

Ground Control Survey Report



UNITED STATES GEOLOGICAL SURVEY
NE EASTERN NEBRASKA UA LIDAR 2016 B16

TASK ORDER NUMBER: G15PD01160

Contractor: Woolpert, Inc.
Woolpert Project # 77026

December 2016

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UNITED STATES GEOLOGICAL SURVEY NE EASTERN NEBRASKA UA LIDAR 2016 B16

Task Order G15PD01160

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Section 1: Survey Report

TASK ORDER NAME: UNITED STATES GEOLOGICAL SURVEY NE EASTERN NEBRASKA UA LIDAR 2016 B16

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This report contains a comprehensive outline of the Ground Control Survey that supported the Eastern Nebraska airborne LiDAR collection. All surveys were performed in such a way as to achieve ground control accuracies that meet or exceed the National Mapping Accuracy Standards.

Project Area

The project area consists of approximately 1789 square miles over Eastern Nebraska including the cities of Lincoln and Omaha.

Purpose

The purpose of this survey was to establish three-dimensional coordinates for 33 LiDAR primary control points and 131 ground classification check points. The points were collected per the flight layout and were uniformly dispersed over the project area.

Date of Survey

Multiple ground control field missions took place December 6th through December 12th, 2016.

Monumentation

Prior to aerial acquisition, Woolpert field crews performed a field reconnaissance to verify the existence and suitability of pre-selected existing National Geodetic Survey (NGS) control stations. These existing bench marks were utilized as checks to ensure that quality x, y, and z coordinate values were computed for each of the newly established LiDAR control stations. Recovery information sheets for the recovered NGS control stations can be found in Section 4 of this report. A control diagram showing the ground control stations used to support this mapping project can be found in Section 5 of this report.

Accuracy Standards

The relative accuracy of the LiDAR data will be ≤ 8 cm RMSEZ between adjacent swaths with a maximum difference of ± 16 cm.

GPS Equipment

Woolpert utilized 2 Trimble Navigation R10 Model GNSS dual-frequency GPS receiver and 2 TSC3 data collector for this project.

Methodology

Real-Time Kinematic (RTK) GPS

The field crew utilized Real-Time Kinematic (RTK) and GPS Rapid Static methods throughout the ground control data collection process. Using these techniques, observations were performed on a total of 33 LiDAR control points and 137 ground classification check points. The survey was conducted using a 1-second epoch rate, in a fixed solution RTK mode, with each observation lasting between 60 to 180 seconds. Each station was occupied twice to insure the necessary horizontal and vertical accuracies were being met for this LiDAR / photogrammetric project.

VRS Virtual Reference System or RTN Real Time Network.

The “Virtual Reference Station” (VRS) concept is based on having a network (spaced at 50-60kms) of GNSS (GPS or GPS/GLONASS) reference stations permanently connected to the control center via the Internet. The networked stations collectively and precisely, model ionospheric errors for the individual GNSS rover in the network coverage area. The rover interprets and uses the VRS network-correction data as if it is operating with a single physical base station on a very short baseline which increases the RTK performance. Corrections (vectors) are from the closest base, but because the ionospheric error (which is traditionally baseline dependent) is practically negated, the rover's degradation in accuracy due to baseline length starts when the rover is first initialized, that is, at the work site. Thus accuracies are increased and more consistent throughout the working region

GPS Data Analysis and Processing

The field crew chief processed all session baselines each day using Trimble Navigation’s Trimble Business Center (TBC) Version 3.80 baseline processor with the accompanying broadcast ephemeris. Daily processing ensured the integrity of the network as it was constructed, and allowed the field crews to immediately reschedule observations of poor baselines.

Datum Reference and Final Coordinates

The spatial reference system for NE Eastern Nebraska UA LiDAR 2016 B16 is Nebraska State Plane FIPS 2600, NAD83 (2011), US Survey Feet to 2 decimal places horizontal and NAVD88 U.S. Survey feet vertical using the latest geoid model of 2012 (GEOID12B).

Quality Assurance

Existing NSRS published continuously operating reference stations were utilized to assure that there were no discrepancies in the field observation data. Close examinations of the residuals showed no distortions in orientation or scale. The ground control data meets positional accuracies necessary to support 1.0 point per 0.3 meters squared (1’ GSD) data at 95% confidence level as outlined in the Geospatial Positioning Accuracy Standards, Part 3: National Standard for Spatial Data Accuracy (NSSDA), published by the Federal Geographic Data Committee (FGDC-STD-007.3-1998).

Section 2: Ground Control / Geodetic Control Coordinate Listings

- Coordinate System: Grid
- Horizontal Datum: NAD83 2011 Nebraska State Plane (2600)
- Vertical Datum: NAVD88
- Geoid Model: GEOID 12B
- Units: U.S. Survey Feet

Point No.	Nebraska State Plane (2600)		Ortho Height (NAVD88) (sFT)	Description
	Northing (sFT)	Easting (sFT)		
1001	302518.533	2492899.271	1490.881	LiDAR Control
1002	375675.537	2550167.182	1154.446	LiDAR Control
1003	340475.334	2624880.900	1275.320	LiDAR Control
1004	459574.603	2644430.000	1104.202	LiDAR Control
1005	446308.981	2492481.087	1329.833	LiDAR Control
1006	273655.841	2582915.466	1321.639	LiDAR Control
1007	382818.276	2591368.030	1206.460	LiDAR Control
1008	462189.406	2564882.551	1200.011	LiDAR Control
1009	373341.632	2516080.423	1202.615	LiDAR Control
1010	448592.415	2699870.017	1054.509	LiDAR Control
1011	479698.320	2780646.455	973.197	LiDAR Control
1012	516409.104	2789178.850	976.748	LiDAR Control
1013	494741.075	2669599.167	1203.673	LiDAR Control
1014	580832.590	2622803.006	1170.284	LiDAR Control
1015	612247.346	2576930.534	1216.356	LiDAR Control
1016	663056.536	2679757.352	1164.765	LiDAR Control
1017	600680.528	2707889.700	1312.494	LiDAR Control
1018	603033.938	2598985.014	1198.399	LiDAR Control
1019	532063.753	2736749.074	1018.000	LiDAR Control
1020	596400.718	2759553.060	991.628	LiDAR Control
1021	634846.460	2716694.590	1019.689	LiDAR Control
1022	537928.980	2679295.469	1248.288	LiDAR Control

Point No.	Nebraska State Plane (2600)		Ortho Height (NAVD88) (sFT)	Description
	Northing (sFT)	Easting (sFT)		
1023	556036.706	2778885.261	1163.880	LiDAR Control
1024	426325.558	2529083.404	1270.244	LiDAR Control
1025	327528.885	2608865.356	1261.170	LiDAR Control
1026	413778.294	2596925.514	1119.385	LiDAR Control
1027	487182.880	2711235.859	1169.345	LiDAR Control
1028	507178.949	2689368.823	1222.528	LiDAR Control
1029	644712.363	2695905.894	1110.534	LiDAR Control
1030	573315.239	2749043.724	1046.693	LiDAR Control
1031	558466.257	2646047.947	1138.321	LiDAR Control
1032	430083.084	2631022.403	1147.283	LiDAR Control
1033	273122.532	2532350.625	1480.197	LiDAR Control
2001	314438.308	2496248.379	1441.568	NVA
2002	278413.524	2533738.019	1461.691	NVA
2003	266740.877	2555629.606	1438.200	NVA
2004	283403.412	2575971.105	1398.491	NVA
2005	304133.246	2574140.526	1240.579	NVA
2006	350341.668	2567239.625	1290.037	NVA
2007	349209.226	2552276.053	1228.142	NVA
2008	394249.159	2559509.559	1159.270	NVA
2009	416430.531	2598308.722	1117.311	NVA
2010	461880.089	2642866.648	1068.149	NVA
2011	498725.957	2676670.544	1284.355	NVA
2012	489179.623	2771728.973	963.866	NVA
2013	516704.218	2746857.903	1084.286	NVA
2014	528950.248	2739579.873	1091.135	NVA
2015	549214.374	2732290.996	1165.804	NVA
2016	563630.601	2726390.330	1089.862	NVA
2017	581910.113	2692019.562	1092.799	NVA
2018	547557.615	2676514.246	1244.139	NVA
2019	559720.048	2641663.744	1140.835	NVA
2020	607180.716	2592436.700	1203.980	NVA
2021	606708.122	2609008.922	1183.240	NVA
2022	643818.467	2698631.345	1083.965	NVA

Point No.	Nebraska State Plane (2600)		Ortho Height (NAVD88) (sFT)	Description
	Northing (sFT)	Easting (sFT)		
2023	648317.519	2692959.464	1090.811	NVA
2024	432261.909	2510029.864	1318.387	NVA
2025	443400.740	2567242.421	1269.380	NVA
2026	496742.395	2743319.358	1126.662	NVA
2027	479039.267	2707065.657	1140.738	NVA
2028	456927.016	2672520.382	1073.840	NVA
2029	388901.225	2504407.063	1284.953	NVA
2030	266769.338	2498374.244	1433.730	NVA
2031	331524.625	2533403.734	1323.814	NVA
2032	359811.666	2513229.464	1316.654	NVA
2033	416290.565	2535664.756	1224.342	NVA
2034	276629.623	2624233.010	1368.943	NVA
2035	300105.837	2609049.571	1423.834	NVA
2036	328221.847	2609136.384	1281.790	NVA
2037	437362.707	2635655.440	1134.590	NVA
2038	604135.594	2584370.430	1210.977	NVA
2039	587169.729	2588146.904	1354.801	NVA
2040	599215.087	2625529.103	1162.121	NVA
2041	590575.745	2613059.514	1177.306	NVA
2042	621131.232	2679737.933	1187.176	NVA
2043	661979.064	2708021.865	1009.000	NVA
2044	626806.438	2712780.621	1261.346	NVA
2045	610883.302	2703239.881	1229.242	NVA
2046	593869.103	2743837.901	1310.710	NVA
2047	315044.031	2522517.566	1416.017	NVA
2048	305710.032	2543600.151	1280.353	NVA
2050	333270.498	2585231.615	1399.387	NVA
2051	376306.618	2604069.201	1312.063	NVA
2052	455591.173	2604970.920	1195.608	NVA
2053	480298.284	2672624.250	1265.947	NVA
2054	518416.019	2699436.172	1136.344	NVA
2055	553120.946	2703718.751	1183.474	NVA
2056	570327.121	2668518.782	1306.455	NVA

Point No.	Nebraska State Plane (2600)		Ortho Height (NAVD88) (sFT)	Description
	Northing (sFT)	Easting (sFT)		
2057	584368.040	2646782.062	1142.358	NVA
2058	638511.170	2679289.054	1278.778	NVA
2059	666654.606	2684282.525	1078.177	NVA
2060	633897.530	2695400.431	1282.730	NVA
2061	592348.119	2710786.525	1307.677	NVA
2062	582812.580	2731108.712	1294.842	NVA
2063	571482.333	2750924.297	1023.131	NVA
2064	551004.892	2771300.190	986.214	NVA
2065	540511.756	2754587.625	1099.257	NVA
2066	476194.117	2753306.463	994.781	NVA
2067	464753.876	2694015.779	1146.408	NVA
2068	504214.641	2718179.478	1105.243	NVA
2069	459596.368	2529606.200	1438.151	NVA
2070	422434.721	2567113.847	1281.137	NVA
2071	299076.131	2517860.071	1415.910	NVA
2072	360019.066	2593046.090	1242.240	NVA
2073	397938.620	2617890.429	1167.855	NVA
2074	439774.434	2605597.894	1173.712	NVA
2075	547332.180	2648309.401	1134.019	NVA
2076	530904.417	2649207.404	1116.434	NVA
2077	515259.858	2659793.048	1105.496	NVA
3001	312951.977	2494998.548	1402.446	VVA
3002	278457.526	2532311.260	1397.385	VVA
3003	266856.238	2555703.968	1434.566	VVA
3004	285318.817	2574552.647	1403.277	VVA
3006	351025.265	2569850.570	1257.872	VVA
3007	349743.438	2551501.384	1206.908	VVA
3008	393785.950	2559101.649	1171.361	VVA
3010	462946.954	2641664.079	1062.050	VVA
3011	502075.548	2675491.184	1280.935	VVA
3012	489780.178	2772352.791	960.132	VVA
3013	518125.308	2746328.291	1081.674	VVA
3014	528946.549	2739851.774	1093.980	VVA

Point No.	Nebraska State Plane (2600)		Ortho Height (NAVD88) (sFT)	Description
	Northing (sFT)	Easting (sFT)		
3015	549252.469	2730831.027	1093.585	VVA
3016	562294.722	2726643.377	1124.084	VVA
3017	582238.237	2691695.663	1092.011	VVA
3018	545847.097	2677580.325	1191.951	VVA
3019	560333.793	2641116.228	1140.236	VVA
3020	605912.811	2591620.927	1211.232	VVA
3021	608556.800	2610474.023	1178.387	VVA
3022	643300.339	2699783.738	1084.943	VVA
3023	648384.428	2692689.819	1118.322	VVA
3024	432999.411	2509841.506	1306.898	VVA
3026	496909.542	2743171.176	1099.366	VVA
3027	478696.735	2709534.904	1113.385	VVA
3028	455976.722	2672471.017	1048.560	VVA
3029	390650.805	2505207.702	1260.611	VVA
3030	266857.703	2499185.653	1407.124	VVA
3031	331517.809	2536641.201	1326.441	VVA
3032	357794.899	2510773.553	1239.975	VVA
3033	416464.908	2538525.374	1304.774	VVA
3034	276612.073	2624827.590	1338.465	VVA
3035	300701.953	2608679.152	1407.352	VVA
3036	326942.602	2608959.667	1240.225	VVA
3037	437190.325	2637255.966	1171.210	VVA
3038	604156.765	2584779.688	1210.897	VVA
3039	587285.875	2588901.952	1337.492	VVA
3041	590126.365	2613246.765	1174.457	VVA
3042	620257.606	2681428.274	1144.503	VVA
3043	662223.594	2707282.782	1012.161	VVA
3044	626521.154	2714167.088	1240.029	VVA
3045	612479.955	2703637.659	1311.998	VVA
3046	593856.248	2743804.974	1309.576	VVA
3047	308979.606	2522862.229	1318.967	VVA
3048	305309.249	2543940.642	1254.883	VVA
3049	329928.212	2553684.061	1219.238	VVA

Point No.	Nebraska State Plane (2600)		Ortho Height (NAVD88) (sFT)	Description
	Northing (sFT)	Easting (sFT)		
3050	332493.042	2585195.249	1376.893	VVA
3052	455221.394	2600332.841	1168.719	VVA
3053	480174.443	2672346.952	1280.662	VVA
3054	517213.689	2702402.122	1103.190	VVA
3055	553037.120	2703819.245	1186.399	VVA
3056	568561.727	2668576.034	1300.397	VVA
3057	584470.161	2647408.243	1137.660	VVA
3058	638444.653	2676810.024	1173.052	VVA
3059	665271.838	2685560.282	1064.936	VVA
3060	634350.734	2706067.905	1276.308	VVA

- Coordinate System: Geodetic
- Horizontal Datum: NAD83 (2011) Epoch 2010.00
- Vertical Datum: NAVD88
- Units: U.S Survey Feet

Point No.	Geodetic Coordinates NAD-83 (2011) Epoch 2010.00		Ellipsoid Height (sFT)	Description
	Latitude (N)	Longitude (W)		
1001	40°37'20.03457"	-96°55'40.09112"	1404.287	LiDAR Control
1002	40°49'01.78174"	-96°42'41.72034"	1068.916	LiDAR Control
1003	40°42'44.94109"	-96°26'49.36255"	1189.324	LiDAR Control
1004	41°02'13.01629"	-96°21'30.53109"	1017.984	LiDAR Control
1005	41°01'00.44528"	-96°54'38.88492"	1241.822	LiDAR Control
1006	40°32'01.71862"	-96°36'28.06888"	1234.499	LiDAR Control
1007	40°49'56.48745"	-96°33'42.44588"	1121.610	LiDAR Control
1008	41°03'10.63584"	-96°38'46.77760"	1112.883	LiDAR Control
1009	40°48'51.30089"	-96°50'05.98732"	1115.997	LiDAR Control
1010	41°00'00.87188"	-96°09'33.94012"	967.518	LiDAR Control
1011	41°04'31.15775"	-95°51'41.92782"	883.463	LiDAR Control
1012	41°10'29.51880"	-95°49'27.46905"	886.761	LiDAR Control
1013	41°07'49.65743"	-96°15'42.45861"	1116.236	LiDAR Control
1014	41°22'19.35013"	-96°25'07.04465"	1080.500	LiDAR Control
1015	41°27'47.92521"	-96°34'52.14371"	1128.554	LiDAR Control
1016	41°35'27.21568"	-96°11'53.08011"	1073.330	LiDAR Control
1017	41°24'58.98497"	-96°06'20.07993"	1220.200	LiDAR Control
1018	41°26'08.22332"	-96°30'07.50804"	1109.530	LiDAR Control
1019	41°13'28.52512"	-96°00'43.11949"	928.366	LiDAR Control
1020	41°23'53.18656"	-95°55'05.18310"	898.805	LiDAR Control
1021	41°30'32.37052"	-96°04'04.20305"	926.555	LiDAR Control
1022	41°14'51.93717"	-96°13'11.15496"	1159.046	LiDAR Control
1023	41°17'05.61821"	-95°51'17.11917"	1073.021	LiDAR Control
1024	40°57'29.87330"	-96°46'51.29208"	1183.107	LiDAR Control
1025	40°40'43.53898"	-96°30'24.00853"	1175.296	LiDAR Control
1026	40°55'00.04930"	-96°32'14.05587"	1034.172	LiDAR Control
1027	41°06'16.88459"	-96°06'43.18028"	1081.520	LiDAR Control

Point No.	Geodetic Coordinates NAD-83 (2011) Epoch 2010.00		Ellipsoid Height (sFT)	Description
	Latitude (N)	Longitude (W)		
1028	41°09'43.94184"	-96°11'17.11714"	1134.452	LiDAR Control
1029	41°32'19.03019"	-96°08'31.47481"	1018.171	LiDAR Control
1030	41°20'10.15320"	-95°57'37.12685"	955.171	LiDAR Control
1031	41°18'28.86769"	-96°20'14.76371"	1048.368	LiDAR Control
1032	40°57'27.32726"	-96°24'41.36586"	1061.837	LiDAR Control
1033	40°32'15.52905"	-96°47'22.87352"	1394.169	LiDAR Control
2001	40°39'16.59040"	-96°54'51.16031"	1355.027	NVA
2002	40°33'07.27647"	-96°47'02.36412"	1375.815	NVA
2003	40°31'03.85014"	-96°42'24.67503"	1351.656	NVA
2004	40°33'40.66701"	-96°37'53.03707"	1312.046	NVA
2005	40°37'06.09839"	-96°38'06.28901"	1154.926	NVA
2006	40°44'45.10345"	-96°39'12.53606"	1205.112	NVA
2007	40°44'39.59589"	-96°42'27.41331"	1142.985	NVA
2008	40°52'01.69151"	-96°40'30.98061"	1073.727	NVA
2009	40°55'25.69414"	-96°31'54.66236"	1032.060	NVA
2010	41°02'36.43276"	-96°21'49.65451"	981.869	NVA
2011	41°08'25.97367"	-96°14'07.84271"	1196.728	NVA
2012	41°06'08.96195"	-95°53'32.38521"	874.446	NVA
2013	41°10'52.25520"	-95°58'40.28122"	994.996	NVA
2014	41°12'56.49394"	-96°00'07.98582"	1001.574	NVA
2015	41°16'19.88142"	-96°01'31.09953"	1075.564	NVA
2016	41°18'44.88705"	-96°02'39.68148"	999.021	NVA
2017	41°22'00.66399"	-96°09'59.16272"	1001.445	NVA
2018	41°16'28.21079"	-96°13'42.04266"	1154.453	NVA
2019	41°18'43.07944"	-96°21'11.48548"	1050.905	NVA
2020	41°26'51.78254"	-96°31'31.25073"	1115.433	NVA
2021	41°26'40.47789"	-96°27'53.99982"	1094.045	NVA
2022	41°32'09.00151"	-96°07'56.18589"	991.483	NVA
2023	41°32'55.92203"	-96°09'08.08402"	998.593	NVA
2024	40°58'35.44194"	-96°50'56.71852"	1230.573	NVA
2025	41°00'04.17061"	-96°38'25.51933"	1182.966	NVA
2026	41°07'36.79724"	-95°59'38.61819"	1037.932	NVA
2027	41°04'58.32646"	-96°07'42.37995"	1053.166	NVA

Point No.	Geodetic Coordinates NAD-83 (2011) Epoch 2010.00		Ellipsoid Height (sFT)	Description
	Latitude (N)	Longitude (W)		
2028	41°01'35.01971"	-96°15'25.70063"	987.376	NVA
2029	40°51'29.18000"	-96°52'30.43205"	1197.596	NVA
2030	40°31'25.00676"	-96°54'45.67503"	1347.226	NVA
2031	40°41'51.95841"	-96°46'41.05328"	1238.384	NVA
2032	40°46'38.69470"	-96°50'49.46790"	1230.159	NVA
2033	40°55'48.33063"	-96°45'30.45178"	1137.675	NVA
2034	40°32'14.71668"	-96°27'31.72721"	1279.946	NVA
2035	40°36'12.65076"	-96°30'35.98588"	1336.777	NVA
2036	40°40'50.27408"	-96°30'20.12937"	1195.931	NVA
2037	40°58'37.30927"	-96°23'37.05799"	1048.970	NVA
2038	41°26'24.90024"	-96°33'18.71548"	1122.679	NVA
2039	41°23'35.86636"	-96°32'38.05954"	1266.126	NVA
2040	41°25'19.75573"	-96°24'21.28496"	1072.244	NVA
2041	41°23'59.53186"	-96°27'09.53176"	1087.825	NVA
2042	41°28'33.27284"	-96°12'17.55487"	1095.358	NVA
2043	41°35'04.13165"	-96°05'42.00878"	916.289	NVA
2044	41°29'14.74686"	-96°05'00.39820"	1168.396	NVA
2045	41°26'41.78492"	-96°07'15.05921"	1136.790	NVA
2046	41°23'35.47176"	-95°58'32.77701"	1218.172	NVA
2047	40°39'13.16647"	-96°49'10.19570"	1330.407	NVA
2048	40°37'33.22439"	-96°44'41.35557"	1195.029	NVA
2050	40°41'49.56276"	-96°35'27.64923"	1314.282	NVA
2051	40°48'47.15693"	-96°31'00.71820"	1227.236	NVA
2052	41°01'49.77707"	-96°30'07.28047"	1109.465	NVA
2053	41°05'25.75089"	-96°15'11.13157"	1178.925	NVA
2054	41°11'30.48722"	-96°08'59.04210"	1047.716	NVA
2055	41°17'11.26130"	-96°07'42.73801"	1093.341	NVA
2056	41°20'16.47312"	-96°15'13.76995"	1215.900	NVA
2057	41°22'44.32695"	-96°19'50.74586"	1051.869	NVA
2058	41°31'25.07039"	-96°12'13.42275"	1187.064	NVA
2059	41°36'00.77035"	-96°10'51.47449"	986.586	NVA
2060	41°30'32.47516"	-96°08'44.45684"	1190.357	NVA
2061	41°23'35.42640"	-96°05'47.02307"	1215.623	NVA

Point No.	Geodetic Coordinates NAD-83 (2011) Epoch 2010.00		Ellipsoid Height (sFT)	Description
	Latitude (N)	Longitude (W)		
2062	41°21'52.13203"	-96°01'26.33728"	1202.986	NVA
2063	41°19'51.18887"	-95°57'13.61806"	931.683	NVA
2064	41°16'19.52388"	-95°52'59.53062"	895.530	NVA
2065	41°14'43.73356"	-95°56'44.67255"	1009.108	NVA
2066	41°04'09.33583"	-95°57'40.75939"	905.976	NVA
2067	41°02'43.01188"	-96°10'40.92192"	1059.391	NVA
2068	41°09'01.95151"	-96°05'02.46643"	1016.816	NVA
2069	41°02'58.28833"	-96°46'28.30215"	1350.308	NVA
2070	40°56'37.15600"	-96°38'37.81051"	1195.293	NVA
2071	40°36'37.14194"	-96°50'18.17257"	1330.173	NVA
2072	40°46'10.66782"	-96°33'32.43172"	1157.394	NVA
2073	40°52'15.23942"	-96°27'49.56551"	1082.890	NVA
2074	40°59'13.32777"	-96°30'07.45376"	1088.002	NVA
2075	41°16'37.97634"	-96°19'51.33988"	1044.411	NVA
2076	41°13'55.38271"	-96°19'48.71813"	1027.537	NVA
2077	41°11'16.43895"	-96°17'39.03226"	1017.326	NVA
3001	40°39'02.35003"	-96°55'08.05682"	1315.862	VVA
3002	40°33'08.23504"	-96°47'20.81704"	1311.511	VVA
3003	40°31'04.96148"	-96°42'23.65580"	1348.026	VVA
3004	40°34'00.12912"	-96°38'10.43954"	1316.958	VVA
3006	40°44'50.85474"	-96°38'38.28653"	1172.972	VVA
3007	40°44'45.16336"	-96°42'37.20886"	1121.727	VVA
3008	40°51'57.27167"	-96°40'36.51919"	1085.815	VVA
3010	41°02'47.46737"	-96°22'04.75469"	975.743	VVA
3011	41°08'59.55531"	-96°14'21.34270"	1193.206	VVA
3012	41°06'14.59798"	-95°53'23.87055"	870.693	VVA
3013	41°11'06.52876"	-95°58'46.33794"	992.353	VVA
3014	41°12'56.33319"	-96°00'04.43296"	1004.415	VVA
3015	41°16'20.92021"	-96°01'50.18247"	1003.356	VVA
3016	41°18'31.58343"	-96°02'37.16895"	1033.307	VVA
3017	41°22'04.04564"	-96°10'03.21712"	1000.649	VVA
3018	41°16'10.86135"	-96°13'29.06774"	1102.340	VVA
3019	41°18'49.36807"	-96°21'18.31702"	1050.299	VVA

Point No.	Geodetic Coordinates NAD-83 (2011) Epoch 2010.00		Ellipsoid Height (sFT)	Description
	Latitude (N)	Longitude (W)		
3020	41°26'39.58544"	-96°31'42.62633"	1122.691	VVA
3021	41°26'58.14116"	-96°27'33.77773"	1089.163	VVA
3022	41°32'03.37635"	-96°07'41.34826"	992.412	VVA
3023	41°32'56.70119"	-96°09'11.58883"	1026.116	VVA
3024	40°58'42.79411"	-96°50'58.82291"	1219.072	VVA
3026	41°07'38.51532"	-95°59'40.45185"	1010.636	VVA
3027	41°04'53.85069"	-96°07'10.35896"	1025.768	VVA
3028	41°01'25.65729"	-96°15'26.88099"	962.112	VVA
3029	40°51'46.17480"	-96°52'19.19262"	1173.261	VVA
3030	40°31'25.59311"	-96°54'35.13176"	1320.641	VVA
3031	40°41'50.69680"	-96°45'59.04449"	1241.089	VVA
3032	40°46'19.65872"	-96°51'22.33097"	1153.413	VVA
3033	40°55'48.99107"	-96°44'53.11332"	1218.210	VVA
3034	40°32'14.30268"	-96°27'24.04059"	1249.438	VVA
3035	40°36'18.68536"	-96°30'40.47349"	1320.343	VVA
3036	40°40'37.71152"	-96°30'23.09264"	1154.328	VVA
3037	40°58'34.94683"	-96°23'16.29720"	1085.587	VVA
3038	41°26'24.94816"	-96°33'13.33341"	1122.584	VVA
3039	41°23'36.71501"	-96°32'28.09675"	1248.795	VVA
3041	41°23'55.01833"	-96°27'07.31797"	1084.968	VVA
3042	41°28'23.91331"	-96°11'55.86759"	1052.622	VVA
3043	41°35'06.87556"	-96°05'51.58242"	919.483	VVA
3044	41°29'11.30934"	-96°04'42.36371"	1147.040	VVA
3045	41°26'57.37274"	-96°07'08.89857"	1219.505	VVA
3046	41°23'35.35998"	-95°58'33.21655"	1217.039	VVA
3047	40°38'13.14397"	-96°49'08.62077"	1233.375	VVA
3048	40°37'29.13937"	-96°44'37.13770"	1169.556	VVA
3049	40°41'28.63912"	-96°42'18.67550"	1134.156	VVA
3050	40°41'41.89888"	-96°35'28.51905"	1291.773	VVA
3052	41°01'47.97497"	-96°31'07.96152"	1082.541	VVA
3053	41°05'24.64676"	-96°15'14.82083"	1193.647	VVA
3054	41°11'17.30897"	-96°08'20.97610"	1014.562	VVA
3055	41°17'10.38917"	-96°07'41.47170"	1096.268	VVA

Point No.	Geodetic Coordinates NAD-83 (2011) Epoch 2010.00		Ellipsoid Height (sFT)	Description
	Latitude (N)	Longitude (W)		
3056	41°19'59.01693"	-96°15'14.02264"	1209.901	VVA
3057	41°22'45.07268"	-96°19'42.47978"	1047.154	VVA
3058	41°31'25.48779"	-96°12'46.03145"	1081.437	VVA
3059	41°35'46.55991"	-96°10'35.47222"	973.261	VVA
3060	41°30'32.22756"	-96°06'24.07463"	1183.540	VVA

Section 3: Ground / Geodetic Control Logs and Photos

This section contains the station recovery information sheets and photographs regarding the ground control positions established for the project.

The data is assembled on the following pages.



GPS STATION RECOVERY - GPS LOG SHEET

Project Name	Eastern Nebraska Urban Areas LiDAR	Operator Name	BEN CHRISTIE
Project Number	77026	Date of Survey	06-Dec-16
Station Name	1001	File Name	77026_LiDAR_120616_BC

Methodology

RTK base	<input type="checkbox"/>
RTK VRS	<input checked="" type="checkbox"/>
Rapid Static	<input type="checkbox"/>

Photo Control Point (PCP) ☐
 LiDAR Control Point (LCP) ☒
 LiDAR QC Point (LQC) ☐
 Control Station ☐
 Session #

1	2	3	4	5	6	7	8	9	10

WGS 84 COORDINATES:

Latitude 40° 37' 20.03" N
 Longitude 96° 55' 40.09" W
 Ellipsoidal Height 1404.3 sft

Receiver :
 R10
 R8
 Other, specify

3227

Type of Mark EAST COR CONCRETE

Antenna Height:

6.562 USFT
2.000 METERS

Mark Stamping N/A

Start Time :
 PDOP Begin :
 Start Time :
 PDOP Begin :

Stop Time :
 PDOP End :
 Stop Time :
 PDOP End :

Weather Conditions

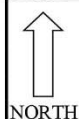
20° SUNNY

To Reach Description :

Witness Ties :

Reference Object	Distance	N-E-S-W

Sketch



Station: 1001





GPS STATION RECOVERY - GPS LOG SHEET

Project Name	Eastern Nebraska Urban Areas LiDAR	Operator Name	BEN CHRISTIE
Project Number	77026	Date of Survey	09-Dec-16
Station Name	1002	File Name	77026_LiDAR_120916_BC

Methodology

RTK base	<input type="checkbox"/>
RTK VRS	<input checked="" type="checkbox"/>
Rapid Static	<input type="checkbox"/>

Photo Control Point (PCP) ☐
 LiDAR Control Point (LCP) ☒
 LiDAR QC Point (LQC) ☐
 Control Station ☐
 Session #

1	2	3	4	5	6	7	8	9	10
	11	12	13	14	15				
	16	17	18	19	20				

WGS 84 COORDINATES:

Latitude 40° 49' 01.78" N
 Longitude 96° 42' 41.72" W
 Ellipsoidal Height 1068.9 sft

Receiver :
 R10
 R8
 Other, specify

3227

Type of Mark CONCRETE
 Mark Stamping N/A

Antenna Height: 6.562 USFT
2.000 METERS

Start Time :	_____	Stop Time :	_____
PDOP Begin :	_____	PDOP End :	_____
Start Time :	_____	Stop Time :	_____
PDOP Begin :	_____	PDOP End :	_____

Weather Conditions 16° CLOUDY

To Reach Description :	Witness Ties :		
	Reference Object	Distance	N-E-S-W



Station: 1002





GPS STATION RECOVERY - GPS LOG SHEET

Project Name	Eastern Nebraska Urban Areas LiDAR	Operator Name	BEN CHRISTIE
Project Number	77026	Date of Survey	07-Dec-16
Station Name	1003	File Name	77026_LiDAR_120716_BC

Methodology

RTK base	<input type="checkbox"/>
RTK VRS	<input checked="" type="checkbox"/>
Rapid Static	<input type="checkbox"/>

Photo Control Point (PCP) ☐
 LiDAR Control Point (LCP) ☒
 LiDAR QC Point (LQC) ☐
 Control Station ☐
 Session #

1	2	3	4	5	6	7	8	9	10
	11	12	13	14	15				
	16	17	18	19	20				

WGS 84 COORDINATES:

Latitude 40° 42' 44.94" N
 Longitude 96° 26' 49.36" W
 Ellipsoidal Height 1189.3 sft

Receiver :
 R10
 R8
 Other, specify

3227

Type of Mark CONCRETE

Antenna Height: 6.562 USFT
2.000 METERS

Mark Stamping N/A

Start Time :	_____	Stop Time :	_____
PDOP Begin :	_____	PDOP End :	_____
Start Time :	_____	Stop Time :	_____
PDOP Begin :	_____	PDOP End :	_____

Weather Conditions 20° SUNNY

To Reach Description :	Witness Ties :		
	Reference Object	Distance	N-E-S-W



Station: 1003





GPS STATION RECOVERY - GPS LOG SHEET

Project Name	Eastern Nebraska Urban Areas LiDAR	Operator Name	BEN CHRISTIE
Project Number	77026	Date of Survey	10-Dec-16
Station Name	1004	File Name	77026_LiDAR_121016_BC

Methodology

RTK base	<input type="checkbox"/>
RTK VRS	<input checked="" type="checkbox"/>
Rapid Static	<input type="checkbox"/>

Photo Control Point (PCP) ☐
 LiDAR Control Point (LCP) ☒
 LiDAR QC Point (LQC) ☐
 Control Station ☐
 Session #

1	2	3	4	5	6	7	8	9	10
	11	12	13	14	15				
	16	17	18	19	20				

WGS 84 COORDINATES:

Latitude 41° 02' 13.01" N
 Longitude 96° 21' 30.53" W
 Ellipsoidal Height 1017.9 sft

Receiver :
 R10
 R8
 Other, specify

3227

Type of Mark CONCRETE
 Mark Stamping N/A

Antenna Height: 6.562 USFT
2.000 METERS

Start Time :	_____	Stop Time :	_____
PDOP Begin :	_____	PDOP End :	_____
Start Time :	_____	Stop Time :	_____
PDOP Begin :	_____	PDOP End :	_____

Weather Conditions 24° CLOUDY

To Reach Description :	Witness Ties :		
	Reference Object	Distance	N-E-S-W



Station: 1004





GPS STATION RECOVERY - GPS LOG SHEET

Project Name	Eastern Nebraska Urban Areas LiDAR	Operator Name	BEN CHRISTIE
Project Number	77026	Date of Survey	09-Dec-16
Station Name	1005	File Name	77026_LiDAR_120916_BC

Methodology

RTK base	<input type="checkbox"/>
RTK VRS	<input checked="" type="checkbox"/>
Rapid Static	<input type="checkbox"/>

Photo Control Point (PCP) ☐
 LiDAR Control Point (LCP) ☒
 LiDAR QC Point (LQC) ☐
 Control Station ☐
 Session #

1	2	3	4	5	6	7	8	9	10

WGS 84 COORDINATES:

Latitude 41° 01' 00.44" N
 Longitude 96° 54' 38.88" W
 Ellipsoidal Height 1241.8 sft

Receiver :
 R10
 R8
 Other, specify

3227

Type of Mark GRAVEL
 Mark Stamping N/A

Antenna Height: 6.562 USFT
2.000 METERS

Start Time :	_____	Stop Time :	_____
PDOP Begin :	_____	PDOP End :	_____
Start Time :	_____	Stop Time :	_____
PDOP Begin :	_____	PDOP End :	_____

Weather Conditions 19° CLOUDY

To Reach Description :	Witness Ties :		
	Reference Object	Distance	N-E-S-W



Station: 1005





GPS STATION RECOVERY - GPS LOG SHEET

Project Name	Eastern Nebraska Urban Areas LiDAR	Operator Name	BEN CHRISTIE
Project Number	77026	Date of Survey	07-Dec-16
Station Name	1006	File Name	77026_LiDAR_120716_BC

Methodology

RTK base	<input type="checkbox"/>
RTK VRS	<input checked="" type="checkbox"/>
Rapid Static	<input type="checkbox"/>

Photo Control Point (PCP) ☐
 LiDAR Control Point (LCP) ☒
 LiDAR QC Point (LQC) ☐
 Control Station ☐
 Session #

1	2	3	4	5	6	7	8	9	10
	11	12	13	14	15				
	16	17	18	19	20				

WGS 84 COORDINATES:

Latitude 40° 32' 01.71" N
 Longitude 96° 36' 28.06" W
 Ellipsoidal Height 1234.4 sft

Receiver :
 R10
 R8
 Other, specify

3227

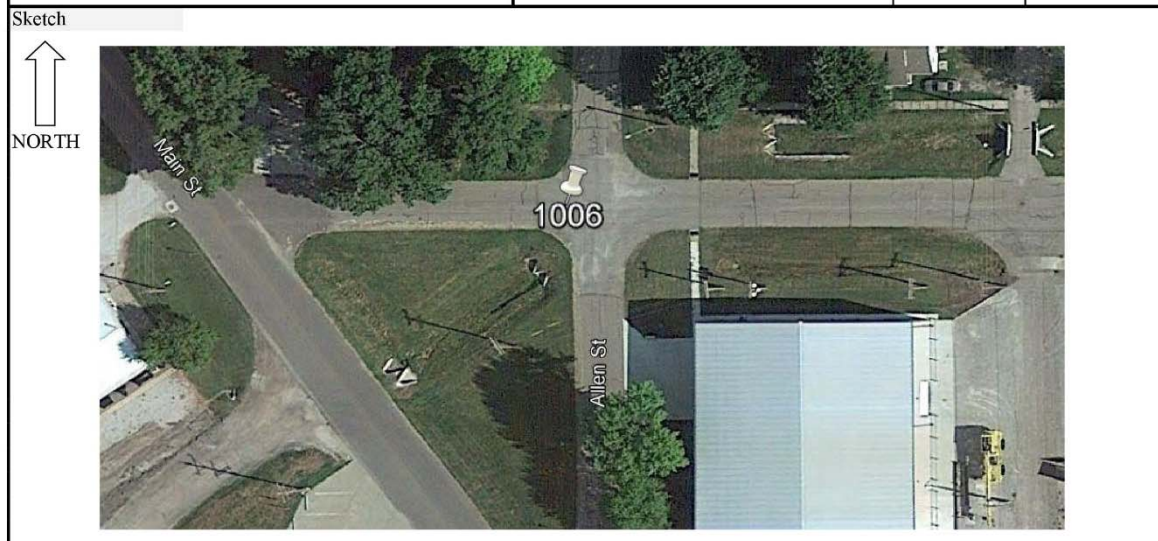
Type of Mark ASPHALT
 Mark Stamping N/A

Antenna Height: 6.562 USFT
2.000 METERS

Start Time :	_____	Stop Time :	_____
PDOP Begin :	_____	PDOP End :	_____
Start Time :	_____	Stop Time :	_____
PDOP Begin :	_____	PDOP End :	_____

Weather Conditions 21° CLOUDY

To Reach Description :	Witness Ties :		
	Reference Object	Distance	N-E-S-W



Station: 1006





GPS STATION RECOVERY - GPS LOG SHEET

Project Name	Eastern Nebraska Urban Areas LiDAR	Operator Name	BEN CHRISTIE
Project Number	77026	Date of Survey	08-Dec-16
Station Name	1007	File Name	77026_LiDAR_120716_BC

Methodology

RTK base	<input type="checkbox"/>
RTK VRS	<input checked="" type="checkbox"/>
Rapid Static	<input type="checkbox"/>

Photo Control Point (PCP) ☐
 LiDAR Control Point (LCP) ☒
 LiDAR QC Point (LQC) ☐
 Control Station ☐
 Session #

1	2	3	4	5	6	7	8	9	10

WGS 84 COORDINATES:

Latitude 40° 49' 56.48" N
 Longitude 96° 33' 42.44" W
 Ellipsoidal Height 1121.6 sft

Receiver :
 R10
 R8
 Other, specify

3227

Type of Mark ASPHALT
 Mark Stamping N/A

Antenna Height: 6.562 USFT
2.000 METERS

Start Time :		Stop Time :	
PDOP Begin :		PDOP End :	
Start Time :		Stop Time :	
PDOP Begin :		PDOP End :	

Weather Conditions 23° SUNNY

To Reach Description :	Witness Ties :		
	Reference Object	Distance	N-E-S-W



Station: 1007





GPS STATION RECOVERY - GPS LOG SHEET

Project Name	Eastern Nebraska Urban Areas LiDAR	Operator Name	BEN CHRISTIE
Project Number	77026	Date of Survey	10-Dec-16
Station Name	1008	File Name	77026_LiDAR_121016_BC

Methodology

RTK base	<input type="checkbox"/>
RTK VRS	<input checked="" type="checkbox"/>
Rapid Static	<input type="checkbox"/>

Photo Control Point (PCP) ☐
 LiDAR Control Point (LCP) ☒
 LiDAR QC Point (LQC) ☐
 Control Station ☐
 Session #

1	2	3	4	5	6	7	8	9	10
	11	12	13	14	15				
	16	17	18	19	20				

WGS 84 COORDINATES:

Latitude 41° 03' 10.63" N
 Longitude 96° 38' 46.77" W
 Ellipsoidal Height 1112.9 sft

Receiver :
 R10
 R8
 Other, specify

3227

Type of Mark ASPHALT
 Mark Stamping N/A

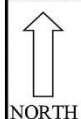
Antenna Height: 6.562 USFT
2.000 METERS

Start Time :	_____	Stop Time :	_____
PDOP Begin :	_____	PDOP End :	_____
Start Time :	_____	Stop Time :	_____
PDOP Begin :	_____	PDOP End :	_____

Weather Conditions 30° CLOUDY

To Reach Description :	Witness Ties :		
	Reference Object	Distance	N-E-S-W

Sketch



Station: 1008





GPS STATION RECOVERY - GPS LOG SHEET

Project Name	Eastern Nebraska Urban Areas LiDAR	Operator Name	BEN CHRISTIE
Project Number	77026	Date of Survey	09-Dec-16
Station Name	1009	File Name	77026_LiDAR_120916_BC

Methodology

RTK base	<input type="checkbox"/>
RTK VRS	<input checked="" type="checkbox"/>
Rapid Static	<input type="checkbox"/>

Photo Control Point (PCP) ☐
 LiDAR Control Point (LCP) ☒
 LiDAR QC Point (LQC) ☐
 Control Station ☐
 Session #

1	2	3	4	5	6	7	8	9	10
	11	12	13	14	15				
	16	17	18	19	20				

WGS 84 COORDINATES:

Latitude 40° 48' 51.30" N
 Longitude 96° 50' 05.98" W
 Ellipsoidal Height 1116.0 sft

Receiver :
 R10
 R8
 Other, specify

3227

Type of Mark CONCRETE
 Mark Stamping N/A

Antenna Height: 6.562 USFT
2.000 METERS

Start Time :	_____	Stop Time :	_____
PDOP Begin :	_____	PDOP End :	_____
Start Time :	_____	Stop Time :	_____
PDOP Begin :	_____	PDOP End :	_____

Weather Conditions 19° CLOUDY

To Reach Description :	Witness Ties :		
	Reference Object	Distance	N-E-S-W



Station: 1009





GPS STATION RECOVERY - GPS LOG SHEET

Project Name	Eastern NE UA LiDAR Ground Control	Operator Name	Jerry Hammond
Project Number	77026	Date of Survey	12-Dec-16
Station Name	1010	File Name	77026_LIDAR_121016_JH

Methodology

RTK base	<input type="checkbox"/>
RTK VRS	<input checked="" type="checkbox"/>
Rapid Static	<input type="checkbox"/>

Photo Control Point (PCP) ☐
 LiDAR Control Point (LCP) ☒
 LiDAR QC Point (LQC) ☐
 Control Station ☐
 Session #

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15					
16	17	18	19	20					

WGS 84 COORDINATES:

Latitude 41° 0'0.89"N
 Longitude 96° 9'34.00"W
 Ellipsoidal Height 1155"

Receiver :
 R10
 R8
 Other, specify

X

Type of Mark Primary Control

Antenna Height:

6.562 USFT
2.000 METERS

Mark Stamping

Start Time :
 PDOP Begin :
 Start Time :
 PDOP Begin :

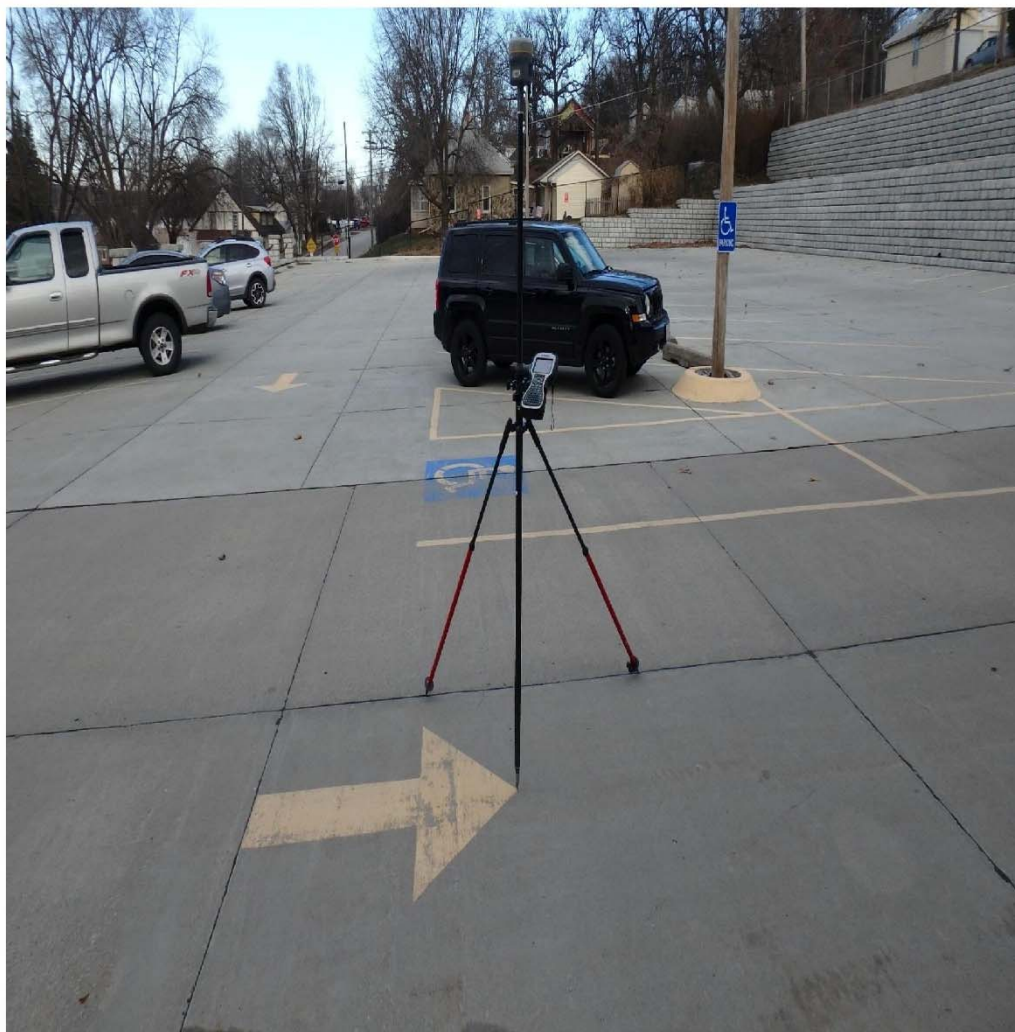
Stop Time :
 PDOP End :
 Stop Time :
 PDOP End :

Weather Conditions

To Reach Description :	Witness Ties :		
	Reference Object	Distance	N-E-S-W



Station: 1010 North





GPS STATION RECOVERY - GPS LOG SHEET

Project Name	Eastern NE UA LiDAR Ground Control	Operator Name	Jerry Hammond
Project Number	77026	Date of Survey	09-Dec-16
Station Name	1011	File Name	77026_LIDARGC_120816_JH

Methodology

RTK base	<input type="checkbox"/>
RTK VRS	<input checked="" type="checkbox"/>
Rapid Static	<input type="checkbox"/>

Photo Control Point (PCP) ☐
 LiDAR Control Point (LCP) ☒
 LiDAR QC Point (LQC) ☐
 Control Station ☐
 Session #

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15					
16	17	18	19	20					

WGS 84 COORDINATES:

Latitude 41° 4'31.10"N
 Longitude 95°51'41.88"W
 Ellipsoidal Height 974"

Receiver :
 R10
 R8
 Other, specify

X

Type of Mark Primary Control

Antenna Height:

6.562 USFT
2.000 METERS

Mark Stamping

Start Time :
 PDOP Begin :
 Start Time :
 PDOP Begin :

Stop Time :
 PDOP End :
 Stop Time :
 PDOP End :

Weather Conditions

To Reach Description :	Witness Ties :		
	Reference Object	Distance	N-E-S-W



Station: 1011 North





GPS STATION RECOVERY - GPS LOG SHEET

Project Name	Eastern NE UA LiDAR Ground Control	Operator Name	Jerry Hammond
Project Number	77026	Date of Survey	08-Dec-16
Station Name	1012	File Name	77026_LIDAR_120816_JH

Methodology

RTK base	<input type="checkbox"/>
RTK VRS	<input checked="" type="checkbox"/>
Rapid Static	<input type="checkbox"/>

Photo Control Point (PCP) ☐
 LiDAR Control Point (LCP) ☒
 LiDAR QC Point (LQC) ☐
 Control Station ☐
 Session #

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15					
16	17	18	19	20					

WGS 84 COORDINATES:

Latitude 41°10'29.49"N
 Longitude 95°49'27.92"W
 Ellipsoidal Height 978"

Receiver :
 R10
 R8
 Other, specify

X

Type of Mark Primary Control

Antenna Height: 6.562 USFT
2.000 METERS

Mark Stamping

Start Time :	_____	Stop Time :	_____
PDOP Begin :	_____	PDOP End :	_____
Start Time :	_____	Stop Time :	_____
PDOP Begin :	_____	PDOP End :	_____

Weather Conditions _____

To Reach Description :	Witness Ties :		
	Reference Object	Distance	N-E-S-W



Station: 1012 North





GPS STATION RECOVERY - GPS LOG SHEET

Project Name	Eastern NE UA LiDAR Ground Control	Operator Name	Jerry Hammond
Project Number	77026	Date of Survey	10-Dec-16
Station Name	1013	File Name	77026_LIDAR_121016_JH

Methodology

RTK base	<input type="checkbox"/>
RTK VRS	<input checked="" type="checkbox"/>
Rapid Static	<input type="checkbox"/>

Photo Control Point (PCP) ☐
 LiDAR Control Point (LCP) ☒
 LiDAR QC Point (LQC) ☐
 Control Station ☐
 Session #

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15					
16	17	18	19	20					

WGS 84 COORDINATES:

Latitude 41° 7'49.75"N
 Longitude 96°15'42.46"W
 Ellipsoidal Height 1204"

Receiver :
 R10
 R8
 Other, specify

X

Type of Mark Primary Control

Antenna Height:

6.562 USFT
2.000 METERS

Mark Stamping

Start Time :
 PDOP Begin :
 Start Time :
 PDOP Begin :

Stop Time :
 PDOP End :
 Stop Time :
 PDOP End :

Weather Conditions

To Reach Description :	Witness Ties :		
	Reference Object	Distance	N-E-S-W



Station: 1013 North





GPS STATION RECOVERY - GPS LOG SHEET

Project Name	Eastern NE UA LiDAR Ground Control	Operator Name	Jerry Hammond
Project Number	77026	Date of Survey	10-Dec-16
Station Name	1014	File Name	77026_LIDAR_121016_JH

Methodology

RTK base	<input type="checkbox"/>
RTK VRS	<input checked="" type="checkbox"/>
Rapid Static	<input type="checkbox"/>

Photo Control Point (PCP) ☐
 LiDAR Control Point (LCP) ☒
 LiDAR QC Point (LQC) ☐
 Control Station ☐
 Session #

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15					
16	17	18	19	20					

WGS 84 COORDINATES:

Latitude 41°22'19.32"N
 Longitude 96°25'7.01"W
 Ellipsoidal Height 1169"

Receiver :
 R10
 R8
 Other, specify

X

Type of Mark Primary Control

Antenna Height:

6.562 USFT
2.000 METERS

Mark Stamping

Start Time :
 PDOP Begin :
 Start Time :
 PDOP Begin :

Stop Time :
 PDOP End :
 Stop Time :
 PDOP End :

Weather Conditions

To Reach Description :	Witness Ties :		
	Reference Object	Distance	N-E-S-W



Station: 1014 East





GPS STATION RECOVERY - GPS LOG SHEET

Project Name	Eastern Nebraska Urban Areas LiDAR	Operator Name	BEN CHRISTIE
Project Number	77026	Date of Survey	11-Dec-16
Station Name	1015	File Name	77026_LiDAR_121116_BC

Methodology

RTK base	<input type="checkbox"/>
RTK VRS	<input checked="" type="checkbox"/>
Rapid Static	<input type="checkbox"/>

Photo Control Point (PCP) ☐
 LiDAR Control Point (LCP) ☒
 LiDAR QC Point (LQC) ☐
 Control Station ☐
 Session #

1	2	3	4	5	6	7	8	9	10
	11	12	13	14	15				
	16	17	18	19	20				

WGS 84 COORDINATES:

Latitude 41° 27' 47.92" N
 Longitude 96° 34' 52.14" W
 Ellipsoidal Height 1128.5 sft

Receiver :
 R10
 R8
 Other, specify

3227

Type of Mark GRAVEL
 Mark Stamping N/A

Antenna Height: 6.562 USFT
2.000 METERS

Start Time :	_____	Stop Time :	_____
PDOP Begin :	_____	PDOP End :	_____
Start Time :	_____	Stop Time :	_____
PDOP Begin :	_____	PDOP End :	_____

Weather Conditions 30° CLOUDY

To Reach Description :	Witness Ties :		
	Reference Object	Distance	N-E-S-W



Station: 1015





GPS STATION RECOVERY - GPS LOG SHEET

Project Name	Eastern NE UA LiDAR Ground Control	Operator Name	Jerry Hammond
Project Number	77026	Date of Survey	06-Dec-16
Station Name	1016	File Name	77026_LIDAR_120616_JH

Methodology

RTK base	<input type="checkbox"/>
RTK VRS	<input checked="" type="checkbox"/>
Rapid Static	<input type="checkbox"/>

Photo Control Point (PCP) ☐
 LiDAR Control Point (LCP) ☒
 LiDAR QC Point (LQC) ☐
 Control Station ☐
 Session #

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15					
16	17	18	19	20					

WGS 84 COORDINATES:

Latitude 41°35'27.10"N
 Longitude 96°11'53.18"W
 Ellipsoidal Height 1166"

Receiver :
 R10
 R8
 Other, specify

X

Type of Mark Primary Control

Antenna Height:

6.562 USFT
2.000 METERS

Mark Stamping

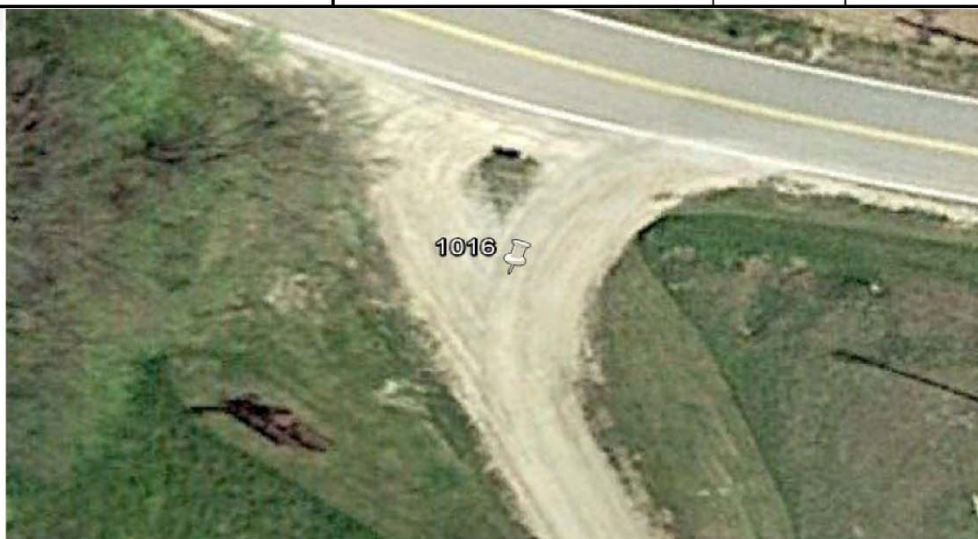
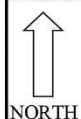
Start Time :
 PDOP Begin :
 Start Time :
 PDOP Begin :

Stop Time :
 PDOP End :
 Stop Time :
 PDOP End :

Weather Conditions

To Reach Description :	Witness Ties :		
	Reference Object	Distance	N-E-S-W

Sketch



Station: 1016 North





GPS STATION RECOVERY - GPS LOG SHEET

Project Name	Eastern NE UA LiDAR Ground Control	Operator Name	Jerry Hammond
Project Number	77026	Date of Survey	07-Dec-16
Station Name	1017	File Name	77026_LIDAR_120716_JH

Methodology

RTK base	<input type="checkbox"/>
RTK VRS	<input checked="" type="checkbox"/>
Rapid Static	<input type="checkbox"/>

Photo Control Point (PCP) ☐
 LiDAR Control Point (LCP) ☒
 LiDAR QC Point (LQC) ☐
 Control Station ☐
 Session #

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15					
16	17	18	19	20					

WGS 84 COORDINATES:

Latitude 41°24'58.98"N
 Longitude 96° 6'20.18"W
 Ellipsoidal Height 1310"

Receiver :
 R10
 R8
 Other, specify

x

Type of Mark Primary Control

Antenna Height:

6.562 USFT
2.000 METERS

Mark Stamping

Start Time :
 PDOP Begin :
 Start Time :
 PDOP Begin :

Stop Time :
 PDOP End :
 Stop Time :
 PDOP End :

Weather Conditions

To Reach Description :	Witness Ties :		
	Reference Object	Distance	N-E-S-W



Station: 1017 East





GPS STATION RECOVERY - GPS LOG SHEET

Project Name	Eastern Nebraska Urban Areas LiDAR	Operator Name	BEN CHRISTIE
Project Number	77026	Date of Survey	11-Dec-16
Station Name	1018	File Name	77026_LiDAR_121116_BC

Methodology

RTK base	<input type="checkbox"/>
RTK VRS	<input checked="" type="checkbox"/>
Rapid Static	<input type="checkbox"/>

Photo Control Point (PCP) ☐
 LiDAR Control Point (LCP) ☒
 LiDAR QC Point (LQC) ☐
 Control Station ☐
 Session #

1	2	3	4	5	6	7	8	9	10
	11	12	13	14	15				
	16	17	18	19	20				

WGS 84 COORDINATES:

Latitude 41° 26' 08.22" N
 Longitude 96° 30' 07.50" W
 Ellipsoidal Height 1109.5 sft

Receiver :
 R10
 R8
 Other, specify

3227

Type of Mark GRAVEL
 Mark Stamping N/A

Antenna Height: 6.562 USFT
2.000 METERS

Start Time :	_____	Stop Time :	_____
PDOP Begin :	_____	PDOP End :	_____
Start Time :	_____	Stop Time :	_____
PDOP Begin :	_____	PDOP End :	_____

Weather Conditions 30° CLOUDY

To Reach Description :	Witness Ties :		
	Reference Object	Distance	N-E-S-W



Station: 1018





GPS STATION RECOVERY - GPS LOG SHEET

Project Name	Eastern NE UA LiDAR Ground Control	Operator Name	Jerry Hammond
Project Number	77026	Date of Survey	08-Dec-16
Station Name	1019	File Name	77026_LIDAR_120816_JH

Methodology

RTK base	<input type="checkbox"/>
RTK VRS	<input checked="" type="checkbox"/>
Rapid Static	<input type="checkbox"/>

Photo Control Point (PCP) ☐
 LiDAR Control Point (LCP) ☒
 LiDAR QC Point (LQC) ☐
 Control Station ☐
 Session #

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15					
16	17	18	19	20					

WGS 84 COORDINATES:

Latitude 41°13'28.55"N
 Longitude 96° 0'43.17"W
 Ellipsoidal Height 1018"

Receiver :
 R10
 R8
 Other, specify

X

Type of Mark Primary Control

Antenna Height:

6.562 USFT
2.000 METERS

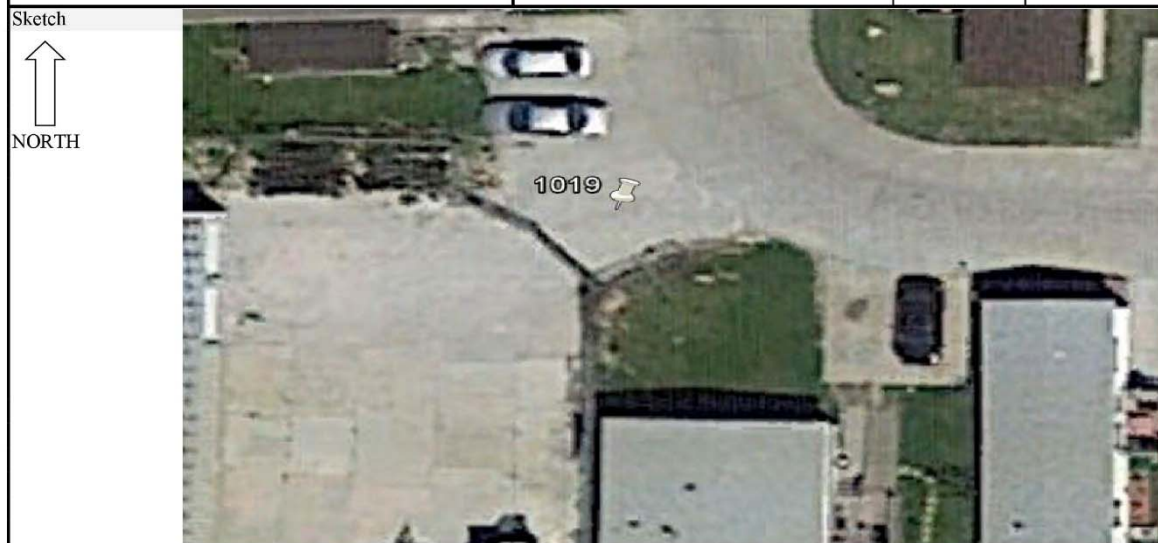
Mark Stamping

Start Time :
 PDOP Begin :
 Start Time :
 PDOP Begin :

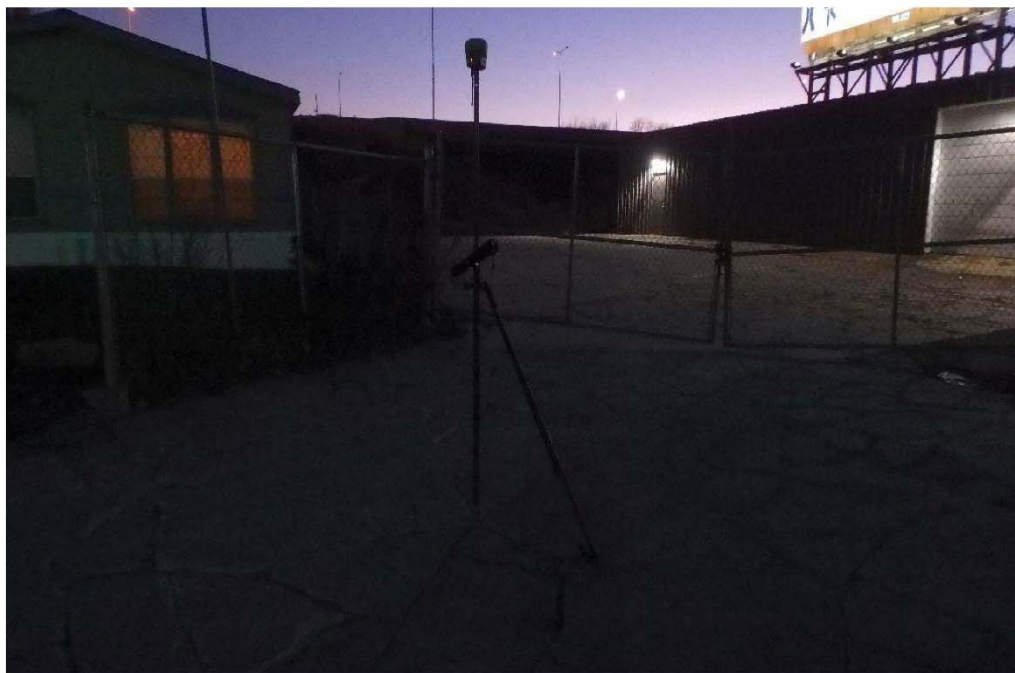
Stop Time :
 PDOP End :
 Stop Time :
 PDOP End :

Weather Conditions

To Reach Description :	Witness Ties :		
	Reference Object	Distance	N-E-S-W



Station: 1019



77026, 1019, 3S, 08Dec2016



GPS STATION RECOVERY - GPS LOG SHEET

Project Name	Eastern NE UA LiDAR Ground Control	Operator Name	Jerry Hammond
Project Number	77026	Date of Survey	07-Dec-16
Station Name	1020	File Name	77026_LIDAR_120716_JH

Methodology

RTK base	<input type="checkbox"/>
RTK VRS	<input checked="" type="checkbox"/>
Rapid Static	<input type="checkbox"/>

Photo Control Point (PCP) ☐
 LiDAR Control Point (LCP) ☒
 LiDAR QC Point (LQC) ☐
 Control Station ☐
 Session #

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15					
16	17	18	19	20					

WGS 84 COORDINATES:

Latitude 41°23'52.99"N
 Longitude 95°55'5.33"W
 Ellipsoidal Height 993"

Receiver :
 R10
 R8
 Other, specify

x

Type of Mark Primary Control

Antenna Height:

6.562 USFT
2.000 METERS

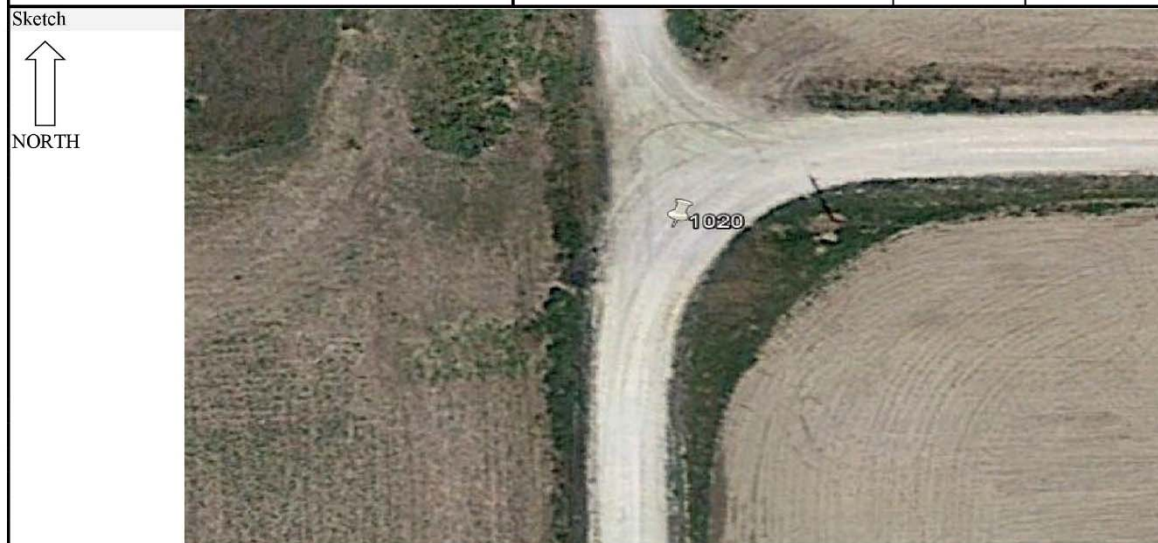
Mark Stamping

Start Time :
 PDOP Begin :
 Start Time :
 PDOP Begin :

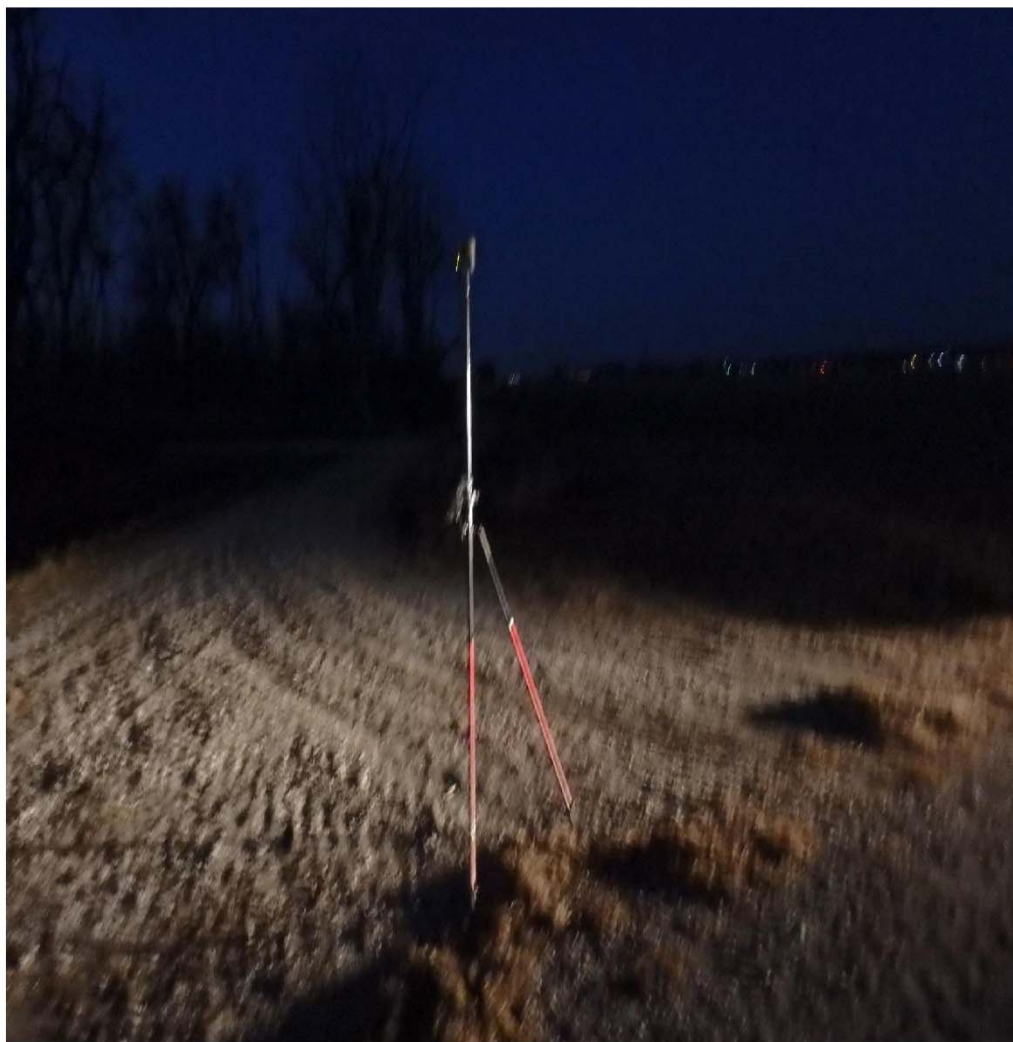
Stop Time :
 PDOP End :
 Stop Time :
 PDOP End :

Weather Conditions

To Reach Description :	Witness Ties :		
	Reference Object	Distance	N-E-S-W



Station: 1020 North





GPS STATION RECOVERY - GPS LOG SHEET

Project Name	Eastern NE UA LiDAR Ground Control	Operator Name	Jerry Hammond
Project Number	77026	Date of Survey	07-Dec-16
Station Name	1021	File Name	77026_LIDAR_120716_JH

Methodology

RTK base	<input type="checkbox"/>
RTK VRS	<input checked="" type="checkbox"/>
Rapid Static	<input type="checkbox"/>

Photo Control Point (PCP) ☐
 LiDAR Control Point (LCP) ☒
 LiDAR QC Point (LQC) ☐
 Control Station ☐
 Session #

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15					
16	17	18	19	20					

WGS 84 COORDINATES:

Latitude 41°30'32.35"N
 Longitude 96° 4'4.40"W
 Ellipsoidal Height 1019"

Receiver :
 R10
 R8
 Other, specify

x

Type of Mark Primary Control

Antenna Height:

6.562 USFT
2.000 METERS

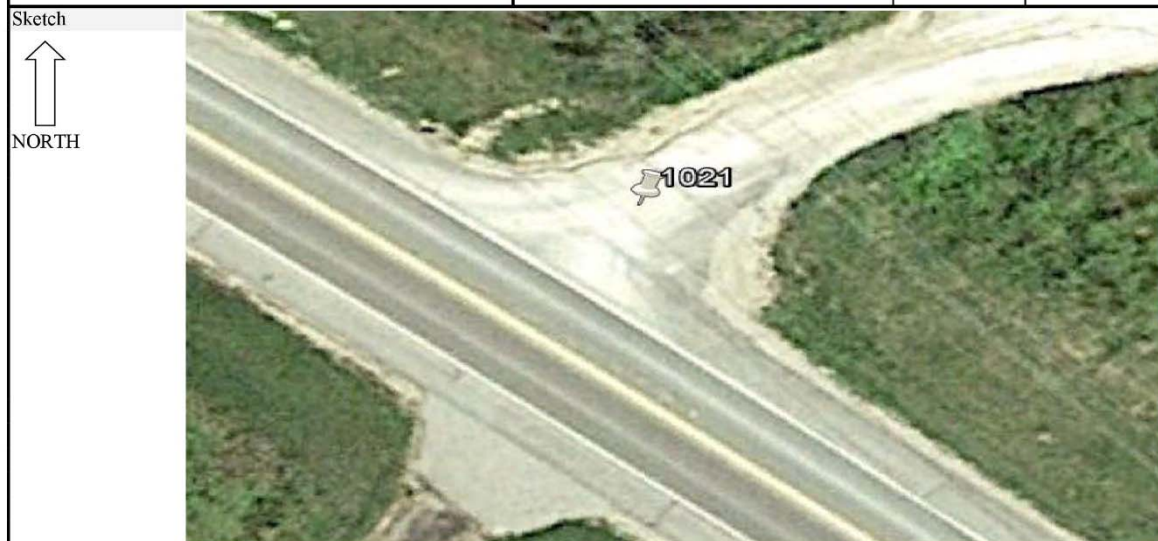
Mark Stamping

Start Time :
 PDOP Begin :
 Start Time :
 PDOP Begin :

Stop Time :
 PDOP End :
 Stop Time :
 PDOP End :

Weather Conditions

To Reach Description :	Witness Ties :		
	Reference Object	Distance	N-E-S-W



Station: 1021 North





GPS STATION RECOVERY - GPS LOG SHEET

Project Name	Eastern NE UA LiDAR Ground Control	Operator Name	Jerry Hammond
Project Number	77026	Date of Survey	10-Dec-16
Station Name	1022	File Name	77026_LIDAR_121016_JH

Methodology

RTK base	<input type="checkbox"/>
RTK VRS	<input checked="" type="checkbox"/>
Rapid Static	<input type="checkbox"/>

Photo Control Point (PCP) ☐
 LiDAR Control Point (LCP) ☒
 LiDAR QC Point (LQC) ☐
 Control Station ☐
 Session #

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15					
16	17	18	19	20					

WGS 84 COORDINATES:

Latitude 41°14'53.22"N
 Longitude 96°13'6.35"W
 Ellipsoidal Height 1256"

Receiver :
 R10
 R8
 Other, specify

X

Type of Mark Primary Control

Antenna Height:

6.562 USFT
2.000 METERS

Mark Stamping

Start Time :
 PDOP Begin :
 Start Time :
 PDOP Begin :

Stop Time :
 PDOP End :
 Stop Time :
 PDOP End :

Weather Conditions

To Reach Description :	Witness Ties :		
	Reference Object	Distance	N-E-S-W



Station: 1022 South





GPS STATION RECOVERY - GPS LOG SHEET

Project Name	Eastern NE UA LiDAR Ground Control	Operator Name	Jerry Hammond
Project Number	77026	Date of Survey	08-Dec-16
Station Name	1023	File Name	77026_LIDAR_120816_JH

Methodology

RTK base	<input type="checkbox"/>
RTK VRS	<input checked="" type="checkbox"/>
Rapid Static	<input type="checkbox"/>

Photo Control Point (PCP) ☐
 LiDAR Control Point (LCP) ☒
 LiDAR QC Point (LQC) ☐
 Control Station ☐
 Session #

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15					
16	17	18	19	20					

WGS 84 COORDINATES:

Latitude 41°17'5.64"N
 Longitude 95°51'17.17"W
 Ellipsoidal Height 1165"

Receiver :
 R10
 R8
 Other, specify

X

Type of Mark Primary Control

Antenna Height:

6.562 USFT
2.000 METERS

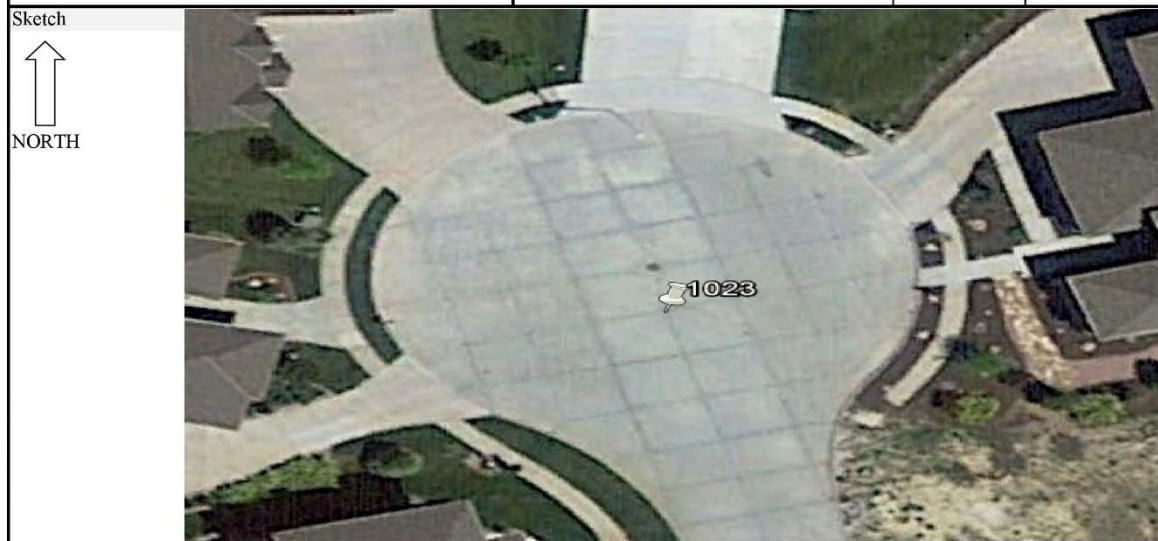
Mark Stamping

Start Time :
 PDOP Begin :
 Start Time :
 PDOP Begin :

Stop Time :
 PDOP End :
 Stop Time :
 PDOP End :

Weather Conditions

To Reach Description :	Witness Ties :		
	Reference Object	Distance	N-E-S-W



Station: 1023 North





GPS STATION RECOVERY - GPS LOG SHEET

Project Name	Eastern Nebraska Urban Areas LiDAR	Operator Name	BEN CHRISTIE
Project Number	77026	Date of Survey	10-Dec-16
Station Name	1024	File Name	77026_LiDAR_121016_BC

Methodology

RTK base	<input type="checkbox"/>
RTK VRS	<input checked="" type="checkbox"/>
Rapid Static	<input type="checkbox"/>

Photo Control Point (PCP) ☐
 LiDAR Control Point (LCP) ☒
 LiDAR QC Point (LQC) ☐
 Control Station ☐
 Session #

1	2	3	4	5	6	7	8	9	10
	11	12	13	14	15				
	16	17	18	19	20				

WGS 84 COORDINATES:

Latitude 40° 57' 29.87" N
 Longitude 96° 46' 51.29" W
 Ellipsoidal Height 1183.1 sft

Receiver :
 R10
 R8
 Other, specify

3227

Type of Mark ASPHALT
 Mark Stamping N/A

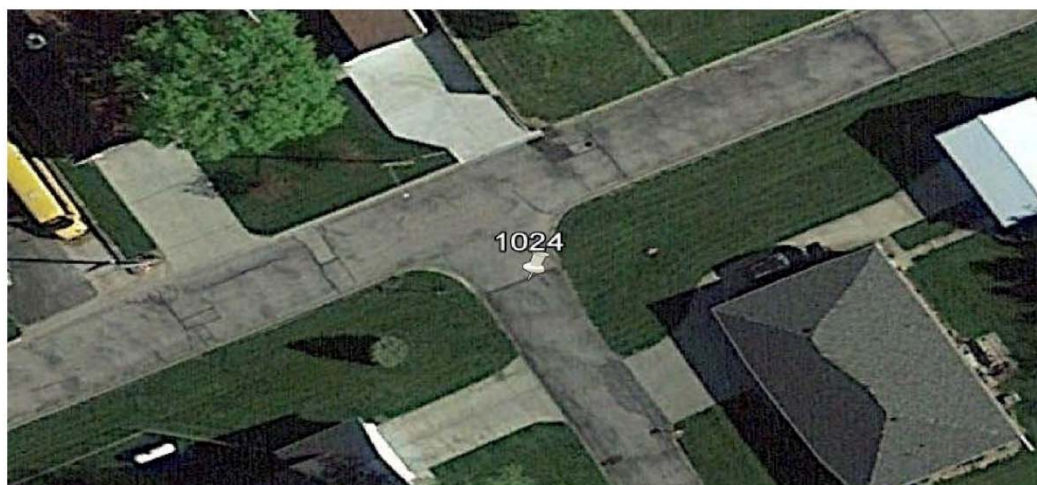
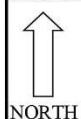
Antenna Height: 6.562 USFT
2.000 METERS

Start Time :	_____	Stop Time :	_____
PDOP Begin :	_____	PDOP End :	_____
Start Time :	_____	Stop Time :	_____
PDOP Begin :	_____	PDOP End :	_____

Weather Conditions 30° CLOUDY

To Reach Description :	Witness Ties :		
	Reference Object	Distance	N-E-S-W

Sketch



Station: 1024





GPS STATION RECOVERY - GPS LOG SHEET

Project Name	Eastern Nebraska Urban Areas LiDAR	Operator Name	BEN CHRISTIE
Project Number	77026	Date of Survey	07-Dec-16
Station Name	1025	File Name	77026_LiDAR_120716_BC

Methodology

RTK base	<input type="checkbox"/>
RTK VRS	<input checked="" type="checkbox"/>
Rapid Static	<input type="checkbox"/>

Photo Control Point (PCP) ☐
 LiDAR Control Point (LCP) ☒
 LiDAR QC Point (LQC) ☐
 Control Station ☐
 Session #

1	2	3	4	5	6	7	8	9	10
	11	12	13	14	15				
	16	17	18	19	20				

WGS 84 COORDINATES:

Latitude 40° 40' 43.53" N
 Longitude 96° 30' 24.00" W
 Ellipsoidal Height 1175.2 sft

Receiver :
 R10
 R8
 Other, specify

3227

Type of Mark PID
 Mark Stamping N/A

Antenna Height: 6.562 USFT
2.000 METERS

Start Time :	_____	Stop Time :	_____
PDOP Begin :	_____	PDOP End :	_____
Start Time :	_____	Stop Time :	_____
PDOP Begin :	_____	PDOP End :	_____

Weather Conditions 21° CLOUDY

To Reach Description :	Witness Ties :		
	Reference Object	Distance	N-E-S-W

Sketch

NORTH

Station: 1025





GPS STATION RECOVERY - GPS LOG SHEET

Project Name	Eastern Nebraska Urban Areas LiDAR	Operator Name	BEN CHRISTIE
Project Number	77026	Date of Survey	09-Dec-16
Station Name	1026	File Name	77026_LiDAR_120916_BC

Methodology

RTK base	<input type="checkbox"/>
RTK VRS	<input checked="" type="checkbox"/>
Rapid Static	<input type="checkbox"/>

Photo Control Point (PCP) ☐
 LiDAR Control Point (LCP) ☒
 LiDAR QC Point (LQC) ☐
 Control Station ☐
 Session #

1	2	3	4	5	6	7	8	9	10

WGS 84 COORDINATES:

Latitude 40° 55' 00.04" N
 Longitude 96° 32' 14.05" W
 Ellipsoidal Height 1034.1 sft

Receiver :
 R10
 R8
 Other, specify

3227

Type of Mark SW COR PAINT STRIPE
 Mark Stamping N/A

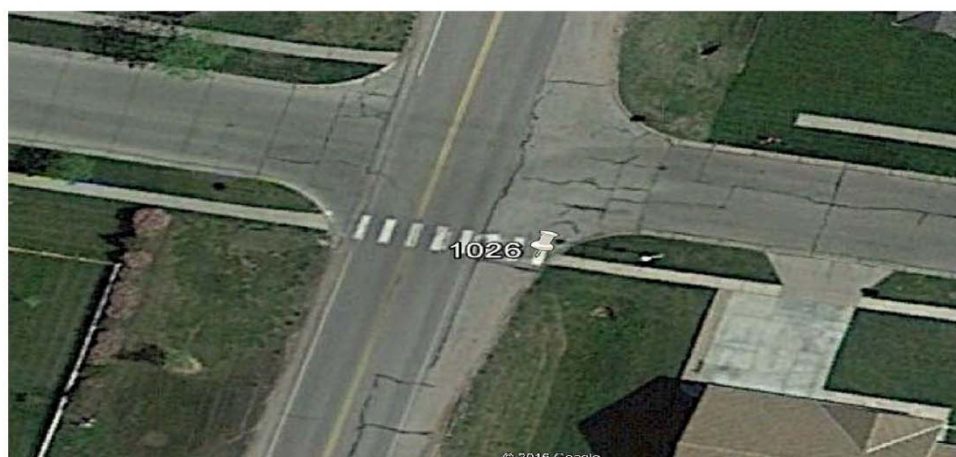
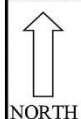
Antenna Height: 6.562 USFT
 2.000 METERS

Start Time :	Stop Time :
PDOP Begin :	PDOP End :
Start Time :	Stop Time :
PDOP Begin :	PDOP End :

Weather Conditions 14° CLOUDY

To Reach Description :	Witness Ties :		
	Reference Object	Distance	N-E-S-W

Sketch



Station: 1026





GPS STATION RECOVERY - GPS LOG SHEET

Project Name	Eastern NE UA LiDAR Ground Control	Operator Name	Jerry Hammond
Project Number	77026	Date of Survey	09-Dec-16
Station Name	1027	File Name	77026_LIDARGC_120816_JH

Methodology

RTK base	<input type="checkbox"/>
RTK VRS	<input checked="" type="checkbox"/>
Rapid Static	<input type="checkbox"/>

Photo Control Point (PCP) ☐
 LiDAR Control Point (LCP) ☒
 LiDAR QC Point (LQC) ☐
 Control Station ☐
 Session #

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15					
16	17	18	19	20					

WGS 84 COORDINATES:

Latitude 41° 6'16.92"N
 Longitude 96° 6'43.24"W
 Ellipsoidal Height 1173"

Receiver :
 R10
 R8
 Other, specify

X

Type of Mark Primary Control

Antenna Height:

6.562 USFT
2.000 METERS

Mark Stamping

Start Time :
 PDOP Begin :
 Start Time :
 PDOP Begin :

Stop Time :
 PDOP End :
 Stop Time :
 PDOP End :

Weather Conditions

To Reach Description :	Witness Ties :		
	Reference Object	Distance	N-E-S-W



Station: 1027 North





GPS STATION RECOVERY - GPS LOG SHEET

Project Name	Eastern NE UA LiDAR Ground Control	Operator Name	Jerry Hammond
Project Number	77026	Date of Survey	10-Dec-16
Station Name	1028	File Name	77026_LIDAR_121016_JH

Methodology

RTK base	<input type="checkbox"/>
RTK VRS	<input checked="" type="checkbox"/>
Rapid Static	<input type="checkbox"/>

Photo Control Point (PCP) ☐
 LiDAR Control Point (LCP) ☒
 LiDAR QC Point (LQC) ☐
 Control Station ☐
 Session #

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15					
16	17	18	19	20					

WGS 84 COORDINATES:

Latitude 41° 9'43.96"N
 Longitude 96°11'17.15"W
 Ellipsoidal Height 1226"

Receiver :
 R10
 R8
 Other, specify

X

Type of Mark Primary Control

Antenna Height:

6.562 USFT
2.000 METERS

Mark Stamping

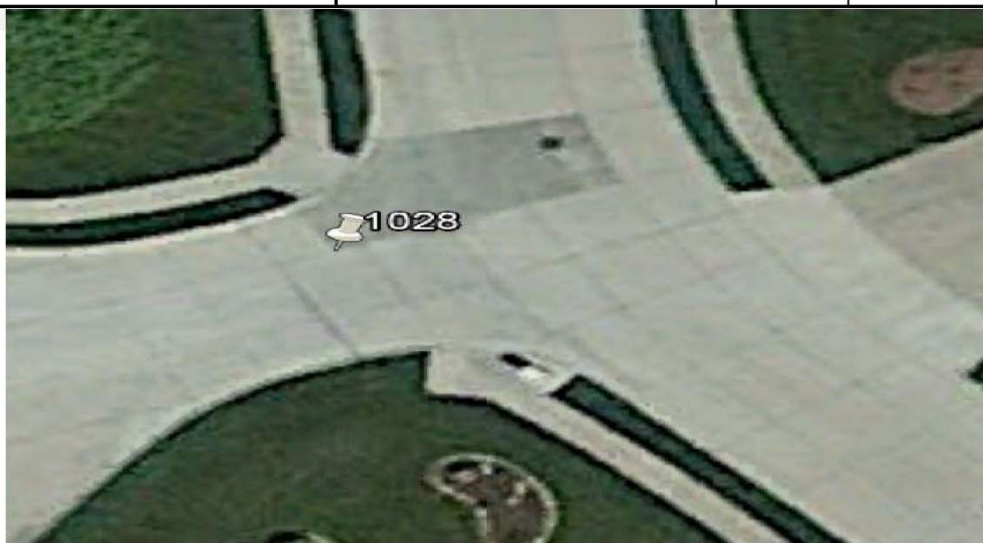
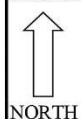
Start Time :
 PDOP Begin :
 Start Time :
 PDOP Begin :

Stop Time :
 PDOP End :
 Stop Time :
 PDOP End :

Weather Conditions

To Reach Description :	Witness Ties :		
	Reference Object	Distance	N-E-S-W

Sketch



Station: 1028 North





GPS STATION RECOVERY - GPS LOG SHEET

Project Name	Eastern NE UA LiDAR Ground Control	Operator Name	Jerry Hammond
Project Number	77026	Date of Survey	06-Dec-16
Station Name	1029	File Name	77026_LIDAR_120616_JH

Methodology

RTK base	<input type="checkbox"/>
RTK VRS	<input checked="" type="checkbox"/>
Rapid Static	<input type="checkbox"/>

Photo Control Point (PCP) ☐
 LiDAR Control Point (LCP) ☒
 LiDAR QC Point (LQC) ☐
 Control Station ☐
 Session #

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15					
16	17	18	19	20					

WGS 84 COORDINATES:

Latitude 41°32'19.06"N
 Longitude 96° 8'31.55"W
 Ellipsoidal Height 1111"

Receiver :
 R10
 R8
 Other, specify

X

Type of Mark Primary Control

Antenna Height:

6.562 USFT
2.000 METERS

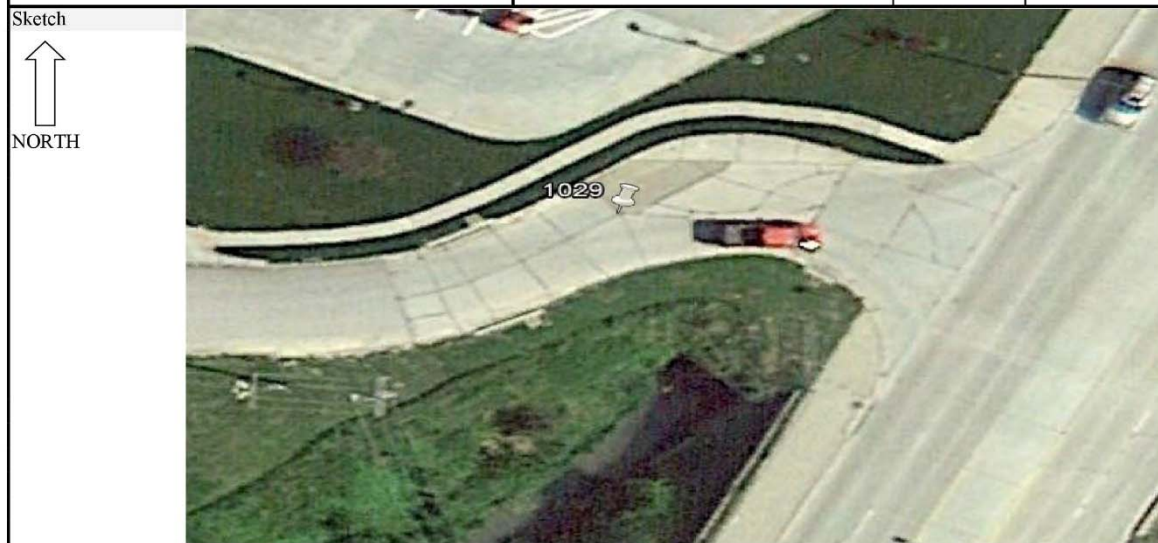
Mark Stamping

Start Time :
 PDOP Begin :
 Start Time :
 PDOP Begin :

Stop Time :
 PDOP End :
 Stop Time :
 PDOP End :

Weather Conditions

To Reach Description :	Witness Ties :		
	Reference Object	Distance	N-E-S-W



Station: 1029 West





GPS STATION RECOVERY - GPS LOG SHEET

Project Name	Eastern NE UA LiDAR Ground Control	Operator Name	Jerry Hammond
Project Number	77026	Date of Survey	08-Dec-16
Station Name	1030	File Name	77026_LIDAR_120816_JH

Methodology

RTK base	<input type="checkbox"/>
RTK VRS	<input checked="" type="checkbox"/>
Rapid Static	<input type="checkbox"/>

Photo Control Point (PCP) ☐
 LiDAR Control Point (LCP) ☒
 LiDAR QC Point (LQC) ☐
 Control Station ☐
 Session #

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15					
16	17	18	19	20					

WGS 84 COORDINATES:

Latitude 41°20'10.20"N
 Longitude 95°57'37.09"W
 Ellipsoidal Height 1047"

Receiver :
 R10
 R8
 Other, specify

X

Type of Mark Primary Control

Antenna Height:

6.562 USFT
2.000 METERS

Mark Stamping

Start Time :
 PDOP Begin :
 Start Time :
 PDOP Begin :

Stop Time :
 PDOP End :
 Stop Time :
 PDOP End :

Weather Conditions

To Reach Description :	Witness Ties :		
	Reference Object	Distance	N-E-S-W



Station: 1030 West





GPS STATION RECOVERY - GPS LOG SHEET

Project Name	Eastern NE UA LiDAR Ground Control	Operator Name	Jerry Hammond
Project Number	77026	Date of Survey	10-Dec-16
Station Name	1031	File Name	77026_LIDAR_121016_JH

Methodology

RTK base	<input type="checkbox"/>
RTK VRS	<input checked="" type="checkbox"/>
Rapid Static	<input type="checkbox"/>

Photo Control Point (PCP) ☐
 LiDAR Control Point (LCP) ☒
 LiDAR QC Point (LQC) ☐
 Control Station ☐
 Session #

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15					
16	17	18	19	20					

WGS 84 COORDINATES:

Latitude 41°18'28.89"N
 Longitude 96°20'14.81"W
 Ellipsoidal Height 1136"

Receiver :
 R10
 R8
 Other, specify

X

Type of Mark Primary Control

Antenna Height:

6.562 USFT
2.000 METERS

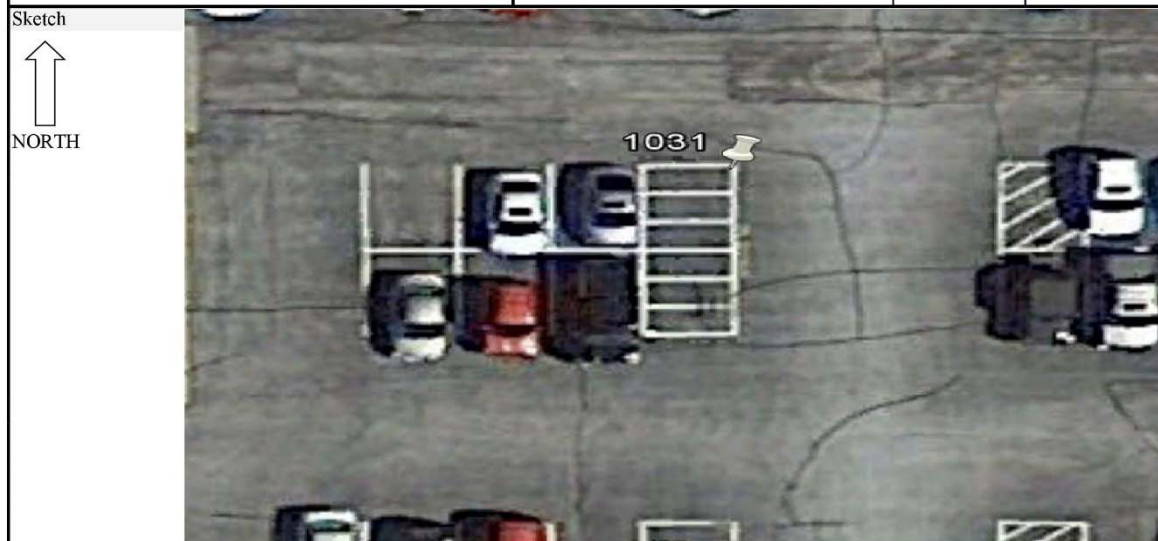
Mark Stamping

Start Time :
 PDOP Begin :
 Start Time :
 PDOP Begin :

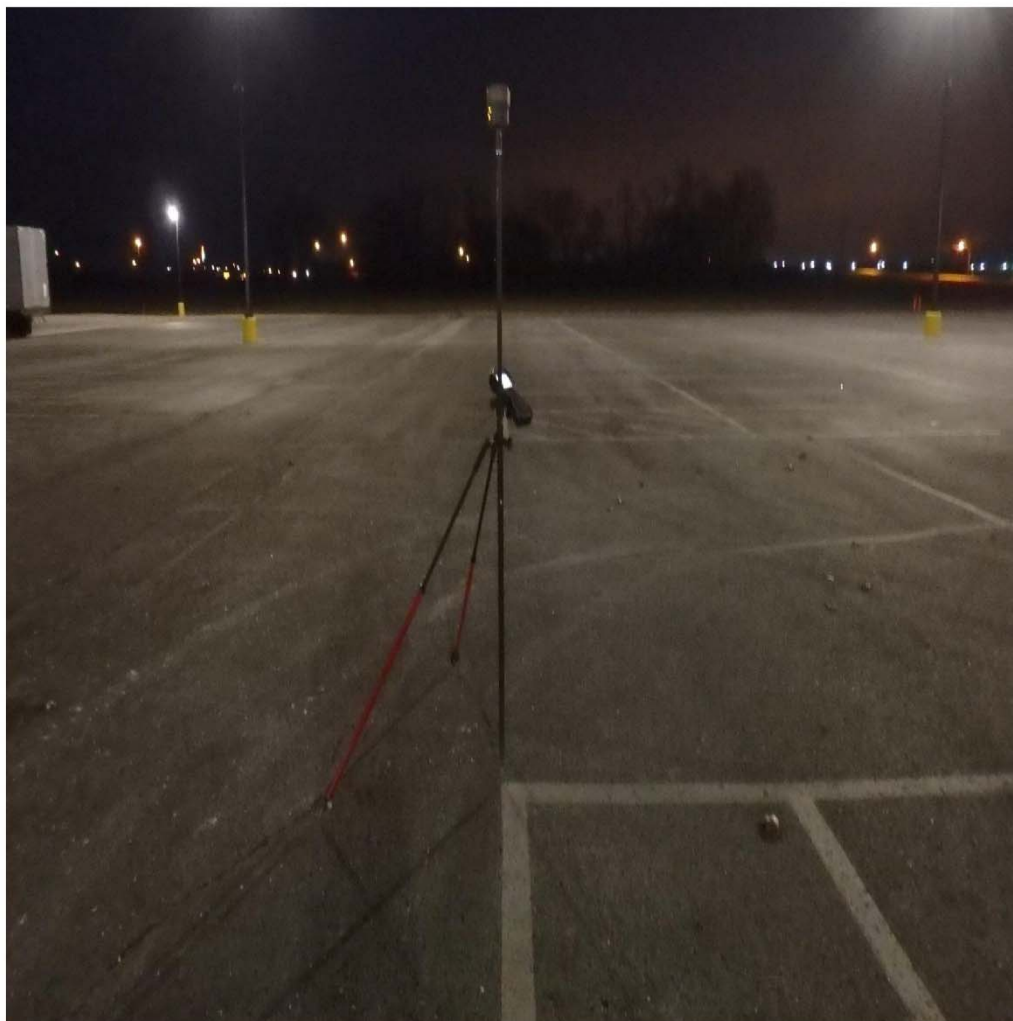
Stop Time :
 PDOP End :
 Stop Time :
 PDOP End :

Weather Conditions

To Reach Description :	Witness Ties :		
	Reference Object	Distance	N-E-S-W



Station: 1031 East





GPS STATION RECOVERY - GPS LOG SHEET

Project Name	Eastern Nebraska Urban Areas LiDAR	Operator Name	BEN CHRISTIE
Project Number	77026	Date of Survey	08-Dec-16
Station Name	1032	File Name	77026_LiDAR_120716_BC

Methodology

RTK base	<input type="checkbox"/>
RTK VRS	<input checked="" type="checkbox"/>
Rapid Static	<input type="checkbox"/>

Photo Control Point (PCP) ☐
 LiDAR Control Point (LCP) ☒
 LiDAR QC Point (LQC) ☐
 Control Station ☐
 Session #

1	2	3	4	5	6	7	8	9	10
	11	12	13	14	15				
	16	17	18	19	20				

WGS 84 COORDINATES:

Latitude 40° 57' 27.32" N
 Longitude 96° 24' 41.36" W
 Ellipsoidal Height 1061.8 sft

Receiver :
 R10
 R8
 Other, specify

3227

Type of Mark END PAINT STRIPE
 Mark Stamping N/A

Antenna Height: 6.562 USFT
2.000 METERS

Start Time :	_____	Stop Time :	_____
PDOP Begin :	_____	PDOP End :	_____
Start Time :	_____	Stop Time :	_____
PDOP Begin :	_____	PDOP End :	_____

Weather Conditions 23° SUNNY

To Reach Description :	Witness Ties :		
	Reference Object	Distance	N-E-S-W



Station: 1032





GPS STATION RECOVERY - GPS LOG SHEET

Project Name	Eastern Nebraska Urban Areas LiDAR	Operator Name	BEN CHRISTIE
Project Number	77026	Date of Survey	06-Dec-16
Station Name	1033	File Name	77026_LiDAR_120616_BC

Methodology

RTK base	<input type="checkbox"/>
RTK VRS	<input checked="" type="checkbox"/>
Rapid Static	<input type="checkbox"/>

Photo Control Point (PCP) ☐
 LiDAR Control Point (LCP) ☒
 LiDAR QC Point (LQC) ☐
 Control Station ☐
 Session #

1	2	3	4	5	6	7	8	9	10
	11	12	13	14	15				
	16	17	18	19	20				

WGS 84 COORDINATES:

Latitude 40° 32' 15.52" N
 Longitude 96° 47' 22.87" W
 Ellipsoidal Height 1394.1 sft

Receiver :
 R10
 R8
 Other, specify

3227

Type of Mark EAST COR CONCRETE

Antenna Height:

6.562 USFT
2.000 METERS

Mark Stamping N/A

Start Time :
 PDOP Begin :
 Start Time :
 PDOP Begin :

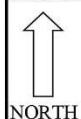
Stop Time :
 PDOP End :
 Stop Time :
 PDOP End :

Weather Conditions

20° SUNNY

To Reach Description :	Witness Ties :		
	Reference Object	Distance	N-E-S-W

Sketch



Station: 1033



Section 4: Existing NGS Datasheets

This section contains the published National Geodetic Survey (NGS) datasheets for those existing monumented control stations that were used to establish 3-dimensional coordinates for each of the newly established ground control survey points for the project.

The NGS Data Sheet

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

PROGRAM = datasheet95, VERSION = 8.11

1 National Geodetic Survey, Retrieval Date = DECEMBER 13, 2016

LG1143 *****

LG1143 DESIGNATION - BENNET AZ MK 2

LG1143 PID - LG1143

LG1143 STATE/COUNTY- NE/LANCASTER

LG1143 COUNTRY - US

LG1143 USGS QUAD - BENNET (1972)

LG1143

LG1143 *CURRENT SURVEY CONTROL

LG1143

LG1143* NAD 83(1995) POSITION- 40 41 49.83934(N) 096 30 23.09274(W) NO CHECK

LG1143* [NAVD 88](#) ORTHO HEIGHT - 414.614 (meters) 1360.28 (feet) ADJUSTED

LG1143

LG1143 GEOID HEIGHT - -26.103 (meters) GEOID12B

LG1143 LAPLACE CORR - -5.43 (seconds) DEFLEC12B

LG1143 DYNAMIC HEIGHT - 414.432 (meters) 1359.68 (feet) COMP

LG1143 MODELED GRAVITY - 980,171.7 (mgal) NAVD 88

LG1143

LG1143 HORZ ORDER - THIRD

LG1143 VERT ORDER - FIRST CLASS II

LG1143

LG1143.The horizontal coordinates were established by classical geodetic methods

LG1143.and adjusted by the National Geodetic Survey in August 1997.

LG1143.

LG1143.No horizontal observational check was made to the station.

LG1143.

LG1143.The orthometric height was determined by differential leveling and

LG1143.adjusted by the NATIONAL GEODETIC SURVEY

LG1143.in May 1993.

LG1143

LG1143.Significant digits in the geoid height do not necessarily reflect accuracy.

LG1143.GEOID12B height accuracy estimate available [here](#).

LG1143

LG1143.[Photographs](#) are available for this station.

LG1143

LG1143.The Laplace correction was computed from DEFLEC12B derived deflections.

LG1143

LG1143.The dynamic height is computed by dividing the NAVD 88

LG1143.geopotential number by the normal gravity value computed on the

LG1143.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
 LG1143.degrees latitude (g = 980.6199 gals.).

LG1143

LG1143.The modeled gravity was interpolated from observed gravity values.

LG1143

LG1143. The following values were computed from the NAD 83(1995) position.

LG1143

LG1143;		North	East	Units	Scale Factor	Converg.
LG1143;SPC NE	-	101,874.855	795,122.638	MT	0.99975739	+2 18 54.7
LG1143;SPC NE	-	334,234.42	2,608,664.85	sFT	0.99975739	+2 18 54.7
LG1143;UTM 14	-	4,508,132.222	710,681.308	MT	1.00014637	+1 37 35.6
LG1143!	-	Elev Factor	x	Scale Factor	=	Combined Factor
LG1143!SPC NE	-	0.99993906	x	0.99975739	=	0.99969646
LG1143!UTM 14	-	0.99993906	x	1.00014637	=	1.00008542

LG1143

LG1143_U.S. NATIONAL GRID SPATIAL ADDRESS: 14TQL1068108132(NAD 83)

LG1143

LG1143 SUPERSEDED SURVEY CONTROL

LG1143

LG1143 NAD 83(1986)- 40 41 49.84813(N) 096 30 23.09026(W) AD() 3

LG1143 NAD 27 - 40 41 49.85076(N) 096 30 22.04398(W) AD() 3

LG1143

LG1143.Superseded values are not recommended for survey control.

LG1143

LG1143.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

LG1143.[See file dsdata.txt](#) to determine how the superseded data were derived.

LG1143

LG1143_MARKER: DZ = AZIMUTH MARK DISK

LG1143_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT

LG1143_STAMPING: BENNET 1961 AZ 2 1976

LG1143_MARK LOGO: NGS

LG1143_MAGNETIC: N = NO MAGNETIC MATERIAL

LG1143_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO

LG1143+STABILITY: SURFACE MOTION

LG1143_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

LG1143+SATELLITE: SATELLITE OBSERVATIONS - October 14, 1999

LG1143

LG1143	HISTORY	-	Date	Condition	Report By
LG1143	HISTORY	-	1976	MONUMENTED	NGS
LG1143	HISTORY	-	19911023	GOOD	NGS
LG1143	HISTORY	-	19991014	GOOD	NEDR

LG1143

LG1143 STATION DESCRIPTION

LG1143

LG1143'DESCRIBED BY NATIONAL GEODETIC SURVEY 1991

LG1143'18.5 KM (11.50 MI) EASTERLY ALONG STATE HIGHWAY 2 FROM THE JUNCTION

LG1143'OF U.S. HIGHWAY 77 (SOUTH 14TH STREET) IN LINCOLN, THENCE 1.6 KM

LG1143'(1.00 MI) SOUTHERLY ALONG STATE HIGHWAY 43, 45.7 M (149.9 FT) SOUTH

LG1143'OF THE CENTER OF A DRIVEWAY, 18.6 M (61.0 FT) EAST OF THE CENTERLINE

LG1143'OF THE HIGHWAY, 12.5 M (41.0 FT) NORTH OF AND LEVEL WITH THE CENTER

LG1143'OF SALTILLO ROAD, 1.9 M (6.2 FT) NORTH OF A RIGHT-OF-WAY POST, 0.5 M

LG1143'(1.6 FT) NORTH OF A WITNESS POST, AND THE MONUMENT IS FLUSH WITH THE

LG1143'GROUND SURFACE.

LG1143

UNITED STATES GEOLOGICAL SURVEY (USGS)

NE Eastern Nebraska UA LiDAR 2016 B16

Ground Control Survey Report

December 2016

LG1143 STATION RECOVERY (1999)
 LG1143
 LG1143'RECOVERY NOTE BY NEBRASKA ROADS DEPARTMENT 1999 (TWR)
 LG1143'TO REACH THE MARK FROM THE INTERSECTION OF BENNET ROAD WITH STATE
 LG1143'HIGHWAY 43, IN BENNET, GO NORTH ON THE HIGHWAY FOR 1.61 KM (1.00 MI)
 LG1143'TO SALTILLO ROAD AND THE MARK IN THE NORTHEAST ANGLE OF THE
 LG1143'INTERSECTION, ON THE EAST RIGHT-OF-WAY OF THE HIGHWAY AND IN THE
 LG1143'SE1/4, SEC34, T9N, R8E. IT IS SET INTO THE TOP OF A ROUND CONCRETE
 LG1143'POST THAT IS FLUSH WITH THE GROUND SURFACE, 149.9 FT (45.7 M) SOUTH OF
 LG1143'THE CENTERLINE OF A DRIVEWAY, 61.0 FT (18.6 M) EAST OF THE CENTERLINE
 LG1143'OF THE HIGHWAY, 41.0 FT (12.5 M) NORTH OF THE CENTERLINE OF SALTILLO
 LG1143'ROAD AND 1.6 FT (0.5 M) NORTH OF A WITNESS POST.

1 National Geodetic Survey, Retrieval Date = DECEMBER 13, 2016

LG1131 *****

LG1131 CBN - This is a Cooperative Base Network Control Station.
 LG1131 DESIGNATION - CORN
 LG1131 PID - LG1131
 LG1131 STATE/COUNTY- NE/LANCASTER
 LG1131 COUNTRY - US
 LG1131 USGS QUAD - DAVEY (1972)

LG1131
 LG1131 *CURRENT SURVEY CONTROL

LG1131

LG1131*	NAD 83(2011) POSITION-	40 54 34.47853(N)	096 44 21.36958(W)	ADJUSTED
LG1131*	NAD 83(2011) ELLIP HT-	385.809 (meters)	(06/27/12)	ADJUSTED
LG1131*	NAD 83(2011) EPOCH	- 2010.00		
LG1131*	NAVD 88 ORTHO HEIGHT	- 412.1 (meters)	1352. (feet)	GPS OBS

LG1131

LG1131	NAVD 88 orthometric height was determined with geoid model	GEOID99
LG1131	GEOID HEIGHT - -26.275 (meters)	GEOID99
LG1131	GEOID HEIGHT - -26.309 (meters)	GEOID12B
LG1131	NAD 83(2011) X - -566,509.763 (meters)	COMP
LG1131	NAD 83(2011) Y - -4,794,108.963 (meters)	COMP
LG1131	NAD 83(2011) Z - 4,155,092.086 (meters)	COMP
LG1131	LAPLACE CORR - 5.72 (seconds)	DEFLEC12B

LG1131

LG1131 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
 LG1131 Standards:

LG1131	FGDC (95% conf, cm)	Standard deviation (cm)	CorrNE
LG1131	Horiz Ellip	SD_N SD_E SD_h	(unitless)
LG1131	-----	-----	-----
LG1131	NETWORK 0.72 1.59	0.33 0.24 0.81	-0.01392820
LG1131	-----	-----	-----

LG1131 Click [here](#) for local accuracies and other accuracy information.
 LG1131
 LG1131
 LG1131.The horizontal coordinates were established by GPS observations
 LG1131.and adjusted by the National Geodetic Survey in June 2012.
 LG1131
 LG1131.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
 LG1131.been affixed to the stable North American tectonic plate. See
 LG1131.[NA2011](#) for more information.
 LG1131
 LG1131.The horizontal coordinates are valid at the epoch date displayed above

LG1131.which is a decimal equivalence of Year/Month/Day.

LG1131

LG1131.The orthometric height was determined by GPS observations and a
LG1131.high-resolution geoid model.

LG1131

LG1131.Significant digits in the geoid height do not necessarily reflect accuracy.

LG1131.GEOID12B height accuracy estimate available [here](#).

LG1131

LG1131.The X, Y, and Z were computed from the position and the ellipsoidal ht.

LG1131

LG1131.The Laplace correction was computed from DEFLEC12B derived deflections.

LG1131

LG1131.The ellipsoidal height was determined by GPS observations

LG1131.and is referenced to NAD 83.

LG1131

LG1131. The following values were computed from the NAD 83(2011) position.

LG1131

LG1131;		North	East	Units	Scale Factor	Converg.
LG1131;SPC NE	-	124,670.460	774,572.642	MT	0.99971237	+2 09 39.2
LG1131;SPC NE	-	409,023.00	2,541,243.74	sFT	0.99971237	+2 09 39.2
LG1131;UTM 14	-	4,531,179.923	690,397.641	MT	1.00004620	+1 28 51.3
LG1131!	-	Elev Factor	x	Scale Factor	=	Combined Factor
LG1131!SPC NE	-	0.99993949	x	0.99971237	=	0.99965187
LG1131!UTM 14	-	0.99993949	x	1.00004620	=	0.99998568

LG1131

LG1131:		Primary Azimuth Mark	Grid Az
LG1131:SPC NE	-	CORN AZ MK	177 40 14.6
LG1131:UTM 14	-	CORN AZ MK	178 21 02.5

LG1131

LG1131_U.S. NATIONAL GRID SPATIAL ADDRESS: 14TPL9039731179(NAD 83)

LG1131

LG1131	PID	Reference Object	Distance	Geod. Az dddmss.s
LG1131	CL6277	CORN RM 1	13.760 METERS	10827
LG1131	LG1128	LINCOLN RADIO STA KOLN MAST	APPROX.11.7 KM	1462233.6
LG1131	LG1116	LINCOLN ST HWY DEPT RADIO MAST	APPROX.16.9 KM	1692935.9
LG1131	LG1112	LINCOLN STATE HOSPITAL TANK	APPROX.15.1 KM	1772202.9
LG1131	LG1134	CORN AZ MK	APPROX. 0.7 KM	1794953.8
LG1131	CL6278	CORN RM 2	13.795 METERS	18634
LG1131	LG1181	LINCOLN AIR FORCE BASE TANK	APPROX. 7.6 KM	1902323.2
LG1131	CL6279	CORN RM 3	8.915 METERS	35020
LG1131	LG1136	VORTAC RAYMOND RAY	APPROX. 1.6 KM	3514050.0

LG1131

LG1131 SUPERSEDED SURVEY CONTROL

LG1131

LG1131	NAD 83(2007)-	40 54 34.47853(N)	096 44 21.37025(W)	AD(2002.00)	0
LG1131	ELLIP H (02/10/07)	385.823 (m)		GP(2002.00)	
LG1131	ELLIP H (07/10/01)	385.819 (m)		GP()	4 1
LG1131	NAD 83(1992)-	40 54 34.47814(N)	096 44 21.36932(W)	AD()	B
LG1131	ELLIP H (11/28/94)	385.893 (m)		GP()	2 1
LG1131	NAD 83(1986)-	40 54 34.48743(N)	096 44 21.37068(W)	AD()	1
LG1131	NAD 27	- 40 54 34.46549(N)	096 44 20.31113(W)	AD()	1

UNITED STATES GEOLOGICAL SURVEY (USGS)

NE Eastern Nebraska UA LiDAR 2016 B16

Ground Control Survey Report

December 2016

LG1131 NAVD 88 (11/28/94) 412.1 (m) GEOID93 model used GPS OBS
 LG1131
 LG1131.Superseded values are not recommended for survey control.
 LG1131
 LG1131.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
 LG1131.[See file dsdata.txt](#) to determine how the superseded data were derived.
 LG1131
 LG1131_MARKER: DS = TRIANGULATION STATION DISK
 LG1131_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
 LG1131_STAMPING: CORN 1947
 LG1131_MARK LOGO: CGS
 LG1131_MAGNETIC: N = NO MAGNETIC MATERIAL
 LG1131_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
 LG1131+STABILITY: SURFACE MOTION
 LG1131_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
 LG1131+SATELLITE: SATELLITE OBSERVATIONS - 2002
 LG1131

HISTORY	- Date	Condition	Report By
HISTORY	- 1947	MONUMENTED	CGS
HISTORY	- 1955	GOOD	CGS
HISTORY	- 1959	GOOD	CGS
HISTORY	- 1961	GOOD	CGS
HISTORY	- 1961	GOOD	USGS
HISTORY	- 1966	GOOD	NEDR
HISTORY	- 1967	GOOD	CGS
HISTORY	- 1974	GOOD	NEDR
HISTORY	- 1977	GOOD	NGS
HISTORY	- 1979	GOOD	NGS
HISTORY	- 19931006	GOOD	NE-109
HISTORY	- 20000601	GOOD	NEDR
HISTORY	- 2002	GOOD	NEDR

 LG1131
 LG1131
 LG1131 STATION DESCRIPTION
 LG1131
 LG1131'DESCRIBED BY COAST AND GEODETIC SURVEY 1947 (RLE)
 LG1131'THE STATION IS LOCATED ON A HIGH RIDGE BETWEEN LITTLE SALT CREEK
 LG1131'AND OAK CREEK, ABOUT 6 MILES NORTH OF LINCOLN, 0.6 MILE NORTH
 LG1131'OF A CROSSROAD, 22 FEET WEST OF THE CENTER OF A GRADED ROAD,
 LG1131'7 FEET EAST OF A WOVEN WIRE FENCE, AND 6.5 FEET EAST-SOUTHEAST
 LG1131'OF A WITNESS POST. IT PROJECTS 6 INCHES AND IS STAMPED CORN
 LG1131'1947.
 LG1131'
 LG1131'REFERENCE MARK NO. 1 IS AT THE WEST EDGE OF A CULTIVATED FIELD
 LG1131'AND 27 FEET EAST OF THE CENTER OF A GRADED ROAD. IT IS SET FLUSH
 LG1131'WITH THE GROUND AND IS STAMPED CORN NO 1 1947.
 LG1131'
 LG1131'REFERENCE MARK NO. 2 IS 27 FEET WEST OF THE CENTER OF A GRADED
 LG1131'ROAD AND 1 FOOT EAST OF A WOVEN WIRE FENCE. IT PROJECTS 6
 LG1131'INCHES AND IS STAMPED CORN NO 2 1947.
 LG1131'
 LG1131'AZIMUTH MARK IS 0.4 MILE SOUTH OF THE STATION, 0.2 MILE NORTH
 LG1131'OF A CROSSROAD, 29 FEET WEST OF THE CENTER OF A GRADED ROAD,
 LG1131'2 FEET NORTH OF A WITNESS POST, AND 1.5 FEET EAST-NORTHEAST
 LG1131'OF A T FENCE INTERSECTION. IT PROJECTS 6 INCHES AND IS STAMPED
 LG1131'CORN 1947.

LG1131'
 LG1131' TO REACH THE STATION FROM THE POST OFFICE IN LINCOLN, GO NORTH
 LG1131' ON U.S. HIGHWAY NO. 77 FOR 1.4 MILES TO THE JUNCTION OF U.S.
 LG1131' 77, 34, 6 AND STATE HIGHWAY NO. 2, TURN LEFT ON U.S. HIGHWAY NO.
 LG1131' 34 AND GO 3.2 MILES TO A RAILROAD CROSSING AND A SIDE ROAD RIGHT,
 LG1131' TURN RIGHT, NORTH, ON STATE HIGHWAY NO. 79 AND GO 3 MILES TO A
 LG1131' CROSSROAD, TURN RIGHT, EAST, AND GO 1.0 MILE TO A CROSSROAD,
 LG1131' TURN LEFT, NORTH, AND GO 0.6 MILE TO THE TOP OF A RIDGE AND THE
 LG1131' STATION ON THE LEFT AS DESCRIBED.
 LG1131'
 LG1131' TO REACH THE AZIMUTH MARK FROM THE STATION, GO SOUTH ON GRADED
 LG1131' ROAD FOR 0.4 MILE TO THE AZIMUTH MARK ON THE RIGHT AS DESCRIBED.
 LG1131'
 LG1131' AN 87 FOOT SIGNAL AT AIRPORT IS VISIBLE AT 12 FEET.
 LG1131'
 LG1131' A 74 FOOT SIGNAL AT VET IS VISIBLE AT 12 FEET.
 LG1131'
 LG1131' AN 87 FOOT SIGNAL AT PEN IS VISIBLE AT 4 FEET.
 LG1131'
 LG1131' A 74 FOOT SIGNAL AT LINCOLN IS VISIBLE AT 4 FEET.
 LG1131'
 LG1131' A 74 FOOT SIGNAL AT HAINES IS VISIBLE AT 4 FEET.
 LG1131'
 LG1131' A 10 FOOT SIGNAL AT EMERALD IS VISIBLE AT 4 FEET.
 LG1131'
 LG1131' A 74 FOOT SIGNAL AT MILFORD IS VISIBLE AT 4 FEET.
 LG1131'
 LG1131' A 47 FOOT SIGNAL AT HAPPY IS VISIBLE AT 4 FEET.
 LG1131'
 LG1131' A 74 FOOT SIGNAL AT GARLAND IS VISIBLE AT 4 FEET.
 LG1131'
 LG1131' HEIGHT OF LIGHT ABOVE STATION MARK 14 METERS.
 LG1131
 LG1131 STATION RECOVERY (1955)
 LG1131
 LG1131 RECOVERY NOTE BY COAST AND GEODETIC SURVEY 1955 (WTJ)
 LG1131 STATION AND ALL MARKS RECOVERED AS DESCRIBED IN GOOD CONDITION.
 LG1131'
 LG1131 NOTE- AZIMUTH MARK WAS NOT VISIBLE FROM GROUND DUE TO FENCE LINE
 LG1131 BEING GROWN UP IN BRUSH AND TREES ABOUT 20 FT. HIGH.
 LG1131
 LG1131 STATION RECOVERY (1959)
 LG1131
 LG1131 RECOVERY NOTE BY COAST AND GEODETIC SURVEY 1959 (JCS)
 LG1131 STATION WAS RECOVERED IN GOOD CONDITION AS DESCRIBED.
 LG1131'
 LG1131 RM NO. 1 WAS RECOVERED AS DESCRIBED, HOWEVER THE MONUMENT HAS
 LG1131 BEEN STRUCK BY A PLOW AND MAY HAVE BEEN MOVED SLIGHTLY FROM
 LG1131 ITS ORIGINAL POSITION.
 LG1131'
 LG1131 RM NO. 2 WAS RECOVERED IN GOOD CONDITION AS DESCRIBED.
 LG1131'
 LG1131 AZIMUTH MARK WAS RECOVERED IN GOOD CONDITION AS DESCRIBED, MARK
 LG1131 AND STATION ARE NOT INTERVISIBLE WITHOUT CONSIDERABLE CLEARING OF
 LG1131 BRUSH ALONG FENCELINE.

LG1131

LG1131 STATION RECOVERY (1961)

LG1131

LG1131'RECOVERY NOTE BY COAST AND GEODETIC SURVEY 1961 (GWM)

LG1131'THE STATION, WITH ALL MARKS IN GOOD CONDITION, WAS RECOVERED

LG1131'AS DESCRIBED IN 1947. THE FOLLOWING CHANGES WERE NOTED-

LG1131'

LG1131'1. THE MILEAGE FROM THE JUNCTION OF U.S. HIGHWAYS 77 AND 34

LG1131'AND STATE HIGHWAY 2 TO THE TURN-OFF FROM U.S. HIGHWAY 34 IS

LG1131'NEARER 3.1 MILES.

LG1131'

LG1131'2. THE GRAVELED ROAD NORTH AT THIS POINT IS NOT A NUMBERED STATE

LG1131'HIGHWAY 79.

LG1131'

LG1131'3. THE STATION MARK IS NOW 4 FEET EAST OF A METAL WITNESS

LG1131'POST SET AT THIS TIME. THE AZIMUTH MARK IS NOW 1 FOOT NORTH OF A

LG1131'METAL WITNESS POST SET AT THIS TIME.

LG1131'

LG1131'4. THE PICTURE POINT SHOWN IS THE NORTH END OF THE BRUSH

LG1131'LINE IN THE NORTH-SOUTH FENCELINE ON THE EAST SIDE OF THE ROAD

LG1131'AT THE STATION.

LG1131'

LG1131'5. THE DISTANCE FROM R.M. 1 TO R.M. 2 IS 56.94 FEET, 17.356

LG1131'METERS.

LG1131

LG1131 STATION RECOVERY (1961)

LG1131

LG1131'RECOVERY NOTE BY US GEOLOGICAL SURVEY 1961

LG1131'ALL MARKS WERE FOUND IN GOOD CONDITION AS DESCRIBED. THE AZIMUTH

LG1131'MARK IS NOT VISIBLE FROM GROUND, BUT WILL CLEAR WITH A 4 METER

LG1131'TOWER.

LG1131

LG1131 STATION RECOVERY (1966)

LG1131

LG1131'RECOVERY NOTE BY NEBRASKA ROADS DEPARTMENT 1966 (HED)

LG1131'THE STATION, R.M. 1, R.M. 2 AND THE AZIMUTH MARK WERE RECOVERED

LG1131'IN GOOD CONDITION.

LG1131'

LG1131'ALL POINTS ARE AS DESCRIBED IN THE 1947 DESCRIPTION. THE

LG1131'AZIMUTH MARK IS VISIBLE FROM A 5.0 FT. TRIPOD.

LG1131'

LG1131'PREVIOUS TO REACH INFORMATION IS INADEQUATE DUE TO A CHANGE IN

LG1131'HIGHWAY RELOCATION.

LG1131'

LG1131'NEW TO REACH INFORMATION- FROM 10TH AND O STREETS IN LINCOLN,

LG1131'NEBRASKA PROCEED NORTH ON INTERSTATE 180 AND U.S. HIGHWAY 34 FOR

LG1131'3.37 MILES TO THE INTERSTATE 80, INTERSTATE 180 AND U.S. HIGHWAY

LG1131'34 INTERCHANGE, CONTINUE NORTHWEST ON U.S. HIGHWAY 34 FOR

LG1131'0.7 MILE TO AN INTERSECTION WITH A NORTH-SOUTH AND EAST-WEST

LG1131'SECTION LINE ROAD, (INTERSECTION OF 1ST STREET AND FLETCHER

LG1131'STREET (, TURN RIGHT (NORTH (AND CONTINUE ON SECTION LINE

LG1131'ROAD FOR 2 MILES TO A JUNCTION WITH AN EAST-WEST GRAVELED

LG1131'SECTION LINE ROAD, TURN LEFT (WEST) AND PROCEED ON SECTION

LG1131'LINE ROAD FOR 1 MILE TO AN INTERSECTION WITH A NORTH-SOUTH

LG1131'SECTION LINE ROAD, TURN RIGHT (NORTH) AND CONTINUE ON SECTION

LG1131'LINE ROAD FOR 0.6 MILES TO THE STATION ON THE LEFT
 LG1131'APPROXIMATELY 30 FEET WEST OF THE CENTERLINE OF THE SECTION
 LG1131'LINE ROAD.

LG1131

LG1131 STATION RECOVERY (1967)

LG1131

LG1131'RECOVERY NOTE BY COAST AND GEODETIC SURVEY 1967 (FJH)
 LG1131'DESCRIPTION IS ADEQUATE. ALL MARKS FOUND IN GOOD CONDITION. THE
 LG1131'AZIMUTH MARK IS NOT VISIBLE FROM THE GROUND.

LG1131

LG1131 STATION RECOVERY (1974)

LG1131

LG1131'RECOVERY NOTE BY NEBRASKA ROADS DEPARTMENT 1974 (HED)
 LG1131'STATION , REFERENCE MARK 1, REFERENCE MARK 2, AND AZIMUTH
 LG1131'MARK FOUND IN GOOD CONDITION AS DESCRIBED.

LG1131'

LG1131'NEAREST TOWN--LINCOLN.

LG1131

LG1131 STATION RECOVERY (1977)

LG1131

LG1131'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1977 (CLN)
 LG1131'THE STATION MARK, REFERENCE MARK 2 AND THE AZIMUTH MARK WERE
 LG1131'RECOVERED AND FOUND IN GOOD CONDITION. THE REFERENCE MARK 1
 LG1131'CONCRETE MONUMENT WITH PART OF DISK INTACT WAS FOUND LYING ON TOP
 LG1131'THE GROUND BY THE STATION MARK. THE AZIMUTH MARK IS OBSTRUCTED BY
 LG1131'BRUSH ALONG FENCE LINE THIS DATE. THE PREVIOUS DESCRIPTIONS ARE
 LG1131'ADEQUATE FOR RECOVERY OF THE STATION. REFERENCE MARK 3 WAS
 LG1131'ESTABLISHED THIS DATE.

LG1131'

LG1131'FOLLOWING IS A DESCRIPTION FOR REFERENCE MARK 3.

LG1131'

LG1131'REFERENCE MARK 3 IS A 4 INCH CAST ALUMINUM REFERENCE MARK, STAMPED
 LG1131'CORN 1947 NO 3 1977, AND PROJECTS 1 INCH ABOVE THE GROUND SURFACE.
 LG1131'IT IS 32 FEET WEST OF THE CENTER OF A DIRT ROAD, 1 FOOT EAST OF A
 LG1131'NORTH-SOUTH FENCELINE AND 1 FOOT SOUTH OF A METAL WITNESS POST.

LG1131'

LG1131'NEW WITNESS SIGNS WERE BOLTED TO THE STEEL POSTS AT THE STATION MARK
 LG1131'AND THE AZIMUTH MARK.

LG1131'

LG1131'AIRLINE DISTANCE AND DIRECTION FROM NEAREST TOWN--ABOUT 6.0 MILES
 LG1131'NORTH OF LINCOLN.

LG1131

LG1131 STATION RECOVERY (1979)

LG1131

LG1131'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1979 (CLN)
 LG1131'SURFACE STATION MARK, REFERENCE MARKS 2, 3 AND THE AZIMUTH MARK WERE
 LG1131'RECOVERED IN GOOD CONDITION. THE DIRECTION TO THE AZIMUTH MARK WAS
 LG1131'7.6 SECONDS LARGER THAN 1947 DATA AND 2 SECONDS LARGER THAN 1961
 LG1131'DATA. THE DIRECTION WAS FAVORABLE WITH 1966 OBSERVATION BY THE
 LG1131'NEBRASKA DEPARTMENT OF ROADS AND WITH 1976 OBSERVATIONS OF GARBER AND
 LG1131'WORK, A PRIVATE COMPANY. THE DIRECTION TO REFERENCE MARK 2 WAS 1
 LG1131'MINUTE, 13 SECONDS SMALLER THAN 1947 DATA, 3 MINUTES, 42 SECONDS
 LG1131'LARGER THAN 1961 DATA AND 2 MINUTES, 10 SECONDS LARGER THAN 1977
 LG1131'DATA. IT AGREED VERY FAVORABLY WITH 1966 DATA OF THE NEBRASKA
 LG1131'DEPARTMENT OF ROADS AND 1966 DATA OF THE U.S. GEOLOGICAL SURVEY. THE

LG1131'DISTANCE TO THE MARK WAS 0.026 METER LONGER THAN 1947, 1961, 1966 AND
 LG1131'1977 DATA BUT WAS 0.005 METER SHORTER THAN 1967 USGS DATA. THE
 LG1131'DIRECTION TO REFERENCE MARK 3 WAS 3 MINUTES, 19 SECONDS SMALLER THAN
 LG1131'1977 DATA BUT THE DISTANCE AGREED. THE DIRECTIONS TO THE LINCOLN AFB
 LG1131'TANK AND THE VORTAC RAYMOND RAY AGREED FAVORABLY WITH PRIOR DATA, AS
 LG1131'OLD DIRECTIONS TO ANOTHER TANK AND A STANDPIPE OBSERVED UPON BY
 LG1131'OTHERS. THE UNDERGROUND MARK WAS NOT INSPECTED. A COMPLETE NEW
 LG1131'DESCRIPTION FOLLOWS.

LG1131'

LG1131'THE STATION IS ABOUT 6 MILES NORTH OF LINCOLN, 5 MILES NORTHEAST OF
 LG1131'THE LINCOLN AIR FORCE BASE AND ON THE WEST RIGHT-OF-WAY OF NW 12TH
 LG1131'STREET.

LG1131'

LG1131'TO REACH THE STATION FROM THE JUNCTION OF INTERSTATE HIGHWAY 80,
 LG1131'INTERSTATE HIGHWAY 180 AND U.S. HIGHWAY 34, AT LINCOLN, GO NORTHWEST
 LG1131'ON HIGHWAY 34 FOR 0.7 MILES TO A CROSSROAD. TURN RIGHT AND GO NORTH
 LG1131'ON 1ST STREET, GRADED, FOR 2.1 MILES TO MC KELVIE ROAD. TURN LEFT
 LG1131'AND GO WEST ON MC KELVIE ROAD, GRADED, FOR 1.0 MILE TO NW 12TH
 LG1131'STREET. TURN RIGHT AND GO NORTH ON NW 12TH STREET, GRADED, FOR 0.2
 LG1131'MILE TO THE AZIMUTH MARK ON THE LEFT. CONTINUE NORTH FOR 0.4 MILE TO
 LG1131'THE STATION ON THE LEFT.

LG1131'

LG1131'SURFACE STATION MARK IS A STANDARD DISK, STAMPED---CORN 1947--- SET
 LG1131'IN THE TOP OF A SQUARE CONCRETE POST THAT PROJECTS 2 INCHES. IT IS
 LG1131'37.5 FEET WEST OF THE CENTERLINE OF NW 12TH STREET, 30.7 FEET
 LG1131'SOUTH-SOUTHEAST OF A WITNESS POST, 6 FEET EAST OF A FENCE AND 5.5
 LG1131'FEET EAST OF A WITNESS POST.

LG1131'

LG1131'REFERENCE MARK 2 IS A STANDARD DISK, STAMPED---CORN NO 2 1947--- SET
 LG1131'IN THE TOP OF A SQUARE CONCRETE POST THAT PROJECTS 3 INCHES. IT IS
 LG1131'44.0 FEET WEST OF THE CENTERLINE OF NW 12TH STREET, 45.7 FEET SOUTH OF
 LG1131'A WITNESS POST AND 1 FOOT EAST OF THE FENCE.

LG1131'

LG1131'REFERENCE MARK 3 IS A 4-INCH CAST ALUMINUM REFERENCE MARK,
 LG1131'STAMPED---CORN 1947 NO 3 1977, SET IN A MASS OF CONCRETE AND PROJECTS
 LG1131'2 INCHES. IT IS 43.0 FEET WEST OF THE CENTERLINE OF NW 12TH STREET, 1
 LG1131'FOOT EAST OF THE FENCE AND 1 FOOT SOUTH OF A WITNESS POST.

LG1131'

LG1131'THE AZIMUTH MARK IS A STANDARD DISK, STAMPED---CORN 1947--- SET IN
 LG1131'THE TOP OF A SQUARE CONCRETE POST THAT PROJECTS 3 INCHES. IT IS 32.5
 LG1131'FEET WEST OF THE CENTERLINE OF NW 12TH STREET, 1.5 FEET EAST OF A
 LG1131'T-FENCE CORNER AND 1.5 FEET NORTH OF A WITNESS POST.

LG1131

LG1131 STATION RECOVERY (1993)

LG1131

LG1131'RECOVERY NOTE BY LANCASTER COUNTY NEBRASKA 1993 (LVW)

LG1131'THE STATION WAS RECOVERED IN GOOD CONDITION, ABOUT 9.66 KM (6.00 MI)
 LG1131'NORTH FROM LINCOLN, NEAR THE EAST 1/4 CORNER, SECTION 21, T11N, R8E,
 LG1131'OF THE SIXTH PRINCIPAL MERIDIAN, LANCASTER COUNTY, NEBRASKA AND ON THE
 LG1131'WEST RIGHT-OF-WAY OF A GRADED COUNTY ROAD.

LG1131'

LG1131'TO REACH THE MARK FROM THE JUNCTION OF INTERSTATE HIGHWAY 80 AND U.S.
 LG1131'HIGHWAY 34, ABOUT 6.44 KM (4.00 MI) NORTH FROM LINCOLN, GO NORTHWEST
 LG1131'ON HIGHWAY 34 FOR 1.13 KM (0.70 MI) TO NORTH 1ST STREET. TURN RIGHT
 LG1131'AND GO NORTH ON NORTH FIRST STREET FOR 3.21 KM (1.99 MI) TO MCKELVIE

LG1131'ROAD. TURN LEFT AND GO WEST ON MCKELVIE FOR 1.61 KM (1.00 MI) TO
 LG1131'NORTHWEST 12TH STREET. TURN RIGHT AND GO NORTH ON NORTHWEST 12TH
 LG1131'STREET FOR 0.97 KM (0.60 MI) TO THE STATION ON THE LEFT.

LG1131'

LG1131'THE DISK IS SET INTO THE TOP OF A SQUARE CONCRETE POST THAT PROJECTS 4
 LG1131'INCHES ABOVE THE GROUND SURFACE. IT IS 11.28 M (37.01 FT) WEST FROM
 LG1131'THE CENTERLINE OF THE ROAD, 2.13 M (6.99 FT) EAST FROM THE WEST
 LG1131'RIGHT-OF-WAY FENCE AND 1.68 M (5.51 FT) EAST FROM A WITNESS POST.

LG1131'

LG1131'NOTE-THE REFERENCE MARKS AND AZIMUTH MARK WERE ALSO FOUND IN GOOD
 LG1131'CONDITION.

LG1131

LG1131 STATION RECOVERY (2000)

LG1131

LG1131'RECOVERY NOTE BY NEBRASKA ROADS DEPARTMENT 2000 (JAO)

LG1131'RECOVERED AS DESCRIBED.

LG1131

LG1131 STATION RECOVERY (2002)

LG1131

LG1131'RECOVERY NOTE BY NEBRASKA ROADS DEPARTMENT 2002

LG1131'RECOVERED AS DESCRIBED.

1 National Geodetic Survey, Retrieval Date = DECEMBER 13, 2016

LG1139 *****

LG1139 DESIGNATION - CROSS RESET

LG1139 PID - LG1139

LG1139 STATE/COUNTY- NE/LANCASTER

LG1139 COUNTRY - US

LG1139 USGS QUAD - BENNET (1972)

LG1139

LG1139 *CURRENT SURVEY CONTROL

LG1139

LG1139* NAD 83(1995) POSITION- 40 42 43.86636(N) 096 34 37.80050(W) ADJUSTED

LG1139* [NAVD 88](#) ORTHO HEIGHT - 445.174 (meters) 1460.54 (feet) ADJUSTED

LG1139

LG1139 GEOID HEIGHT - -25.923 (meters) GEOID12B

LG1139 LAPLACE CORR - -2.62 (seconds) DEFLEC12B

LG1139 DYNAMIC HEIGHT - 444.979 (meters) 1459.90 (feet) COMP

LG1139 MODELED GRAVITY - 980,171.2 (mgal) NAVD 88

LG1139

LG1139 HORZ ORDER - FIRST

LG1139 VERT ORDER - FIRST CLASS II

LG1139

LG1139.The horizontal coordinates were established by classical geodetic methods
 LG1139.and adjusted by the National Geodetic Survey in August 1997.

LG1139.

LG1139.The orthometric height was determined by differential leveling and

LG1139.adjusted by the NATIONAL GEODETIC SURVEY

LG1139.in May 1993.

LG1139

LG1139.Significant digits in the geoid height do not necessarily reflect accuracy.

LG1139.GEOID12B height accuracy estimate available [here](#).

LG1139

LG1139.The Laplace correction was computed from DEFLEC12B derived deflections.

LG1139


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LG1139.The dynamic height is computed by dividing the NAVD 88
LG1139.geopotential number by the normal gravity value computed on the
LG1139.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
LG1139.degrees latitude (g = 980.6199 gals.).
LG1139
LG1139.The modeled gravity was interpolated from observed gravity values.
LG1139
LG1139. The following values were computed from the NAD 83(1995) position.
LG1139
LG1139;
North East Units Scale Factor Converg.
LG1139;SPC NE - 103,300.633 789,083.019 MT 0.99975376 +2 16 05.9
LG1139;SPC NE - 338,912.16 2,588,849.87 sFT 0.99975376 +2 16 05.9
LG1139;UTM 14 - 4,509,630.984 704,656.985 MT 1.00011557 +1 34 51.1
LG1139
LG1139! - Elev Factor x Scale Factor = Combined Factor
LG1139!SPC NE - 0.99993424 x 0.99975376 = 0.99968801
LG1139!UTM 14 - 0.99993424 x 1.00011557 = 1.00004980
LG1139
LG1139: Primary Azimuth Mark Grid Az
LG1139:SPC NE - CROSS AZ MK 2 307 56 33.1
LG1139:UTM 14 - CROSS AZ MK 2 308 37 47.9
LG1139
LG1139_U.S. NATIONAL GRID SPATIAL ADDRESS: 14TQL0465609630(NAD 83)
LG1139
LG1139|-----|
LG1139| PID Reference Object Distance Geod. Az |
LG1139| | | | dddmmss.s |
LG1139| CL6329 CROSS RM 1 20.561 METERS 04500 |
LG1139| LG1144 CROSS RM 3 46.471 METERS 09804 |
LG1139| LG1138 BENNET MUNICIPAL TANK APPROX. 6.6 KM 1185327.2 |
LG1139| CL6330 CROSS RM 2 25.156 METERS 13551 |
LG1139| LG1360 CROSS RM 4 20658 |
LG1139| CL6328 CROSS AZ MK 3092836.0 |
LG1139| LG1145 CROSS AZ MK 2 APPROX. 0.8 KM 3101239.0 |
LG1139| LG1142 CHENEY ST MARYS CATHOLIC CH APPROX. 2.2 KM 3153728.1 |
LG1139|-----|
LG1139
LG1139 SUPERSEDED SURVEY CONTROL
LG1139
LG1139 NAD 83(1986)- 40 42 43.87471(N) 096 34 37.79981(W) AD( ) 1
LG1139 NAD 27 - 40 42 43.87700(N) 096 34 36.75200(W) AD( ) 1
LG1139
LG1139.Superseded values are not recommended for survey control.
LG1139
LG1139.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
LG1139.See file dsdata.txt to determine how the superseded data were derived.
LG1139
LG1139_MARKER: DH = HORIZONTAL CONTROL DISK
LG1139_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
LG1139_STAMPING: CROSS RESET 1947 1977
LG1139_MARK LOGO: NGS
LG1139_PROJECTION: PROJECTING 5 CENTIMETERS
LG1139_MAGNETIC: R = STEEL ROD IMBEDDED IN MONUMENT
LG1139_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
LG1139+STABILITY: SURFACE MOTION
UNITED STATES GEOLOGICAL SURVEY (USGS)
NE Eastern Nebraska UA LiDAR 2016 B16
Ground Control Survey Report
December 2016

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LG1139_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
 LG1139+SATELLITE: SATELLITE OBSERVATIONS - September 05, 2001

LG1139

LG1139	HISTORY	- Date	Condition	Report By
LG1139	HISTORY	- 1977	MONUMENTED	NGS
LG1139	HISTORY	- 1977	SEE DESCRIPTION	NGS
LG1139	HISTORY	- 1991	GOOD	NGS
LG1139	HISTORY	- 19911023	GOOD	NGS
LG1139	HISTORY	- 20010905	GOOD	NEDR
LG1139	HISTORY	- 20070813	MARK NOT FOUND	GEOCAC
LG1139	HISTORY	- 20120928	GOOD	LOCSUR

LG1139

LG1139

STATION DESCRIPTION

LG1139

LG1139'DESCRIBED BY NATIONAL GEODETIC SURVEY 1977 (RLE)

LG1139'THE STATION IS LOCATED ABOUT 1.2 MILES SOUTHEAST OF CHENEY, ON THE
 LG1139'RIGHT-OF-WAY OF STATE HIGHWAY 2. IT IS 40.5 FEET SOUTHWEST OF THE
 LG1139'CENTER OF STATE HIGHWAY 2, 54 FEET NORTHWEST OF THE CENTER OF AN
 LG1139'EAST-WEST DIRT ROAD AND 40 FEET NORTHEAST OF THE NORTH RAIL OF THE
 LG1139'RAILROAD TRACKS. IT IS STAMPED CROSS 1947 AND IS FLUSH WITH THE
 LG1139'SURFACE OF THE GROUND.

LG1139'

LG1139'REFERENCE MARK NO. 1 IS ON THE RIGHT-OF-WAY AND 26 FEET NORTHEAST
 LG1139'OF THE CENTER OF STATE HIGHWAY 2, 17 FEET SOUTHEAST OF A TELEPHONE
 LG1139'POLE AND 2 FEET NORTHWEST OF A 4-INCH SQUARE WHITE WOODEN WITNESS
 LG1139'POST PROJECTING 2 FEET. IT IS STAMPED CROSS NO 1 1947 AND
 LG1139'PROJECTS 4 INCHES.

LG1139'

LG1139'REFERENCE MARK NO. 2 IS ON THE RAILROAD RIGHT-OF-WAY AND 30 FEET
 LG1139'NORTHEAST OF THE NORTH RAIL OF THE RAILROAD TRACKS, 30 FEET
 LG1139'SOUTHEAST OF THE CENTER OF AN EAST-WEST DIRT ROAD AND 9 FEET
 LG1139'SOUTHWEST OF A NORTH-SOUTH TRACK ROAD. IT IS STAMPED CROSS NO 2
 LG1139'1947 AND PROJECTS 6 INCHES.

LG1139'

LG1139'THE AZIMUTH MARK IS ON THE RAILROAD RIGHT-OF-WAY AND 23 FEET
 LG1139'NORTHEAST OF THE EAST RAIL OF THE RAILROAD TRACKS, 58 FEET SOUTHWEST
 LG1139'OF THE CENTER OF STATE HIGHWAY 2, 5 FEET SOUTHWEST OF A TELEPHONE
 LG1139'POLE AND 1 FOOT SOUTHEAST OF A 4-INCH SQUARE WHITE WOODEN WITNESS
 LG1139'POST PROJECTING 2 FEET. IT IS STAMPED CROSS 1947 AND PROJECTS 6
 LG1139'INCHES.

LG1139'

LG1139'TO REACH THE STATION FROM THE GRAIN ELEVATOR AT THE SOUTH EDGE OF
 LG1139'CHENEY, GO SOUTHEAST ON STATE HIGHWAY 2 FOR 0.75 MILE TO THE AZIMUTH
 LG1139'MARK ON THE RIGHT AS DESCRIBED. CONTINUE FOR 0.45 MILE SOUTHEAST
 LG1139'TO THE STATION AS DESCRIBED.

LG1139'

LG1139'A 47 FOOT SIGNAL AT DOUGLAS IS VISIBLE AT 30 FEET.

LG1139'

LG1139'A 74 FOOT SIGNAL AT LONE STAR IS V.G.

LG1139'

LG1139'AN 87 FOOT SIGNAL AT PEN IS VISIBLE AT 40 FEET.

LG1139'

LG1139'A 74 FOOT SIGNAL AT CHENEY IS V.G.

LG1139'

LG1139'A 74 FOOT SIGNAL AT VET IS V.G.

LG1139'
 LG1139'HEIGHT OF LIGHT ABOVE STATION MARK 26 METERS.
 LG1139
 LG1139 STATION RECOVERY (1977)
 LG1139
 LG1139'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1977 (CLN)
 LG1139'THE UNDERGROUND STATION MARK WAS RECOVERED AND FOUND IN GOOD
 LG1139'CONDITION. THE SURFACE STATION MARK WAS FOUND TILTED OUT OF
 LG1139'POSITION. REFERENCE MARK 1 WAS FOUND LYING ON TOP THE GROUND IN A
 LG1139'FENCELINE. REFERENCE MARK 2 WAS NOT FOUND AND IT IS BELIEVED IT
 LG1139'WAS DESTROYED ROAD CONSTRUCTION. THE AZIMUTH MARK WAS FOUND LYING
 LG1139'ON TOP THE GROUND AT EDGE OF A CUT BANK BETWEEN THE ROAD AND
 LG1139'RAILROAD TRACK. A NEW SURFACE STATION MARK WAS SET DIRECTLY
 LG1139'ABOVE THE UNDERGROUND STATION MARK AND REFERENCE MARKS 3 AND
 LG1139'4 AND A NEW AZIMUTH MARK WERE ESTABLISHED. A POLARIS OBSERVATION WAS
 LG1139'MADE THE 6/19/77 FOR DIRECTION TO THE AZIMUTH MARK.
 LG1139'
 LG1139'A NEW COMPLETE DESCRIPTION FOLLOWS--
 LG1139'
 LG1139'THE STATION IS LOCATED ABOUT 1.2 MILES SOUTHEAST OF CHENEY, ON THE
 LG1139'RIGHT-OF-WAY OF OLD HIGHWAY 2.
 LG1139'
 LG1139'TO REACH THE STATION FROM THE INTERSECTION OF SHOWERS STREET AND
 LG1139'FOURTH STREET AT THE GRAIN ELEVATOR IN CHENEY, GO EASTERLY ON FOURTH
 LG1139'STREET (OLD HIGHWAY 2) FOR 0.7 MILE TO THE AZIMUTH MARK ON THE
 LG1139'RIGHT, CONTINUE EASTERLY ON OLD HIGHWAY 2 FOR 0.45 MILE TO A SIDE
 LG1139'ROAD ON THE RIGHT AND THE STATION ON THE RIGHT.
 LG1139'
 LG1139'THE SURFACE STATION MARK IS A STANDARD DISK STAMPED CROSS 1947 1977,
 LG1139'SET IN THE TOP OF A 12 INCH ROUND CONCRETE POST THAT IS 4 INCHES
 LG1139'BELOW THE GROUND SURFACE. IT IS 65 FEET NORTHWEST OF THE
 LG1139'INTERSECTION OF THE RAILROAD TRACK AND A GRAVELED ROAD, 55 FEET WEST
 LG1139'OF THE CENTER OF A GRAVELED ROAD BEARING SOUTHERLY, 42 FEET NORTH OF
 LG1139'THE NORTH RAIL OF THE RAILROAD TRACK AT A SPLICE AND 3 FEET WEST OF
 LG1139'A METAL WITNESS POST. THE UNDERGROUND DISK IS STAMPED CROSS 1947,
 LG1139'SET IN AN IRREGULAR MASS OF CONCRETE ABOUT 36 INCHES BELOW THE GROUND
 LG1139'SURFACE.
 LG1139'
 LG1139'REFERENCE MARK 3 IS A 4-INCH CAST ALUMINUM REFERENCE MARK, STAMPED
 LG1139'CROSS 1947 NO 3 1977 AND SET FLUSH WITH THE GROUND SURFACE. IT IS
 LG1139'84.2 FEET SOUTH-SOUTHEAST OF THE SOUTHEAST CORNER OF A STONE HOUSE,
 LG1139'66 FEET EAST OF A PROJECTED LINE NORTH FROM THE GRAVELED ROAD
 LG1139'BEARING SOUTHERLY, 34 FEET NORTH OF THE CENTER OF OLD HIGHWAY 2 AND
 LG1139'3 FEET WEST OF A POWER POLE.
 LG1139'
 LG1139'REFERENCE MARK 4 IS A 4-INCH CAST ALUMINUM REFERENCE MARK, STAMPED
 LG1139'CROSS 1947 NO 4 1977 AND SET FLUSH WITH THE GROUND SURFACE. IT IS
 LG1139'57 FEET SOUTHWEST OF THE INTERSECTION OF THE RAILROAD TRACK AND THE
 LG1139'GRAVELED ROAD, 45 FEET SOUTH OF THE SOUTH RAIL OF THE RAILROAD
 LG1139'TRACK, 24 FEET WEST OF THE GRAVELED ROAD FROM A POINT INLINE WITH
 LG1139'FENCE BEARING EASTERLY, 2.5 FEET NORTH OF A POWER POLE AND 1
 LG1139'FOOT WEST OF A METAL WITNESS POST.
 LG1139'
 LG1139'THE AZIMUTH MARK IS A STANDARD DISK STAMPED, CROSS 1947 1977, SET IN
 LG1139'THE TOP OF A 12 INCH ROUND CONCRETE POST THAT IS FLUSH WITH THE

LG1139'GROUND SURFACE. IT IS 57.2 FEET NORTH OF SPLICE IN RAIL IN NORTH
 LG1139'RAIL OF RAILROAD TRACK, 32 FEET SOUTH OF THE CENTER OF OLD HIGHWAY
 LG1139'2, 2 FEET NORTH OF A METAL WITNESS POST AND ACROSS THE ROAD FROM A
 LG1139'LARGE CLUMP OF BRUSH IN A FENCELINE.
 LG1139'
 LG1139'NOTE--REBAR PLACED IN THE STATION MARK AND AZIMUTH MARK CONCRETE.
 LG1139'
 LG1139'AIRLINE DISTANCE AND DIRECTION FROM NEAREST TOWN--1.2 MILES SOUTHEAST
 LG1139'OF CHENEY.
 LG1139
 LG1139 STATION RECOVERY (1991)
 LG1139
 LG1139'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1991
 LG1139'RECOVERED IN GOOD CONDITION.
 LG1139
 LG1139 STATION RECOVERY (1991)
 LG1139
 LG1139'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1991
 LG1139'10.3 KM (6.40 MI) EASTERLY ALONG STATE HIGHWAY 2 FROM THE JUNCTION OF
 LG1139'U.S. HIGHWAY 77 (SOUTH 14TH STREET) IN LINCOLN, THENCE 0.5 KM (0.30
 LG1139'MI) SOUTHERLY ALONG SOUTH 91ST STREET, THENCE 2.2 KM (1.35 MI)
 LG1139'SOUTHEASTERLY ALONG BREAGAN ROAD, 46.3 M (151.9 FT) WEST OF REFERENCE
 LG1139'MARK 3, 27.8 M (91.2 FT) NORTH-NORTHEAST OF REFERENCE MARK 4, 16.8 M
 LG1139'(55.1 FT) NORTHWEST OF THE CENTER OF ROKEBY ROAD, 12.4 M (40.7 FT)
 LG1139'SOUTHWEST OF THE ROAD CENTER, 12.2 M (40.0 FT) NORTHEAST OF THE NEAR
 LG1139'RAIL OF THE BURLINGTON NORTHERN RAILROAD, 0.9 M (3.0 FT) NORTHWEST OF
 LG1139'A WITNESS POST, 0.8 M (2.6 FT) SOUTHEAST OF A WITNESS POST, 0.3 M
 LG1139'(1.0 FT) ABOVE THE LEVEL OF THE ROAD, AND THE MONUMENT PROJECTS 0.05
 LG1139'M (0.16 FT) ABOVE THE GROUND SURFACE.
 LG1139
 LG1139 STATION RECOVERY (2001)
 LG1139
 LG1139'RECOVERY NOTE BY NEBRASKA ROADS DEPARTMENT 2001 (DM)
 LG1139'THE STATION IS LOCATED ABOUT 1.2 MILES SE OF CHENEY, NE.
 LG1139'
 LG1139'TO REACH THE STATION FROM THE STATE HWY. 2 AND STATE HW. 43
 LG1139'INTERCHANGE 2 MILES NORTH OF BENNET, NE. GO WEST ON STATE HWY. 2 FOR
 LG1139'APPROX. 3.0 MILES, TURN LEFT (SOUTH) AND THEN IMMEDIATELY RIGHT
 LG1139'(WEST) ON TO ROKEBY ROAD, CONTINUE WEST ON ROKEBY ROAD FOR APPROX.
 LG1139'0.85 MILES TO BREAGAN ROAD, TURN RIGHT ON BREAGAN ROAD AND GO APPROX.
 LG1139'100 FEET TO THE MARK ON THE LEFT.
 LG1139'
 LG1139'THE MARK IS NEAR THE SOUTH QUARTER CORNER OF SECTION 25, T-9-N, R-7-E.
 LG1139'THE STATION IS 151.9 FEET WEST OF REFERENCE MARK 3, 3 FEET NW OF
 LG1139'WITNESS POST, 2.6 FEET SE OF WITNESS POST, 40 FEET NE. OF NEAR RAIL
 LG1139'OF BURLINGTON NORTHERN RAILROAD, 91.2 FEET NE OF REFERENCE MARK 4.
 LG1139'
 LG1139'REBAR WAS PLACED IN STATION AND AZIMUTH MARK WHEN THEY WERE REST BY
 LG1139'NGS
 LG1139
 LG1139 STATION RECOVERY (2007)
 LG1139
 LG1139'RECOVERY NOTE BY GEOCACHING 2007 (RCF)
 LG1139'THE CURRENT DISK IS STAMPED CROSS RESET 1947 1991. THIS IS DIFFERENT
 LG1139'THAN STAMPING DESCRIBED IN THE DATASHEET, WHICH IS CROSS RESET 1947

LG1139'1977. REFERENCE MARK 4 AND THE REFERENCE MARK FOUND AS DESCRIBED.

LG1139'REFERENCE MARK 3 NOT SEARCHED FOR THIS DATE.

LG1139

LG1139 STATION RECOVERY (2012)

LG1139

LG1139'RECOVERY NOTE BY LOCAL SURVEYOR (INDIVIDUAL OR FIRM) 2012 (LRA)

LG1139'RECOVERED IN GOOD CONDITION.

1 National Geodetic Survey, Retrieval Date = DECEMBER 13, 2016

AB4112 *****

AB4112 HT_MOD - This is a Height Modernization Survey Station.

AB4112 CBN - This is a Cooperative Base Network Control Station.

AB4112 DESIGNATION - EMERALD RESET

AB4112 PID - AB4112

AB4112 STATE/COUNTY- NE/LANCASTER

AB4112 COUNTRY - US

AB4112 USGS QUAD - EMERALD (1978)

AB4112

AB4112 *CURRENT SURVEY CONTROL

AB4112

AB4112* NAD 83(2011) POSITION- 40 47 57.20826(N) 096 50 17.59614(W) ADJUSTED

AB4112* NAD 83(2011) ELLIP HT- 382.111 (meters) (06/27/12) ADJUSTED

AB4112* NAD 83(2011) EPOCH - 2010.00

AB4112* [NAVD 88](#) ORTHO HEIGHT - 408.47 (meters) 1340.1 (feet) GPS OBS

AB4112

AB4112 NAVD 88 orthometric height was determined with an earlier geoid model

AB4112 GEOID HEIGHT - -26.378 (meters) GEOID12B

AB4112 NAD 83(2011) X - -575,742.710 (meters) COMP

AB4112 NAD 83(2011) Y - -4,801,080.455 (meters) COMP

AB4112 NAD 83(2011) Z - 4,145,819.889 (meters) COMP

AB4112 LAPLACE CORR - 6.42 (seconds) DEFLEC12B

AB4112

AB4112 Network accuracy estimates per FGDC Geospatial Positioning Accuracy

AB4112 Standards:

	FGDC (95% conf, cm)		Standard deviation (cm)			CorrNE
	Horiz	Ellip	SD_N	SD_E	SD_h	(unitless)

AB4112 NETWORK	0.32	0.55	0.14	0.12	0.28	0.00573132
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AB4112 -----

AB4112 Click [here](#) for local accuracies and other accuracy information.

AB4112

AB4112

AB4112.The horizontal coordinates were established by GPS observations

AB4112.and adjusted by the National Geodetic Survey in June 2012.

AB4112

AB4112.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has

AB4112.been affixed to the stable North American tectonic plate. See

AB4112.[NA2011](#) for more information.

AB4112

AB4112.The horizontal coordinates are valid at the epoch date displayed above

AB4112.which is a decimal equivalence of Year/Month/Day.

AB4112

AB4112.The orthometric height was determined by GPS observations and a

AB4112.high-resolution geoid model using precise GPS observation and

AB4112.processing techniques.

AB4112

AB4112. Significant digits in the geoid height do not necessarily reflect accuracy.

AB4112. GEOID12B height accuracy estimate available [here](#).

AB4112

AB4112. [Photographs](#) are available for this station.

AB4112

AB4112. The X, Y, and Z were computed from the position and the ellipsoidal ht.

AB4112

AB4112. The Laplace correction was computed from DEFLEC12B derived deflections.

AB4112

AB4112. The ellipsoidal height was determined by GPS observations

AB4112. and is referenced to NAD 83.

AB4112

AB4112. The following values were computed from the NAD 83(2011) position.

AB4112

AB4112;		North	East	Units	Scale Factor	Converg.
AB4112;SPC NE	-	112,117.759	766,692.024	MT	0.99973407	+2 05 43.1
AB4112;SPC NE	-	367,839.68	2,515,388.75	sFT	0.99973407	+2 05 43.1
AB4112;UTM 14	-	4,518,718.003	682,365.897	MT	1.00000936	+1 24 46.5
AB4112!	-	Elev Factor	x	Scale Factor	=	Combined Factor
AB4112!SPC NE	-	0.99994006	x	0.99973407	=	0.99967415
AB4112!UTM 14	-	0.99994006	x	1.00000936	=	0.99994942

AB4112

AB4112_U.S. NATIONAL GRID SPATIAL ADDRESS: 14TPL8236518718(NAD 83)

AB4112

SUPERSEDED SURVEY CONTROL

AB4112

AB4112	NAD 83(2007)-	40 47 57.20826(N)	096 50 17.59668(W)	AD(2002.00)	0
AB4112	ELLIP H (02/10/07)	382.130 (m)		GP(2002.00)	
AB4112	ELLIP H (07/10/01)	382.088 (m)		GP()	4 1
AB4112	NAD 83(1995)-	40 47 57.20788(N)	096 50 17.59586(W)	AD()	B
AB4112	ELLIP H (06/25/96)	382.167 (m)		GP()	1 1
AB4112	NAVD 88 (06/25/96)	408.5 (m)	GEOID93 model used	GPS OBS	

AB4112

AB4112. Superseded values are not recommended for survey control.

AB4112

AB4112. NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

AB4112. [See file dsdata.txt](#) to determine how the superseded data were derived.

AB4112

AB4112_MARKER: DH = HORIZONTAL CONTROL DISK

AB4112_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT

AB4112_STAMPING: EMERALD 1947 1988

AB4112_MARK LOGO: NGS

AB4112_MAGNETIC: N = NO MAGNETIC MATERIAL

AB4112_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO

AB4112+STABILITY: SURFACE MOTION

AB4112_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

AB4112+SATELLITE: SATELLITE OBSERVATIONS - February 05, 2006

AB4112

AB4112	HISTORY	-	Date	Condition	Report By
AB4112	HISTORY	-	1988	MONUMENTED	NGS
AB4112	HISTORY	-	20000605	GOOD	NEDR
AB4112	HISTORY	-	2002	GOOD	NEDR

AB4112 HISTORY - 20060205 GOOD GEOCAC

AB4112

AB4112 STATION DESCRIPTION

AB4112

AB4112'DESCRIBED BY NATIONAL GEODETIC SURVEY 1988 (JAO)

AB4112'THE MARK IS LOCATED ABOUT 6 MI (9.7 KM) WEST OF LINCOLN, 4 MI (6.4 KM)

AB4112'NORTH OF DENTON, 1 MI (1.6 KM) SOUTH OF EMERALD, IN THE NE1/4, SEC34,

AB4112'T10N, R5E AND ON THE SOUTH RIGHT-OF-WAY OF A GRAVELED COUNTY ROAD,

AB4112'WEST A STREET. TO REACH THE MARK FROM THE JUNCTION OF U.S. HIGHWAY 34

AB4112'AND STATE HIGHWAY 55A SPUR, WEST O STREET AND NORTHWEST 84TH STREET,

AB4112'IN EMERALD, GO SOUTH ON NORTHWEST 84TH STREET FOR 1.0 MI (1.6 KM) TO A

AB4112'GRAVELED CROSSROAD. TURN RIGHT AND GO WEST ON WEST A STREET FOR 0.1

AB4112'MI (0.2 KM) TO THE MARK ON THE LEFT, AT A FIELD ENTRANCE. THE DISK IS

AB4112'SET INTO THE TOP OF A ROUND CONCRETE MONUMENT THAT PROJECTS 0.25 FT

AB4112'(7.62 CM) ABOVE THE GROUND SURFACE. IT IS 31.0 FT (9.4 M) SOUTH OF

AB4112'THE CENTERLINE OF WEST A STREET, 7.0 FT (2.1 M) WEST OF A WITNESS POST

AB4112'AND 2.5 FT (0.8 M) NORTH OF THE SOUTH RIGHT-OF-WAY FENCE. REBAR WAS

AB4112'DRIVEN ALONG THE WEST SIDE OF THE MARK.

AB4112

AB4112 STATION RECOVERY (2000)

AB4112

AB4112'RECOVERY NOTE BY NEBRASKA ROADS DEPARTMENT 2000 (JAO)

AB4112'RECOVERED AS DESCRIBED.

AB4112

AB4112 STATION RECOVERY (2002)

AB4112

AB4112'RECOVERY NOTE BY NEBRASKA ROADS DEPARTMENT 2002

AB4112'RECOVERED AS DESCRIBED.

AB4112

AB4112 STATION RECOVERY (2006)

AB4112

AB4112'RECOVERY NOTE BY GEOCACHING 2006 (MDF)

AB4112'AS DESCRIBED, EXCEPT THE MARK IS APPROX 2.1 M (7 .0 FT) EAST OF A

AB4112'WITNESS POST, AND THE SOUTH RIGHT-OF-WAY FENCE HAS BEEN REMOVED.

1 National Geodetic Survey, Retrieval Date = DECEMBER 13, 2016

LG1332 *****

LG1332 DESIGNATION - G 439

LG1332 PID - LG1332

LG1332 STATE/COUNTY- NE/LANCASTER

LG1332 COUNTRY - US

LG1332 USGS QUAD - PALMYRA (1966)

LG1332

LG1332 *CURRENT SURVEY CONTROL

LG1332

LG1332* NAD 83(2011) POSITION- 40 42 40.34912(N) 096 28 56.73546(W) ADJUSTED

LG1332* NAD 83(2011) ELLIP HT- 379.214 (meters) (06/27/12) ADJUSTED

LG1332* NAD 83(2011) EPOCH - 2010.00

LG1332* [NAVD 88](#) ORTHO HEIGHT - 405.324 (meters) 1329.80 (feet) ADJUSTED

LG1332

LG1332 GEOID HEIGHT - -26.115 (meters) GEOID12B

LG1332 NAD 83(2011) X - -546,638.293 (meters) COMP

LG1332 NAD 83(2011) Y - -4,810,901.353 (meters) COMP

LG1332 NAD 83(2011) Z - 4,138,413.582 (meters) COMP

LG1332 LAPLACE CORR - -5.69 (seconds) DEFLEC12B

LG1332 DYNAMIC HEIGHT - 405.147 (meters) 1329.22 (feet) COMP

UNITED STATES GEOLOGICAL SURVEY (USGS)

NE Eastern Nebraska UA LiDAR 2016 B16

Ground Control Survey Report

December 2016

LG1332 MODELED GRAVITY - 980,176.3 (mgal) NAVD 88

LG1332

LG1332 VERT ORDER - FIRST CLASS II

LG1332

LG1332 Network accuracy estimates per FGDC Geospatial Positioning Accuracy

LG1332 Standards:

	FGDC (95% conf, cm)		Standard deviation (cm)			CorrNE
	Horiz	Ellip	SD_N	SD_E	SD_h	(unitless)
NETWORK	0.45	0.59	0.20	0.16	0.30	0.02172744

LG1332 Click [here](#) for local accuracies and other accuracy information.

LG1332

LG1332

LG1332.The horizontal coordinates were established by GPS observations

LG1332.and adjusted by the National Geodetic Survey in June 2012.

LG1332

LG1332.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has

LG1332.been affixed to the stable North American tectonic plate. See

LG1332.[NA2011](#) for more information.

LG1332

LG1332.The horizontal coordinates are valid at the epoch date displayed above

LG1332.which is a decimal equivalence of Year/Month/Day.

LG1332

LG1332.The orthometric height was determined by differential leveling and

LG1332.adjusted by the NATIONAL GEODETIC SURVEY

LG1332.in May 1993.

LG1332

LG1332.Significant digits in the geoid height do not necessarily reflect accuracy.

LG1332.GEOID12B height accuracy estimate available [here](#).

LG1332

LG1332.The X, Y, and Z were computed from the position and the ellipsoidal ht.

LG1332

LG1332.The Laplace correction was computed from DEFLEC12B derived deflections.

LG1332

LG1332.The ellipsoidal height was determined by GPS observations

LG1332.and is referenced to NAD 83.

LG1332

LG1332.The dynamic height is computed by dividing the NAVD 88

LG1332.geopotential number by the normal gravity value computed on the

LG1332.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45

LG1332.degrees latitude (g = 980.6199 gals.).

LG1332

LG1332.The modeled gravity was interpolated from observed gravity values.

LG1332

LG1332. The following values were computed from the NAD 83(2011) position.

LG1332

	North	East	Units	Scale Factor	Converg.
LG1332;SPC NE	- 103,513.410	797,084.578	MT	0.99975400	+2 19 51.9
LG1332;SPC NE	- 339,610.25	2,615,101.65	sFT	0.99975400	+2 19 51.9
LG1332;UTM 14	- 4,509,747.723	712,663.580	MT	1.00015670	+1 38 33.7

LG1332

LG1332! - Elev Factor x Scale Factor = Combined Factor

LG1332!SPC NE - 0.99994052 x 0.99975400 = 0.99969453

LG1332!UTM 14 - 0.99994052 x 1.00015670 = 1.00009721
 LG1332
 LG1332_U.S. NATIONAL GRID SPATIAL ADDRESS: 14TQL1266309747(NAD 83)
 LG1332
 LG1332 SUPERSEDED SURVEY CONTROL
 LG1332
 LG1332 NAD 83(2007)- 40 42 40.34913(N) 096 28 56.73593(W) AD(2002.00) 0
 LG1332 ELLIP H (02/10/07) 379.233 (m) GP(2002.00)
 LG1332 NAD 83(1995)- 40 42 40.34899(N) 096 28 56.73535(W) AD() B
 LG1332 ELLIP H (03/30/05) 379.202 (m) GP() 3 1
 LG1332 NAVD 88 405.33 (m) 1329.8 (f) LEVELING 3
 LG1332
 LG1332.Superseded values are not recommended for survey control.
 LG1332
 LG1332.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
 LG1332.[See file dsdata.txt](#) to determine how the superseded data were derived.
 LG1332
 LG1332_MARKER: I = METAL ROD
 LG1332_SETTING: 49 = STAINLESS STEEL ROD W/O SLEEVE (10 FT.+)

LG1332_STAMPING: G 439 1991
LG1332_MARK LOGO: NGS
LG1332_PROJECTION: PROJECTING 2 CENTIMETERS
LG1332_MAGNETIC: N = NO MAGNETIC MATERIAL
LG1332_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL
LG1332_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
LG1332+SATELLITE: SATELLITE OBSERVATIONS - 2002
LG1332_ROD/PIPE-DEPTH: 7.8 meters

LG1332
 LG1332 HISTORY - Date Condition Report By
 LG1332 HISTORY - 1991 MONUMENTED NGS
 LG1332 HISTORY - 2002 GOOD NEDR
 LG1332 HISTORY - 20100504 GOOD INDIV
 LG1332
 LG1332 STATION DESCRIPTION
 LG1332
 LG1332'DESCRIBED BY NATIONAL GEODETIC SURVEY 1991
 LG1332'20.6 KM (12.80 MI) EASTERLY ALONG STATE HIGHWAY 2 FROM THE JUNCTION
 LG1332'OF U.S. HIGHWAY 77 (SOUTH 14TH STREET) IN LINCOLN, 34.4 M (112.9 FT)
 LG1332'SOUTH OF THE CENTERLINE OF THE HIGHWAY, 31.3 M (102.7 FT) EAST OF THE
 LG1332'CENTER OF SOUTH 176TH STREET, 1.1 M (3.6 FT) ABOVE THE LEVEL OF THE
 LG1332'HIGHWAY, 0.8 M (2.6 FT) EAST OF A WITNESS POST, 0.6 M (2.0 FT) NORTH
 LG1332'OF A WITNESS POST, AND 0.3 M (1.0 FT) NORTH OF A FENCE. NOTE--ACCESS
 LG1332'TO THE DATUM POINT IS THROUGH A 5-INCH LOGO CAP.
 LG1332
 LG1332 STATION RECOVERY (2002)
 LG1332
 LG1332'RECOVERY NOTE BY NEBRASKA ROADS DEPARTMENT 2002
 LG1332'RECOVERED AS DESCRIBED.
 LG1332
 LG1332 STATION RECOVERY (2010)
 LG1332
 LG1332'RECOVERY NOTE BY INDIVIDUAL CONTRIBUTORS 2010 (JDB)
 LG1332'RECOVERED IN GOOD CONDITION.

1 National Geodetic Survey, Retrieval Date = DECEMBER 13, 2016
 MJ0667 *****
 UNITED STATES GEOLOGICAL SURVEY (USGS)
 NE Eastern Nebraska UA LiDAR 2016 B16
 Ground Control Survey Report
 December 2016

MJ0667 DESIGNATION - HANSCOM
 MJ0667 PID - MJ0667
 MJ0667 STATE/COUNTY- NE/DOUGLAS
 MJ0667 COUNTRY - US
 MJ0667 USGS QUAD - OMAHA SOUTH (1994)
 MJ0667
 MJ0667 *CURRENT SURVEY CONTROL
 MJ0667
 MJ0667* NAD 83(1995) POSITION- 41 14 41.63746(N) 095 57 35.09675(W) ADJUSTED
 MJ0667* [NAVD 88](#) ORTHO HEIGHT - 378.754 (meters) 1242.63 (feet) ADJUSTED
 MJ0667
 MJ0667 GEOID HEIGHT - -27.457 (meters) GEOID12B
 MJ0667 LAPLACE CORR - -2.75 (seconds) DEFLEC12B
 MJ0667 DYNAMIC HEIGHT - 378.593 (meters) 1242.10 (feet) COMP
 MJ0667 MODELED GRAVITY - 980,187.8 (mgal) NAVD 88
 MJ0667
 MJ0667 HORZ ORDER - FIRST
 MJ0667 VERT ORDER - FIRST CLASS II
 MJ0667
 MJ0667.The horizontal coordinates were established by classical geodetic methods
 MJ0667.and adjusted by the National Geodetic Survey in August 1997.
 MJ0667.
 MJ0667.The orthometric height was determined by differential leveling and
 MJ0667.adjusted by the NATIONAL GEODETIC SURVEY
 MJ0667.in June 1991.
 MJ0667
 MJ0667.Significant digits in the geoid height do not necessarily reflect accuracy.
 MJ0667.GEOID12B height accuracy estimate available [here](#).
 MJ0667
 MJ0667.The Laplace correction was computed from DEFLEC12B derived deflections.
 MJ0667
 MJ0667.The dynamic height is computed by dividing the NAVD 88
 MJ0667.geopotential number by the normal gravity value computed on the
 MJ0667.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
 MJ0667.degrees latitude (g = 980.6199 gals.).
 MJ0667
 MJ0667.The modeled gravity was interpolated from observed gravity values.
 MJ0667
 MJ0667. The following values were computed from the NAD 83(1995) position.
 MJ0667

		North	East	Units	Scale Factor	Converg.
MJ0667;SPC IA S	-	141,159.347	293,854.520	MT	0.99994866	-1 37 12.9
MJ0667;SPC IA S	-	463,120.29	964,087.70	sFT	0.99994866	-1 37 12.9
MJ0667;SPC NE	-	164,628.819	838,430.607	MT	0.99966891	+2 40 38.9
MJ0667;SPC NE	-	540,119.72	2,750,751.08	sFT	0.99966891	+2 40 38.9
MJ0667;UTM 15	-	4,570,169.000	251,989.583	MT	1.00035707	-1 57 08.3
MJ0667;UTM 14	-	4,570,402.099	754,756.843	MT	1.00039882	+2 00 19.6
MJ0667!	-	Elev Factor	x Scale Factor	=	Combined Factor	
MJ0667!SPC IA S	-	0.99994490	x 0.99994866	=	0.99989356	
MJ0667!SPC NE	-	0.99994490	x 0.99966891	=	0.99961383	
MJ0667!UTM 15	-	0.99994490	x 1.00035707	=	1.00030195	
MJ0667!UTM 14	-	0.99994490	x 1.00039882	=	1.00034370	

 MJ0667

MJ0667: Primary Azimuth Mark Grid Az
 MJ0667:SPC IA S - S OMAHA ARMOUR PACKING CO TANK 180 13 44.9
 MJ0667:SPC NE - S OMAHA ARMOUR PACKING CO TANK 175 55 53.1
 MJ0667:UTM 15 - S OMAHA ARMOUR PACKING CO TANK 180 33 40.3
 MJ0667:UTM 14 - S OMAHA ARMOUR PACKING CO TANK 176 36 12.4

MJ0667

MJ0667_U.S. NATIONAL GRID SPATIAL ADDRESS: 15TTF5198970168(NAD 83)

MJ0667

PID	Reference Object	Distance	Geod. Az dddmmss.s
MJ1273	OMAHA CREIGHTON UNIV C OF STK	APPROX. 2.6 KM	0213350.8
MJ1265	OMAHA CENTRAL HS CEN OF STK	APPROX. 2.2 KM	0360612.8
MJ1277	OMAHA US PO TOP OF DOME	APPROX. 2.5 KM	0474154.3
MJ1283	OMAHA NATL BANK BLDG TIP FLAG	APPROX. 2.3 KM	0512914.6
MJ1267	OMAHA WOW BLDG WOW NE RAD MAST	APPROX. 2.6 KM	0571325.6
MJ1262	OMAHA WOW BLDG WOW SW RAD MAST	APPROX. 2.5 KM	0573101.5
MJ1229	OMAHA ST JOSEPH CATH CH CROSS	APPROX. 1.8 KM	1010148.0
MJ1228	OMAHA O AND C B ST RY SHOPS TK	APPROX. 1.9 KM	1490353.0
MJ0668	HANSCOM RM 1	86.442 METERS	15127
MJ1225	OMAHA KRUG BREWING CO C OF STK	APPROX. 1.9 KM	1545635.4
MJ1237	OMAHA SUNKIST FLOUR CO TK FP	APPROX. 1.4 KM	1571841.2
CL8040	OMAHA OMAR INC WATER TK		1701407.3
MJ1223	S OMAHA ARMOUR PACKING CO TANK	APPROX. 4.3 KM	1783632.0
MK1987	RALSTON MUNICIPAL STANDPIPE	APPROX. 8.0 KM	2370229.0
MJ0669	HANSCOM RM 2	41.718 METERS	25812
MK1990	ELMWOOD ST PATROL RAD MAST	APPROX. 5.4 KM	2583056.7
MJ1226	OMAHA DOUGLAS CO HOSP C OF STK	APPROX. 1.1 KM	2784712.5
MJ1268	OMAHA BENSON HS CEN OF STK	APPROX. 5.4 KM	3281117.5
MJ0670	HANSCOM RM 3	49.256 METERS	33507
MJ1270	OMAHA NEBR DEAF SCH C OF STK	APPROX. 4.9 KM	3421634.3
MJ1264	OMAHA TECH HIGH SCH CEN OF STK	APPROX. 2.5 KM	3573212.9

MJ0667

MJ0667 SUPERSEDED SURVEY CONTROL

MJ0667

MJ0667 NAD 83(1986)- 41 14 41.64571(N) 095 57 35.09670(W) AD() 1
 MJ0667 NAD 27 - 41 14 41.65000(N) 095 57 34.04300(W) AD() 1
 MJ0667 NGVD 29 (??/??/92) 378.629 (m) 1242.22 (f) ADJ UNCH 1 2
 MJ0667 NGVD 29 378.63 (m) 1242.2 (f) LEVELING 3

MJ0667

MJ0667.Superseded values are not recommended for survey control.

MJ0667

MJ0667.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

MJ0667.[See file dsdata.txt](#) to determine how the superseded data were derived.

MJ0667

MJ0667_MARKER: DS = TRIANGULATION STATION DISK

MJ0667_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT

MJ0667_STAMPING: HANSCOM 1934

MJ0667_MARK LOGO: CGS

MJ0667_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO

MJ0667+STABILITY: SURFACE MOTION

MJ0667_SATELLITE: THE SITE LOCATION WAS REPORTED AS NOT SUITABLE FOR

MJ0667+SATELLITE: SATELLITE OBSERVATIONS - June 08, 2011

MJ0667

UNITED STATES GEOLOGICAL SURVEY (USGS)

NE Eastern Nebraska UA LiDAR 2016 B16

Ground Control Survey Report

December 2016

	HISTORY	- Date	Condition	Report By
MJ0667	HISTORY	- 1934	MONUMENTED	CGS
MJ0667	HISTORY	- 1947	GOOD	CGS
MJ0667	HISTORY	- 1947	GOOD	CGS
MJ0667	HISTORY	- 1976	GOOD	LOCSUR
MJ0667	HISTORY	- 20110608	GOOD	INDIV

MJ0667

MJ0667

MJ0667

STATION DESCRIPTION

MJ0667'DESCRIBED BY COAST AND GEODETIC SURVEY 1934 (CIA)

MJ0667'STATION IS LOCATED IN THE NORTHWEST CORNER OF HANSCOM PARK,

MJ0667'ABOUT 1.5 MILES SOUTHWEST OF DOWNTOWN OMAHA, IN THE NORTHWEST

MJ0667'QUARTER OF SEC. 28, T. 15 N., R. 13 E.

MJ0667'

MJ0667'TO REACH FROM OMAHA TAKE FARNAM STREET TO TWENTY-FOURTH STREET,

MJ0667'THENCE SOUTH 0.85 MILE TO WOOLWORTH STREET, THENCE WEST 0.7

MJ0667'MILE TO INTERSECTION WITH THIRTY-SECOND STREET AND STATION.

MJ0667'

MJ0667'REFERENCE MARK NO. 1 IS 283.60 FEET (86.450 METERS) SOUTHEAST

MJ0667'OF STATION.

MJ0667'

MJ0667'REFERENCE MARK NO. 2 IS ACROSS STREET CAR TRACKS, 136.84 FEET

MJ0667'(41.708 METERS) WEST OF STATION.

MJ0667'

MJ0667'REFERENCE MARK NO. 3 IS IN PARK STRIP DIAGONALLY ACROSS

MJ0667'INTERSECTION OF STREETS, 4 FEET WEST OF CONCRETE LAMP POST

MJ0667'161.64 FEET (49.262 METERS) NORTHWEST OF STATION.

MJ0667

MJ0667

STATION RECOVERY (1947)

MJ0667

MJ0667'RECOVERY NOTE BY COAST AND GEODETIC SURVEY 1947 (GLS)

MJ0667'THE STATION MARK AND THE REFERENCE MARKS

MJ0667'WERE FOUND AS DESCRIBED AND IN GOOD CONDITION. THE 1934

MJ0667'DESCRIPTION AS FOLLOWS--STATION IS LOCATED IN THE NORTHWEST

MJ0667'CORNER OF HANSCOM PARK, ABOUT 1.5 MILES SOUTHWEST OF DOWNTOWN

MJ0667'OMAHA. IN THE NW 1/4 OF SEC. 23, T. 15 N., R. 13 E.

MJ0667'

MJ0667'TO REACH FROM OMAHA TAKE FARNAM STREET TO TWENTY-FORTH STREET,

MJ0667'THENCE SOUTH ON TWENTY-FORTH STREET 0.75 MILE TO WOOLWORTH

MJ0667'STREET, THENCE WEST 0.7 MILE TO THE INTERSECTION WITH

MJ0667'THIRTY-SECOND STREET AND THE STATION.

MJ0667'

MJ0667'REFERENCE MARK NO. 1 IS 283.60 FEET (86.450 METERS) SOUTHEAST

MJ0667'OF STATION.

MJ0667'

MJ0667'REFERENCE MARK NO. 2 IS ACROSS THE STREET CAR TRACKS, 136.84

MJ0667'FEET (41.708 METERS) WEST OF THE STATION.

MJ0667'

MJ0667'REFERENCE MARK NO. 3 IS IN THE PARK STRIP DIAGONALLY ACROSS

MJ0667'THE INTERSECTION OF STREETS, 4 FT WEST OF A CONCRETE LAMP

MJ0667'POST, 161.64 FT. (49.262 METERS) NORTHWEST OF THE STATION.

MJ0667'

MJ0667'THE 1947 DESCRIPTION AND OBSERVATIONS AS FOLLOWS--

MJ0667'

MJ0667'THE STATION IS LOCATED IN THE NORTHWEST CORNER OF HANSCOM PARK,

MJ0667'ABOUT 1.5 MILES SOUTHWEST OF DOWNTOWN OMAHA. IT IS ABOUT
 MJ0667'100 FEET SOUTH OF THE INTERSECTION OF WOOLWORTH AVE. AND 32 ND.
 MJ0667'STREET, 24 FEET EAST OF THE ROAD ENTERING THE PARK AT THIS
 MJ0667'POINT AND 18 FEET NORTHEAST OF A BLUE-SPRUCE TREE. THE MARK IS
 MJ0667'FLUSH WITH THE GROUND AND THE DISC IS STAMPED HANSCOM 1934.

MJ0667'

MJ0667'REFERENCE MARK NO 1, STAMPED HANSCOM NO 1 1934, IS SOUTHEAST
 MJ0667'OF THE STATION, 283.60 FEET, 3 FEET EAST OF A BRICK WALK AND
 MJ0667'5 FEET NORTHWEST OF A 24 INCH TREE. THE MARK IS ON THE DOWN
 MJ0667'HILL SLOPE FROM THE STATION AND IS SET FLUSH WITH THE GROUND.

MJ0667'

MJ0667'REFERENCE MARK NO 2, STAMPED HANSCOM NO 2 1934, IS 136.87
 MJ0667'FEET WEST OF THE STATION AND ACROSS STREET CAR TRACKS, 13 FT.
 MJ0667'WEST OF THE WEST RAIL OF TRACKS, 9 FT. EAST OF THE EAST CURB
 MJ0667'OF 32 ND. AVE AND 2-1/2 FT. NORTH OF A CROOKED PINE TREE. THE
 MJ0667'MARK IS SET FLUSH WITH THE GROUND.

MJ0667'

MJ0667'REFERENCE MARK NO 3, STAMPED HANSCOM NO 3 1947, IS 161.60
 MJ0667'FT. NORTHWEST OF THE STATION, IN THE NORTHWEST CORNER OF THE
 MJ0667'INTERSECTION OF WOOLWORTH AVE AND 32 ND. STREET, 4 FEET NORTH
 MJ0667'OF THE NORTH CURB OF WOOLWORTH AVE, 4 FT. WEST OF A CONCRETE
 MJ0667'CORNER LAMPPOST. THE MARK IS SET FLUSH WITH THE GROUND.

MJ0667'

MJ0667'AZIMUTH MARK, (OMAR INC. WATER TANK) IS SOUTHEAST OF THE
 MJ0667'STATION ABOUT 1.0 MILE, IN THE SOUTH SECTION OF OMAHA AND JUST
 MJ0667'SOUTHEAST OF A SILVER STANDPIPE. THE TANK IS ABOUT 200 FEET
 MJ0667'HIGH, BLACK IN COLOR AND MOUNTED ON FOUR LEGS WITH A LARGE PIPE
 MJ0667'RUNNING THRU THE CENTER FROM THE GROUND TO THE BOTTOM OF THE
 MJ0667'TANK. A METAL ROD PROJECTS FROM THE CENTER AND THE TOP OF THE
 MJ0667'TANK AND THIS WAS USED AS THE INTERSECTION POINT.

MJ0667'

MJ0667'TANK MAY BE REACHED FROM THE WEST END OF SOUTH OMAHA BRIDGE
 MJ0667'BY GOING NORTH ON 13 TH STREET TO SPRING LAKE DRIVE, 1.0 MILE.
 MJ0667'THENCE NORTH AND WEST ON SPRING LAKE DRIVE FOR 0.5 MILE TO F
 MJ0667'STREET. TURN LEFT OR WEST ON F STREET FOR 1.7 MILES TO 26 TH
 MJ0667'STREET. THENCE RIGHT OR NORTH ON 26 TH STREET TO C STREET
 MJ0667'AND LEFT OR WEST ON C STREET FOR 0.3 MILE TO THE TANK.

MJ0667'

MJ0667'OBSERVATIONS TAKEN FROM A 90 FOOT STEEL TOWER.

MJ0667

MJ0667

STATION RECOVERY (1947)

MJ0667

MJ0667'RECOVERY NOTE BY COAST AND GEODETIC SURVEY 1947

MJ0667'AT OMAHA.

MJ0667'AT OMAHA, SOUTHEAST OF THE INTERSECTION OF THIRTY-SECOND STREET
 MJ0667'AND WOOLWORTH AVENUE, IN THE NORTHWEST CORNER OF HANSCOM PARK,
 MJ0667'100 FEET SOUTH OF THE SOUTH CURB OF WOOLWORTH AVENUE, 76 FEET
 MJ0667'EAST OF THE CENTER LINE OF THE EAST STREET CAR TRACK, 38 FEET
 MJ0667'SOUTHWEST OF THE SOUTHWEST EDGE OF A SIDEWALK, 28 FEET EAST
 MJ0667'OF AND 3 FEET LOWER THAN THE CENTER LINE OF A PARK DRIVE, SET
 MJ0667'IN THE TOP OF A CONCRETE POST WHICH IS FLUSH WITH THE GROUND.

MJ0667

MJ0667

STATION RECOVERY (1976)

MJ0667

MJ0667'RECOVERY NOTE BY LOCAL SURVEYOR (INDIVIDUAL OR FIRM) 1976 (JB)

MJ0667'HANSCOM 1934 RECOVERED GOOD.

MJ0667'

MJ0667'DISTANCE AND DIRECTION FROM NEAREST TOWN--AT OMAHA.

MJ0667

MJ0667

STATION RECOVERY (2011)

MJ0667

MJ0667'RECOVERY NOTE BY INDIVIDUAL CONTRIBUTORS 2011 (JAC)

MJ0667'BURIED 0.5' DEEP

1 National Geodetic Survey, Retrieval Date = DECEMBER 13, 2016

LG1170 *****

LG1170 HT_MOD - This is a Height Modernization Survey Station.

LG1170 CBN - This is a Cooperative Base Network Control Station.

LG1170 DESIGNATION - HAPPY

LG1170 PID - LG1170

LG1170 STATE/COUNTY- NE/LANCASTER

LG1170 COUNTRY - US

LG1170 USGS QUAD - RAYMOND (1972)

LG1170

LG1170 *CURRENT SURVEY CONTROL

LG1170

LG1170* NAD 83(2011) POSITION- 40 53 12.23483(N) 096 51 41.04901(W) ADJUSTED

LG1170* NAD 83(2011) ELLIP HT- 391.300 (meters) (06/27/12) ADJUSTED

LG1170* NAD 83(2011) EPOCH - 2010.00

LG1170* [NAVD 88](#) ORTHO HEIGHT - 417.90 (meters) 1371.1 (feet) GPS OBS

LG1170

LG1170 NAVD 88 orthometric height was determined with an earlier geoid model

LG1170 GEOID HEIGHT - -26.636 (meters) GEOID12B

LG1170 NAD 83(2011) X - -576,926.665 (meters) COMP

LG1170 NAD 83(2011) Y - -4,794,543.849 (meters) COMP

LG1170 NAD 83(2011) Z - 4,153,177.885 (meters) COMP

LG1170 LAPLACE CORR - 6.24 (seconds) DEFLEC12B

LG1170

LG1170 Network accuracy estimates per FGDC Geospatial Positioning Accuracy

LG1170 Standards:

LG1170 FGDC (95% conf, cm) Standard deviation (cm) CorrNE

LG1170 Horiz Ellip SD_N SD_E SD_h (unitless)

LG1170 -----

LG1170 NETWORK 0.46 0.78 0.21 0.16 0.40 0.01584153

LG1170 -----

LG1170 Click [here](#) for local accuracies and other accuracy information.

LG1170

LG1170

LG1170.The horizontal coordinates were established by GPS observations

LG1170.and adjusted by the National Geodetic Survey in June 2012.

LG1170

LG1170.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has

LG1170.been affixed to the stable North American tectonic plate. See

LG1170.[NA2011](#) for more information.

LG1170

LG1170.The horizontal coordinates are valid at the epoch date displayed above

LG1170.which is a decimal equivalence of Year/Month/Day.

LG1170

LG1170.The orthometric height was determined by GPS observations and a

LG1170.high-resolution geoid model using precise GPS observation and

LG1170.processing techniques.

LG1170

LG1170.Significant digits in the geoid height do not necessarily reflect accuracy.

LG1170.GEOID12B height accuracy estimate available [here](#).

LG1170

LG1170.The X, Y, and Z were computed from the position and the ellipsoidal ht.

LG1170

LG1170.The Laplace correction was computed from DEFLEC12B derived deflections.

LG1170

LG1170.The ellipsoidal height was determined by GPS observations

LG1170.and is referenced to NAD 83.

LG1170

LG1170. The following values were computed from the NAD 83(2011) position.

LG1170

LG1170;		North	East	Units	Scale Factor	Converg.
LG1170;SPC NE	-	121,755.214	764,384.971	MT	0.99971656	+2 04 47.8
LG1170;SPC NE	-	399,458.56	2,507,819.69	sFT	0.99971656	+2 04 47.8
LG1170;UTM 14	-	4,528,384.900	680,172.946	MT	0.99999956	+1 24 00.8
LG1170!	-	Elev Factor	x	Scale Factor	=	Combined Factor
LG1170!SPC NE	-	0.99993862	x	0.99971656	=	0.99965520
LG1170!UTM 14	-	0.99993862	x	0.99999956	=	0.99993818

LG1170

LG1170:		Primary Azimuth Mark	Grid Az
LG1170:SPC NE	-	HAPPY AZ MK RESET	092 16 00.7
LG1170:UTM 14	-	HAPPY AZ MK RESET	092 56 47.7

LG1170

LG1170_U.S. NATIONAL GRID SPATIAL ADDRESS: 14TPL8017228384(NAD 83)

LG1170

LG1170	PID	Reference Object	Distance	Geod. Az ddmmss.s
LG1170	CL7044	HAPPY RM 3	11.488 METERS	07514
LG1170	CL7042	HAPPY RM 1	12.868 METERS	09150
LG1170	CL7040	HAPPY AZ MK		0931444.2
LG1170	CL7041	HAPPY AZ MK RESET		0942048.5
LG1170	LG1181	LINCOLN AIR FORCE BASE TANK		11118
LG1170	CL7043	HAPPY RM 2	19.861 METERS	27150
LG1170	CL7045	HAPPY RM 4	23.671 METERS	27541

LG1170

LG1170

SUPERSEDED SURVEY CONTROL

LG1170

LG1170	NAD 83(2007)-	40 53 12.23484(N)	096 51 41.04962(W)	AD(2002.00)	0
LG1170	ELLIP H (02/10/07)	391.321 (m)		GP(2002.00)	
LG1170	ELLIP H (03/30/05)	391.286 (m)		GP()	3 1
LG1170	ELLIP H (07/10/01)	391.313 (m)		GP()	4 1
LG1170	NAD 83(1995)-	40 53 12.23476(N)	096 51 41.04873(W)	AD()	B
LG1170	ELLIP H (06/25/96)	391.358 (m)		GP()	1 1
LG1170	NAD 83(1986)-	40 53 12.24546(N)	096 51 41.04611(W)	AD()	1
LG1170	NAD 27	- 40 53 12.22045(N)	096 51 39.96980(W)	AD()	1
LG1170	NAVD 88 (07/10/01)	418.0 (m)	GEOID99 model used	GPS OBS	
LG1170	NAVD 88 (06/25/96)	417.9 (m)	GEOID93 model used	GPS OBS	
LG1170	NGVD 29	417.81 (m)	1370.8 (f)	LEVELING	3

LG1170

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LG1170.Superseded values are not recommended for survey control.

LG1170

LG1170.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

LG1170.[See file dsdata.txt](#) to determine how the superseded data were derived.

LG1170

LG1170_MARKER: DS = TRIANGULATION STATION DISK

LG1170_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT

LG1170_STAMPING: HAPPY 1947

LG1170_MARK LOGO: CGS

LG1170_MAGNETIC: N = NO MAGNETIC MATERIAL

LG1170_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO

LG1170+STABILITY: SURFACE MOTION

LG1170_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

LG1170+SATELLITE: SATELLITE OBSERVATIONS - August 15, 2015

LG1170

LG1170	HISTORY	- Date	Condition	Report By
LG1170	HISTORY	- 1947	MONUMENTED	CGS
LG1170	HISTORY	- 1958	GOOD	CGS
LG1170	HISTORY	- 1967	GOOD	CGS
LG1170	HISTORY	- 1976	GOOD	NGS
LG1170	HISTORY	- 19950816	GOOD	NE-109
LG1170	HISTORY	- 20000601	GOOD	NEDR
LG1170	HISTORY	- 2002	GOOD	NEDR
LG1170	HISTORY	- 20100503	GOOD	INDIV
LG1170	HISTORY	- 20150815	GOOD	NEGS

LG1170

LG1170 STATION DESCRIPTION

LG1170

LG1170'DESCRIBED BY COAST AND GEODETIC SURVEY 1947 (RLE)

LG1170'THE STATION IS LOCATED ABOUT 9 MILES NORTHWEST OF LINCOLN

LG1170'AND 2.5 MILES EAST OF THE SEWARD COUNTY LINE ON THE RIGHT-OF-WAY

LG1170'OF U.S. HIGHWAY 34. IT IS 8 FEET SOUTH OF A FENCE LINE, 20

LG1170'FEET NORTHWEST OF A POWER LINE POLE, 12 FEET NORTH OF THE

LG1170'SOUTH EDGE OF A HIGH BANK, 15 FEET SOUTHWEST OF A T FENCE

LG1170'CORNER AND 7.5 FEET SOUTH OF A 4-INCH SQUARE WHITE WOODEN

LG1170'WITNESS POST PROJECTING 2 FEET. IT IS STAMPED HAPPY 1947 AND

LG1170'IS FLUSH WITH THE SURFACE OF THE GROUND.

LG1170'

LG1170'REFERENCE MARK NO. 1 IS 23.5 FEET EAST-NORTHEAST OF A POWER

LG1170'LINE POLE AND 7 FEET SOUTH OF AN EAST-WEST FENCE LINE. IT IS

LG1170'STAMPED HAPPY NO 1 1947 AND IS FLUSH WITH THE SURFACE OF THE

LG1170'GROUND.

LG1170'

LG1170'REFERENCE MARK NO. 2 IS 77 FEET WEST OF A T FENCE CORNER AND 1 FOOT

LG1170'SOUTH OF AN EAST-WEST FENCE LINE. IT IS STAMPED HAPPY NO 2

LG1170'1947 AND PROJECTS 8 INCHES.

LG1170'

LG1170'THE AZIMUTH MARK IS ON THE RIGHT-OF-WAY AND 40.5 FEET SOUTH OF THE

LG1170'CENTER OF U.S. HIGHWAY 34, 15 FEET NORTH OF AN EAST-WEST FENCE

LG1170'LINE, 1 FOOT WEST OF A TELEPHONE POLE, AND 2 FEET NORTH OF A

LG1170'4-INCH SQUARE WHITE WOODEN WITNESS POST PROJECTING 2 FEET. IT IS

LG1170'ABOUT 10 FEET HIGHER THAN THE ROAD BED. IT IS STAMPED HAPPY

LG1170'1947 AND PROJECTS 6 INCHES.

LG1170'

LG1170'TO REACH THE STATION FROM THE POST OFFICE IN LINCOLN, GO

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LG1170'NORTH ON U.S. HIGHWAY 77 FOR 1.4 MILES TO THE JUNCTION OF
 LG1170'U.S. HIGHWAYS 34 AND 6. TURN LEFT, WEST, ON U.S. HIGHWAY 34,
 LG1170'9.5 MILES TO THE AZIMUTH MARK ON THE LEFT AS DESCRIBED.
 LG1170'CONTINUE WEST FOR 0.25 MILE TO THE STATION ON THE RIGHT AS
 LG1170'DESCRIBED.

LG1170'

LG1170'A 47 FOOT SIGNAL AT CORN IS V.G.

LG1170'

LG1170'A 10 FOOT SIGNAL AT EMERALD IS VISIBLE AT 30 FEET.

LG1170'

LG1170'A 74 FOOT SIGNAL AT HAINES IS V.G.

LG1170'

LG1170'A 74 FOOT SIGNAL AT MILFORD IS V.G.

LG1170'

LG1170'A 74 FOOT SIGNAL AT GARLAND IS V.G.

LG1170'

LG1170'HEIGHT OF LIGHT ABOVE STATION MARK 14 METERS.

LG1170

LG1170 STATION RECOVERY (1958)

LG1170

LG1170'RECOVERY NOTE BY COAST AND GEODETIC SURVEY 1958 (FAR)

LG1170'STATION WAS RECOVERED AS DESCRIBED AND ALL MARKS WERE FOUND IN

LG1170'GOOD CONDITION. ROAD CONSTRUCTION WORK WILL DESTROY THE

LG1170'AZIMUTH MARK AND COVER WITH EARTH THE STATION AND BOTH REFERENCE

LG1170'MARKS. THE AZIMUTH AND REFERENCE MARKS WERE MOVED. THE

LG1170'STATION MARK WILL BE COVERED TO A DEPTH OF ABOUT 20 INCHES BY

LG1170'A BUILDUP BANK BETWEEN THE RIGHT-OF-WAY FENCE AND THE TOP OF

LG1170'THE BACK SLOPE ON THE NORTH SIDE OF U.S. HIGHWAY 34. A

LG1170'COMPLETE DESCRIPTION FOLLOWS.

LG1170'

LG1170'STATION IS LOCATED ABOUT 9 MILES NORTHWEST OF LINCOLN, 2 AND

LG1170'1/2 MILES EAST OF THE SEWARD COUNTY LINE, AND 1 AND 1/2 MILES

LG1170'SOUTH OF THE SMALL VILLAGE OF MALCOLM ON THE RIGHT-OF-WAY

LG1170'OF U.S. HIGHWAY 34 NEAR THE SOUTHWEST CORNER OF THE SE 1/4

LG1170'OF SEC. 28, T 11 N, R 5 E JUST SOUTH OF FARM BUILDINGS, 56 FEET

LG1170'NORTH OF THE CENTER OF U.S. HIGHWAY 34, 15 FEET SOUTHWEST OF

LG1170'FENCE T-INTERSECTION, 9.5 FEET SOUTH OF FENCE, 9 FEET SOUTH

LG1170'OF WITNESS POST, AND 8 FEET SOUTH-SOUTHWEST OF A POWER POLE.

LG1170'THE MARK IS 20 INCHES BELOW THE SURFACE OF THE GROUND AND

LG1170'THE DISK IS STAMPED HAPPY 1947. THE STATION MARKS ARE

LG1170'DESCRIBED IN NOTES 1A AND 7A.

LG1170'

LG1170'REFERENCE MARK NO. 3 IS 37.64 FEET EAST-NORTHEAST OF THE STATION,

LG1170'35 FEET EAST OF A POWER POLE, 25 FEET EAST OF A FENCE

LG1170'T-INTERSECTION, AND 1 FOOT SOUTH OF RIGHT-OF-WAY FENCE. THE MARK

LG1170'PROJECTS 4 INCHES AND THE DISK IS STAMPED HAPPY NO 3 1947.

LG1170'

LG1170'REFERENCE MARK NO. 4 IS 77.58 FEET WEST OF THE STATION, 88

LG1170'FEET WEST OF A FENCE T-INTERSECTION, 78 FEET WEST OF A POWER POLE,

LG1170'AND 1 FOOT SOUTH OF RIGHT-OF-WAY FENCE. THE MARK PROJECTS 6

LG1170'INCHES AND THE DISK IS STAMPED HAPPY NO 4 1947.

LG1170'

LG1170'AZIMUTH MARK IS 0.25 MILE EAST OF THE STATION, 65 FEET SOUTH

LG1170'OF THE CENTER OF U.S. HIGHWAY 34, 2.5 FEET WEST OF A TELEPHONE POLE,

LG1170'AND 2 FEET EAST OF A WITNESS POST. THE MARK PROJECTS 4 INCHES

LG1170'AND THE DISK IS STAMPED HAPPY 1947 RESET 1958.

LG1170'

LG1170'TO REACH THE STATION FROM THE POST OFFICE IN LINCOLN, GO
 LG1170'NORTH ON U.S. HIGHWAY 77 FOR 1.4 MILES TO THE JUNCTION OF U.S.
 LG1170'HIGHWAYS 6 AND 34. TURN LEFT AND GO WEST ON U.S. HIGHWAY
 LG1170'34 FOR 5.2 MILES TO THE OAK CREEK BRIDGE. CONTINUE WEST
 LG1170'ON U.S. HIGHWAY 34 FOR 4.2 MILES TO THE AZIMUTH MARK ON THE LEFT.
 LG1170'CONTINUE WEST ON U.S. HIGHWAY 34 FOR 0.25 MILE TO FARM BUILDINGS
 LG1170'AND THE STATION ON THE RIGHT.

LG1170

LG1170

STATION RECOVERY (1967)

LG1170

LG1170'RECOVERY NOTE BY COAST AND GEODETIC SURVEY 1967 (GLD)

LG1170'DESCRIPTION IS ADEQUATE. ALL MARKS WERE FOUND IN GOOD CONDITION.

LG1170'THE AZ. MK. PROJECTS 4 INCHES AND IS STAMPED HAPPY 1947 RESET

LG1170'1958.

LG1170

LG1170

STATION RECOVERY (1976)

LG1170

LG1170'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1976 (CLN)

LG1170'THE STATION MARK, REFERENCE MARKS 3 AND 4 AND THE AZIMUTH MARK 1958

LG1170'WERE RECOVERED AS PREVIOUSLY DESCRIBED AND IN GOOD CONDITION. THE

LG1170'MARKS ARE ON THE TOP OF HIGH ROAD CUT BANKS. A NEW METAL WITNESS

LG1170'POST WAS SET BESIDE THE ORIGINAL WOODEN WITNESS POST AT THE STATION

LG1170'MARK AND THE AZIMUTH MARK.

LG1170'

LG1170'NOTE--A 3/4 INCH REBAR, ABOUT 3 FEET IN LENGTH WAS DRIVEN INTO THE

LG1170'GROUND BESIDE THE STATION MARK AND THE AZIMUTH MARK.

LG1170'

LG1170'AIRLINE DISTANCE AND DIRECTION FROM NEAREST TOWN--ABOUT 9.0 MILES

LG1170'NORTHWEST OF LINCOLN.

LG1170

LG1170

STATION RECOVERY (1995)

LG1170

LG1170'RECOVERY NOTE BY LANCASTER COUNTY NEBRASKA 1995 (LW)

LG1170'THE MARK WAS RECOVERED IN GOOD CONDITION. IT IS LOCATED ABOUT 9 MI

LG1170'(14.5 KM) NORTHWEST OF LINCOLN, 6.5 MI (10.5 KM) SOUTHEAST OF RAYMOND,

LG1170'2.5 MI (4.0 KM) EAST OF THE SEWARD-LANCASTER COUNTY LINE, NEAR THE

LG1170'SOUTHWEST CORNER OF THE SE1/4, SEC28, T11N, R5E AND ON TOP OF A HIGH

LG1170'CUT BANK ON THE NORTH RIGHT-OF-WAY OF U.S. HIGHWAY 34. TO REACH THE

LG1170'MARK FROM THE JUNCTION OF STATE HIGHWAY 79 WITH U.S. HIGHWAY 34, ABOUT

LG1170'5 MI (8.0 KM) SOUTH OF RAYMOND, GO WEST ON U.S. HIGHWAY 34 FOR 3.6 MI

LG1170'(5.8 KM) TO THE MARK ON THE RIGHT. THE DISK IS SET INTO THE TOP OF A

LG1170'SQUARE CONCRETE MONUMENT THAT IS RECESSED ABOUT 1 FT (0.3 M) BELOW THE

LG1170'GROUND SURFACE. IT IS 77.54 FT (23.63 M) EAST OF REFERENCE MARK 4,

LG1170'37.68 FT (11.48 M) WEST-SOUTHWEST OF REFERENCE MARK 3, 9.5 FT (2.9 M)

LG1170'SOUTH OF THE NORTH RIGHT-OF-WAY FENCE, 16.4 FT (5.0 M) SOUTHWEST OF A

LG1170'RIGHT-OF-WAY MARKER, 9.5 FT (2.9 M) SOUTH OF A WITNESS POST AND 4 FT

LG1170'(1.2 M) NORTH OF THE SOUTH EDGE OF THE HIGH CUT BANK.

LG1170

LG1170

STATION RECOVERY (2000)

LG1170

LG1170'RECOVERY NOTE BY NEBRASKA ROADS DEPARTMENT 2000 (JAO)

LG1170'RECOVERED AS DESCRIBED.

LG1170

LG1170 STATION RECOVERY (2002)
 LG1170
 LG1170 'RECOVERY NOTE BY NEBRASKA ROADS DEPARTMENT 2002
 LG1170 'RECOVERED AS DESCRIBED.
 LG1170
 LG1170 STATION RECOVERY (2010)
 LG1170
 LG1170 'RECOVERY NOTE BY INDIVIDUAL CONTRIBUTORS 2010 (JDB)
 LG1170 'RECOVERED IN GOOD CONDITION.
 LG1170
 LG1170 STATION RECOVERY (2015)
 LG1170
 LG1170 'RECOVERY NOTE BY NEBRASKA GEODETIC SURVEY 2015 (JA)
 LG1170 'RECOVERED IN GOOD CONDITION.
 1 National Geodetic Survey, Retrieval Date = DECEMBER 13, 2016
 LG1159 *****
 LG1159 DESIGNATION - JAMAICA 2
 LG1159 PID - LG1159
 LG1159 STATE/COUNTY- NE/LANCASTER
 LG1159 COUNTRY - US
 LG1159 USGS QUAD - ROCA (1972)
 LG1159
 LG1159 *CURRENT SURVEY CONTROL
 LG1159
 LG1159 * NAD 83(1995) POSITION- 40 40 39.36914(N) 096 42 19.58561(W) NO CHECK
 LG1159 * [NAVD 88](#) ORTHO HEIGHT - 401.463 (meters) 1317.13 (feet) ADJUSTED
 LG1159
 LG1159 GEOID HEIGHT - -25.938 (meters) GEOID12B
 LG1159 LAPLACE CORR - 0.83 (seconds) DEFLEC12B
 LG1159 DYNAMIC HEIGHT - 401.289 (meters) 1316.56 (feet) COMP
 LG1159 MODELED GRAVITY - 980,178.3 (mgal) NAVD 88
 LG1159
 LG1159 HORZ ORDER - THIRD
 LG1159 VERT ORDER - FIRST CLASS II
 LG1159
 LG1159. The horizontal coordinates were established by classical geodetic methods
 LG1159. and adjusted by the National Geodetic Survey in August 1997.
 LG1159.
 LG1159. No horizontal observational check was made to the station.
 LG1159.
 LG1159. The orthometric height was determined by differential leveling and
 LG1159. adjusted by the NATIONAL GEODETIC SURVEY
 LG1159. in May 1993.
 LG1159
 LG1159. Significant digits in the geoid height do not necessarily reflect accuracy.
 LG1159. GEOID12B height accuracy estimate available [here](#).
 LG1159
 LG1159. The Laplace correction was computed from DEFLEC12B derived deflections.
 LG1159
 LG1159. The dynamic height is computed by dividing the NAVD 88
 LG1159. geopotential number by the normal gravity value computed on the
 LG1159. Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
 LG1159. degrees latitude (g = 980.6199 gals.).
 LG1159

LG1159.The modeled gravity was interpolated from observed gravity values.

LG1159

LG1159. The following values were computed from the NAD 83(1995) position.

LG1159

	North	East	Units	Scale Factor	Converg.
LG1159;SPC NE	- 99,043.161	778,400.996	MT	0.99976222	+2 10 59.9
LG1159;SPC NE	- 324,944.10	2,553,803.93	sFT	0.99976222	+2 10 59.9
LG1159;UTM 14	- 4,505,500.594	693,921.103	MT	1.00006289	+1 29 45.8

LG1159

LG1159!	- Elev Factor	x	Scale Factor	=	Combined Factor
LG1159!SPC NE	- 0.99994110	x	0.99976222	=	0.99970333
LG1159!UTM 14	- 0.99994110	x	1.00006289	=	1.00000398

LG1159

	Primary Azimuth Mark	Grid Az
LG1159:SPC NE	- JAMAICA 2 AZ MK	197 45 08.6
LG1159:UTM 14	- JAMAICA 2 AZ MK	198 26 22.7

LG1159

LG1159_U.S. NATIONAL GRID SPATIAL ADDRESS: 14TPL9392105500(NAD 83)

LG1159

PID	Reference Object	Distance	Geod. Az dddmmss.s
LG1311	JAMAICA 2 RM 5	13.224 METERS	00406
LG1154	JAMAICA	13.889 METERS	09516
CL7180	JAMAICA AZ MK		1772909.4
LG1309	JAMAICA 2 AZ MK	477.760 METERS	1995608.5
LG1310	JAMAICA 2 RM 6	23.916 METERS	27848
LG1464	JAMAICA RM 3	15.226 METERS	28047
LG1465	JAMAICA 2 RM 4	20.580 METERS	34059

LG1159

LG1159 SUPERSEDED SURVEY CONTROL

LG1159

LG1159	NAD 83(1986)-	40 40 39.37697(N)	096 42 19.58601(W)	AD()	3
LG1159	NAD 27	- 40 40 39.37133(N)	096 42 18.51890(W)	AD()	3
LG1159	NGVD 29	401.37 (m)	1316.8 (f)	LEVELING	3

LG1159

LG1159.Superseded values are not recommended for survey control.

LG1159

LG1159.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

LG1159.[See file dsdata.txt](#) to determine how the superseded data were derived.

LG1159

LG1159_MARKER: DS = TRIANGULATION STATION DISK

LG1159_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT

LG1159_STAMPING: JAMAICA 2 1966

LG1159_MARK LOGO: CGS

LG1159_MAGNETIC: N = NO MAGNETIC MATERIAL

LG1159_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO

LG1159+STABILITY: SURFACE MOTION

LG1159_SATELLITE: THE SITE LOCATION WAS REPORTED AS NOT SUITABLE FOR

LG1159+SATELLITE: SATELLITE OBSERVATIONS - 2002

LG1159

	Date	Condition	Report By
LG1159 HISTORY	- 1966	MONUMENTED	CGS
LG1159 HISTORY	- 1966	GOOD	CGS

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LG1159	HISTORY	- 1981	GOOD	LOCENG
LG1159	HISTORY	- 19820824	GOOD	NGS
LG1159	HISTORY	- 19911022	GOOD	NGS
LG1159	HISTORY	- 2002	GOOD	NEDR

LG1159

LG1159

LG1159

STATION DESCRIPTION

LG1159'DESCRIBED BY COAST AND GEODETIC SURVEY 1966 (EBB)

LG1159'THE STATION IS ABOUT 10 MILES SOUTH OF LINCOLN AND 2 MILES

LG1159'SOUTH OF JAMAICA ON THE PROPERTY OF MR. L.C. LIDOLPH. IT IS

LG1159'JUST SOUTH OF THE LAND OWNERS FARMHOUSE.

LG1159'

LG1159'THE STATION IS ON THE WEST EDGE OF THE RIGHT OF WAY OF U.S.

LG1159'HIGHWAY 77, 61 FEET SOUTHEAST OF THE SOUTHEAST CORNER OF A HOUSE,

LG1159'29 FEET SOUTH OF THE SOUTH YARD FENCE AND 19 FEET SOUTH OF THE

LG1159'CENTERLINE OF A FARM DRIVEWAY. THE MARK IS FLUSH WITH THE GROUND

LG1159'AND THE DISK IS STAMPED JAMAICA 2 1966.

LG1159'

LG1159'R.M. NO. 3 IS 46 FEET SOUTH-SOUTHWEST OF THE SOUTHEAST CORNER OF

LG1159'A HOUSE, 14.5 FEET SOUTH OF THE CENTERLINE OF A DRIVEWAY AND 7

LG1159'FEET SOUTHEAST OF A 24-INCH ELM TREE. MARK PROJECTS 3 INCHES

LG1159'AND DISK IS STAMPED JAMAICA NO 3 1947.

LG1159'

LG1159'R.M. NO. 4 IS AT THE EAST SIDE OF A FARMHOUSE, 1.5 FEET EAST OF

LG1159'THE FRONT PORCH AND IS IN THE NORTHEAST CORNER OF A CONCRETE STEP.

LG1159'THE DISK IS SET IN A DRILL HOLE IN CONCRETE STEP AND IS STAMPED

LG1159'JAMAICA 2 NO 4 1966.

LG1159'

LG1159'THE AZIMUTH MARK IS 52 FEET EAST-NORTHEAST OF THE NORTHEAST CORNER

LG1159'OF A ROCK HOUSE, 24.8 FEET NORTHEAST OF A YARD LIGHT, 13 FEET

LG1159'SOUTH OF THE CENTERLINE OF A DRIVEWAY AND 1 FOOT NORTHWEST OF A

LG1159'BOARD FENCE. MARK IS FLUSH WITH THE GROUND AND THE DISK IS

LG1159'STAMPED JAMAICA 2 1966.

LG1159'

LG1159'TO REACH FROM THE JUNCTION OF U.S. HIGHWAY 77 AND STATE HIGHWAY,

LG1159'ABOUT 6 MILES NORTH OF PRINCETON, GO NORTH ON U.S. 77 FOR 1.3

LG1159'MILES TO A DRIVEWAY ON THE LEFT (TURN LEFT AND GO WEST 0.15 MILE

LG1159'TO THE AZIMUTH MARK), CONTINUE NORTH ON THE HIGHWAY FOR 0.3

LG1159'MILE TO A DRIVEWAY ON THE LEFT, TURN LEFT TO FARMHOUSE AND

LG1159'STATION SITE.

LG1159

LG1159

LG1159

STATION RECOVERY (1966)

LG1159'RECOVERY NOTE BY COAST AND GEODETIC SURVEY 1966

LG1159'RECOVERED IN GOOD CONDITION.

LG1159

LG1159

STATION RECOVERY (1981)

LG1159

LG1159'RECOVERY NOTE BY LOCAL ENGINEER (INDIVIDUAL OR FIRM) 1981 (JM)

LG1159'JAMAICA 2 1966 RECOVERED GOOD (STATION MARK).

LG1159'

LG1159'R.M.S AND AZI NOT SEARCHED FOR.

LG1159'

LG1159'DESCRIPTION ADEQUATE.

LG1159'

LG1159'DISTANCE AND DIRECTION FROM NEAREST TOWN--10 MI S. LINCOLN.

LG1159

LG1159 STATION RECOVERY (1982)

LG1159

LG1159'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1982

LG1159'THE SURFACE STATION MARK, REFERENCE MARKS 3, 4 AND THE AZIMUTH MARK
 LG1159'WERE RECOVERED. REFERENCE MARK 3 APPEARED TO LEAN AND THE DISTANCE
 LG1159'AND DIRECTION FAILED TO AGREE WITH 1966 DATA. REFERENCE MARK 4 WAS
 LG1159'OBSTRUCTED BY A TREE. REFERENCE MARK 4 WAS IN THE STEP OF A PORCH ON
 LG1159'A HOUSE THAT IS TO BE DESTROYED AND REFERENCE MARK 3 INTERFERED WITH
 LG1159'MOWING OPERATIONS. REFERENCE MARKS 5 AND 6 WERE ESTABLISHED AND
 LG1159'REFERENCE MARKS 3 AND 4 WERE DESTROYED. A NEW DESCRIPTION FOLLOWS.
 LG1159'THE STATION IS LOCATED ABOUT 16.1 KM (10.0 MI) SOUTH FROM LINCOLN,
 LG1159'11.3 KM (7.0 MI) SOUTHWEST FROM CHENEY, 4.8 KM (3.0 MI) NORTHWEST
 LG1159'FROM ROCA, 2.41 KM (1.50 MI) NORTH FROM THE JUNCTION OF STATE HIGHWAY
 LG1159'33 AND U.S. HIGHWAY 77 AND ON THE WEST RIGHT-OF-WAY OF U.S. HIGHWAY
 LG1159'77, ADJACENT TO PROPERTY OWNED BY MR. A. LIDOLPH, RURAL ROUTE 1,
 LG1159'ROCA, NEBRASKA 68430.
 LG1159'TO REACH FROM THE JUNCTION OF U.S. HIGHWAY 7 WITH STATE HIGHWAY 33,
 LG1159'ABOUT 3.2 KM (2.0 MI) WEST FROM ROCA, GO NORTH ON HIGHWAY 77 FOR 2.41
 LG1159'KM (1.50 MI) TO A CROSSOVER IN THE MEDIAN. TURN LEFT AND GO WEST,
 LG1159'CROSSING THE SOUTHBOUND LANES, TO A DRIVEWAY. TURN RIGHT AND GO
 LG1159'NORTH ON LIDOLPH DRIVE FOR 0.24 KM (0.15 MI) TO THE STATION.
 LG1159'THE SURFACE DISK IS SET INTO THE TOP OF A ROUND CONCRETE POST THAT IS
 LG1159'FLUSH WITH THE GROUND. IT IS 23.93 M (78.51 FT) EAST FROM A CONCRETE
 LG1159'RIGHT-OF-WAY MARKER, 21.0 M (68.9 FT) WEST FROM THE CENTERLINE OF THE
 LG1159'SOUTHBOUND LANES OF THE HIGHWAY AND 42.1 M (138.1 FT) SOUTH FROM A
 LG1159'CONCRETE RIGHT-OF-WAY MARKER. THE UNDERGROUND MARK WAS NOT
 LG1159'INSPECTED.

LG1159

LG1159 STATION RECOVERY (1991)

LG1159

LG1159'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1991

LG1159'11.4 KM (7.10 MI) SOUTHERLY ALONG U.S. HIGHWAY 77 (SOUTH 14TH
 LG1159'STREET) FROM THE JUNCTION OF STATE HIGHWAY 2 IN LINCOLN, 1.0 KM (0.60
 LG1159'MI) NORTH OF THE INTERSECTION OF STRUCK ROAD, 23.9 M (78.4 FT) EAST
 LG1159'OF REFERENCE MARK 5, 21.2 M (69.6 FT) WEST OF THE CENTERLINE OF THE
 LG1159'SOUTHBOUND LANES OF THE HIGHWAY, 13.6 M (44.6 FT) SOUTH OF A
 LG1159'RIGHT-OF-WAY MARKER, 13.2 M (43.3 FT) SOUTH OF REFERENCE MARK 6, 7.2
 LG1159'M (23.6 FT) EAST OF THE CENTER OF LIDOLPH LANE, 2.5 M (8.2 FT) SOUTH
 LG1159'OF AN UNDERGROUND CABLE WARNING SIGN, 0.6 M (2.0 FT) ABOVE THE LEVEL
 LG1159'OF THE HIGHWAY, AND THE MONUMENT IS FLUSH WITH THE GROUND SURFACE.
 LG1159'NOTE--THE MONUMENT IS ON PROPERTY OWNED BY MR. A. LIDOLPH, RURAL
 LG1159'ROUTE 1, ROCA, NE 68430.

LG1159

LG1159 STATION RECOVERY (2002)

LG1159

LG1159'RECOVERY NOTE BY NEBRASKA ROADS DEPARTMENT 2002

LG1159'RECOVERED AS DESCRIBED.

1 National Geodetic Survey, Retrieval Date = DECEMBER 13, 2016
 MK2093 *****
 MK2093 HT_MOD - This is a Height Modernization Survey Station.
 MK2093 DESIGNATION - JOHNSON ET
 MK2093 PID - MK2093
 MK2093 STATE/COUNTY- NE/LANCASTER

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MK2093 COUNTRY - US
 MK2093 USGS QUAD - VALPARAISO SW (1969)
 MK2093
 MK2093 *CURRENT SURVEY CONTROL
 MK2093
 MK2093* NAD 83(2011) POSITION- 41 01 01.62223(N) 096 52 38.66042(W) ADJUSTED
 MK2093* NAD 83(2011) ELLIP HT- 422.491 (meters) (06/27/12) ADJUSTED
 MK2093* NAD 83(2011) EPOCH - 2010.00
 MK2093* [NAVD 88](#) ORTHO HEIGHT - 449.26 (meters) 1473.9 (feet) GPS OBS
 MK2093
 MK2093 NAVD 88 orthometric height was determined with geoid model GEOID99
 MK2093 GEOID HEIGHT - -26.753 (meters) GEOID99
 MK2093 GEOID HEIGHT - -26.816 (meters) GEOID12B
 MK2093 NAD 83(2011) X - -577,132.119 (meters) COMP
 MK2093 NAD 83(2011) Y - -4,784,983.239 (meters) COMP
 MK2093 NAD 83(2011) Z - 4,164,134.949 (meters) COMP
 MK2093 LAPLACE CORR - 0.77 (seconds) DEFLEC12B
 MK2093
 MK2093 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
 MK2093 Standards:

	FGDC (95% conf, cm)		Standard deviation (cm)			CorrNE
	Horiz	Ellip	SD_N	SD_E	SD_h	(unitless)
NETWORK	0.37	0.59	0.16	0.14	0.30	-0.01658293

 MK2093 Click [here](#) for local accuracies and other accuracy information.
 MK2093
 MK2093
 MK2093.The horizontal coordinates were established by GPS observations
 MK2093.and adjusted by the National Geodetic Survey in June 2012.
 MK2093
 MK2093.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
 MK2093.been affixed to the stable North American tectonic plate. See
 MK2093.[NA2011](#) for more information.
 MK2093
 MK2093.The horizontal coordinates are valid at the epoch date displayed above
 MK2093.which is a decimal equivalence of Year/Month/Day.
 MK2093
 MK2093.The orthometric height was determined by GPS observations and a
 MK2093.high-resolution geoid model using precise GPS observation and
 MK2093.processing techniques.
 MK2093
 MK2093.Significant digits in the geoid height do not necessarily reflect accuracy.
 MK2093.GEOID12B height accuracy estimate available [here](#).
 MK2093
 MK2093.[Photographs](#) are available for this station.
 MK2093
 MK2093.The X, Y, and Z were computed from the position and the ellipsoidal ht.
 MK2093
 MK2093.The Laplace correction was computed from DEFLEC12B derived deflections.
 MK2093
 MK2093.The ellipsoidal height was determined by GPS observations
 MK2093.and is referenced to NAD 83.
 MK2093

MK2093. The following values were computed from the NAD 83(2011) position.

MK2093

		North	East	Units	Scale Factor	Converg.
MK2093;SPC NE	-	136,172.380	762,514.815	MT	0.99969474	+2 04 09.6
MK2093;SPC NE	-	446,758.88	2,501,684.02	sFT	0.99969474	+2 04 09.6
MK2093;UTM 14	-	4,542,827.377	678,472.981	MT	0.99999205	+1 23 36.2
MK2093!	-	Elev Factor	x	Scale Factor	=	Combined Factor
MK2093!SPC NE	-	0.99993373	x	0.99969474	=	0.99962849
MK2093!UTM 14	-	0.99993373	x	0.99999205	=	0.99992578

MK2093

		Primary Azimuth Mark	Grid Az
MK2093:SPC NE	-	LINCOLN ST CAPITOL BLDG DOME	145 03 31.0
MK2093:UTM 14	-	LINCOLN ST CAPITOL BLDG DOME	145 44 04.4

MK2093

MK2093_U.S. NATIONAL GRID SPATIAL ADDRESS: 14TPL7847242827(NAD 83)

MK2093

PID	Reference Object	Distance	Geod. Az dddmmss.s
CL7191	JOHNSON RM 1	16.660 METERS	00207
LG1120	LINCOLN ST CAPITOL BLDG DOME	APPROX.27.6 KM	1470740.6
CL7192	JOHNSON RM 2	20.805 METERS	25233

MK2093

MK2093 SUPERSEDED SURVEY CONTROL

MK2093

MK2093	NAD 83(2007)-	41 01 01.62225(N)	096 52 38.66085(W)	AD(2002.00)	0
MK2093	ELLIP H (02/10/07)	422.510 (m)		GP(2002.00)	
MK2093	NAD 83(1995)-	41 01 01.62210(N)	096 52 38.66036(W)	AD()	B
MK2093	ELLIP H (03/30/05)	422.479 (m)		GP()	3 1
MK2093	NAD 83(1995)-	41 01 01.62467(N)	096 52 38.65792(W)	AD()	2
MK2093	NAD 83(1986)-	41 01 01.63429(N)	096 52 38.65875(W)	AD()	2
MK2093	NAD 27	- 41 01 01.60558(N)	096 52 37.55590(W)	AD()	2

MK2093

MK2093.Superseded values are not recommended for survey control.

MK2093

MK2093.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

MK2093.[See file dsdata.txt](#) to determine how the superseded data were derived.

MK2093

MK2093_MARKER: DD = SURVEY DISK

MK2093_SETTING: 46 = COPPER-CLAD STEEL ROD W/O SLEEVE (10 FT.+)

MK2093_STAMPING: ET JOHNSON 1967

MK2093_MARK LOGO: USGS

MK2093_MAGNETIC: N = NO MAGNETIC MATERIAL

MK2093_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL

MK2093_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

MK2093+SATELLITE: SATELLITE OBSERVATIONS - May 07, 2007

MK2093

	HISTORY	- Date	Condition	Report By
MK2093	HISTORY	- 1967	MONUMENTED	USGS
MK2093	HISTORY	- 1981	GOOD	LOCENG
MK2093	HISTORY	- 19970721	GOOD	NGS
MK2093	HISTORY	- 2002	GOOD	NEDR
MK2093	HISTORY	- 20070507	GOOD	NE-109

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MK2093 HISTORY - 20100504 GOOD INDIV

MK2093

MK2093 STATION DESCRIPTION

MK2093

MK2093'DESCRIBED BY US GEOLOGICAL SURVEY 1967 (FJH)

MK2093'THE STATION IS LOCATED ABOUT 3.5 MI W. OF AGNEW, T. 12 N., R. 5
 MK2093'E., NEAR THE COR. SECS. 8, 9, 16 AND 17, 57 FT N. OF CENTER OF RD.,
 MK2093'23 FT N., 2 FT W. OF FENCE CORNER, 23 FT N. OF STANDARD USGS
 MK2093'WITNESS POST.

MK2093'

MK2093'TO REACH THE STATION FROM THE RR. CROSSING AT AGNEW GO W. ALONG
 MK2093'CO. RD. FOR 3.4 MI TO STATION ON RIGHT (N.) SIDE OF RD.

MK2093'

MK2093'ALL MARKS ARE FLUSH WITH THE GROUND, STANDARD TABLETS CRIMPED ON
 MK2093'0.5 IN. COPPER COATED RODS, CENTERED IN 6 IN. DIAMETER TILES,
 MK2093'12 IN. LONG FILLED WITH CHAT TO WITHIN LIN. OF CAP.

MK2093'

MK2093'THE STATION IS STAMPED ET JOHNSON 1967.

MK2093'

MK2093'REFERENCE MARK NO. 1 IS N. OF STATION ON FENCE LINE, 111 FT N.
 MK2093'OF CENTER OF RD., 77 FT N. OF FENCE CORNER, STAMPED JOHNSON NO 1
 MK2093'1967

MK2093'

MK2093'REFERENCE MARK NO. 2 IS WSW. OF STATION, 67 FT W. OF FENCE
 MK2093'CORNER, 36 FT N.. OF CENTER OF RD., 17 FT W. OF CENTER OF FIELD
 MK2093'ENTRANCE N., 2 FT N. OF FENCE, STAMPED JOHNSON NO 2 1967.

MK2093'

MK2093'AZIMUTH MARK CAPITOL BUILDING IN LINCOLN.

MK2093

MK2093 STATION RECOVERY (1981)

MK2093

MK2093'RECOVERY NOTE BY LOCAL ENGINEER (INDIVIDUAL OR FIRM) 1981 (JM)
 MK2093'ET JOHNSON 1967 RECOVERED GOOD.

MK2093'

MK2093'JOHNSON NO 1 1967

MK2093'

MK2093'JOHNSON NO 2 1967

MK2093'

MK2093'DESCRIPTION ADEQUATE.

MK2093'

MK2093'DISTANCE AND DIRECTION FROM NEAREST TOWN--3.5 MI W. OF AGNEW.

MK2093

MK2093 STATION RECOVERY (1997)

MK2093

MK2093'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1997 (JAO)

MK2093'THE MARK WAS RECOVERED IN GOOD CONDITION AND WAS USED FOR GPS BY THE
 MK2093'NEBRASKA DEPARTMENT OF ROADS. IT IS 3.4 MI (5.5 KM) WEST OF AGNEW AND
 MK2093'NEAR THE SECTION CORNER COMMON TO SECTIONS 8,9,16 AND 17 OF T12N, R5W.
 MK2093'THE PROPERTY OWNERS NAME WAS NOT ASCERTAINED THIS DATE. TO REACH THE
 MK2093'MARK FROM THE RAILROAD CROSSING OF THE MAIN STREET IN AGNEW, GO WEST
 MK2093'ON A COUNTY ROAD FOR 3.4 MI (5.5 KM) TO THE MARK ON THE RIGHT, JUST
 MK2093'WEST OF A CROSSROAD. IT IS 17.0 M WEST FROM THE CENTERLINE OF A
 MK2093'COUNTY ROAD, 20.81 M (68.27 FT) EAST-NORTHEAST FROM A REFERENCE MARK
 MK2093'2, 12.75 M (41.83 FT) EAST-NORTHEAST FROM THE TOP OF THE EAST GATE
 MK2093'POST IN THE EAST-WEST R-O-W FENCE, 7.0 M (23.0 FT) NORTH OF A WITNESS

MK2093'POST IN THE FENCE AND 0.6 M (2.0 FT) WEST OF A NORTH-SOUTH FENCE.

MK2093

MK2093 STATION RECOVERY (2002)

MK2093

MK2093'RECOVERY NOTE BY NEBRASKA ROADS DEPARTMENT 2002

MK2093'RECOVERED IN GOOD CONDITION.

MK2093

MK2093 STATION RECOVERY (2007)

MK2093

MK2093'RECOVERY NOTE BY LANCASTER COUNTY NEBRASKA 2007 (JFP)

MK2093'STATION AND BOTH REFERENCE MARKS RECOVERED IN GOOD CONDITION.

MK2093'LOCATION AS DESCRIBED IN 1997 RECOVERY REPORT. PLACED MARKER SIGNS

MK2093'BEARING THE NAME OF THE U. S. GEOLOGICAL SURVEY NEXT TO ALL THREE

MK2093'MONUMENTS.

MK2093

MK2093 STATION RECOVERY (2010)

MK2093

MK2093'RECOVERY NOTE BY INDIVIDUAL CONTRIBUTORS 2010 (JDB)

MK2093'RECOVERED IN GOOD CONDITION.

1 National Geodetic Survey, Retrieval Date = DECEMBER 13, 2016

MK2051 *****

MK2051 CBN - This is a Cooperative Base Network Control Station.

MK2051 DESIGNATION - JOURNEY

MK2051 PID - MK2051

MK2051 STATE/COUNTY- NE/DOUGLAS

MK2051 COUNTRY - US

MK2051 USGS QUAD - VALLEY (1983)

MK2051

MK2051 *CURRENT SURVEY CONTROL

MK2051

MK2051* NAD 83(2011) POSITION- 41 18 47.36756(N) 096 16 20.38084(W) ADJUSTED

MK2051* NAD 83(2011) ELLIP HT- 364.798 (meters) (06/27/12) ADJUSTED

MK2051* NAD 83(2011) EPOCH - 2010.00

MK2051* [NAVD 88](#) ORTHO HEIGHT - 392.3 (meters) 1287. (feet) GPS OBS

MK2051

MK2051 NAVD 88 orthometric height was determined with geoid model GEOID99

MK2051 GEOID HEIGHT - -27.435 (meters) GEOID99

MK2051 GEOID HEIGHT - -27.493 (meters) GEOID12B

MK2051 NAD 83(2011) X - -524,199.342 (meters) COMP

MK2051 NAD 83(2011) Y - -4,769,255.298 (meters) COMP

MK2051 NAD 83(2011) Z - 4,188,849.085 (meters) COMP

MK2051 LAPLACE CORR - -1.19 (seconds) DEFLEC12B

MK2051

MK2051 Network accuracy estimates per FGDC Geospatial Positioning Accuracy

MK2051 Standards:

MK2051 FGDC (95% conf, cm) Standard deviation (cm) CorrNE

MK2051 Horiz Ellip SD_N SD_E SD_h (unitless)

MK2051 -----

MK2051 NETWORK 0.72 1.57 0.33 0.25 0.80 -0.00370587

MK2051 -----

MK2051 Click [here](#) for local accuracies and other accuracy information.

MK2051

MK2051

MK2051.The horizontal coordinates were established by GPS observations

MK2051.and adjusted by the National Geodetic Survey in June 2012.

MK2051

MK2051.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
MK2051.been affixed to the stable North American tectonic plate. See

MK2051.[NA2011](#) for more information.

MK2051

MK2051.The horizontal coordinates are valid at the epoch date displayed above
MK2051.which is a decimal equivalence of Year/Month/Day.

MK2051

MK2051.The orthometric height was determined by GPS observations and a
MK2051.high-resolution geoid model.

MK2051

MK2051.Significant digits in the geoid height do not necessarily reflect accuracy.

MK2051.GEOID12B height accuracy estimate available [here](#).

MK2051

MK2051.The X, Y, and Z were computed from the position and the ellipsoidal ht.

MK2051

MK2051.The Laplace correction was computed from DEFLEC12B derived deflections.

MK2051

MK2051.The ellipsoidal height was determined by GPS observations

MK2051.and is referenced to NAD 83.

MK2051

MK2051. The following values were computed from the NAD 83(2011) position.

MK2051

MK2051;		North	East	Units	Scale Factor	Converg.
MK2051;SPC NE	-	171,023.723	811,937.785	MT	0.99966422	+2 28 13.1
MK2051;SPC NE	-	561,100.33	2,663,832.55	sFT	0.99966422	+2 28 13.1
MK2051;UTM 14	-	4,577,110.901	728,323.415	MT	1.00024162	+1 48 05.5

MK2051

MK2051! - Elev Factor x Scale Factor = Combined Factor

MK2051!SPC NE - 0.99994278 x 0.99966422 = 0.99960702

MK2051!UTM 14 - 0.99994278 x 1.00024162 = 1.00018439

MK2051

MK2051:		Primary Azimuth Mark	Grid Az
MK2051:SPC NE	-	JOURNEY AZ MK	193 17 35.6
MK2051:UTM 14	-	JOURNEY AZ MK	193 57 43.2

MK2051

MK2051_U.S. NATIONAL GRID SPATIAL ADDRESS: 14TQL2832377110(NAD 83)

MK2051

MK2051	PID	Reference Object	Distance	Geod. Az
MK2051				ddmmss.s
MK2051	MK2213	VALLEY HARTFORD SAND RAD MAST	APPROX. 1.6 KM	0094439.5
MK2051	MK2217	JOURNEY RM 1	10.669 METERS	05008
MK2051	MK2218	JOURNEY RM 2	8.471 METERS	16423
MK2051	MK2216	JOURNEY AZ MK	APPROX. 0.8 KM	1954548.7
MK2051	MK2057	FREMONT ELEVATOR COMPANY	APPROX.27.9 KM	3022812.5
MK2051	MK2037	ARLINGTON ATT MICROWAVE TOWER	APPROX.12.9 KM	3454311.9

MK2051

MK2051 SUPERSEDED SURVEY CONTROL

MK2051

MK2051 NAD 83(2007)- 41 18 47.36753(N) 096 16 20.38147(W) AD(2002.00) 0

MK2051 ELLIP H (02/10/07) 364.818 (m) GP(2002.00)

MK2051 NAD 83(1995)- 41 18 47.36749(N) 096 16 20.38094(W) AD() A
 MK2051 ELLIP H (07/10/01) 364.808 (m) GP() 4 1
 MK2051 NAD 83(1995)- 41 18 47.36453(N) 096 16 20.37953(W) AD() 2
 MK2051 NAD 83(1986)- 41 18 47.37323(N) 096 16 20.38206(W) AD() 2
 MK2051 NAD 27 - 41 18 47.37869(N) 096 16 19.29571(W) AD() 2

MK2051

MK2051.Superseded values are not recommended for survey control.

MK2051

MK2051.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

MK2051.[See file dsdata.txt](#) to determine how the superseded data were derived.

MK2051

MK2051_MARKER: DS = TRIANGULATION STATION DISK

MK2051_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT

MK2051_STAMPING: JOURNEY 1959

MK2051_MARK LOGO: CGS

MK2051_MAGNETIC: A = STEEL ROD ADJACENT TO MONUMENT

MK2051_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO

MK2051+STABILITY: SURFACE MOTION

MK2051_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

MK2051+SATELLITE: SATELLITE OBSERVATIONS - January 18, 2011

MK2051

MK2051	HISTORY	- Date	Condition	Report By
MK2051	HISTORY	- 1959	MONUMENTED	CGS
MK2051	HISTORY	- 1959	GOOD	CGS
MK2051	HISTORY	- 1967	GOOD	USGS
MK2051	HISTORY	- 1974	GOOD	NEDR
MK2051	HISTORY	- 1980	GOOD	NGS
MK2051	HISTORY	- 19801109	GOOD	NGS
MK2051	HISTORY	- 1984	GOOD	LOCENG
MK2051	HISTORY	- 20000613	GOOD	NEDR
MK2051	HISTORY	- 20110118	GOOD	INDIV

MK2051

MK2051 STATION DESCRIPTION

MK2051

MK2051'DESCRIBED BY COAST AND GEODETIC SURVEY 1959 (MJR)

MK2051'THE STATION IS LOCATED, AIRLINE, ABOUT 3 MILES NORTHWEST OF

MK2051'ELKHORN AND ABOUT 4 MILES SOUTH OF ELK CITY, ON LAND OWNED

MK2051'BY JOURNEYS END FARM.

MK2051'

MK2051'TO REACH THE STATION FROM THE UNION PACIFIC RAILROAD DEPOT

MK2051'IN WATERLOO, GO NORTH ON STATE HIGHWAY 64 FOR 0.6 MILE. TAKE

MK2051'THE LEFT FORK, LEAVING THE HIGHWAY, AND GO NORTHWEST ON THE

MK2051'PAVED ROAD FOR 0.85 MILE TO SIDE ROAD, LEFT AND THE AZIMUTH

MK2051'MARK. CONTINUE NORTHWESTERLY FOR 0.35 MILE. TURN RIGH OFF

MK2051'THE PAVED ROAD AND TAKE THE DIRT ROAD UPHILL, NORTHEASTERLY

MK2051'FOR 0.25 MILE TO THE TOP OF THE HILL. TURN RIGHT, PASS THROUGH

MK2051'A GATE AND GO SOUTHWESTERLY DOWNHILL FOR 0.05 MILE TO THE EDGE

MK2051'OF THE BLUFF AND THE STATION.

MK2051'

MK2051'THE STATION IS A STANDARD DISK STAMPED JOURNEY 1959 SET IN

MK2051'THE TOP OF A 10-INCH SQUARE CONCRETE MONUMENT WHICH IS ABOUT

MK2051'FLUSH WITH THE GROUND. IT IS ABOUT 100 YARDS WEST OF THE

MK2051'MAIN FARM BUILDINGS OF THE JOURNEYS END FARM AND ABOUT 20 FEET

MK2051'EAST OF THE END OF THE BLUFF.

MK2051'

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MK2051'REFERENCE MARK NUMBER ONE IS A STANDARD DISK STAMPED JOURNEY
 MK2051'NO 1 1959 SET IN TOP OF A 10-INCH SQUARE CONCRETE MONUMENT WHICH
 MK2051'PROJECTS 6 INCHES ABOVE THE GROUND AND IS ABOUT 1 FOOT HIGHER
 MK2051'THAN THE STATION.

MK2051'

MK2051'REFERENCE MARK NUMBER TWO IS A STANDARD DISK STAMPED JOURNEY
 MK2051'NO 2 1959 SET IN TOP OF A 10-INCH SQUARE CONCRETE MONUMENT
 MK2051'WHICH PROJECTS 1 INCH ABOVE THE GROUND AND 2 FEET LOWER THAN
 MK2051'THE STATION.

MK2051'

MK2051'THE AZIMUTH MARK IS A STANDARD DISK STAMPED JOURNEY 1959 SET
 MK2051'IN TOP OF A 10-INCH SQUARE CONCRETE MONUMENT WHICH PROJECTS
 MK2051'2 INCHES ABOVE THE GROUND. IT IS 54 FEET WEST-SOUTHWEST OF THE
 MK2051'CENTER OF A T-ROAD FORMED BY THE SIDE ROAD WITH THE PAVED
 MK2051'ROAD, 14 FEET SOUTH OF THE CENTER OF A T-ROAD FORMED BY THE
 MK2051'SIDE ROAD WITH THE PAVED ROAD, 14 FEET SOUTH OF THE CENTER OF
 MK2051'A SIDE ROAD AND 3 FEET WEST OF A METAL WITNESS SIGN.

MK2051'

MK2051'THE STATION WAS BUILT IN 1950 BUT WAS NOT OCCUPIED UNTIL 1959
 MK2051'SO THE STAMPING WAS CHANGED TO 1959.

MK2051

STATION RECOVERY (1959)

MK2051

MK2051'RECOVERY NOTE BY COAST AND GEODETIC SURVEY 1959
 MK2051'RECOVERED IN GOOD CONDITION.

MK2051

STATION RECOVERY (1967)

MK2051

MK2051'RECOVERY NOTE BY US GEOLOGICAL SURVEY 1967 (FJH)
 MK2051'THE DESCRIPTION IS ADEQUATE EXCEPT FOR DISTANCE TO R.M. 1.
 MK2051'ALL MARKS RECOVERED IN GOOD CONDITION.

MK2051

STATION RECOVERY (1974)

MK2051

MK2051'RECOVERY NOTE BY NEBRASKA ROADS DEPARTMENT 1974 (HED)
 MK2051'NEW FROM JUNCTION OF HIGHWAYS 31 AND 64 AT NORTH EDGE OF ELKHORN
 MK2051'GO WEST ON HIGHWAY 64 APPROX. 1.0 MILE TO OIL ROAD NORTH TURN RIGHT
 MK2051'(NORTH) GO APPROX. 1.5 MILE TO OIL ROAD LEADING TO ST. JOHN
 MK2051'SEMINARY TURN LEFT (WEST) AND GO APPROX. 0.9 MILE. THAN PACK
 MK2051'WEST SOUTH WEST APPROX. 600 FEET TO STATION APPROX. 20 FEET EAST
 MK2051'OF END OF BLUFF.

MK2051'

MK2051'NEAREST TOWN--WATERLOO.

MK2051

STATION RECOVERY (1980)

MK2051

MK2051'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1980 (CLN)
 MK2051'THE SURFACE STATION MARK, REFERENCE MARKS 1, 2 AND THE AZIMUTH MARK
 MK2051'WERE RECOVERED. REFERENCE MARK 1 HAS THE NORTHWEST CORNER OF THE
 MK2051'CONCRETE POST BROKEN OFF BUT THE MARK IS STILL SOLID. THE OTHER MARKS
 MK2051'WERE IN GOOD CONDITION. THE DISTANCE TO REFERENCE MARK 1 WAS 3.037
 MK2051'METER LONGER THAN 1959 DATA AND THE DIRECTION WAS 1 MINUTE, 56 SECONDS
 MK2051'LARGER. THE DISTANCE AND DIRECTION TO REFERENCE MARK 2 AGREED WITH
 MK2051'THE 1959 DATA. DUE TO ROAD CHANGES AND PROPERTY OWNERSHIP A COMPLETE
 MK2051'NEW DESCRIPTION FOLLOWS.

MK2051'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1980
MK2051'THE SURFACE STATION MARK, REFERENCE MARKS 1,2 AND THE AZIMUTH MARK
MK2051'WERE RECOVERED. REFERENCE MARK 1 HAS THE NORTHWEST CORNER OF THE
MK2051'CONCRETE POST BROKEN OFF BUT THE MARK IS STILL SOLID. THE OTHER
MK2051'MARKS WERE IN GOOD CONDITION. THE DISTANCE TO REFERENCE MARK 1 WAS
MK2051'3.037 METERS LONGER THAN 1959 DATA AND THE DIRECTION WAS 1 MINUTE, 56
MK2051'SECONDS LARGER. THE DISTANCE AND DIRECTION TO REFERENCE MARK 2

MK2051'AGREED WITH THE 1959 DATA. DUE TO CHANGES AND PROPERTY OWNERSHIP, A
MK2051'COMPLETE, NEW DESCRIPTION FOLLOWS.

MK2051'THE STATION IS LOCATED ABOUT 4 MILES EAST OF VALLEY, 3 MILES
MK2051'NORTHWEST OF ELKHORN, 2 MILES NORTH OF WATERLOO, 0.25 MILE
MK2051'SOUTH-SOUTHWEST OF THE MOUNT MICHAEL ABBEY AND HIGH SCHOOL, IN
MK2051'PASTURELAND, ON A PROMINENT KNOLL THAT OVERLOOKS DOUGLAS COUNTY ROAD
MK2051'84 AND ON PROPERTY OWNED BY THE BENEDICTINE FATHERS INCORPORATED,
MK2051'MOUNT MICHAEL, ELKHORN, NEBRASKA 68022. FATHER NATHANIEL IS THE
MK2051'BUSINESS MANAGER, TELEPHONE 402-289 2541.
MK2051'TO REACH THE STATION FROM THE CROSSING OF THE UNION PACIFIC RAILROAD
MK2051'AND STATE HIGHWAY 64, IN WATERLOO, GO NORTHEAST AND EAST ON THE
MK2051'HIGHWAY FOR 0.8 MILE TO A PAVED ROAD ON THE LEFT, DOUGLAS COUNTY ROAD
MK2051'84. TURN LEFT AND GO NORTHERLY ON ROAD 84 FOR 0.85 MILE TO AN
MK2051'OVERHEAD POWERLINE, A FIELD ENTRANCE AND THE AZIMUTH MARK ON THE
MK2051'LEFT. CONTINUE NORTH FOR 0.5 MILE TO THE STATION ON THE HIGH KNOLL
MK2051'ABOUT 0.25 MILE EAST OF THE ROAD. CONTINUE NORTH FOR 1.05 MILES TO
MK2051'COUNTY ROAD 19 ON THE RIGHT. TURN RIGHT AND GO EAST ON ROAD 19 FOR
MK2051'1.0 MILE TO COUNTY ROAD 80. TURN RIGHT AND GO SOUTH ON ROAD 80 FOR
MK2051'1.0 MILE TO COUNTY ROAD 23 ON THE RIGHT. TURN RIGHT AND GO WEST ON
MK2051'ROAD 23 FOR 0.9 MILE TO THE END OF THE ROAD AND A GATE. PASS THROUGH
MK2051'THE GATE, TURN LEFT FOR 50 FEET, PASS THROUGH ANOTHER GATE, THE TURN
MK2051'RIGHT AND GO SOUTHWEST ACROSS A PASTURE FOR 0.1 MILE TO THE WEST EDGE
MK2051'OF THE KNOLL AND THE STATION, SET INTO THE TOP OF A SQUARE CONCRETE
MK2051'MONUMENT THAT PROJECTS 0.2 FOOT. THERE WERE NO OBJECTS FOR REFERENCE
MK2051'TIES. THE UNDERGROUND MARK WAS NOT INSPECTED. A LENGTH OF REBAR WAS
MK2051'DRIVEN ALONGSIDE THE MARK.

MK2051

MK2051 STATION RECOVERY (1984)

MK2051

MK2051'RECOVERY NOTE BY LOCAL ENGINEER (INDIVIDUAL OR FIRM) 1984 (WW)

MK2051'JOURNEY 1959 RECOVERED GOOD.

MK2051'

MK2051'JOURNEY 1959 AZ MK RECOVERED GOOD.

MK2051

MK2051 STATION RECOVERY (2000)

MK2051

MK2051'RECOVERY NOTE BY NEBRASKA ROADS DEPARTMENT 2000 (JAO)

MK2051'RECOVERED AS DESCRIBED.

MK2051

MK2051 STATION RECOVERY (2011)

MK2051

MK2051'RECOVERY NOTE BY INDIVIDUAL CONTRIBUTORS 2011 (RRR)

MK2051'RECOVERED IN GOOD CONDITION.

1 National Geodetic Survey, Retrieval Date = DECEMBER 13, 2016

AB4095 *****

AB4095 CBN - This is a Cooperative Base Network Control Station.

AB4095 DESIGNATION - MILLER

AB4095 PID - AB4095

AB4095 STATE/COUNTY- NE/SARPY

AB4095 COUNTRY - US

AB4095 USGS QUAD - PLATTSMOUTH (1994)

AB4095

AB4095 *CURRENT SURVEY CONTROL

AB4095

AB4095* NAD 83(2011) POSITION- 41 07 16.34532(N) 095 58 51.92340(W) ADJUSTED

AB4095* NAD 83(2011) ELLIP HT- 327.387 (meters) (06/27/12) ADJUSTED
 AB4095* NAD 83(2011) EPOCH - 2010.00
 AB4095* [NAVD 88](#) ORTHO HEIGHT - 354.5 (meters) 1163. (feet) GPS OBS
 AB4095
 AB4095 NAVD 88 orthometric height was determined with geoid model GEOID93
 AB4095 GEOID HEIGHT - -27.025 (meters) GEOID93
 AB4095 GEOID HEIGHT - -27.060 (meters) GEOID12B
 AB4095 NAD 83(2011) X - -501,411.038 (meters) COMP
 AB4095 NAD 83(2011) Y - -4,785,801.050 (meters) COMP
 AB4095 NAD 83(2011) Z - 4,172,788.046 (meters) COMP
 AB4095 LAPLACE CORR - -4.65 (seconds) DEFLEC12B
 AB4095
 AB4095 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
 AB4095 Standards:
 AB4095 FGDC (95% conf, cm) Standard deviation (cm) CorrNE
 AB4095 Horiz Ellip SD_N SD_E SD_h (unitless)
 AB4095 -----
 AB4095 NETWORK 0.38 1.00 0.18 0.12 0.51 0.01103392
 AB4095 -----
 AB4095 Click [here](#) for local accuracies and other accuracy information.
 AB4095
 AB4095
 AB4095.The horizontal coordinates were established by GPS observations
 AB4095.and adjusted by the National Geodetic Survey in June 2012.
 AB4095
 AB4095.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
 AB4095.been affixed to the stable North American tectonic plate. See
 AB4095.[NA2011](#) for more information.
 AB4095
 AB4095.The horizontal coordinates are valid at the epoch date displayed above
 AB4095.which is a decimal equivalence of Year/Month/Day.
 AB4095
 AB4095.The orthometric height was determined by GPS observations and a
 AB4095.high-resolution geoid model.
 AB4095
 AB4095.Significant digits in the geoid height do not necessarily reflect accuracy.
 AB4095.GEOID12B height accuracy estimate available [here](#).
 AB4095
 AB4095.The X, Y, and Z were computed from the position and the ellipsoidal ht.
 AB4095
 AB4095.The Laplace correction was computed from DEFLEC12B derived deflections.
 AB4095
 AB4095.The ellipsoidal height was determined by GPS observations
 AB4095.and is referenced to NAD 83.
 AB4095
 AB4095. The following values were computed from the NAD 83(2011) position.
 AB4095
 AB4095;

	North	East	Units	Scale Factor	Converg.
AB4095;SPC NE	- 150,827.861	837,282.403	MT	0.99968100	+2 39 47.9
AB4095;SPC NE	- 494,841.07	2,746,984.02	sFT	0.99968100	+2 39 47.9
AB4095;UTM 15	- 4,556,496.233	249,730.185	MT	1.00037095	-1 57 41.6
AB4095;UTM 14	- 4,556,605.681	753,445.323	MT	1.00039064	+1 59 11.2

 AB4095
 AB4095! - Elev Factor x Scale Factor = Combined Factor

AB4095!SPC NE - 0.99994865 x 0.99968100 = 0.99962967
 AB4095!UTM 15 - 0.99994865 x 1.00037095 = 1.00031958
 AB4095!UTM 14 - 0.99994865 x 1.00039064 = 1.00033927

AB4095

AB4095_U.S. NATIONAL GRID SPATIAL ADDRESS: 15TTF4973056496(NAD 83)

AB4095

AB4095 SUPERSEDED SURVEY CONTROL

AB4095

AB4095 NAD 83(2007)- 41 07 16.34538(N) 095 58 51.92396(W) AD(2002.00) 0
 AB4095 ELLIP H (02/10/07) 327.408 (m) GP(2002.00)
 AB4095 ELLIP H (07/10/01) 327.402 (m) GP() 4 1
 AB4095 NAD 83(1995)- 41 07 16.34537(N) 095 58 51.92335(W) AD() B
 AB4095 ELLIP H (06/25/96) 327.460 (m) GP() 1 1

AB4095

AB4095.Superseded values are not recommended for survey control.

AB4095

AB4095.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

AB4095.[See file dsdata.txt](#) to determine how the superseded data were derived.

AB4095

AB4095_MARKER: DS = TRIANGULATION STATION DISK

AB4095_SETTING: 4 = OBJECT SURROUNDED BY MASS OF CONCRETE

AB4095_STAMPING: MILLER 1968

AB4095_MARK LOGO: NEDR

AB4095_MAGNETIC: N = NO MAGNETIC MATERIAL

AB4095_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO

AB4095+STABILITY: SURFACE MOTION

AB4095_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

AB4095+SATELLITE: SATELLITE OBSERVATIONS - December 03, 2013

AB4095

AB4095	HISTORY	- Date	Condition	Report By
AB4095	HISTORY	- 1968	MONUMENTED	NEDR
AB4095	HISTORY	- 19950725	GOOD	NGS
AB4095	HISTORY	- 19970115	GOOD	NGS
AB4095	HISTORY	- 20000612	GOOD	NEDR
AB4095	HISTORY	- 20031220	GOOD	ORBITE
AB4095	HISTORY	- 20050506	GOOD	SKW
AB4095	HISTORY	- 20100430	GOOD	INDIV
AB4095	HISTORY	- 20131203	GOOD	COMPDA

AB4095

AB4095 STATION DESCRIPTION

AB4095

AB4095'DESCRIBED BY NATIONAL GEODETIC SURVEY 1995 (JAO)

AB4095'THE MARK IS LOCATED ABOUT 4.5 MI (7.2 KM) NORTHWEST OF LA PLATTE, 3.25

AB4095'MI (5.23 KM) WEST-SOUTHWEST OF BELLEVUE, 2.75 MI (4.43 KM) WEST OF

AB4095'OFFUT AIR FORCE BASE, ON COUNTY ROAD RIGHT-OF-WAY AND NEAR THE CENTER

AB4095'OF THE SW1/4, SEC5, T13N, R13E. TO REACH THE MARK FROM THE

AB4095'INTERSECTION OF CAPEHART ROAD AND U.S. HIGHWAY 75, AND THE HIGHWAY 75

AB4095'EXIT FOR OFFUT AIR FORCE BASE, GO WEST ON CAPEHART ROAD FOR 1.70 MI

AB4095'(2.74 KM) TO THE END OF PAVEMENT AT 36TH STREET. CONTINUE WEST ON A

AB4095'GRAVELED SURFACE FOR 0.75 MI (1.21 KM) TO A CURVE LEFT AND SOUTH.

AB4095'CONTINUE SOUTH FOR 0.05 MI (0.08 KM) TO THE MARK ON THE RIGHT. THE

AB4095'DISK, A NEBRASKA DEPARTMENT OF ROADS TRIANGULATION STATION MARK, IS

AB4095'SET INTO THE TOP OF A SQUARE CONCRETE MONUMENT THAT IS RECESSED ABOUT

AB4095'0.2 FT (6.1 CM) BELOW THE GROUND SURFACE. IT IS 209.0 FT (63.7 M)

AB4095'SOUTH OF THE EXTENDED CENTERLINE OF THE ROAD LEADING EAST, 23.5 FT

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AB4095' (7.2 M) WEST OF THE EXTENDED CENTERLINE OF THE ROAD LEADING SOUTH,
 AB4095' 22.0 FT (6.7 M) SOUTH OF THE CENTERLINE OF A FIELD ENTRANCE, 19.2 FT
 AB4095' (5.9 M) SOUTHEAST OF THE SOUTH GATE POST OF A METAL GATE, 1.7 FT (0.5
 AB4095' M) NORTHEAST OF THE SOUTHEAST END OF A STUB CHAIN LINK FENCE, 1.6 FT
 AB4095' (0.5 M) NORTH OF A METAL WITNESS POST, 1.4 FT (0.4 M) EAST OF A
 AB4095' FIBERGLASS WITNESS POST AND ABOUT 2.5 FT (0.8 M) HIGHER THAN THE ROAD.
 AB4095' REBAR WAS DRIVEN ALONG THE EAST SIDE OF THE MARK.

AB4095

AB4095 STATION RECOVERY (1997)

AB4095

AB4095' RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1997 (JDS)

AB4095' RECOVERED AS DESCRIBED.

AB4095

AB4095 STATION RECOVERY (2000)

AB4095

AB4095' RECOVERY NOTE BY NEBRASKA ROADS DEPARTMENT 2000 (JAO)

AB4095' RECOVERED AS DESCRIBED.

AB4095

AB4095 STATION RECOVERY (2003)

AB4095

AB4095' RECOVERY NOTE BY ORBITECH INC 2003 (SHG)

AB4095' RECOVERED IN GOOD CONDITION.

AB4095

AB4095 STATION RECOVERY (2005)

AB4095

AB4095' RECOVERY NOTE BY SHAFER, KLINE AND WARREN INC 2005 (CMC)

AB4095' RECOVERED IN GOOD CONDITION.

AB4095

AB4095 STATION RECOVERY (2010)

AB4095

AB4095' RECOVERY NOTE BY INDIVIDUAL CONTRIBUTORS 2010 (CAP)

AB4095' RECOVERED IN GOOD CONDITION.

AB4095

AB4095 STATION RECOVERY (2013)

AB4095

AB4095' RECOVERY NOTE BY COMPASSDATA INC 2013 (NK)

AB4095' RECOVERED IN GOOD CONDITION.

1 National Geodetic Survey, Retrieval Date = DECEMBER 13, 2016

LG1129 *****

LG1129 DESIGNATION - OAK 2

LG1129 PID - LG1129

LG1129 STATE/COUNTY- NE/LANCASTER

LG1129 COUNTRY - US

LG1129 USGS QUAD - LINCOLN (1980)

LG1129

LG1129 *CURRENT SURVEY CONTROL

LG1129

LG1129* NAD 83(2011) POSITION- 40 52 14.13401(N) 096 43 09.52649(W) ADJUSTED

LG1129* NAD 83(2011) ELLIP HT- 362.008 (meters) (06/27/12) ADJUSTED

LG1129* NAD 83(2011) EPOCH - 2010.00

LG1129* [NAVD 88](#) ORTHO HEIGHT - 388.191 (meters) 1273.59 (feet) ADJUSTED

LG1129

LG1129 GEOID HEIGHT - -26.178 (meters)

GEOID12B

LG1129 NAD 83(2011) X - -565,169.425 (meters)

COMP

LG1129 NAD 83(2011) Y - -4,797,102.829 (meters)

COMP

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LG1129 NAD 83(2011) Z - 4,151,803.500 (meters) COMP
 LG1129 LAPLACE CORR - 4.85 (seconds) DEFLEC12B
 LG1129 DYNAMIC HEIGHT - 388.016 (meters) 1273.02 (feet) COMP
 LG1129 MODELED GRAVITY - 980,161.6 (mgal) NAVD 88
 LG1129
 LG1129 VERT ORDER - FIRST CLASS II
 LG1129
 LG1129 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
 LG1129 Standards:
 LG1129 FGDC (95% conf, cm) Standard deviation (cm) CorrNE
 LG1129 Horiz Ellip SD_N SD_E SD_h (unitless)
 LG1129 -----
 LG1129 NETWORK 0.63 0.69 0.28 0.23 0.35 0.04014829
 LG1129 -----
 LG1129 Click [here](#) for local accuracies and other accuracy information.
 LG1129
 LG1129
 LG1129.The horizontal coordinates were established by GPS observations
 LG1129.and adjusted by the National Geodetic Survey in June 2012.
 LG1129
 LG1129.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
 LG1129.been affixed to the stable North American tectonic plate. See
 LG1129.[NA2011](#) for more information.
 LG1129
 LG1129.The horizontal coordinates are valid at the epoch date displayed above
 LG1129.which is a decimal equivalence of Year/Month/Day.
 LG1129
 LG1129.The orthometric height was determined by differential leveling and
 LG1129.adjusted by the NATIONAL GEODETIC SURVEY
 LG1129.in May 1993.
 LG1129
 LG1129.Significant digits in the geoid height do not necessarily reflect accuracy.
 LG1129.GEOID12B height accuracy estimate available [here](#).
 LG1129
 LG1129.The X, Y, and Z were computed from the position and the ellipsoidal ht.
 LG1129
 LG1129.The Laplace correction was computed from DEFLEC12B derived deflections.
 LG1129
 LG1129.The ellipsoidal height was determined by GPS observations
 LG1129.and is referenced to NAD 83.
 LG1129
 LG1129.The dynamic height is computed by dividing the NAVD 88
 LG1129.geopotential number by the normal gravity value computed on the
 LG1129.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
 LG1129.degrees latitude (g = 980.6199 gals.).
 LG1129
 LG1129.The modeled gravity was interpolated from observed gravity values.
 LG1129
 LG1129. The following values were computed from the NAD 83(2011) position.
 LG1129
 LG1129;
 LG1129; SPC NE - North East Units Scale Factor Converg.
 LG1129; SPC NE - 120,409.068 776,416.476 MT 0.99971961 +2 10 26.8
 LG1129; SPC NE - 395,042.08 2,547,293.06 sFT 0.99971961 +2 10 26.8
 LG1129; UTM 14 - 4,526,895.497 692,191.325 MT 1.00005465 +1 29 34.2

LG1129
 LG1129! - Elev Factor x Scale Factor = Combined Factor
 LG1129!SPC NE - 0.99994322 x 0.99971961 = 0.99966284
 LG1129!UTM 14 - 0.99994322 x 1.00005465 = 0.99999786
 LG1129
 LG1129: Primary Azimuth Mark Grid Az
 LG1129:SPC NE - OAK 2 AZ MK 293 50 07.4
 LG1129:UTM 14 - OAK 2 AZ MK 294 31 00.0
 LG1129
 LG1129_U.S. NATIONAL GRID SPATIAL ADDRESS: 14TPL9219126895(NAD 83)
 LG1129

PID	Reference Object	Distance	Geod. Az ddmmss.s
CL8003	OAK 2 RM 4	11.297 METERS	10730
LG1120	LINCOLN ST CAPITOL BLDG DOME	APPROX. 7.1 KM	1663608.8
LG1133	OAK 2 AZ MK	APPROX. 1.7 KM	2960034.2
LG1130	OAK 2 RM 3	12.532 METERS	35924

 LG1129
 LG1129
 LG1129 SUPERSEDED SURVEY CONTROL
 LG1129

NAD 83(2007)-	40 52 14.13402(N)	096 43 09.52699(W)	AD(2002.00)	0
ELLIP H (02/10/07)	362.027 (m)		GP(2002.00)	
NAD 83(1995)-	40 52 14.13388(N)	096 43 09.52638(W)	AD()	B
ELLIP H (03/30/05)	361.995 (m)		GP()	3 1
NAD 83(1995)-	40 52 14.13409(N)	096 43 09.52615(W)	AD()	3
NAD 83(1986)-	40 52 14.14376(N)	096 43 09.52730(W)	AD()	3
NAD 27	- 40 52 14.12943(N)	096 43 08.46623(W)	AD()	3
NAVD 88	388.19 (m)	1273.6 (f)	LEVELING	3
NGVD 29 (07/19/86)	388.1 (m)	1273. (f)	VERT ANG	

 LG1129
 LG1129.Superseded values are not recommended for survey control.
 LG1129
 LG1129.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
 LG1129.[See file dsdata.txt](#) to determine how the superseded data were derived.
 LG1129
 LG1129_MARKER: DH = HORIZONTAL CONTROL DISK
 LG1129_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
 LG1129_STAMPING: OAK 2 1976
 LG1129_MARK LOGO: NGS
 LG1129_MAGNETIC: N = NO MAGNETIC MATERIAL
 LG1129_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
 LG1129+STABILITY: SURFACE MOTION
 LG1129_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
 LG1129+SATELLITE: SATELLITE OBSERVATIONS - October 15, 2005
 LG1129

HISTORY	- Date	Condition	Report By
HISTORY	- 1976	MONUMENTED	NGS
HISTORY	- 1976	GOOD	NGS
HISTORY	- 19920520	GOOD	NGS
HISTORY	- 2002	GOOD	NEDR
HISTORY	- 20051015	GOOD	GEOCAC

 LG1129
 LG1129 STATION DESCRIPTION

LG1129

LG1129'DESCRIBED BY NATIONAL GEODETIC SURVEY 1976 (CLN)

LG1129'THE STATION IS LOCATED ABOUT 4.5 MILES NORTH-NORTHWEST OF THE
LG1129'NEBRASKA STATE CAPITAL BUILDING IN LINCOLN, IN THE NW 1/4 OF SEC. 2,
LG1129'R 6 E, T 10 N AND ON THE EAST RIGHT-OF-WAY OF US HIGHWAY 34.

LG1129'

LG1129'TO REACH THE STATION FROM THE TOP OF THE OVERPASS AT THE INTERCHANGE
LG1129'OF I 180, I 80 AND US HIGHWAY 34, AT THE NORTH SIDE OF LINCOLN,
LG1129'GO NORTHWESTERLY ON HIGHWAY 34 FOR 0.6 MILE TO THE STATION ON
LG1129'THE RIGHT.

LG1129'

LG1129'THE STATION MARKS ARE STANDARD DISKS STAMPED, OAK 2 1976.

LG1129'THE SURFACE DISK IS SET IN THE TOP OF A ROUND CONCRETE POST THAT
LG1129'IS FLUSH WITH THE GROUND SURFACE. IT IS 38 FEET WEST OF A
LG1129'METAL WITNESS POST AT REFERENCE MARK 4, 42 FEET SOUTH OF A
LG1129'METAL WITNESS POST AT REFERENCE MARK 3 AND 24.5 FEET SOUTHWEST OF
LG1129'THE BOUNDARY FENCE. THE UNDERGROUND DISK IS SET IN AN IRREGULAR
LG1129'MASS OF CONCRETE ABOUT 40 INCHES BELOW THE GROUND.

LG1129'

LG1129'REFERENCE MARK 3 IS A 4-INCH CAST ALUMINUM REFERENCE MARK, STAMPED
LG1129'OAK 2 NO 3 1976 AND SET FLUSH WITH THE GROUND SURFACE. IT IS 1.8
LG1129'FEET SOUTH OF A NORTH BRACE POST IN BOUNDARY FENCE, 1.5 FEET
LG1129'WEST-NORTHWEST OF THE BOUNDARY FENCE AND 1.2 FEET SOUTHEAST OF A
LG1129'METAL WITNESS POST.

LG1129'

LG1129'REFERENCE MARK 4 IS A 4-INCH CAST ALUMINUM REFERENCE MARK,
LG1129'STAMPED OAK 2 NO 4 1976 AND SET FLUSH WITH THE GROUND SURFACE. IT
LG1129'IS 1.2 FEET WEST OF THE BOUNDARY FENCE AND 1 FOOT NORTH-NORTHWEST OF
LG1129'A WITNESS POST.

LG1129'

LG1129'THE AZIMUTH MARK IS A STANDARD DISK STAMPED OAK 2 AZ 2 1976, SET
LG1129'IN THE TOP OF A ROUND CONCRETE POST THAT IS FLUSH WITH THE GROUND
LG1129'SURFACE. IT IS 3 FEET SOUTH-SOUTHEAST OF A METAL WITNESS
LG1129'POST, 2.3 FEET SOUTH OF A BOUNDARY FENCELINE AND ON TOP OF A
LG1129'HIGH ROAD CUTBANK.

LG1129'

LG1129'TO REACH THE AZIMUTH MARK FROM THE STATION, GO WESTERLY ON HIGHWAY
LG1129'34 FOR 1.05 MILES TO THE AZIMUTH MARK 2 ON THE RIGHT.

LG1129'

LG1129'NOTE--A 5/8 INCH IRON ROD, ABOUT 2-1/2 FEET IN LENGTH WAS
LG1129'PLACED IN THE STATION MARK AND AZIMUTH MARK CONCRETE MONUMENTS.

LG1129'

LG1129'NEAREST TOWN--LINCOLN.

LG1129

LG1129 STATION RECOVERY (1976)

LG1129

LG1129'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1976

LG1129'RECOVERED IN GOOD CONDITION.

LG1129

LG1129 STATION RECOVERY (1992)

LG1129

LG1129'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1992

LG1129'1.0 KM (0.60 MI) NORTHWESTERLY ALONG U.S. HIGHWAY 34 FROM THE JUNCTION
LG1129'OF INTERSTATE HIGHWAY 80 IN NORTHWEST LINCOLN, 0.1 KM (0.05 MI)
LG1129'SOUTHEAST OF THE INTERSECTION OF A PAVED ROAD AND TRAFFIC LIGHT, 39.3

LG1129'M (128.9 FT) NORTHEAST OF THE CENTERLINE OF THE WESTBOUND LANES OF
 LG1129'THE HIGHWAY, 12.5 M (41.0 FT) SOUTH OF REFERENCE MARK 3 AND A WITNESS
 LG1129'POST, 7.6 M (24.9 FT) SOUTHWEST OF A FENCE, 3.0 M (9.8 FT) ABOVE THE
 LG1129'LEVEL OF THE HIGHWAY, AND THE MONUMENT IS FLUSH WITH THE GROUND
 LG1129'SURFACE.

LG1129

LG1129 STATION RECOVERY (2002)

LG1129

LG1129'RECOVERY NOTE BY NEBRASKA ROADS DEPARTMENT 2002

LG1129'RECOVERED AS DESCRIBED.

LG1129

LG1129 STATION RECOVERY (2005)

LG1129

LG1129'RECOVERY NOTE BY GEOCACHING 2005 (MDF)

LG1129'FOUND STATION OAK 2 IN GOOD CONDITION. FOUND REFERENCE MARK 3 AS

LG1129'DESCRIBED, BUT ALUMINUM CAP AND TOP OF CROSS-SHAPED ALUMINUM POST HAVE

LG1129'BEEN BROKEN OFF ABOUT 0.1 M BELOW GROUND LEVEL. RM 3 CAP CAN BE LIFTED

LG1129'OUT OF THE GROUND. THE WITNESS POST AND SIGN ARE LEANING AGAINST THE

LG1129'BOUNDARY FENCE AT THE RM.

LG1129'AN ADDITIONAL WITNESS POST AND SIGN WERE FOUND ABOUT 11 M E OF STATION

LG1129'OAK 2 IN THE FENCE LINE. EXAMINATION OF THIS LOCATION REVEALED A

LG1129'CROSS-SHAPED ALUMINUM POST BROKEN OFF ABOUT 0.1 M BELOW GROUND LEVEL.

LG1129'THIS BROKEN POST IS CONSISTENT WITH THE LOCATION OF REFERENCE MARK 4,

LG1129'BUT NO CAP WAS FOUND. THE AZIMUTH MARK WAS FOUND IN GOOD CONDITION AT

LG1129'HANDHELD GPS NAD83 COORDS N 40D 52M 38.3S W 096D 44M 14.9S

1 National Geodetic Survey, Retrieval Date = DECEMBER 13, 2016

CL8033 *****

CL8033 HT_MOD - This is a Height Modernization Survey Station.

CL8033 DESIGNATION - OLIVER RM 2

CL8033 PID - CL8033

CL8033 STATE/COUNTY- NE/LANCASTER

CL8033 COUNTRY - US

CL8033 USGS QUAD - VALPARAISO (1969)

CL8033

CL8033 *CURRENT SURVEY CONTROL

CL8033

CL8033* NAD 83(2011) POSITION- 41 01 01.01225(N) 096 45 31.32136(W) ADJUSTED

CL8033* NAD 83(2011) ELLIP HT- 407.690 (meters) (06/27/12) ADJUSTED

CL8033* NAD 83(2011) EPOCH - 2010.00

CL8033* [NAVD 88](#) ORTHO HEIGHT - 434.31 (meters) 1424.9 (feet) GPS OBS

CL8033

CL8033 NAVD 88 orthometric height was determined with geoid model GEOID99

CL8033 GEOID HEIGHT - -26.610 (meters) GEOID99

CL8033 GEOID HEIGHT - -26.669 (meters) GEOID12B

CL8033 NAD 83(2011) X - -567,217.507 (meters) COMP

CL8033 NAD 83(2011) Y - -4,786,169.844 (meters) COMP

CL8033 NAD 83(2011) Z - 4,164,111.037 (meters) COMP

CL8033 LAPLACE CORR - 4.24 (seconds) DEFLEC12B

CL8033

CL8033 Network accuracy estimates per FGDC Geospatial Positioning Accuracy

CL8033 Standards:

CL8033 FGDC (95% conf, cm) Standard deviation (cm) CorrNE

CL8033 Horiz Ellip SD_N SD_E SD_h (unitless)

CL8033 -----

CL8033 NETWORK 0.98 0.98 0.43 0.36 0.50 0.13682518

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NE Eastern Nebraska UA LiDAR 2016 B16

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CL8033 -----

CL8033 Click [here](#) for local accuracies and other accuracy information.

CL8033

CL8033

CL8033.The horizontal coordinates were established by GPS observations

CL8033.and adjusted by the National Geodetic Survey in June 2012.

CL8033

CL8033.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has

CL8033.been affixed to the stable North American tectonic plate. See

CL8033.[NA2011](#) for more information.

CL8033

CL8033.The horizontal coordinates are valid at the epoch date displayed above

CL8033.which is a decimal equivalence of Year/Month/Day.

CL8033

CL8033.The orthometric height was determined by GPS observations and a

CL8033.high-resolution geoid model using precise GPS observation and

CL8033.processing techniques.

CL8033

CL8033.Significant digits in the geoid height do not necessarily reflect accuracy.

CL8033.GEOID12B height accuracy estimate available [here](#).

CL8033

CL8033.The X, Y, and Z were computed from the position and the ellipsoidal ht.

CL8033

CL8033.The Laplace correction was computed from DEFLEC12B derived deflections.

CL8033

CL8033.The ellipsoidal height was determined by GPS observations

CL8033.and is referenced to NAD 83.

CL8033

CL8033. The following values were computed from the NAD 83(2011) position.

CL8033

CL8033;		North	East	Units	Scale Factor	Converg.
CL8033;SPC NE	-	136,520.856	772,490.420	MT	0.99969476	+2 08 52.8
CL8033;SPC NE	-	447,902.18	2,534,412.32	sFT	0.99969476	+2 08 52.8
CL8033;UTM 14	-	4,543,058.158	688,455.194	MT	1.00003713	+1 28 16.9
CL8033!	-	Elev Factor	x	Scale Factor	=	Combined Factor
CL8033!SPC NE	-	0.99993605	x	0.99969476	=	0.99963083
CL8033!UTM 14	-	0.99993605	x	1.00003713	=	0.99997318

CL8033

CL8033_U.S. NATIONAL GRID SPATIAL ADDRESS: 14TPL8845543058(NAD 83)

CL8033

CL8033

CL8033

CL8033

CL8033 NAD 83(2007)- 41 01 01.01225(N) 096 45 31.32188(W) AD(2002.00) 0

CL8033 ELLIP H (02/10/07) 407.710 (m) GP(2002.00)

CL8033 NAD 83(1995)- 41 01 01.01213(N) 096 45 31.32127(W) AD() 1

CL8033 ELLIP H (03/30/05) 407.678 (m) GP() 3 1

CL8033

CL8033.Superseded values are not recommended for survey control.

CL8033

CL8033.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

CL8033.[See file dsdata.txt](#) to determine how the superseded data were derived.

CL8033

CL8033_MARKER: DS = TRIANGULATION STATION DISK

CL8033_SETTING: 0 = UNSPECIFIED SETTING
 CL8033_MAGNETIC: 0 = OTHER; SEE DESCRIPTION
 CL8033_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL
 CL8033_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
 CL8033+SATELLITE: SATELLITE OBSERVATIONS - 2002

CL8033

CL8033	HISTORY	- Date	Condition	Report By
CL8033	HISTORY	- 1967	MONUMENTED	USGS
CL8033	HISTORY	- 2002	GOOD	NEDR
CL8033	HISTORY	- 20100504	GOOD	INDIV

CL8033

CL8033 STATION DESCRIPTION

CL8033

CL8033'DESCRIBED BY NEBRASKA ROADS DEPARTMENT 2002 (DM)
 CL8033'THE STATION IS LOCATED 3 MILES EAST OF AGNEW, NE.

CL8033'

CL8033'TO REACH THE STATION FROM THE INTERSECTION OF HWY.79 AND AGNEW ROAD GO
 CL8033'EAST ON AGNEW ROAD APPROX. 2.85 MILES TO THE POINT. TO REACH THE
 CL8033'STATION FROM THE JCT OF U.S.HWY 34 AND STATE HWY.79 NW. OF LINCOLN,
 CL8033'NE. GO NORTH ON HWY. 79 FOR APPROX. 7.0 MILES, TURN RIGHT (EAST) GO
 CL8033'ACROSS R.R. TRACKS THEN IMMEDIATELY TURN LEFT AND GO NORTH ON NW.
 CL8033'56TH FOR APPROX. 2.0 MILES TO WEST AGNEW ROAD. TURN RIGHT AND GO
 CL8033'EAST ON WEST AGNEW ROAD FOR APPROX. 1.99 MILES TO THE POINT.

CL8033'

CL8033'THE MARK IS IN SECTION 8, T-12-N, R-6-E.

CL8033'

CL8033'THE STATION IS 173 FEET WEST OF THE CENTERLINE OF NW 27TH STREET,
 CL8033'83.40 FEET EAST OF TOP SE CORNER OF TELEPHONE RISER BOX, 1.7 FEET
 CL8033'SOUTH OF BOTTOM ORANGE FIBERGLASS WITNESS POST, 42 FEET EAST OF IN
 CL8033'LINE WITH CENTERLINE FARM DRIVE 2801.

CL8033

CL8033 STATION RECOVERY (2010)

CL8033

CL8033'RECOVERY NOTE BY INDIVIDUAL CONTRIBUTORS 2010 (JDB)

CL8033'RECOVERED IN GOOD CONDITION.

1 National Geodetic Survey, Retrieval Date = DECEMBER 13, 2016

LG0989 *****

LG0989	HT_MOD	-	This is a Height Modernization Survey Station.
LG0989	CBN	-	This is a Cooperative Base Network Control Station.
LG0989	DESIGNATION	-	TRINITY
LG0989	PID	-	LG0989
LG0989	STATE/COUNTY-		NE/LANCASTER
LG0989	COUNTRY	-	US
LG0989	USGS QUAD	-	EAGLE (1966)

LG0989

LG0989 *CURRENT SURVEY CONTROL

LG0989

LG0989*	NAD 83(2011) POSITION-	40 46 10.69540(N) 096 29 32.41230(W)	ADJUSTED
LG0989*	NAD 83(2011) ELLIP HT-	392.350 (meters)	(06/27/12) ADJUSTED
LG0989*	NAD 83(2011) EPOCH	- 2010.00	
LG0989*	NAVD 88 ORTHO HEIGHT	- 418.29 (meters)	1372.3 (feet) GPS OBS

LG0989

LG0989	NAVD 88 orthometric height was determined with an earlier geoid model		
LG0989	GEOID HEIGHT	- -25.930 (meters)	GEOID12B
LG0989	NAD 83(2011) X	- -546,992.693 (meters)	COMP

UNITED STATES GEOLOGICAL SURVEY (USGS)

NE Eastern Nebraska UA LiDAR 2016 B16

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LG0989 NAD 83(2011) Y - -4,806,608.890 (meters) COMP
 LG0989 NAD 83(2011) Z - 4,143,338.646 (meters) COMP
 LG0989 LAPLACE CORR - -3.49 (seconds) DEFLEC12B

LG0989

LG0989 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
 LG0989 Standards:

	FGDC (95% conf, cm)		Standard deviation (cm)			CorrNE
	Horiz	Ellip	SD_N	SD_E	SD_h	(unitless)
LG0989	-----					
LG0989	NETWORK	0.44	0.69	0.20	0.15	0.35 -0.00159636
LG0989	-----					

LG0989 Click [here](#) for local accuracies and other accuracy information.

LG0989

LG0989

LG0989.The horizontal coordinates were established by GPS observations
 LG0989.and adjusted by the National Geodetic Survey in June 2012.

LG0989

LG0989.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
 LG0989.been affixed to the stable North American tectonic plate. See
 LG0989.[NA2011](#) for more information.

LG0989

LG0989.The horizontal coordinates are valid at the epoch date displayed above
 LG0989.which is a decimal equivalence of Year/Month/Day.

LG0989

LG0989.The orthometric height was determined by GPS observations and a
 LG0989.high-resolution geoid model using precise GPS observation and
 LG0989.processing techniques.

LG0989

LG0989.Significant digits in the geoid height do not necessarily reflect accuracy.
 LG0989.GEOID12B height accuracy estimate available [here](#).

LG0989

LG0989.The X, Y, and Z were computed from the position and the ellipsoidal ht.

LG0989

LG0989.The Laplace correction was computed from DEFLEC12B derived deflections.

LG0989

LG0989.The ellipsoidal height was determined by GPS observations

LG0989.and is referenced to NAD 83.

LG0989

LG0989. The following values were computed from the NAD 83(2011) position.

LG0989

	North	East	Units	Scale Factor	Converg.
LG0989; SPC NE	- 109,960.960	795,984.942	MT	0.99974051	+2 19 28.3
LG0989; SPC NE	- 360,763.58	2,611,493.93	sFT	0.99974051	+2 19 28.3
LG0989; UTM 14	- 4,516,210.630	711,640.957	MT	1.00015135	+1 38 17.4

LG0989

LG0989! Elev Factor x Scale Factor = Combined Factor

LG0989! SPC NE - 0.99993846 x 0.99974051 = 0.99967898

LG0989! UTM 14 - 0.99993846 x 1.00015135 = 1.00008980

LG0989

LG0989: Primary Azimuth Mark

LG0989: SPC NE - BENNET RESET 188 15 41.2

LG0989: UTM 14 - BENNET RESET 188 56 52.1

LG0989

LG0989_U.S. NATIONAL GRID SPATIAL ADDRESS: 14TQL1164016210(NAD 83)

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LG0989
LG0989 |-----|
LG0989 | PID      Reference Object          Distance      Geod. Az      |
LG0989 |          |                               dddmmss.s      |
LG0989 | LG0991 EAGLE MUNICIPAL TANK        APPROX. 7.4 KM 0441853.7 |
LG0989 | CL7752 TRINITY RM 1                22.464 METERS 19029      |
LG0989 | LG1141 BENNET RESET                APPROX. 6.7 KM 1903509.5 |
LG0989 | CL7750 TRINITY AZ MK                2442445.1      |
LG0989 | CL7753 TRINITY RM 2                23.040 METERS 35250      |
LG0989 |-----|

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LG0989
LG0989                                SUPERSEDED SURVEY CONTROL
LG0989
LG0989 NAD 83(2007)- 40 46 10.69539(N) 096 29 32.41285(W) AD(2002.00) 0
LG0989 ELLIP H (02/10/07) 392.370 (m) GP(2002.00)
LG0989 ELLIP H (03/30/05) 392.333 (m) GP( ) 3 1
LG0989 ELLIP H (07/10/01) 392.380 (m) GP( ) 4 1
LG0989 NAD 83(1995)- 40 46 10.69543(N) 096 29 32.41217(W) AD( ) B
LG0989 ELLIP H (06/25/96) 392.428 (m) GP( ) 1 1
LG0989 NAD 83(1986)- 40 46 10.70626(N) 096 29 32.40968(W) AD( ) 2
LG0989 NAD 27 - 40 46 10.70673(N) 096 29 31.36921(W) AD( ) 2
LG0989 NAVD 88 (06/25/96) 418.4 (m) GEOID93 model used GPS OBS

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LG0989
LG0989.Superseded values are not recommended for survey control.
LG0989
LG0989.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
LG0989.See file dsdata.txt to determine how the superseded data were derived.

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LG0989
LG0989_MARKER: DS = TRIANGULATION STATION DISK
LG0989_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
LG0989_STAMPING: TRINITY 1961
LG0989_MARK LOGO: CGS
LG0989_MAGNETIC: N = NO MAGNETIC MATERIAL
LG0989_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
LG0989+STABILITY: SURFACE MOTION
LG0989_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
LG0989+SATELLITE: SATELLITE OBSERVATIONS - 2002

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LG0989
LG0989 HISTORY - Date      Condition      Report By
LG0989 HISTORY - 1961      MONUMENTED    CGS
LG0989 HISTORY - 1962      GOOD          CGS
LG0989 HISTORY - 19950818 GOOD          NE-109
LG0989 HISTORY - 20000605 GOOD          NEDR
LG0989 HISTORY - 2002      GOOD          NEDR

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LG0989
LG0989                                STATION DESCRIPTION
LG0989
LG0989'DESCRIBED BY COAST AND GEODETIC SURVEY 1961 (GWM)
LG0989'THE STATION IS 6 MILES NORTH OF BENNET AND 5 MILES SOUTHWEST OF
LG0989'EAGLE, ON THE NORTH RIGHT-OF-WAY OF AN EAST-WEST ROAD.
LG0989'
LG0989'TO REACH THE STATION FROM THE JUNCTIONS OF U.S. HIGHWAY 34 AND
LG0989'HIGHWAY 43, AT THE EAST EDGE OF EAGLE, DRIVE WEST ON U.S.
LG0989'HIGHWAY 34 FOR 4.0 MILES TO A CROSS ROAD. TURN LEFT AND GO SOUTH
LG0989'FOR 3.0 MILES TO A CROSS ROAD. TURN LEFT AND GO EAST FOR 0.5

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LG0989'MILE TO THE TOP OF A RISE AND THE STATION ON THE LEFT.

LG0989'

LG0989'SURFACE-STATION MARK, A STANDARD DISK STAMPED TRINITY 1961, IS SET
LG0989'IN THE TOP OF A 12 INCHES SQUARE CONCRETE MONUMENT FLUSH WITH
LG0989'THE SURFACE OF THE GROUND. IT IS 37.0 FEET NORTH OF THE CENTER OF
LG0989'THE ROAD, 11.0 FEET EAST OF A NORTH-SOUTH FENCE AND 10.0 FEET
LG0989'EAST OF A METAL WITNESS POST WITH SIGN.

LG0989'

LG0989'UNDERGROUND-STATION MARK, A STANDARD DISK STAMPED TRINITY 1961,
LG0989'IS SET IN THE TOP OF A MASS OF CONCRETE 41 INCHES BELOW THE
LG0989'SURFACE OF THE GROUND.

LG0989'

LG0989'REFERENCE MARK 1, A STANDARD DISK STAMPED TRINITY NO 1 1961,
LG0989'IS SET IN THE TOP OF A 10 INCHES SQUARE CONCRETE MONUMENT WHICH IS
LG0989'2 INCHES BELOW THE SURFACE OF THE GROUND. IT IS 32.0 FEET SOUTH
LG0989'OF THE CENTER OF THE ROAD, 9.0 FEET EAST OF THE CENTER OF AN
LG0989'ENTRANCE DRIVE LEADING INTO A FIELD AND 1.5 FEET WEST OF A
LG0989'POWERLINE POLE.

LG0989'

LG0989'REFERENCE MARK 2, A STANDARD DISK STAMPED TRINITY NO 2 1961, IS SET
LG0989'IN THE TOP OF A 10 INCHES SQUARE CONCRETE MONUMENT PROJECTING
LG0989'2 INCHES ABOVE THE GROUND SURFACE. IT IS 8.0 FEET EAST OF A DIM
LG0989'NORTH-SOUTH FARM ROAD AND 1.0 FOOT EAST OF A NORTH-SOUTH FENCE.

LG0989'

LG0989'THE AZIMUTH MARK, A STANDARD DISK STAMPED TRINITY 1961, IS SET
LG0989'IN THE TOP OF A 10 INCHES SQUARE CONCRETE MONUMENT PROJECTING 2
LG0989'INCHES ABOVE THE GROUND SURFACE. IT IS 25.0 FEET WEST OF THE
LG0989'CENTER OF A NORTH-SOUTH GRAVELED ROAD AND 2.0 FEET SOUTH OF A
LG0989'METAL WITNESS POST WITH SIGN.

LG0989'

LG0989'TO REACH THE AZIMUTH MARK FROM THE STATION, DRIVE WEST ON THE
LG0989'GRAVELED ROAD FOR 0.5 MILE TO A CROSS ROAD. TURN LEFT AND CONTINUE
LG0989'SOUTH FOR 0.2 MILE TO THE MARK ON THE RIGHT.

LG0989

LG0989

STATION RECOVERY (1962)

LG0989

LG0989'RECOVERY NOTE BY COAST AND GEODETIC SURVEY 1962 (CJB)

LG0989'THIS STATION WAS RECOVERED AS DESCRIBED AND ALL MARKS WERE FOUND IN
LG0989'GOOD CONDITION. ROAD CONSTRUCTION ALONG THE RIGHT-OF-WAY WHERE
LG0989'THE AZIMUTH MARK WAS PLACED WILL DESTROY IT, SO IT WAS MOVED
LG0989'ON LINE AWAY FROM THE STATION, A DISTANCE OF 16 FEET. THE
LG0989'ORIGINAL DESCRIPTION IS ADEQUATE, SO A SHORT DESCRIPTION OF THE
LG0989'AZIMUTH MARK FOLLOWS.

LG0989'

LG0989'AZIMUTH MARK (RESET) IS 0.6 MILE WEST-SOUTHWEST OF THE STATION,
LG0989'75 FEET SOUTH OF THE CENTER OF FARM DRIVEWAY, 60 FEET SOUTH OF REA
LG0989'POWER POLE, 33 FEET WEST OF THE CENTER OF GRADED ROAD, AND 1 FOOT
LG0989'WEST OF A STEEL WITNESS POST. THE MARK PROJECTS 10 INCHES AND
LG0989'THE DISK IS STAMPED TRINITY 1961 RESET 1962.

LG0989'

LG0989'NOTE- THIS AZIMUTH MARK SHOULD HAVE BEEN SET BACK ON LINE WITH THE
LG0989'RED POWER POLES ORIGINALLY.

LG0989

LG0989

STATION RECOVERY (1995)

LG0989

LG0989'RECOVERY NOTE BY LANCASTER COUNTY NEBRASKA 1995 (LW)
 LG0989'RECOVERED IN GOOD CONDITION. THE MARK IS LOCATED ABOUT 6 MI (9.7 KM)
 LG0989'NORTH OF BENNET, 5 MI (8.0 KM) SOUTHWEST OF EAGLE, 4 MI (6.4 KM)
 LG0989'SOUTHEAST OF WALTON, NEAR THE SOUTH 1/4 CORNER, SEC2, T9N, R8E AND ON
 LG0989'THE NORTH RIGHT-OF-WAY OF PIONEERS BOULEVARD. TO REACH THE MARK FROM
 LG0989'THE JUNCTION OF STATE HIGHWAY 43 AND U.S. HIGHWAY 34 AT THE EAST EDGE
 LG0989'OF EAGLE, GO WEST ON HIGHWAY 34 FOR 4.0 MI (6.4 KM) TO A GRAVELED
 LG0989'CROSSROAD. TURN LEFT AND GO SOUTH ON SOUTH 162ND STREET FOR 3.0 MI
 LG0989'(4.8 KM) TO A CROSSROAD. TURN LEFT AND GO ON PIONEERS BOULEVARD FOR
 LG0989'0.5 MI (0.8 KM) TO THE MARK ON THE LEFT, ATOP A LOW RISE, AT A FIELD
 LG0989'ENTRANCE. THE DISK IS SET INTO THE TOP OF A SQUARE CONCRETE MONUMENT
 LG0989'THAT IS FLUSH WITH THE GROUND SURFACE. IT IS 73.5 FT (22.4 M)
 LG0989'NORTH-NORTHWEST OF A UTILITY POLE, 38.0 FT (11.6 M) NORTH OF THE
 LG0989'CENTERLINE OF PIONEERS BOULEVARD, 39.29 FT (11.98 M) NORTH-NORTHEAST
 LG0989'OF THE SOUTH 1/4 CORNER, SEC2, T9N, R8E, 14 FT (4.3 M) EAST OF THE
 LG0989'CENTERLINE OF THE FIELD DRIVE, 10 FT (3.0 M) EAST OF A NORTH-SOUTH
 LG0989'FENCE, 10.5 FT (3.2 M) EAST OF A WITNESS POST, 73.53 FT (22.41 M)
 LG0989'NORTH-NORTHEAST OF REFERENCE MARK 1 AND 75.66 FT (23.06 M)
 LG0989'SOUTH-SOUTHEAST OF REFERENCE MARK 2.

LG0989

STATION RECOVERY (2000)

LG0989

LG0989'RECOVERY NOTE BY NEBRASKA ROADS DEPARTMENT 2000 (JAO)

LG0989'RECOVERED AS DESCRIBED.

LG0989

LG0989

STATION RECOVERY (2002)

LG0989

LG0989'RECOVERY NOTE BY NEBRASKA ROADS DEPARTMENT 2002

LG0989'RECOVERED AS DESCRIBED.

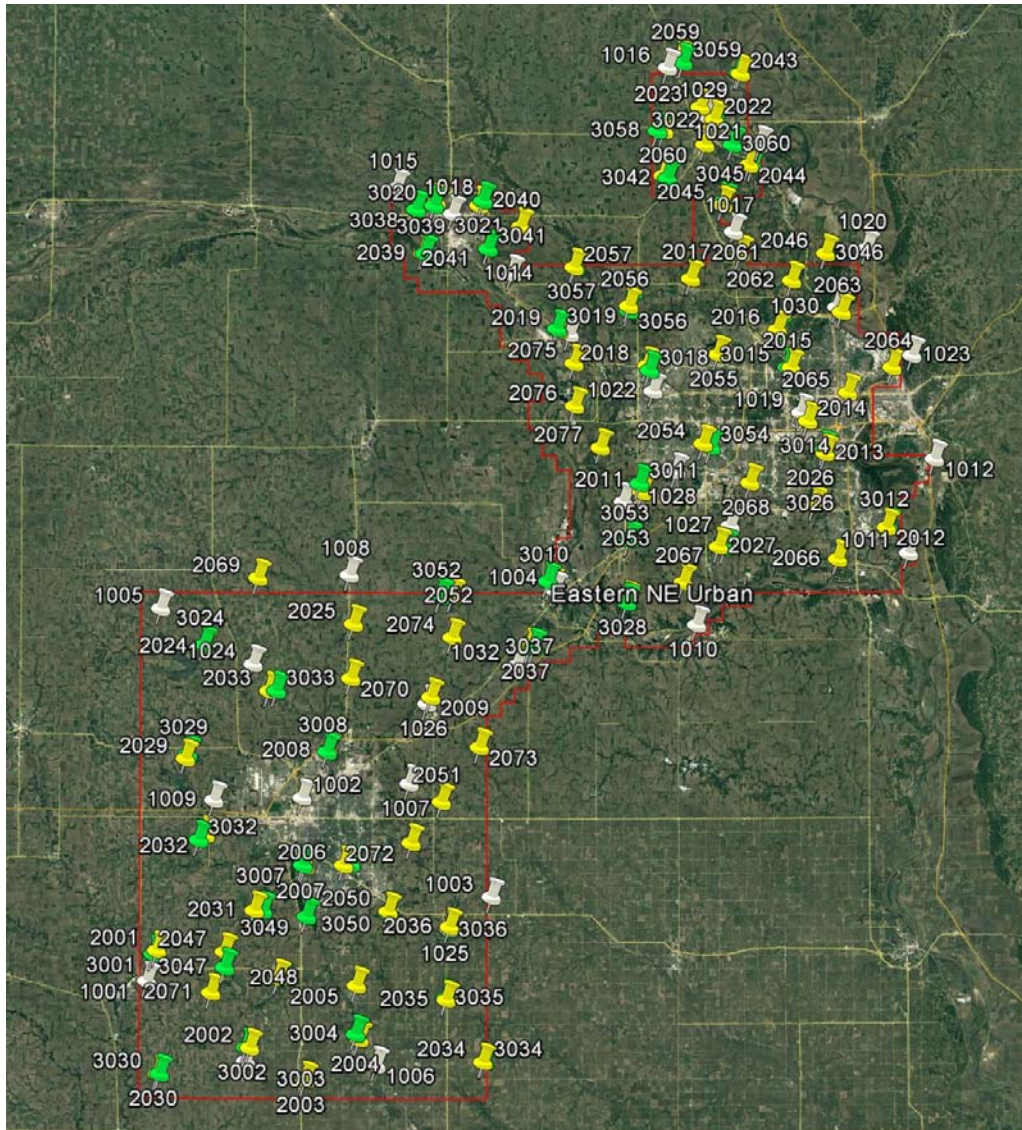
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Section 5: GPS Control Diagram

This section contains a graphical representation of the new and existing control stations used for the project.

Overview of Control Network



Not to Scale