			

### GNSS Loop Closure Results

#### Summary

Legs in loop: 3  
 Number of Loops: 23  
 Number Passed: 23  
 Number Failed: 0

	Length (Meter)	A3D (Meter)	ΔHoriz (Meter)	ΔVert (Meter)	PPM
Pass/Fail Criteria			0.050	0.050	
Best		0.007	0.002	0.002	0.065
Worst		0.049	0.036	0.048	0.572
Average Loop	106069.802	0.026	0.013	0.019	0.268
Standard Error	29674.968	0.028	0.016	0.023	0.147

Date: 10/1/2021 9:40:34 AM	Project: C:\PROJECTS\GWV Lidar\65221002 - USGS-AK Delta Junction\TBC\Day 251 Checkpoints.vce	Trimble Business Center
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- [Summary](#)

Project File Data		Coordinate System	
Name:	C:\PROJECTS\GWV Lidar\65221002 - USGS-AK Delta Junction\TBC\Day 252 Checkpoints.vce	Name:	World wide/UTM
Size:	130 KB	Datum:	NAD 1983 (Alaska)
Modified:	9/14/2021 1:11:38 PM (UTC:-8)	Zone:	6 North
Time zone:	Alaskan Standard Time	Geoid:	GEOID12B (Alaska)
Reference number:		Vertical datum:	
Description:		Calibrated site:	
Comment 1:			
Comment 2:			
Comment 3:			

### GNSS Loop Closure Results

#### Summary

Legs in loop: 3  
 Number of Loops: 20  
 Number Passed: 20  
 Number Failed: 0

	Length (Meter)	A3D (Meter)	ΔHoriz (Meter)	ΔVert (Meter)	PPM
Pass/Fail Criteria			0.050	0.050	
Best		0.007	0.003	-0.003	0.047
Worst		0.048	0.033	-0.047	0.472
Average Loop	121896.404	0.030	0.013	0.024	0.254
Standard Error	15690.122	0.032	0.016	0.028	0.102

Date: 10/1/2021 9:43:58 AM	Project: C:\PROJECTS\GWV Lidar\65221002 - USGS-AK Delta Junction\TBC\Day 252 Checkpoints.vce	Trimble Business Center
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- [Summary](#)

Project File Data		Coordinate System	
Name:	C:\PROJECTS\GWV Lidar\65221002 - USGS-AK Delta Junction\TBC\Day 252 Checkpoints_2.vce	Name:	World wide/UTM
Size:	86 KB	Datum:	NAD 1983 (Alaska)
Modified:	9/14/2021 2:13:40 PM (UTC:-8)	Zone:	6 North
Time zone:	Alaskan Standard Time	Geoid:	GEOID12B (Alaska)
Reference number:		Vertical datum:	
Description:		Calibrated site:	
Comment 1:			
Comment 2:			
Comment 3:			

### GNSS Loop Closure Results

#### Summary

Legs in loop: 3  
 Number of Loops: 2  
 Number Passed: 2  
 Number Failed: 0

	Length (Meter)	A3D (Meter)	ΔHoriz (Meter)	ΔVert (Meter)	PPM
Pass/Fail Criteria			0.050	0.053	
Best		0.063	0.038	0.048	0.445
Worst		0.065	0.042	0.052	0.455
Average Loop	141973.875	0.064	0.040	0.050	0.450
Standard Error	18.743	0.064	0.040	0.050	0.005

Date: 10/1/2021 9:57:53 AM	Project: C:\PROJECTS\GWV Lidar\65221002 - USGS-AK Delta Junction\TBC\Day 252 Checkpoints_2.vce	Trimble Business Center
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- [Summary](#)

Project File Data		Coordinate System	
Name:	C:\PROJECTS\GWV Lidar\65221002 - USGS-AK Delta Junction\TBC\Day 252 Checkpoints_3.vce	Name:	World wide/UTM
Size:	82 KB	Datum:	NAD 1983 (Alaska)
Modified:	9/14/2021 2:41:20 PM (UTC:-8)	Zone:	6 North
Time zone:	Alaskan Standard Time	Geoid:	GEOID12B (Alaska)
Reference number:		Vertical datum:	
Description:		Calibrated site:	
Comment 1:			
Comment 2:			
Comment 3:			

### GNSS Loop Closure Results

#### Summary

Legs in loop: 3  
 Number of Loops: 1  
 Number Passed: 1  
 Number Failed: 0

	Length (Meter)	A3D (Meter)	ΔHoriz (Meter)	ΔVert (Meter)	PPM
Pass/Fail Criteria					1
Best		0.046	0.003	-0.046	0.394
Worst		0.046	0.003	-0.046	0.394
Average Loop	116171.823	0.046	0.003	0.046	0.394
Standard Error	0.000	0.046	0.003	0.046	0.000

Date: 10/1/2021 10:00:15 AM	Project: C:\PROJECTS\GWV Lidar\65221002 - USGS-AK Delta Junction\TBC\Day 252 Checkpoints_3.vce	Trimble Business Center
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- [Summary](#)

Project File Data		Coordinate System	
Name:	C:\PROJECTS\GWV Lidar\65221002 - USGS-AK Delta Junction\TBC\Day 253 Checkpoints.vce	Name:	World wide/UTM
Size:	170 KB	Datum:	NAD 1983 (Alaska)
Modified:	9/14/2021 2:50:05 PM (UTC:-8)	Zone:	6 North
Time zone:	Alaskan Standard Time	Geoid:	GEOID12B (Alaska)
Reference number:		Vertical datum:	
Description:		Calibrated site:	
Comment 1:			
Comment 2:			
Comment 3:			

### GNSS Loop Closure Results

#### Summary

Legs in loop: 3  
 Number of Loops: 31  
 Number Passed: 31  
 Number Failed: 0

	Length (Meter)	$\Delta$ 3D (Meter)	$\Delta$ Horiz (Meter)	$\Delta$ Vert (Meter)	PPM
Pass/Fail Criteria			0.050	0.050	
Best		0.005	0.001	0.000	0.052
Worst		0.047	0.047	0.039	0.669
Average Loop	77368.611	0.024	0.015	0.014	0.316
Standard Error	9264.067	0.026	0.019	0.018	0.147

Date: 10/1/2021 10:04:11 AM	Project: C:\PROJECTS\GWV Lidar\65221002 - USGS-AK Delta Junction\TBC\Day 253 Checkpoints.vce	Trimble Business Center
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- [Summary](#)

Project File Data		Coordinate System	
Name:	C:\PROJECTS\GWV Lidar\65221002 - USGS-AK Delta Junction\TBC\Day 254 Checkpoints.vce	Name:	World wide/UTM
Size:	159 KB	Datum:	NAD 1983 (Alaska)
Modified:	9/14/2021 3:18:25 PM (UTC:-8)	Zone:	6 North
Time zone:	Alaskan Standard Time	Geoid:	GEOID12B (Alaska)
Reference number:		Vertical datum:	
Description:		Calibrated site:	
Comment 1:			
Comment 2:			
Comment 3:			

### GNSS Loop Closure Results

#### Summary

Legs in loop: 3  
 Number of Loops: 25  
 Number Passed: 25  
 Number Failed: 0

	Length (Meter)	$\Delta$ 3D (Meter)	$\Delta$ Horiz (Meter)	$\Delta$ Vert (Meter)	PPM
Pass/Fail Criteria					1
Best		0.005	0.004	0.001	0.065
Worst		0.058	0.031	-0.049	0.830
Average Loop	73741.144	0.027	0.011	0.023	0.364
Standard Error	4442.216	0.030	0.013	0.027	0.193

Date: 10/1/2021 10:08:15 AM	Project: C:\PROJECTS\GWV Lidar\65221002 - USGS-AK Delta Junction\TBC\Day 254 Checkpoints.vce	Trimble Business Center
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- [Summary](#)

Project File Data	Coordinate System
Name: C:\PROJECTS\GWV Lidar\65221002 - USGS-AK Delta Junction\TBC\Day 254 Checkpoints_1.vce	Name: World wide/UTM
Size: 108 KB	Datum: NAD 1983 (Alaska)
Modified: 9/15/2021 7:56:59 AM (UTC:-8)	Zone: 6 North
Time zone: Alaskan Standard Time	Geoid: GEOID12B (Alaska)
Reference number:	Vertical datum:
Description:	Calibrated site:
Comment 1:	
Comment 2:	
Comment 3:	

### GNSS Loop Closure Results

#### Summary

Legs in loop: 3  
 Number of Loops: 1  
 Number Passed: 1  
 Number Failed: 0

	Length (Meter)	$\Delta$ 3D (Meter)	$\Delta$ Horiz (Meter)	$\Delta$ Vert (Meter)	PPM
Pass/Fail Criteria			0.050	0.050	
Best		0.023	0.009	0.021	0.330
Worst		0.023	0.009	0.021	0.330
Average Loop	69984.260	0.023	0.009	0.021	0.330
Standard Error	0.000	0.023	0.009	0.021	0.000

Date: 10/1/2021 10:18:22 AM	Project: C:\PROJECTS\GWV Lidar\65221002 - USGS-AK Delta Junction\TBC\Day 254 Checkpoints_1.vce	Trimble Business Center
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- [Summary](#)

Project File Data		Coordinate System	
Name:	C:\PROJECTS\GWV Lidar\65221002 - USGS-AK Delta Junction\TBC\Day 254 Checkpoints_2.vce	Name:	World wide/UTM
Size:	106 KB	Datum:	NAD 1983 (Alaska)
Modified:	9/15/2021 8:38:34 AM (UTC:-8)	Zone:	6 North
Time zone:	Alaskan Standard Time	Geoid:	GEOID12B (Alaska)
Reference number:		Vertical datum:	
Description:		Calibrated site:	
Comment 1:			
Comment 2:			
Comment 3:			

### GNSS Loop Closure Results

#### Summary

Legs in loop: 3  
 Number of Loops: 1  
 Number Passed: 1  
 Number Failed: 0

	Length (Meter)	$\Delta$ 3D (Meter)	$\Delta$ Horiz (Meter)	$\Delta$ Vert (Meter)	PPM
Pass/Fail Criteria			0.050	0.055	
Best		0.056	0.013	0.055	0.799
Worst		0.056	0.013	0.055	0.799
Average Loop	70395.357	0.056	0.013	0.055	0.799
Standard Error	0.000	0.056	0.013	0.055	0.000

Date: 10/1/2021 10:26:55 AM	Project: C:\PROJECTS\GWV Lidar\65221002 - USGS-AK Delta Junction\TBC\Day 254 Checkpoints_2.vce	Trimble Business Center
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- [Summary](#)

Project File Data		Coordinate System	
Name:	C:\PROJECTS\GWV Lidar\65221002 - USGS-AK Delta Junction\TBC\Day 255 Checkpoints.vce	Name:	World wide/UTM
Size:	117 KB	Datum:	NAD 1983 (Alaska)
Modified:	9/15/2021 12:27:45 PM (UTC:-8)	Zone:	6 North
Time zone:	Alaskan Standard Time	Geoid:	GEOID12B (Alaska)
Reference number:		Vertical datum:	
Description:		Calibrated site:	
Comment 1:			
Comment 2:			
Comment 3:			

### GNSS Loop Closure Results

#### Summary

Legs in loop: 3  
 Number of Loops: 18  
 Number Passed: 18  
 Number Failed: 0

	Length (Meter)	$\Delta$ 3D (Meter)	$\Delta$ Horiz (Meter)	$\Delta$ Vert (Meter)	PPM
Pass/Fail Criteria			0.050	0.050	
Best		0.011	0.004	-0.002	0.176
Worst		0.048	0.025	0.048	0.732
Average Loop	66362.414	0.024	0.014	0.016	0.357
Standard Error	11497.944	0.026	0.015	0.021	0.134

Date: 10/1/2021 10:38:30 AM	Project: C:\PROJECTS\GWV Lidar\65221002 - USGS-AK Delta Junction\TBC\Day 255 Checkpoints.vce	Trimble Business Center
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- [Summary](#)

Project File Data		Coordinate System	
Name:	C:\PROJECTS\GWV Lidar\65221002 - USGS-AK Delta Junction\TBC\Day 256 Checkpoints.vce	Name:	World wide/UTM
Size:	53 KB	Datum:	NAD 1983 (Alaska)
Modified:	9/15/2021 12:31:55 PM (UTC:-8)	Zone:	6 North
Time zone:	Alaskan Standard Time	Geoid:	GEOID12B (Alaska)
Reference number:		Vertical datum:	
Description:		Calibrated site:	
Comment 1:			
Comment 2:			
Comment 3:			

### GNSS Loop Closure Results

#### Summary

Legs in loop: 3  
 Number of Loops: 1  
 Number Passed: 1  
 Number Failed: 0

	Length (Meter)	$\Delta$ 3D (Meter)	$\Delta$ Horiz (Meter)	$\Delta$ Vert (Meter)	PPM
Pass/Fail Criteria					1
Best		0.010	0.003	-0.009	0.373
Worst		0.010	0.003	-0.009	0.373
Average Loop	25489.509	0.010	0.003	0.009	0.373
Standard Error	0.000	0.010	0.003	0.009	0.000

Date: 10/1/2021 10:43:35 AM	Project: C:\PROJECTS\GWV Lidar\65221002 - USGS-AK Delta Junction\TBC\Day 256 Checkpoints.vce	Trimble Business Center
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Project File Data	Coordinate System
Name: C:\PROJECTS\GWV Lidar\65221002 - USGS-AK Delta Junction\TBC\CONTROL.vce	Name: World wide/UTM
Size: 148 KB	Datum: NAD 1983 (Alaska)
Modified: 9/30/2021 2:11:46 PM (UTC:-8)	Zone: 6 North
Time zone: Alaskan Standard Time	Geoid: GEOID12B (Alaska)
Reference number:	Vertical datum:
Description:	Calibrated site:
Comment 1:	
Comment 2:	
Comment 3:	

## Network Adjustment Report

### Adjustment Settings

#### Set-Up Errors

##### GNSS

Error in Height of Antenna: 0.003 m

Centering Error: 0.003 m

#### Covariance Display

##### Horizontal:

Propagated Linear Error [E]: U.S.

Constant Term [C]: 0.000 m

Scale on Linear Error [S]: 1.000

##### Three-Dimensional

Propagated Linear Error [E]: U.S.

Constant Term [C]: 0.000 m

Scale on Linear Error [S]: 1.000

### Adjustment Statistics

Number of Iterations for Successful Adjustment: 2

Network Reference Factor: 0.96

Chi Square Test (95%): Passed

Precision Confidence Level: DRMS

Degrees of Freedom: 78

## Post Processed Vector Statistics

Reference Factor:	0.96
Redundancy Number:	78.00
A Priori Scalar:	1.00

## Control Point Constraints

Point ID	Type	North $\sigma$ (Meter)	East $\sigma$ (Meter)	Height $\sigma$ (Meter)	Elevation $\sigma$ (Meter)
<a href="#">AC71</a>	Global	Fixed	Fixed	Fixed	
Fixed = 0.000001(Meter)					

## Adjusted Grid Coordinates

Point ID	Northing (Meter)	Northing Error (Meter)	Easting (Meter)	Easting Error (Meter)	Elevation (Meter)	Elevation Error (Meter)	Constraint
<a href="#">1</a>	7100459.285	0.002	564395.499	0.002	363.081	0.003	
<a href="#">10</a>	7096026.668	0.005	571220.422	0.004	394.681	0.009	
<a href="#">11</a>	7096002.209	0.005	570862.290	0.004	403.678	0.008	
<a href="#">12</a>	7096010.339	0.005	570856.190	0.005	404.407	0.012	
<a href="#">13</a>	7081826.034	0.005	595837.548	0.004	408.024	0.010	
<a href="#">2</a>	7084673.440	0.002	590686.194	0.002	372.469	0.006	
<a href="#">3</a>	7125904.556	0.003	540954.796	0.002	279.318	0.006	
<a href="#">7</a>	7072476.904	0.007	613578.379	0.006	413.974	0.033	
<a href="#">AC62</a>	6995090.219	0.002	534714.776	0.002	1331.552	0.005	
<a href="#">AC71</a>	7103142.410	?	562806.675	?	352.643	?	LLh
<a href="#">FAIR</a>	7206095.562	0.002	476439.704	0.002	309.113	0.005	

## Adjusted Geodetic Coordinates

Point ID	Latitude	Longitude	Height (Meter)	Height Error (Meter)	Constraint
<a href="#">1</a>	N64°01'29.79059"	W145°40'55.91982"	374.123	0.003	



<a href="#">10</a>	N63°59'01.83472"	W145°32'40.76157"	405.854	0.009	
<a href="#">11</a>	N63°59'01.30821"	W145°33'07.13778"	414.852	0.008	
<a href="#">12</a>	N63°59'01.57524"	W145°33'07.57281"	415.580	0.012	
<a href="#">13</a>	N63°51'02.03753"	W145°03'02.84927"	419.491	0.010	
<a href="#">2</a>	N63°52'38.92613"	W145°09'13.75599"	383.905	0.006	
<a href="#">3</a>	N64°15'24.54100"	W146°09'17.65094"	289.915	0.006	
<a href="#">7</a>	N63°45'41.11958"	W144°41'49.72377"	425.485	0.033	
<a href="#">AC62</a>	N63°05'00.98629"	W146°18'45.62256"	1346.754	0.005	
<a href="#">AC71</a>	N64°02'57.49878"	W145°42'48.94447"	363.617	?	LLh
<a href="#">FAIR</a>	N64°58'40.79440"	W147°29'57.15983"	318.590	0.005	

### Adjusted ECEF Coordinates

Point ID	X (Meter)	X Error (Meter)	Y (Meter)	Y Error (Meter)	Z (Meter)	Z Error (Meter)	3D Error (Meter)	Constraint
<a href="#">1</a>	-2313614.700	0.002	-1579294.403	0.002	5711269.593	0.003	0.004	
<a href="#">10</a>	-2313224.087	0.005	-1587181.760	0.005	5709289.868	0.008	0.011	
<a href="#">11</a>	-2313442.368	0.004	-1586896.464	0.004	5709290.803	0.008	0.010	
<a href="#">12</a>	-2313439.850	0.005	-1586887.562	0.006	5709295.085	0.011	0.014	
<a href="#">13</a>	-2310400.786	0.006	-1614709.645	0.005	5702769.441	0.009	0.012	
<a href="#">2</a>	-2311077.164	0.003	-1609004.450	0.003	5704059.169	0.005	0.006	
<a href="#">3</a>	-2307214.503	0.003	-1547176.699	0.003	5722468.833	0.006	0.007	
<a href="#">7</a>	-2307670.061	0.014	-1634094.092	0.010	5698388.107	0.030	0.035	
<a href="#">AC62</a>	-2409396.753	0.003	-1606098.047	0.002	5665403.688	0.004	0.006	
<a href="#">AC71</a>	-2312458.268	?	-1576648.147	?	5712449.241	?	?	LLh
<a href="#">FAIR</a>	-2281620.829	0.003	-1453596.945	0.002	5756961.418	0.005	0.006	

### Error Ellipse Components

Point ID	Semi-major axis (Meter)	Semi-minor axis (Meter)	Azimuth
<a href="#">1</a>	0.003	0.002	174°
<a href="#">10</a>	0.007	0.006	175°
<a href="#">11</a>	0.007	0.005	169°
<a href="#">12</a>	0.007	0.007	178°
<a href="#">13</a>	0.007	0.006	170°

<a href="#">2</a>	0.003	0.003	173°
<a href="#">3</a>	0.004	0.003	173°
<a href="#">7</a>	0.010	0.008	153°
<a href="#">AC62</a>	0.003	0.003	3°
<a href="#">FAIR</a>	0.003	0.003	160°

## Adjusted GNSS Observations

Observation ID		Observation	A-posteriori Error	Residual	Standardized Residual
<a href="#">2 --&gt; 10 (PV8)</a>	<b>Az.</b>	301°54'39.1"	0.044 sec	-0.086 sec	-1.106
	<b>ΔHt.</b>	21.948 m	0.010 m	0.032 m	0.712
	<b>Ellip Dist.</b>	22541.885 m	0.005 m	-0.025 m	-2.611
<a href="#">2 --&gt; 13 (PV6)</a>	<b>Az.</b>	120°35'20.8"	0.158 sec	-0.275 sec	-2.242
	<b>ΔHt.</b>	35.586 m	0.008 m	-0.003 m	-1.163
	<b>Ellip Dist.</b>	5887.658 m	0.004 m	0.003 m	0.767
<a href="#">AC71 --&gt; 10 (PV15)</a>	<b>Az.</b>	131°22'42.8"	0.086 sec	-0.011 sec	-0.099
	<b>ΔHt.</b>	42.237 m	0.009 m	-0.001 m	-0.123
	<b>Ellip Dist.</b>	11023.100 m	0.005 m	-0.012 m	-2.231
<a href="#">1 --&gt; 3 (PV13)</a>	<b>Az.</b>	318°32'01.8"	0.013 sec	-0.049 sec	-2.201
	<b>ΔHt.</b>	-84.208 m	0.006 m	0.016 m	1.782
	<b>Ellip Dist.</b>	34609.302 m	0.002 m	0.001 m	0.169
<a href="#">AC71 --&gt; 1 (PV22)</a>	<b>Az.</b>	150°31'28.3"	0.116 sec	0.534 sec	2.163
	<b>ΔHt.</b>	10.506 m	0.003 m	0.009 m	2.159
	<b>Ellip Dist.</b>	3119.350 m	0.002 m	-0.004 m	-1.002
<a href="#">2 --&gt; 11 (PV2)</a>	<b>Az.</b>	301°24'18.2"	0.042 sec	-0.163 sec	-2.078
	<b>ΔHt.</b>	30.946 m	0.010 m	-0.007 m	-0.152
	<b>Ellip Dist.</b>	22839.914 m	0.005 m	-0.019 m	-1.952
<a href="#">2 --&gt; 12 (PV3)</a>	<b>Az.</b>	301°24'54.6"	0.047 sec	-0.139 sec	-2.005
	<b>ΔHt.</b>	31.675 m	0.013 m	0.034 m	0.757
	<b>Ellip Dist.</b>	22849.248 m	0.005 m	0.002 m	0.213
<a href="#">FAIR --&gt; 1 (PV32)</a>	<b>Az.</b>	139°45'55.7"	0.003 sec	-0.005 sec	-0.894
	<b>ΔHt.</b>	55.533 m	0.005 m	-0.010 m	-0.885
	<b>Ellip Dist.</b>	137513.194 m	0.002 m	-0.009 m	-1.978
<a href="#">FAIR --&gt; 1 (PV29)</a>	<b>Az.</b>	139°45'55.7"	0.003 sec	0.003 sec	0.524

	<b>ΔHt.</b>	55.533 m	0.005 m	0.009 m	0.836
	<b>Ellip Dist.</b>	137513.194 m	0.002 m	0.009 m	1.863
<a href="#">AC71 --&gt; 3 (PV21)</a>	<b>Az.</b>	317°19'35.3"	0.016 sec	0.020 sec	0.737
	<b>ΔHt.</b>	-73.702 m	0.006 m	-0.025 m	-1.826
	<b>Ellip Dist.</b>	31565.016 m	0.003 m	-0.003 m	-0.724
<a href="#">FAIR --&gt; 3 (PV31)</a>	<b>Az.</b>	140°43'49.6"	0.005 sec	-0.007 sec	-0.935
	<b>ΔHt.</b>	-28.675 m	0.007 m	-0.005 m	-0.467
	<b>Ellip Dist.</b>	102961.954 m	0.003 m	-0.008 m	-1.768
<a href="#">AC71 --&gt; 1 (PV20)</a>	<b>Az.</b>	150°31'28.3"	0.116 sec	-0.104 sec	-0.403
	<b>ΔHt.</b>	10.506 m	0.003 m	-0.001 m	-0.208
	<b>Ellip Dist.</b>	3119.350 m	0.002 m	0.006 m	1.553
<a href="#">1 --&gt; 13 (PV7)</a>	<b>Az.</b>	121°50'08.4"	0.026 sec	0.074 sec	1.514
	<b>ΔHt.</b>	45.368 m	0.010 m	0.043 m	1.050
	<b>Ellip Dist.</b>	36560.318 m	0.005 m	-0.006 m	-0.713
<a href="#">1 --&gt; 2 (PV10)</a>	<b>Az.</b>	122°09'57.5"	0.014 sec	-0.009 sec	-0.361
	<b>ΔHt.</b>	9.782 m	0.005 m	-0.001 m	-0.130
	<b>Ellip Dist.</b>	30675.827 m	0.002 m	0.006 m	1.480
<a href="#">AC71 --&gt; AC62 (PV42)</a>	<b>Az.</b>	195°43'33.8"	0.004 sec	-0.007 sec	-0.999
	<b>ΔHt.</b>	983.137 m	0.005 m	-0.012 m	-1.476
	<b>Ellip Dist.</b>	111685.548 m	0.002 m	0.001 m	0.177
<a href="#">AC71 --&gt; 13 (PV16)</a>	<b>Az.</b>	123°59'30.1"	0.025 sec	0.067 sec	1.448
	<b>ΔHt.</b>	55.874 m	0.010 m	0.040 m	0.981
	<b>Ellip Dist.</b>	39324.569 m	0.005 m	0.000 m	-0.006
<a href="#">AC62 --&gt; 2 (PV39)</a>	<b>Az.</b>	32°36'47.9"	0.005 sec	0.011 sec	1.317
	<b>ΔHt.</b>	-962.848 m	0.006 m	0.005 m	0.399
	<b>Ellip Dist.</b>	105668.055 m	0.003 m	-0.007 m	-1.370
<a href="#">AC62 --&gt; 1 (PV44)</a>	<b>Az.</b>	16°20'52.2"	0.004 sec	-0.002 sec	-0.317
	<b>ΔHt.</b>	-972.631 m	0.005 m	-0.015 m	-1.311
	<b>Ellip Dist.</b>	109509.976 m	0.002 m	0.004 m	0.809
<a href="#">1 --&gt; 11 (PV4)</a>	<b>Az.</b>	125°45'36.4"	0.114 sec	-0.132 sec	-1.121
	<b>ΔHt.</b>	40.729 m	0.008 m	0.000 m	-0.026
	<b>Ellip Dist.</b>	7856.677 m	0.004 m	-0.005 m	-1.102
<a href="#">1 --&gt; 12 (PV5)</a>	<b>Az.</b>	125°44'11.4"	0.132 sec	-0.151 sec	-1.118
	<b>ΔHt.</b>	41.457 m	0.012 m	0.002 m	0.191
	<b>Ellip Dist.</b>	7847.037 m	0.005 m	-0.002 m	-0.430

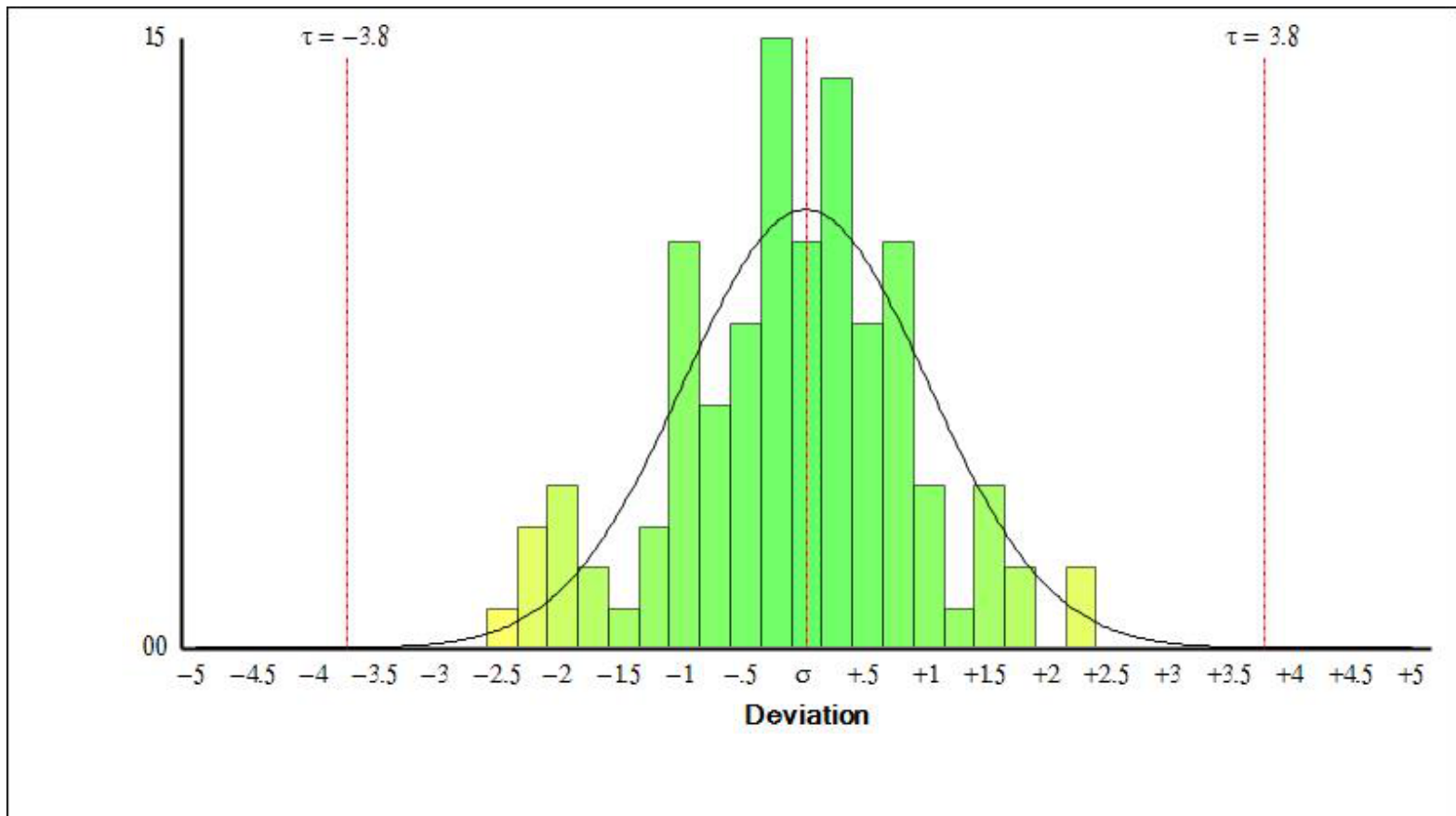
<a href="#">AC71 --&gt; 2 (PV19)</a>	<b>Az.</b>	124°40'42.8"	0.014 sec	0.019 sec	0.766
	<b>ΔHt.</b>	20.288 m	0.006 m	-0.007 m	-0.587
	<b>Ellip Dist.</b>	33452.988 m	0.002 m	0.004 m	1.022
<a href="#">AC71 --&gt; FAIR (PV30)</a>	<b>Az.</b>	321°09'57.8"	0.003 sec	0.006 sec	1.002
	<b>ΔHt.</b>	-45.027 m	0.005 m	0.003 m	0.355
	<b>Ellip Dist.</b>	134434.427 m	0.002 m	0.003 m	0.821
<a href="#">1 --&gt; 10 (PV9)</a>	<b>Az.</b>	124°11'14.0"	0.117 sec	-0.116 sec	-0.890
	<b>ΔHt.</b>	31.731 m	0.008 m	-0.002 m	-0.245
	<b>Ellip Dist.</b>	8140.836 m	0.005 m	0.000 m	-0.055
<a href="#">1 --&gt; 3 (PV14)</a>	<b>Az.</b>	318°32'01.8"	0.013 sec	0.005 sec	0.211
	<b>ΔHt.</b>	-84.208 m	0.006 m	0.003 m	0.361
	<b>Ellip Dist.</b>	34609.302 m	0.002 m	-0.003 m	-0.868
<a href="#">1 --&gt; 2 (PV1)</a>	<b>Az.</b>	122°09'57.5"	0.014 sec	-0.005 sec	-0.206
	<b>ΔHt.</b>	9.782 m	0.005 m	0.001 m	0.142
	<b>Ellip Dist.</b>	30675.827 m	0.002 m	-0.003 m	-0.820
<a href="#">2 --&gt; 7 (PV11)</a>	<b>Az.</b>	119°42'17.1"	0.047 sec	0.038 sec	0.770
	<b>ΔHt.</b>	41.580 m	0.033 m	0.012 m	0.343
	<b>Ellip Dist.</b>	25945.586 m	0.006 m	0.002 m	0.387
<a href="#">AC62 --&gt; 1 (PV40)</a>	<b>Az.</b>	16°20'52.2"	0.004 sec	0.006 sec	0.763
	<b>ΔHt.</b>	-972.631 m	0.005 m	-0.003 m	-0.272
	<b>Ellip Dist.</b>	109509.976 m	0.002 m	0.002 m	0.459
<a href="#">1 --&gt; 7 (PV12)</a>	<b>Az.</b>	120°49'14.4"	0.021 sec	-0.014 sec	-0.755
	<b>ΔHt.</b>	51.362 m	0.033 m	-0.008 m	-0.240
	<b>Ellip Dist.</b>	56602.959 m	0.006 m	-0.002 m	-0.236
<a href="#">AC71 --&gt; 12 (PV17)</a>	<b>Az.</b>	132°41'53.4"	0.097 sec	-0.114 sec	-0.632
	<b>ΔHt.</b>	51.963 m	0.012 m	0.006 m	0.286
	<b>Ellip Dist.</b>	10758.301 m	0.005 m	0.000 m	-0.002
<a href="#">AC71 --&gt; FAIR (PV23)</a>	<b>Az.</b>	321°09'57.8"	0.003 sec	0.003 sec	0.437
	<b>ΔHt.</b>	-45.027 m	0.005 m	-0.004 m	-0.397
	<b>Ellip Dist.</b>	134434.427 m	0.002 m	0.003 m	0.611
<a href="#">FAIR --&gt; 2 (PV28)</a>	<b>Az.</b>	136°17'25.4"	0.003 sec	-0.001 sec	-0.100
	<b>ΔHt.</b>	65.315 m	0.007 m	0.009 m	0.592
	<b>Ellip Dist.</b>	166782.293 m	0.003 m	-0.002 m	-0.274
<a href="#">AC71 --&gt; 11 (PV18)</a>	<b>Az.</b>	132°42'32.4"	0.081 sec	-0.044 sec	-0.410
	<b>ΔHt.</b>	51.235 m	0.008 m	0.005 m	0.578
	<b>Ellip Dist.</b>	10768.262 m	0.005 m	-0.003 m	-0.574

<a href="#">AC62 --&gt; 3 (PV43)</a>	<b>Az.</b>	3°20'50.2"	0.004 sec	0.002 sec	0.344
	<b>ΔHt.</b>	-1056.839 m	0.007 m	-0.008 m	-0.487
	<b>Ellip Dist.</b>	131013.185 m	0.003 m	0.002 m	0.368
<a href="#">AC71 --&gt; AC62 (PV34)</a>	<b>Az.</b>	195°43'33.8"	0.004 sec	0.000 sec	-0.037
	<b>ΔHt.</b>	983.137 m	0.005 m	0.000 m	0.074
	<b>Ellip Dist.</b>	111685.548 m	0.002 m	-0.001 m	-0.360
<a href="#">AC62 --&gt; FAIR (PV41)</a>	<b>Az.</b>	345°10'34.1"	0.002 sec	-0.001 sec	-0.201
	<b>ΔHt.</b>	-1028.164 m	0.006 m	0.005 m	0.153
	<b>Ellip Dist.</b>	218991.388 m	0.003 m	0.004 m	0.331
<a href="#">AC62 --&gt; FAIR (PV33)</a>	<b>Az.</b>	345°10'34.1"	0.002 sec	-0.001 sec	-0.182
	<b>ΔHt.</b>	-1028.164 m	0.006 m	-0.005 m	-0.149
	<b>Ellip Dist.</b>	218991.388 m	0.003 m	0.001 m	0.123

## Histogram of Standardized Residuals

Critical Tau Value: 3.8

Observations Failing the Tau Test: 0



## Covariance Terms

From Point	To Point		Components	A-posteriori Error	Horiz. Precision (Ratio)	3D Precision (Ratio)
<a href="#">1</a>	<a href="#">10</a>	<b>Az.</b>	124°11'14.0"	0.117 sec	1 : 1813789	1 : 1810215
		<b>ΔHt.</b>	31.731 m	0.008 m		
		<b>ΔElev.</b>	31.600 m	0.008 m		
		<b>Ellip Dist.</b>	8140.836 m	0.004 m		
<a href="#">1</a>	<a href="#">11</a>	<b>Az.</b>	125°45'36.4"	0.114 sec	1 : 1780461	1 : 1774548
		<b>ΔHt.</b>	40.729 m	0.008 m		
		<b>ΔElev.</b>	40.597 m	0.008 m		
		<b>Ellip Dist.</b>	7856.677 m	0.004 m		
<a href="#">1</a>	<a href="#">12</a>	<b>Az.</b>	125°44'11.4"	0.131 sec	1 : 1603676	1 : 1601407
		<b>ΔHt.</b>	41.457 m	0.012 m		
		<b>ΔElev.</b>	41.326 m	0.012 m		
		<b>Ellip Dist.</b>	7847.037 m	0.005 m		
<a href="#">1</a>	<a href="#">13</a>	<b>Az.</b>	121°50'08.4"	0.026 sec	1 : 8025843	1 : 8010109
		<b>ΔHt.</b>	45.368 m	0.010 m		
		<b>ΔElev.</b>	44.944 m	0.010 m		
		<b>Ellip Dist.</b>	36560.318 m	0.005 m		
<a href="#">1</a>	<a href="#">2</a>	<b>Az.</b>	122°09'57.5"	0.014 sec	1 : 14768203	1 : 14741139
		<b>ΔHt.</b>	9.782 m	0.005 m		
		<b>ΔElev.</b>	9.388 m	0.005 m		
		<b>Ellip Dist.</b>	30675.827 m	0.002 m		
<a href="#">1</a>	<a href="#">3</a>	<b>Az.</b>	318°32'01.8"	0.013 sec	1 : 14852923	1 : 14828110
		<b>ΔHt.</b>	-84.208 m	0.006 m		
		<b>ΔElev.</b>	-83.763 m	0.006 m		
		<b>Ellip Dist.</b>	34609.302 m	0.002 m		
<a href="#">1</a>	<a href="#">7</a>	<b>Az.</b>	120°49'14.4"	0.021 sec	1 : 8931648	1 : 8904259
		<b>ΔHt.</b>	51.362 m	0.033 m		
		<b>ΔElev.</b>	50.893 m	0.033 m		
		<b>Ellip Dist.</b>	56602.959 m	0.006 m		
<a href="#">1</a>	<a href="#">AC62</a>	<b>Az.</b>	196°54'44.4"	0.004 sec	1 : 47330529	1 : 47487973
		<b>ΔHt.</b>	972.631 m	0.005 m		
		<b>ΔElev.</b>	968.471 m	0.005 m		

		<b>Ellip Dist.</b>	109509.976 m	0.002 m		
<a href="#">1</a>	<a href="#">AC71</a>	<b>Az.</b>	330°33'09.9"	0.116 sec	1 : 1688644	1 : 1687057
		<b>ΔHt.</b>	-10.506 m	0.003 m		
		<b>ΔElev.</b>	-10.438 m	0.003 m		
		<b>Ellip Dist.</b>	3119.350 m	0.002 m		
<a href="#">1</a>	<a href="#">FAIR</a>	<b>Az.</b>	321°24'20.1"	0.003 sec	1 : 60347774	1 : 60264371
		<b>ΔHt.</b>	-55.533 m	0.005 m		
		<b>ΔElev.</b>	-53.968 m	0.005 m		
		<b>Ellip Dist.</b>	137513.194 m	0.002 m		
<a href="#">10</a>	<a href="#">AC71</a>	<b>Az.</b>	311°31'49.5"	0.086 sec	1 : 2401970	1 : 2395764
		<b>ΔHt.</b>	-42.237 m	0.009 m		
		<b>ΔElev.</b>	-42.038 m	0.009 m		
		<b>Ellip Dist.</b>	11023.100 m	0.005 m		
<a href="#">11</a>	<a href="#">AC71</a>	<b>Az.</b>	312°51'15.4"	0.082 sec	1 : 2351248	1 : 2342802
		<b>ΔHt.</b>	-51.235 m	0.008 m		
		<b>ΔElev.</b>	-51.035 m	0.008 m		
		<b>Ellip Dist.</b>	10768.262 m	0.005 m		
<a href="#">12</a>	<a href="#">AC71</a>	<b>Az.</b>	312°50'36.0"	0.097 sec	1 : 2139787	1 : 2137093
		<b>ΔHt.</b>	-51.963 m	0.012 m		
		<b>ΔElev.</b>	-51.764 m	0.012 m		
		<b>Ellip Dist.</b>	10758.301 m	0.005 m		
<a href="#">13</a>	<a href="#">AC71</a>	<b>Az.</b>	304°35'13.8"	0.025 sec	1 : 8466567	1 : 8442072
		<b>ΔHt.</b>	-55.874 m	0.010 m		
		<b>ΔElev.</b>	-55.382 m	0.010 m		
		<b>Ellip Dist.</b>	39324.569 m	0.005 m		
<a href="#">2</a>	<a href="#">10</a>	<b>Az.</b>	301°54'39.1"	0.044 sec	1 : 4835079	1 : 4815059
		<b>ΔHt.</b>	21.948 m	0.010 m		
		<b>ΔElev.</b>	22.212 m	0.010 m		
		<b>Ellip Dist.</b>	22541.885 m	0.005 m		
<a href="#">2</a>	<a href="#">11</a>	<b>Az.</b>	301°24'18.2"	0.042 sec	1 : 5032209	1 : 4990744
		<b>ΔHt.</b>	30.946 m	0.010 m		
		<b>ΔElev.</b>	31.209 m	0.010 m		
		<b>Ellip Dist.</b>	22839.914 m	0.005 m		
<a href="#">2</a>	<a href="#">12</a>	<b>Az.</b>	301°24'54.6"	0.047 sec	1 : 4507495	1 : 4498872
		<b>ΔHt.</b>	31.675 m	0.013 m		
		<b>ΔElev.</b>	31.937 m	0.013 m		
		<b>Ellip Dist.</b>	22849.248 m	0.005 m		
<a href="#">2</a>	<a href="#">13</a>	<b>Az.</b>	120°35'20.8"	0.158 sec	1 : 1336835	1 : 1335726

		<b>ΔHt.</b>	35.586 m	0.008 m		
		<b>ΔElev.</b>	35.555 m	0.008 m		
		<b>Ellip Dist.</b>	5887.658 m	0.004 m		
<a href="#">2</a>	<a href="#">7</a>	<b>Az.</b>	119°42'17.1"	0.047 sec	1 : 4164358	1 : 4145798
		<b>ΔHt.</b>	41.580 m	0.033 m		
		<b>ΔElev.</b>	41.505 m	0.033 m		
		<b>Ellip Dist.</b>	25945.586 m	0.006 m		
<a href="#">2</a>	<a href="#">AC62</a>	<b>Az.</b>	213°39'00.9"	0.005 sec	1 : 39574351	1 : 39761607
		<b>ΔHt.</b>	962.848 m	0.006 m		
		<b>ΔElev.</b>	959.083 m	0.006 m		
		<b>Ellip Dist.</b>	105668.055 m	0.003 m		
<a href="#">2</a>	<a href="#">AC71</a>	<b>Az.</b>	305°10'53.4"	0.014 sec	1 : 14730095	1 : 14690178
		<b>ΔHt.</b>	-20.288 m	0.006 m		
		<b>ΔElev.</b>	-19.826 m	0.006 m		
		<b>Ellip Dist.</b>	33452.988 m	0.002 m		
<a href="#">2</a>	<a href="#">FAIR</a>	<b>Az.</b>	318°24'22.3"	0.003 sec	1 : 61021169	1 : 60875432
		<b>ΔHt.</b>	-65.315 m	0.007 m		
		<b>ΔElev.</b>	-63.356 m	0.007 m		
		<b>Ellip Dist.</b>	166782.293 m	0.003 m		
<a href="#">3</a>	<a href="#">AC62</a>	<b>Az.</b>	183°29'19.2"	0.004 sec	1 : 44004533	1 : 44066102
		<b>ΔHt.</b>	1056.839 m	0.007 m		
		<b>ΔElev.</b>	1052.233 m	0.007 m		
		<b>Ellip Dist.</b>	131013.185 m	0.003 m		
<a href="#">3</a>	<a href="#">AC71</a>	<b>Az.</b>	136°55'45.5"	0.016 sec	1 : 12549879	1 : 12534781
		<b>ΔHt.</b>	73.702 m	0.006 m		
		<b>ΔElev.</b>	73.325 m	0.006 m		
		<b>Ellip Dist.</b>	31565.016 m	0.003 m		
<a href="#">3</a>	<a href="#">FAIR</a>	<b>Az.</b>	321°56'42.1"	0.005 sec	1 : 36526745	1 : 36480421
		<b>ΔHt.</b>	28.675 m	0.007 m		
		<b>ΔElev.</b>	29.795 m	0.007 m		
		<b>Ellip Dist.</b>	102961.954 m	0.003 m		
<a href="#">AC71</a>	<a href="#">AC62</a>	<b>Az.</b>	195°43'33.8"	0.004 sec	1 : 48448997	1 : 48605708
		<b>ΔHt.</b>	983.137 m	0.005 m		
		<b>ΔElev.</b>	978.909 m	0.005 m		
		<b>Ellip Dist.</b>	111685.548 m	0.002 m		
<a href="#">AC71</a>	<a href="#">FAIR</a>	<b>Az.</b>	321°09'57.8"	0.003 sec	1 : 58104366	1 : 58037201
		<b>ΔHt.</b>	-45.027 m	0.005 m		
		<b>ΔElev.</b>	-43.530 m	0.005 m		



		<b>Ellip Dist.</b>	134434.427 m	0.002 m		
<a href="#">FAIR</a>	<a href="#">AC62</a>	<b>Az.</b>	164°06'33.3"	0.002 sec	1 : 77772389	1 : 77891775
		<b>ΔHt.</b>	1028.164 m	0.006 m		
		<b>ΔElev.</b>	1022.439 m	0.006 m		
		<b>Ellip Dist.</b>	218991.388 m	0.003 m		

Date: 10/1/2021 11:36:54 AM	Project: C:\PROJECTS\GWV Lidar\65221002 - USGS-AK Delta Junction\TBC\CONTROL.vce	Trimble Business Center
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# The NGS Data Sheet

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

PROGRAM = datasheet95, VERSION = 8.12.5.13

Starting Datasheet Retrieval...

1 National Geodetic Survey, Retrieval Date = SEPTEMBER 14, 2021

D01818 \*\*\*\*\*

D01818 CORS - This is a GPS Continuously Operating Reference Station.

D01818 DESIGNATION - DELTAJUNC\_AK2003 CORS ARP

D01818 CORS\_ID - AC71

D01818 PID - D01818

D01818 STATE/COUNTY- AK/SOUTHEAST FAIRBANKS

D01818 COUNTRY - US

D01818 USGS QUAD - BIG DELTA A-4 SE (2016)

D01818

D01818 \*CURRENT SURVEY CONTROL

D01818

D01818\* NAD 83(2011) POSITION- 64 02 57.49879(N) 145 42 48.94446(W) ADJUSTED

D01818\* NAD 83(2011) ELLIP HT- 363.617 (meters) (06/??/19) ADJUSTED

D01818\* NAD 83(2011) EPOCH - 2010.00

D01818

D01818 GEOID HEIGHT - 10.974 (meters) GEOID12B

D01818 NAD 83(2011) X - -2,312,458.268 (meters) COMP

D01818 NAD 83(2011) Y - -1,576,648.147 (meters) COMP

D01818 NAD 83(2011) Z - 5,712,449.241 (meters) COMP

D01818

D01818 Network accuracy estimates per FGDC Geospatial Positioning Accuracy

D01818 Standards:

D01818 FGDC (95% conf, cm) Standard deviation (cm) CorrNE

D01818 Horiz Ellip SD\_N SD\_E SD\_h (unitless)

D01818 -----

D01818 NETWORK 0.17 0.44 0.08 0.05 0.23 0.17935700

D01818 -----

D01818

D01818

D01818.The coordinates were established by GPS observations

D01818.and adjusted by the National Geodetic Survey in June 2019.

D01818

D01818.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has

D01818.been affixed to the stable North American Tectonic Plate.

D01818

D01818.The coordinates are valid at the epoch date displayed above

D01818.which is a decimal equivalence of Year/Month/Day.

D01818

D01818.Due to the release of the International GNSS Service (IGS) 2014

D01818.realization of the International Terrestrial Reference Frame of 2014

D01818.(ITRF2014), NGS reprocessed all NOAA CORS Network and some IGS stations

D01818.using data collected between 1/1/1996 and 1/30/2017. The resulting ITRF2014

D01818.epoch 2010.00 coordinates, referred to as Multi-Year CORS Solution 2

D01818.(MYCS2), were transformed to NAD 83 (2011/PA11/MA11) maintaining the

D01818.currently published epoch of 2010.00.

D01818

D01818.Additional information on MYCS2 is available at

D01818.<https://geodesy.noaa.gov/CORS/news/mycs2/mycs2.shtml>

D01818

D01818.Significant digits in the geoid height do not necessarily reflect accuracy.

D01818.GEOID12B height accuracy estimate available [here](#).

D01818

D01818.The PID for the CORS L1 Phase Center is D01819.

D01818  
 D01818.Click [photographs](#) - Photos may exist for this station.  
 D01818  
 D01818.The XYZ, and position/ellipsoidal ht. are equivalent.  
 D01818  
 D01818.The ellipsoidal height was determined by GPS observations  
 D01818.and is referenced to NAD 83.  
 D01818  
 D01818. The following values were computed from the NAD 83(2011) position.  
 D01818  
 D01818;  

		North	East	Units	Scale	Factor	Converg.
D01818;UTM	06	- 7,103,142.411	562,806.675	MT	0.99964830	+1	09 24.2

 D01818  
 D01818!  

		- Elev Factor	x	Scale Factor	=	Combined Factor
D01818!UTM	06	- 0.99994311	x	0.99964830	=	0.99959143

 D01818  
 D01818\_U.S. NATIONAL GRID SPATIAL ADDRESS: 6WWS6280603142(NAD 83)  
 D01818  
 D01818  
 D01818  
 D01818  

D01818	NAD 83(2011)-	64 02 57.49891(N)	145 42 48.94335(W)	AD(2010.00)	c
D01818	ELLIP H (11/??/12)	363.641 (m)		GP(2010.00)	c c

 D01818  
 D01818.Superseded values are not recommended for survey control.  
 D01818  
 D01818.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.  
 D01818.See file [dsdata.pdf](#) to determine how the superseded data were derived.  
 D01818  
 D01818\_MARKER: STATION IS THE ANTENNA REFERENCE POINT OF THE GPS ANTENNA  
 D01818  
 D01818  
 D01818  
 D01818  
 D01818  
 D01818'DESCRIBED BY NATIONAL GEODETIC SURVEY 2019  
 D01818'STATION IS A GPS CORS. LATEST INFORMATION INCLUDING POSITIONS AND  
 D01818'VELOCITIES ARE AVAILABLE IN THE COORDINATE AND LOG FILES ACCESSIBLE  
 D01818'BY ANONYMOUS FTP OR THE WORLDWIDE WEB.  
 D01818' [https://geodesy.noaa.gov/corsdata/coord/coord\\_14](https://geodesy.noaa.gov/corsdata/coord/coord_14)  
 D01818' [https://geodesy.noaa.gov/corsdata/station\\_log](https://geodesy.noaa.gov/corsdata/station_log)  
 D01818' <https://geodesy.noaa.gov/CORS>

\*\*\* retrieval complete.  
 Elapsed Time = 00:00:01

# The NGS Data Sheet

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

PROGRAM = datasheet95, VERSION = 8.12.5.13

Starting Datasheet Retrieval...

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1      National Geodetic Survey,   Retrieval Date = SEPTEMBER 14, 2021
AF9534 *****
AF9534 CORS          - This is a GPS Continuously Operating Reference Station.
AF9534 DESIGNATION - GILMORE CREEK OBS CORS ARP
AF9534 CORS_ID      - FAIR
AF9534 PID          - AF9534
AF9534 STATE/COUNTY- AK/FAIRBANKS NORTH STAR
AF9534 COUNTRY      - US
AF9534 USGS QUAD    - FAIRBANKS D-2 NE (2017)
AF9534
AF9534                      *CURRENT SURVEY CONTROL
AF9534
AF9534* NAD 83(2011) POSITION- 64 58 40.79584(N) 147 29 57.16002(W) ADJUSTED
AF9534* NAD 83(2011) ELLIP HT- 318.659 (meters) (05/??/20) ADJUSTED
AF9534* NAD 83(2011) EPOCH   - 2010.00
AF9534
AF9534 GEOID HEIGHT   - 9.477 (meters) GEOID12B
AF9534 NAD 83(2011) X - -2,281,620.821 (meters) COMP
AF9534 NAD 83(2011) Y - -1,453,596.937 (meters) COMP
AF9534 NAD 83(2011) Z - 5,756,961.499 (meters) COMP
AF9534
AF9534 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
AF9534 Standards:
AF9534      FGDC (95% conf, cm)      Standard deviation (cm)      CorrNE
AF9534      Horiz Ellip              SD_N   SD_E   SD_h      (unitless)
AF9534 -----
AF9534 NETWORK    0.01   0.02           0.00   0.00   0.01      -0.00446600
AF9534 -----
AF9534
AF9534
AF9534.The coordinates were established by GPS observations
AF9534.and adjusted by the National Geodetic Survey in May 2020.
AF9534
AF9534.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
AF9534.been affixed to the stable North American Tectonic Plate.
AF9534
AF9534.The coordinates are valid at the epoch date displayed above
AF9534.which is a decimal equivalence of Year/Month/Day.
AF9534
AF9534.Due to the release of the International GNSS Service (IGS) 2014
AF9534.realization of the International Terrestrial Reference Frame of 2014
AF9534.(ITRF2014), NGS reprocessed all NOAA CORS Network and some IGS stations
AF9534.using data collected between 1/1/1996 and 1/30/2017. The resulting ITRF2014
AF9534.epoch 2010.00 coordinates, referred to as Multi-Year CORS Solution 2
AF9534.(MYCS2), were transformed to NAD 83 (2011/PA11/MA11) maintaining the
AF9534.currently published epoch of 2010.00.
AF9534
AF9534.Additional information on MYCS2 is available at
AF9534.https://geodesy.noaa.gov/CORS/news/mycs2/mycs2.shtml
AF9534
AF9534.Significant digits in the geoid height do not necessarily reflect accuracy.
AF9534.GEOID12B height accuracy estimate available here.
AF9534
AF9534.The PID for the CORS L1 Phase Center is DK6557.

```

AF9534

AF9534.Click [photographs](#) - Photos may exist for this station.

AF9534

AF9534.The XYZ, and position/ellipsoidal ht. are equivalent.

AF9534

AF9534.The ellipsoidal height was determined by GPS observations

AF9534.and is referenced to NAD 83.

AF9534

AF9534. The following values were computed from the NAD 83(2011) position.

AF9534

AF9534;		North	East	Units	Scale Factor	Converg.
AF9534;UTM 06	-	7,206,095.607	476,439.702	MT	0.99960680	-0 27 08.5

AF9534

AF9534! - Elev Factor x Scale Factor = Combined Factor

AF9534!UTM 06 - 0.99995015 x 0.99960680 = 0.99955697

AF9534

AF9534\_U.S. NATIONAL GRID SPATIAL ADDRESS: 6WVT7643906095(NAD 83)

AF9534

AF9534 SUPERSEDED SURVEY CONTROL

AF9534

AF9534	NAD 83(2011)-	64 58 40.79584(N)	147 29 57.16000(W)	AD(2010.00)	c
AF9534	ELLIP H (06/??/19)	318.658 (m)		GP(2010.00)	c c
AF9534	NAD 83(2011)-	64 58 40.79460(N)	147 29 57.15809(W)	AD(2010.00)	c
AF9534	ELLIP H (08/??/11)	318.683 (m)		GP(2010.00)	c c
AF9534	NAD 83(CORS)-	64 58 40.79494(N)	147 29 57.16002(W)	AD(2003.00)	c
AF9534	ELLIP H (10/??/06)	318.684 (m)		GP(2003.00)	c c
AF9534	NAD 83(CORS)-	64 58 40.79569(N)	147 29 57.16098(W)	AD(2003.00)	c
AF9534	ELLIP H (03/??/03)	318.679 (m)		GP(2003.00)	c c
AF9534	NAD 83(CORS)-	64 58 40.79765(N)	147 29 57.16346(W)	AD(2002.00)	c
AF9534	ELLIP H (03/??/02)	318.682 (m)		GP(2002.00)	c c
AF9534	NAD 83(CORS)-	64 58 40.79783(N)	147 29 57.16484(W)	AD(1997.00)	c
AF9534	ELLIP H (07/??/96)	318.703 (m)		GP(1997.00)	c c
AF9534	NAD 83(CORS)-	64 58 40.79787(N)	147 29 57.16488(W)	AD(1996.00)	c
AF9534	ELLIP H (07/??/96)	318.705 (m)		GP(1996.00)	c c
AF9534	NAD 83(CORS)-	64 58 40.79783(N)	147 29 57.16484(W)	AD(1997.00)	c
AF9534	ELLIP H (07/??/95)	318.703 (m)		GP(1997.00)	c c

AF9534

AF9534.Superseded values are not recommended for survey control.

AF9534

AF9534.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

AF9534.See file [dsdata.pdf](#) to determine how the superseded data were derived.

AF9534

AF9534\_MARKER: STATION IS THE ANTENNA REFERENCE POINT OF THE GPS ANTENNA

AF9534

AF9534 STATION DESCRIPTION

AF9534

AF9534'DESCRIBED BY NATIONAL GEODETIC SURVEY 2020

AF9534'STATION IS A GPS CORS. LATEST INFORMATION INCLUDING POSITIONS AND

AF9534'VELOCITIES ARE AVAILABLE IN THE COORDINATE AND LOG FILES ACCESSIBLE

AF9534'BY ANONYMOUS FTP OR THE WORLDWIDE WEB.

AF9534' [https://geodesy.noaa.gov/corsdata/coord/coord\\_14](https://geodesy.noaa.gov/corsdata/coord/coord_14)AF9534' [https://geodesy.noaa.gov/corsdata/station\\_log](https://geodesy.noaa.gov/corsdata/station_log)AF9534' <https://geodesy.noaa.gov/CORS>

\*\*\* retrieval complete.

Elapsed Time = 00:00:02

# The NGS Data Sheet

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

PROGRAM = datasheet95, VERSION = 8.12.5.13

Starting Datasheet Retrieval...

1 National Geodetic Survey, Retrieval Date = SEPTEMBER 14, 2021

DP3835 \*\*\*\*\*

DP3835 CORS - This is a GPS Continuously Operating Reference Station.

DP3835 DESIGNATION - DENLIHWY32AK2004 CORS ARP

DP3835 CORS\_ID - AC62

DP3835 PID - DP3835

DP3835 STATE/COUNTY- AK/VALDEZ-CORDOVA CENSUS

DP3835 COUNTRY - US

DP3835 USGS QUAD - MOUNT HAYES A-5 SW (2016)

DP3835

DP3835 \*CURRENT SURVEY CONTROL

DP3835

DP3835\* NAD 83(2011) POSITION- 63 05 00.98305(N) 146 18 45.61100(W) ADJUSTED

DP3835\* NAD 83(2011) ELLIP HT- 1346.707 (meters) (06/??/19) ADJUSTED

DP3835\* NAD 83(2011) EPOCH - 2010.00

DP3835

DP3835 GEOID HEIGHT - 15.202 (meters) GEOID12B

DP3835 NAD 83(2011) X - -2,409,396.720 (meters) COMP

DP3835 NAD 83(2011) Y - -1,606,098.220 (meters) COMP

DP3835 NAD 83(2011) Z - 5,665,403.601 (meters) COMP

DP3835

DP3835 Network accuracy estimates per FGDC Geospatial Positioning Accuracy

DP3835 Standards:

DP3835 FGDC (95% conf, cm) Standard deviation (cm) CorrNE

DP3835 Horiz Ellip SD\_N SD\_E SD\_h (unitless)

DP3835 -----

DP3835 NETWORK 0.20 0.55 0.09 0.06 0.28 0.01402600

DP3835 -----

DP3835

DP3835

DP3835.The coordinates were established by GPS observations

DP3835.and adjusted by the National Geodetic Survey in June 2019.

DP3835

DP3835.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has

DP3835.been affixed to the stable North American Tectonic Plate.

DP3835

DP3835.The coordinates are valid at the epoch date displayed above

DP3835.which is a decimal equivalence of Year/Month/Day.

DP3835

DP3835.Due to the release of the International GNSS Service (IGS) 2014

DP3835.realization of the International Terrestrial Reference Frame of 2014

DP3835.(ITRF2014), NGS reprocessed all NOAA CORS Network and some IGS stations

DP3835.using data collected between 1/1/1996 and 1/30/2017. The resulting ITRF2014

DP3835.epoch 2010.00 coordinates, referred to as Multi-Year CORS Solution 2

DP3835.(MYCS2), were transformed to NAD 83 (2011/PA11/MA11) maintaining the

DP3835.currently published epoch of 2010.00.

DP3835

DP3835.Additional information on MYCS2 is available at

DP3835.<https://geodesy.noaa.gov/CORS/news/mycs2/mycs2.shtml>

DP3835

DP3835.Significant digits in the geoid height do not necessarily reflect accuracy.

DP3835.GEOID12B height accuracy estimate available [here](#).

DP3835

DP3835.The PID for the CORS L1 Phase Center is DP3836.

DP3835

DP3835.Click [photographs](#) - Photos may exist for this station.

DP3835

DP3835.The XYZ, and position/ellipsoidal ht. are equivalent.

DP3835

DP3835.The ellipsoidal height was determined by GPS observations

DP3835.and is referenced to NAD 83.

DP3835

DP3835. The following values were computed from the NAD 83(2011) position.

DP3835

DP3835;		North	East	Units	Scale	Factor	Converg.
DP3835;UTM 06	-	6,995,090.120	534,714.939	MT	0.99961476		+0 36 46.4

DP3835

DP3835! - Elev Factor x Scale Factor = Combined Factor

DP3835!UTM 06 - 0.99978932 x 0.99961476 = 0.99940416

DP3835

DP3835\_U.S. NATIONAL GRID SPATIAL ADDRESS: 6VWQ3471495090(NAD 83)

DP3835

DP3835 SUPERSEDED SURVEY CONTROL

DP3835

DP3835 NAD 83(2011)- 63 05 00.98440(N) 146 18 45.61313(W) AD(2010.00) c

DP3835 ELLIP H (06/??/14) 1346.764 (m) GP(2010.00) c c

DP3835

DP3835.Superseded values are not recommended for survey control.

DP3835

DP3835.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

DP3835.See file [dsdata.pdf](#) to determine how the superseded data were derived.

DP3835

DP3835\_MARKER: STATION IS THE ANTENNA REFERENCE POINT OF THE GPS ANTENNA

DP3835

DP3835 STATION DESCRIPTION

DP3835

DP3835'DESCRIBED BY NATIONAL GEODETIC SURVEY 2019

DP3835'STATION IS A GPS CORS. LATEST INFORMATION INCLUDING POSITIONS AND

DP3835'VELOCITIES ARE AVAILABLE IN THE COORDINATE AND LOG FILES ACCESSIBLE

DP3835'BY ANONYMOUS FTP OR THE WORLDWIDE WEB.

DP3835' [https://geodesy.noaa.gov/corsdata/coord/coord\\_14](https://geodesy.noaa.gov/corsdata/coord/coord_14)DP3835' [https://geodesy.noaa.gov/corsdata/station\\_log](https://geodesy.noaa.gov/corsdata/station_log)DP3835' <https://geodesy.noaa.gov/CORS>

\*\*\* retrieval complete.

Elapsed Time = 00:00:01

# The NGS Data Sheet

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

PROGRAM = datasheet95, VERSION = 8.12.5.13

Starting Datasheet Retrieval...

1 National Geodetic Survey, Retrieval Date = AUGUST 25, 2021

TT2224 \*\*\*\*\*

TT2224 DESIGNATION - ALRICH AZ MK

TT2224 PID - TT2224

TT2224 STATE/COUNTY- AK/SOUTHEAST FAIRBANKS

TT2224 COUNTRY - US

TT2224 USGS QUAD - MOUNT HAYES D-4 NE (2016)

TT2224

TT2224 \*CURRENT SURVEY CONTROL

TT2224

TT2224\* NAD 83(1986) POSITION- 63 58 59. (N) 145 32 33. (W) SCALED

TT2224\* [NAVD 88](#) ORTHO HEIGHT - 394.436 (meters) 1294.08 (feet) ADJUSTED

TT2224

TT2224 GEOID HEIGHT - 11.175 (meters) GEOID12B

TT2224 DYNAMIC HEIGHT - 395.032 (meters) 1296.03 (feet) COMP

TT2224 MODELED GRAVITY - 982,086.8 (mgal) NAVD 88

TT2224

TT2224 VERT ORDER - FIRST CLASS II

TT2224

TT2224.The horizontal coordinates were scaled from a map and have

TT2224.an estimated accuracy of +/- 6 seconds.

TT2224.

TT2224.The orthometric height was determined by differential leveling and

TT2224.adjusted by the NATIONAL GEODETIC SURVEY

TT2224.in June 1991.

TT2224

TT2224.Significant digits in the geoid height do not necessarily reflect accuracy.

TT2224.GEOID12B height accuracy estimate available [here](#).

TT2224

TT2224.Click [photographs](#) - Photos may exist for this station.

TT2224

TT2224.The dynamic height is computed by dividing the NAVD 88

TT2224.geopotential number by the normal gravity value computed on the

TT2224.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45

TT2224.degrees latitude (g = 980.6199 gals.).

TT2224

TT2224.The modeled gravity was interpolated from observed gravity values.

TT2224

TT2224

TT2224\_U.S. NATIONAL GRID SPATIAL ADDRESS: 6VWR713959(NAD 83)

TT2224

TT2224 SUPERSEDED SURVEY CONTROL

TT2224

TT2224 NGVD 29 (??/??/92) 392.779 (m) 1288.64 (f) ADJ UNCH 1 2

TT2224

TT2224.Superseded values are not recommended for survey control.

TT2224

TT2224.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

TT2224.See file [dsdata.pdf](#) to determine how the superseded data were derived.

TT2224

TT2224\_MARKER: DZ = AZIMUTH MARK DISK

TT2224\_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT

TT2224\_STAMPING: ALRICH 1943

TT2224\_MARK LOGO: CGS



TT2224\_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO  
TT2224+STABILITY: SURFACE MOTION

TT2224

TT2224	HISTORY	- Date	Condition	Report By
TT2224	HISTORY	- 1943	MONUMENTED	CGS

TT2224

TT2224 STATION DESCRIPTION

TT2224

TT2224'DESCRIBED BY COAST AND GEODETIC SURVEY 1943 (GWL)

TT2224'15.4 MI S FROM BIG DELTA.

TT2224'15.4 MILES SOUTH OF THE POST OFFICE ALONG THE ALASKA MILITARY HIGHWAY,

TT2224'60 FEET EAST OF THE CENTER OF THE HIGHWAY, 0.2 OF A MILE SOUTH OF

TT2224'TRIANGULATION STATION ALRICH, ALONG THE TELEPHONE LINE ON TOP OF A

TT2224'SMALL RISE, SET ABOUT LEVEL WITH THE HIGHWAY. A DISK SET IN A

TT2224'CONCRETE MONUMENT AND STAMPED ALRICH 1943.

\*\*\* retrieval complete.

Elapsed Time = 00:00:01

# The NGS Data Sheet

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

PROGRAM = datasheet95, VERSION = 8.12.5.13

Starting Datasheet Retrieval...

1 National Geodetic Survey, Retrieval Date = AUGUST 25, 2021

TT2227 \*\*\*\*\*

TT2227 DESIGNATION - ALRICH RM 2

TT2227 PID - TT2227

TT2227 STATE/COUNTY- AK/SOUTHEAST FAIRBANKS

TT2227 COUNTRY - US

TT2227 USGS QUAD - MOUNT HAYES D-4 NE (2016)

TT2227

TT2227 \*CURRENT SURVEY CONTROL

TT2227

TT2227\* NAD 83(1986) POSITION- 63 59 01.59 (N) 145 33 07.59 (W) HD\_HELD1

TT2227\* [NAVD 88](#) ORTHO HEIGHT - 404.326 (meters) 1326.53 (feet) ADJUSTED

TT2227

TT2227 GEOID HEIGHT - 11.174 (meters) GEOID12B

TT2227 DYNAMIC HEIGHT - 404.938 (meters) 1328.53 (feet) COMP

TT2227 MODELED GRAVITY - 982,086.7 (mgal) NAVD 88

TT2227

TT2227 VERT ORDER - FIRST CLASS II

TT2227

TT2227.The horizontal coordinates were determined by differentially corrected

TT2227.hand held GPS observations or other comparable positioning techniques

TT2227.and have an estimated accuracy of +/- 3 meters.

TT2227.

TT2227.The orthometric height was determined by differential leveling and

TT2227.adjusted by the NATIONAL GEODETIC SURVEY

TT2227.in June 1991.

TT2227

TT2227.Significant digits in the geoid height do not necessarily reflect accuracy.

TT2227.GEOID12B height accuracy estimate available [here](#).

TT2227

TT2227.Click [photographs](#) - Photos may exist for this station.

TT2227

TT2227.The dynamic height is computed by dividing the NAVD 88

TT2227.geopotential number by the normal gravity value computed on the

TT2227.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45

TT2227.degrees latitude (g = 980.6199 gals.).

TT2227

TT2227.The modeled gravity was interpolated from observed gravity values.

TT2227

TT2227

TT2227\_U.S. NATIONAL GRID SPATIAL ADDRESS: 6VWR7085596010(NAD 83)

TT2227

TT2227 SUPERSEDED SURVEY CONTROL

TT2227

TT2227 NGVD 29 (??/??/92) 402.669 (m) 1321.09 (f) ADJ UNCH 1 2

TT2227

TT2227.Superseded values are not recommended for survey control.

TT2227

TT2227.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

TT2227.See file [dsdata.pdf](#) to determine how the superseded data were derived.

TT2227

TT2227\_MARKER: DR = REFERENCE MARK DISK

TT2227\_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT

TT2227\_STAMPING: ALRICH NO 2 1943

TT2227\_MARK LOGO: CGS

TT2227\_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO

TT2227+STABILITY: SURFACE MOTION

TT2227

TT2227	HISTORY	- Date	Condition	Report By
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TT2227	HISTORY	- 1943	MONUMENTED	CGS
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TT2227

TT2227 STATION DESCRIPTION

TT2227

TT2227'DESCRIBED BY COAST AND GEODETIC SURVEY 1943 (GWL)

TT2227'15.2 MI SE FROM BIG DELTA.

TT2227'15.2 MILES SOUTHEAST OF THE POST OFFICE ALONG THE ALASKA MILITARY

TT2227'HIGHWAY, 6.4 MILES SOUTHEAST OF THE JUNCTION OF THE ALASKA MILITARY

TT2227'AND RICHARDSON HIGHWAYS, ON THE SOUTHEAST SLOPE OF A BARE HILL AND 60

TT2227'FEET SOUTHEAST OF THE TRIANGULATION STATION ALRICH. A DISK SET IN A

TT2227'CONCRETE MONUMENT AND STAMPED ALRICH NO 2 1943.

\*\*\* retrieval complete.

Elapsed Time = 00:00:01

# The NGS Data Sheet

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

PROGRAM = datasheet95, VERSION = 8.12.5.13

Starting Datasheet Retrieval...

1 National Geodetic Survey, Retrieval Date = SEPTEMBER 8, 2021

TT2054 \*\*\*\*\*

TT2054 DESIGNATION - D 14

TT2054 PID - TT2054

TT2054 STATE/COUNTY- AK/SOUTHEAST FAIRBANKS

TT2054 COUNTRY - US

TT2054 USGS QUAD - MOUNT HAYES D-3 SE (2016)

TT2054

TT2054 \*CURRENT SURVEY CONTROL

TT2054

TT2054\* NAD 83(1986) POSITION- 63 51 02. (N) 145 03 02. (W) SCALED

TT2054\* [NAVD 88](#) ORTHO HEIGHT - 407.682 (meters) 1337.54 (feet) ADJUSTED

TT2054

TT2054 GEOID HEIGHT - 11.467 (meters) GEOID12B

TT2054 DYNAMIC HEIGHT - 408.289 (meters) 1339.53 (feet) COMP

TT2054 MODELED GRAVITY - 982,061.5 (mgal) NAVD 88

TT2054

TT2054 VERT ORDER - FIRST CLASS II

TT2054

TT2054.The horizontal coordinates were scaled from a map and have

TT2054.an estimated accuracy of +/- 6 seconds.

TT2054.

TT2054.The orthometric height was determined by differential leveling and

TT2054.adjusted by the NATIONAL GEODETIC SURVEY

TT2054.in June 1991.

TT2054

TT2054.Significant digits in the geoid height do not necessarily reflect accuracy.

TT2054.GEOID12B height accuracy estimate available [here](#).

TT2054

TT2054.Click [photographs](#) - Photos may exist for this station.

TT2054

TT2054.The dynamic height is computed by dividing the NAVD 88

TT2054.geopotential number by the normal gravity value computed on the

TT2054.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45

TT2054.degrees latitude (g = 980.6199 gals.).

TT2054

TT2054.The modeled gravity was interpolated from observed gravity values.

TT2054

TT2054

TT2054\_U.S. NATIONAL GRID SPATIAL ADDRESS: 6VWR958818(NAD 83)

TT2054

TT2054 SUPERSEDED SURVEY CONTROL

TT2054

TT2054 NGVD 29 (??/??/92) 406.024 (m) 1332.10 (f) ADJ UNCH 1 2

TT2054

TT2054.Superseded values are not recommended for survey control.

TT2054

TT2054.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

TT2054.See file [dsdata.pdf](#) to determine how the superseded data were derived.

TT2054

TT2054\_MARKER: DB = BENCH MARK DISK

TT2054\_SETTING: 30 = SET IN A LIGHT STRUCTURE

TT2054\_SP\_SET: MONUMENT

TT2054\_STAMPING: D 14 1943

TT2054\_STABILITY: D = MARK OF QUESTIONABLE OR UNKNOWN STABILITY

TT2054

TT2054	HISTORY	- Date	Condition	Report By
TT2054	HISTORY	- 1943	MONUMENTED	CGS

TT2054

TT2054

STATION DESCRIPTION

TT2054

TT2054'DESCRIBED BY COAST AND GEODETIC SURVEY 1943

TT2054'32.6 MI SE FROM BIG DELTA.

TT2054'32.6 MILES SOUTHEAST OF THE POST OFFICE ALONG THE ALASKA MILITARY  
TT2054'HIGHWAY, 45 FEET NORTHEAST OF THE CENTER OF THE HIGHWAY, 5.1 MILES  
TT2054'SOUTHEAST OF THE PUMP STATION NO. M, DIRECTLY BENEATH THE TELEPHONE  
TT2054'LINE, SET ON A SMALL RISE AND ABOUT 4 FEET ABOVE THE LEVEL OF THE  
TT2054'HIGHWAY.

\*\*\* retrieval complete.

Elapsed Time = 00:00:01

DELTA JCT. LIDAR

BASE #1

1.380 M

1.378 M

4.52 FT

4.51 FT

LEVER R-10

FILE: 87872500

RENAME 00012500

SET 60d NAIL



P.1

DAY 250

ST.

9/7/21

FTZ/CLD

4)

BASE #2

1.436 M

1.436 M

4.72 FT

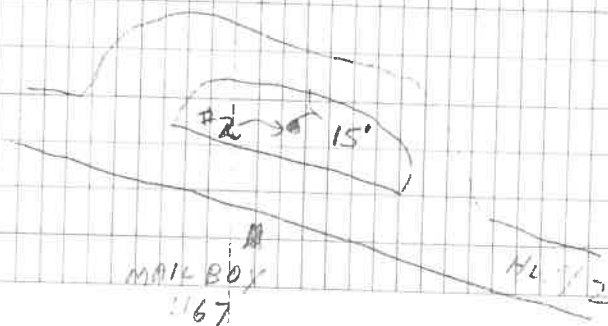
4.71 FT

LEVER R10

FILE: 49512500

RENAME: 00022500

SET 60d NAIL - NGS STATION  
SAWMILL NOT FOUND - SET AT  
SAME TURN OUT AS SAWMILL  
OPPOSITE MAIL BOX #1167



DIETZGEN NO. 384-3

65221002

DELTA JCT. LIDAR

ANT = 2 M BQR

743 NVA

ALL PHOTOS IN ORDER

918 CAL

CLOSE TO THE N.E. W

853 VVA

913 CAL

719 NVA

00 FILES

715 NVA

01

03

815 VVA

912 CAL

776 NVA

834 VVA

936 CAL

810 VVA

749 NVA

905 CAL

766 NVA

740 NVA

AFTER F-S ON CONTROL

837 VVA

9/7/21 CONT

GT

#10 ALRICH S. W.

(NEXT CONTROL)

FAST-STATIC

ANT = 2 M

END 3 1/2" BLISS DISK IN

ID. 0 1/2" 1/2" 1/2" 1/2"

FR. 3 1/2" 1/2" 1/2" 1/2"

DIETZEN NO. 384-3



65221002

DELTA JUNCTION LIDAR

#14 - ALRICH 2  
(HOR. CONTROL)  
FAST STATIC  
ANT = 2 M

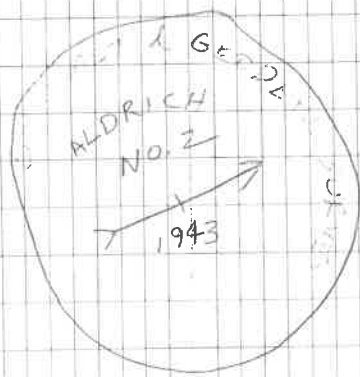
FOUND 3 1/2" DIA. BRASS DISK  
IN CONC. POST - 10" X 10"  
PROJ. 0.2' ABOVE GROUND



9/7/21 CONT  
GT

#12 - ALRICH RM 2  
(NEK. CONTROL)  
FAST - STATIC  
ANT = 2 M

FOUND 3 1/2" BRASS DISK IN  
10" X 10" CONC. POST, PROJ.  
0.3' ABOVE GROUND



DIETZGEN NO. 384-3



65221002  
DELTA JUNCTION LIDAR

#3 - D-14  
(VERT. CONTROL)  
ANT = 2 M

FOUND 3 1/2" BRASS IN  
10" X 10" CONCR. POST  
FED. 1/2" ABOVE SURF



9/7/21 CORT  
GT

5221002

DELTA JUNCTION LIDAR

BASE #1 60d NAIL

ANT HT. (LEVER)

1.385 M

4.54 FT

ORIG = 87872510

RENAME 00012510

BASE #2 60d NAIL

ANT HT. (LEVER)

1.416 M

4.64 FT

ORIG. 49512510

RENAME. 00022510

MOSTLY CLDY 9/8/21  
45° AT

ALL ANT. HT = 2 M

718 NVA

826 VVA

930 CAL

848 IVA

739 NVA

908 CAL

754 NVA

711 NVA

827 ~~CAL~~ VVA

904 CAL - 2' W/IN AROUND END RD.

734 NVA

873 VVA

731 CAL

DIETZEN NO. 384.3

65221002

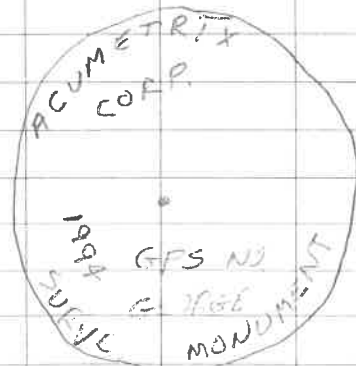
DELT JUNCTION LIDAR

#1A - GEORGE - NOT NGS STATION  
(HOR CONTROL) RE-SET

FAST-STATIC

ANT HT = 2 M FROM <sup>R.R.</sup> ~~STATION~~

FOUND 3/4" DIA ALUM  
CAP IN A MONUMENT BOX  
IN THE S'THLY ENTRANCE  
TO A PULLOUT AT MILE  
POST 1385 ON HWY 2  
0<sup>3</sup>' BELOW ASPHALT



9/8/21 CONT

847 - VVA  
935 - CAL  
747 - NVA  
820 - VVA  
775 - NVA  
921 - CAL  
709 - NVA  
818 - VVA  
755 - NVA  
852 - VVA  
849 - VVA  
758 - NVA  
739 - CAL  
757 - NVA

DIETZEN NO. 384-3

65221002  
DELTA JCT.

BASE #1

ANT HT TO LEVER  
1.398 M  
4.60 FT  
ORIG 87872520  
RENAMED 00012520

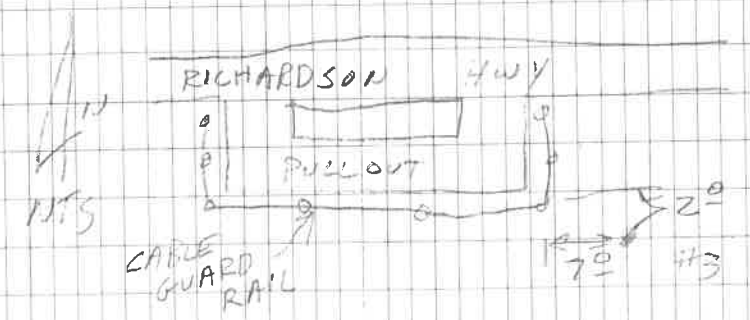
DAY 252 9/9/21  
PLY CLDY 50 GT

BASE #3

ANT HT TO LEVER  
1.495 M  
4.91 FT  
ORIG. T3512520  
RENAMED 0003252

SET 60 D NAIL BESIDE  
PULL OUT ALONG HWY

DIETZEN NO. 384-3



6522100Z

DELTA JUNCTION LIDAR

AUT. HT. = 2 M

708 NVA

906 CAL

809 VVA

938 CAL

801 VVA

765 NVA

701 NVA

335 VVA

839 VVA

1720 NVA

806 VVA

705 NVA

903 CAL

726 NVA

832 VVA

\*920 CAL

748 NVA

840 VVA

744 NVA

805 VVA

8

DAY 252

9/9/21 CONT

GT

342 VVA

(19 SECONDS?)

~~714~~ NVA

REDOUBLE DAY 253

774 VVA

722 NVA

819 VVA

DIETZEN NO. 384-3

NOTES

771, 455 - MOVE AD - T.M.I.  
DONE OF #801

332, 322 - MOVE BETWEEN

332, 322 - MOVE BETWEEN H.L.S. GROUPS  
ON STAFF

332, 322 - MOVE BETWEEN  
H.L.S. GROUPS ON STAFF

#914 - RECD - FOOT

757 & 915 GROUPS - QUARTER

35, 927 - STAFF

745, 863 - ONLY ON / U, RECD

808

726 - 209 FIX IN TBC

332

DIETZEN NO. 384-3

65221002

DELTA JUNCTION 6-VA

#1 - BASE

ANT HT TO LEVER

1.448 M

4.75 =

ORIG: 87872530

RENAMED 00012530

#3 - NORTH BASE

ANT HT TO LEVER

1.485 M

4.87 FT

ORIG: 47512530

RENAMED 00032530

DAY 253

9/10/12

MOSTLY CLDY 50° GT

ALL ANT HT = 2 M B.G.R.

914 CAL

825 VVA

717 NVA

933 CAL

751 NVA

844 VVA ??? REDONE DAY 254

932 CAL

822 VVA

735 NVA

902 CAL

803 VVA

703 NVA

811 VVA

777 NVA

728 NVA

836 VVA

937 CAL

916 CAL

778 NVA

838 VVA

DIETZEN NO. 3843

10<sup>9</sup>

6522/1002

DATA - 11P - IN L PR

ANT HT = 2M BQR.

710 - NVA

824 - VVA

727 - NVA

845 VVA

713 NVA

813 - NVA

910 - CAL

724 - NVA

767 - NVA

841 - VVA

915 - CAL

854 - VVA

- - - NVA

DAY 253

9/18/21 CONT

GT

## NOTES

844 - NOT SHOWING UP IN  
TBC - RE DO @ NEW  
BRIDGE

724 - FAILED

922, 768 - MOVE TO END OF AD

824 (AME PAST LAST SITE 773)

928, 760 - MOVE 2MS PAST 773



65221002

W. TH JUP-70N LIDAR

#1: 3/15

ANT. HT. TO LEVER

1494 M

4.71 F

ORIG. 8787-540

RENAMED 003 2:70

#3 - NORTH BASE

1.449 M TO LEVER

4.76 F

ORIG: 49512540

RENAMED 003 2:70

DIETZEN NO. 384.3

DAY 254

9/11/21

AM CLOUDS

GT

VA SUN 50°

ALL ANT HT = 2 M F.O.R.

844 - VVA

724 - NVA

741 - NYA

851 - VVA

922 - CAL

NEW 768 - NVA

390 < 834 - VVA

RENAME ~~844~~ BONUS

928 - CAL

750 - NVA

888 - VVA - BONUS POINT

~~1950 - CAL - BONUS POINT DELETE~~

823 - VVA

730 - NVA

723 - NVA

738 - NVA

829 - NYA VVA

919 - CAL

772 - NVA

859 - VVA

771 - NVA

889 - VVA - BONUS POINT

65221002

DELTA JUNCTION 1 IDAR

ALL ANT HT - 2-M B.O.R

742 - NVA

929 - CAL

817 - VVA

745 - NVA

958 VVA

927 - CAL

770 - NVA

851 - VVA

13

DAY 254

9/11/21 CONT

GT

DIETZGEN NO. 384-3

6522100Z  
DELTA JUNCTION LIDAR

BASE #1

1.456 M (LEVER)  
4.79 FT

ORIG 87872550  
REPAIRED 00012550

BASE #2

1.424 M (LEVER)  
4.67 FT

ORIG 49512550  
REPAIRED 00022550

DAY 255 9/12/21

BT

ANT HT ZM BQR, UNLESS  
NOTED

753 - NVA 1.340 (FS)

759 - NVA - PIGS REVERSED

831 - VVA

890 - VVA BONUS

707 - NVA

807 - VVA

891 - VVA - BONUS

729 - NVA

706 - NVA

714 - NVA

911 - CAL - FAILED REPEAT FS.

814 - VVA

725 - NVA

860 - VVA

824 - VVA

731 - NVA

924 - CAL

804 - VVA

709 - NVA

DIETZEN NO. 384-3

65221002

DELET JUNCTION L1001

BASE #1

4.55 FT

4.78 M

#911 - CAL - FAST-STRIP -

PROCESS TO CORRS

PHOTOS W/ 255

1.438 M

4.72 FT

DAY 256

9/13/21

ET

DIETZGEN NO. 384-3

715 715



715