

# Ground Control Survey Report



UNITED STATES GEOLOGICAL SURVEY FEMA  
HQ MALHEUR, OR QL1 LIDAR

TASK ORDER NUMBER: G15PD00642

Contractor: Woolpert, Inc.  
Woolpert Project # 75818

October 2016

# Ground Control Survey Report

UNITED STATES GEOLOGICAL SURVEY FEMA HQ MALHEUR, OR QL1 LIDAR

Task Order G15PD00642

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# Section 1: Survey Report

## TASK ORDER NAME: UNITED STATES GEOLOGICAL SURVEY FEMA HQ MALHEUR, OR QL1 LIDAR

### Task Order: #G15PD00642

This report contains a comprehensive outline of the Ground Control Survey that supported the Malheur, OR 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 885 square miles located in Malheur County, Oregon.

## Purpose

The purpose of this survey was to establish three-dimensional coordinates for 244 LiDAR primary control points and ground classification check points. The points were collected per the flight layout and were uniformly dispersed over the project area.

## Date of Survey

Ground control field operations took place between March 9<sup>th</sup> and March 16<sup>th</sup>, 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 NSRS control stations were utilized as checks to ensure that quality x, y, and z coordinate values were computed for each of the newly established photogrammetric control stations. Recovery information sheets for the existing 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  $\leq 8$  cm RMSEZ between adjacent swaths with a maximum difference of  $\pm 16$  cm.

## GPS Equipment

Woolpert utilized 2 Trimble Navigation R10 Model GNSS dual-frequency GPS receivers and 1 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 244 LiDAR control 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 3.71 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 this project is will be UTM 11. The datum shall be NAD83 (2011) meters to 2 decimal places horizontal and NAVD88 Meters vertical using the latest geoid model (GEOID12B) Units for both the horizontal and vertical datum will be expressed in meters to two (2) decimal places.

## Quality Assurance

Existing NGS published bench marks were surveyed 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 UTM11 North
- Vertical Datum: NAVD88
- Geoid Model: GEOID 12B
- Units: Meter

Point No.	NAD-83 (2011) Epoch 2010.00 UTM Zone 11N		Ortho Height (NAVD88) (m)	Description
	UTM Northing (m)	UTM Easting (m)		
1	4759712.926	448690.134	1184.955	LIDAR CTL
1A	4755529.776	452805.978	1156.242	LIDAR CTL
2	4755528.575	453619.034	1147.108	LIDAR CTL
3	4747472.955	464512.262	1254.516	LIDAR CTL
5	4746202.797	447034.435	1029.193	LIDAR CTL
6	4746665.130	457467.517	1172.706	LIDAR CTL
7	4751478.042	463279.554	1228.309	LIDAR CTL
8	4738282.159	463156.144	1282.323	LIDAR CTL
9	4738510.202	438674.982	1100.439	LIDAR CTL
10	4736549.936	448900.435	1114.753	LIDAR CTL
11	4737678.414	455297.931	1198.013	LIDAR CTL
12	4743457.944	498207.720	1414.786	LIDAR CTL
13	4731632.876	451104.871	1178.161	LIDAR CTL
14	4739897.025	497909.557	1457.178	LIDAR CTL
14A	4740747.260	497996.610	1455.146	LIDAR CTL
15	4750641.445	476948.550	1366.865	LIDAR CTL
16	4746042.398	498921.147	1410.843	LIDAR CTL
16A	4738548.592	463632.761	1263.956	LIDAR CTL
16B	4730705.036	467211.866	1385.954	LIDAR CTL
17	4746965.676	473919.509	1302.339	LIDAR CTL
18	4759552.232	489039.079	1321.921	LIDAR CTL
19	4750875.983	477905.188	1355.329	LIDAR CTL
20	4758299.447	494289.819	1334.671	LIDAR CTL
21	4762923.707	474421.281	1309.576	LIDAR CTL
22	4765001.825	494306.696	1353.451	LIDAR CTL

Point No.	NAD-83 (2011) Epoch 2010.00 UTM Zone 11N		Ortho Height (NAVD88) (m)	Description
	UTM Northing (m)	UTM Easting (m)		
23	4766289.600	484480.106	1416.675	LIDAR CTL
24	4788741.766	497928.326	1266.543	LIDAR CTL
25	4788110.520	492036.835	1340.175	LIDAR CTL
26	4774331.321	480717.859	1340.153	LIDAR CTL
27	4790305.086	492435.068	1272.482	LIDAR CTL
27A	4789566.073	492432.115	1288.548	LIDAR CTL
28	4786413.098	493589.792	1312.645	LIDAR CTL
29	4734088.294	459691.688	1285.192	LIDAR CTL
30	4779775.315	497051.203	1291.283	LIDAR CTL
30A	4775870.282	496246.906	1399.717	LIDAR CTL
31	4743425.644	449498.907	1062.742	LIDAR CTL
32	4759521.246	487859.642	1320.743	LIDAR CTL
33	4778471.377	485289.532	1391.097	LIDAR CTL
34	4775479.388	488047.682	1377.660	LIDAR CTL
35	4770193.193	485503.451	1358.144	LIDAR CTL
36	4778282.121	474800.657	1433.511	LIDAR CTL
37	4740538.486	441948.351	1127.656	LIDAR CTL
38	4744281.028	441311.079	1111.472	LIDAR CTL
39	4758226.526	486362.294	1319.430	LIDAR CTL
40	4738235.352	460122.838	1196.832	LIDAR CTL
41	4760986.374	481814.818	1327.313	LIDAR CTL
42	4758298.684	472971.569	1306.679	LIDAR CTL
43	4741155.921	444649.142	1118.518	LIDAR CTL
44	4755519.521	483562.379	1340.836	LIDAR CTL
45	4752340.649	454378.518	1134.898	LIDAR CTL
45A	4748400.250	447669.229	1162.975	LIDAR CTL
2002	4755247.349	453619.467	1146.332	NVA
2002A	4755276.060	453619.473	1146.378	NVA
2003	4746398.211	456840.947	1169.461	NVA
2003A	4746385.845	456799.779	1169.531	NVA
2004	4743450.540	449120.732	1030.014	NVA
2004A	4743470.353	449109.274	1029.701	NVA
2005	4748410.329	447417.225	1172.011	NVA
2005A	4748396.562	447413.161	1172.303	NVA
2006	4739171.334	439694.361	1092.589	NVA
2006A	4739187.964	439708.559	1092.253	NVA
2007	4760363.792	472889.354	1302.940	NVA
2007A	4760379.309	472885.802	1303.016	NVA
2008	4745470.073	440505.939	1058.527	NVA

Point No.	NAD-83 (2011) Epoch 2010.00 UTM Zone 11N		Ortho Height (NAVD88) (m)	Description
	UTM Northing (m)	UTM Easting (m)		
2008A	4745478.307	440488.631	1058.250	NVA
2009	4738203.720	462857.209	1282.917	NVA
2009A	4738202.555	462831.067	1282.749	NVA
2010	4738485.999	454825.808	1201.828	NVA
2010A	4738504.512	454812.814	1201.775	NVA
2011	4734084.839	459708.448	1285.185	NVA
2011A	4734079.856	459729.060	1285.136	NVA
2012	4788717.961	497921.233	1266.216	NVA
2012A	4788692.273	497898.089	1266.135	NVA
2013	4774862.399	495867.601	1393.017	NVA
2013A	4774851.187	495847.242	1393.022	NVA
2014	4758100.338	495582.152	1338.191	NVA
2014A	4758115.485	495607.488	1338.276	NVA
2015	4759171.314	487417.998	1320.007	NVA
2015A	4759179.482	487438.262	1320.061	NVA
2016	4766285.878	484475.689	1416.457	NVA
2016A	4766269.416	484465.733	1416.698	NVA
2017	4766638.035	474815.441	1309.215	NVA
2017A	4766663.558	474815.975	1310.399	NVA
2018	4756306.269	473096.096	1290.754	NVA
2018A	4756306.490	473118.159	1291.048	NVA
2019	4752248.858	477171.406	1295.404	NVA
2019A	4752249.126	477156.357	1295.174	NVA
2020	4747019.777	473919.473	1302.331	NVA
2020A	4747060.307	473917.972	1302.618	NVA
2020B	4755519.588	472329.562	1289.531	NVA
2020C	4755527.023	472313.379	1289.207	NVA
2021	4738538.223	463656.482	1264.349	NVA
2021A	4738529.754	463675.825	1264.774	NVA
2022	4788116.732	492068.435	1339.560	NVA
2022A	4788117.756	492137.379	1339.468	NVA
2023	4751531.844	461216.116	1190.392	NVA
2023A	4751529.617	461199.971	1190.412	NVA
2024	4755043.979	483055.499	1341.631	NVA
2024A	4755031.232	483065.891	1340.745	NVA
2025	4770735.356	486127.907	1347.639	NVA
2025A	4770717.392	486108.149	1347.915	NVA
2026	4742395.320	498057.749	1426.693	NVA
2026A	4742435.219	498050.107	1425.924	NVA

Point No.	NAD-83 (2011) Epoch 2010.00 UTM Zone 11N		Ortho Height (NAVD88) (m)	Description
	UTM Northing (m)	UTM Easting (m)		
2027B	4743466.105	498215.046	1414.759	NVA
2027C	4743467.094	498199.212	1414.457	NVA
2029	4733808.927	460696.163	1288.007	NVA
2029A	4733804.859	460717.659	1288.220	NVA
2030	4731783.530	451071.035	1170.116	NVA
2030A	4731801.511	451069.800	1169.363	NVA
2031	4738678.412	463882.920	1268.998	NVA
2031A	4738686.813	463899.921	1269.018	NVA
2032	4747512.652	463895.417	1238.540	NVA
2032A	4747531.785	463893.110	1237.923	NVA
2033	4736811.636	448772.332	1107.028	NVA
2033A	4736797.939	448785.162	1107.567	NVA
2034	4766292.463	494268.369	1361.026	NVA
2034A	4766274.432	494294.725	1360.084	NVA
2035	4778284.471	474819.182	1432.435	NVA
2035A	4778281.116	474788.981	1433.696	NVA
2036	4774059.437	481391.481	1337.751	NVA
2036A	4774071.634	481409.324	1337.587	NVA
2037	4774069.036	487834.963	1358.388	NVA
2037A	4774034.649	487836.263	1357.638	NVA
2038	4751598.853	497560.270	1390.186	NVA
2038A	4751586.808	497571.011	1390.056	NVA
2039	4735788.080	445977.136	1189.857	NVA
2039A	4735809.832	445979.760	1189.750	NVA
2041	4774514.033	480216.951	1337.006	NVA
2041A	4774527.256	480209.778	1336.831	NVA
2042	4761493.858	480552.719	1337.082	NVA
2042A	4761473.666	480578.038	1336.422	NVA
2043	4748630.803	470120.701	1303.278	NVA
2043A	4748643.596	470118.207	1303.052	NVA
2044	4741168.565	444644.239	1118.337	NVA
2044A	4741177.658	444630.107	1118.592	NVA
2045	4746415.157	446812.921	1030.161	NVA
2045A	4746427.323	446822.885	1030.972	NVA
2046	4751351.610	457126.107	1138.661	NVA
2046A	4751352.214	457112.895	1137.795	NVA
2047	4762797.839	473467.413	1305.907	NVA
2047A	4762803.968	473448.683	1306.025	NVA
2048	4773300.269	477261.903	1395.352	NVA



Point No.	NAD-83 (2011) Epoch 2010.00 UTM Zone 11N		Ortho Height (NAVD88) (m)	Description
	UTM Northing (m)	UTM Easting (m)		
2048A	4773282.505	477248.494	1394.901	NVA
2049	4767362.523	487377.479	1383.816	NVA
2049A	4767342.744	487365.529	1384.525	NVA
2050	4757610.966	485665.268	1330.395	NVA
2050A	4757623.509	485657.795	1329.952	NVA
2051	4782277.476	496802.930	1271.454	NVA
2051A	4782252.481	496812.333	1271.974	NVA
2052	4757092.339	490975.999	1327.114	NVA
2052A	4757092.388	491009.279	1327.288	NVA
2053	4753062.520	472275.188	1307.300	NVA
2053A	4753026.869	472275.437	1307.618	NVA
2054	4744040.015	441545.937	1111.187	NVA
2055	4744336.526	443530.774	1057.829	NVA
2056	4734437.972	458314.113	1253.494	NVA
2057	4730079.708	467856.290	1389.482	NVA
3002	4755240.752	453624.178	1146.514	VVA
3002A	4755269.864	453624.565	1145.853	VVA
3003	4746410.790	456838.699	1168.284	VVA
3003A	4746390.284	456789.772	1168.886	VVA
3004	4743456.947	449125.148	1030.158	VVA
3004A	4743464.361	449093.239	1029.450	VVA
3005	4748407.453	447433.751	1172.769	VVA
3005A	4748394.467	447421.651	1172.632	VVA
3006	4739145.143	439699.307	1091.571	VVA
3006A	4739171.426	439720.023	1091.145	VVA
3007	4762445.589	494541.595	1377.041	VVA
3007A	4762461.044	494541.219	1376.811	VVA
3008	4745474.759	440511.643	1058.668	VVA
3008A	4745465.338	440521.736	1058.970	VVA
3009	4738213.561	462857.277	1282.728	VVA
3009A	4738212.359	462831.394	1282.603	VVA
3010	4738485.919	454838.429	1202.133	VVA
3010A	4738508.191	454824.260	1202.012	VVA
3011	4734074.325	459706.090	1285.339	VVA
3011A	4734070.615	459725.156	1285.302	VVA
3012	4788666.343	497901.094	1265.520	VVA
3012A	4788693.456	497938.151	1265.337	VVA
3013	4774855.161	495875.171	1392.328	VVA
3013A	4774874.341	495847.141	1393.639	VVA

Point No.	NAD-83 (2011) Epoch 2010.00 UTM Zone 11N		Ortho Height (NAVD88) (m)	Description
	UTM Northing (m)	UTM Easting (m)		
3014	4758102.844	495596.202	1337.608	VVA
3014A	4758107.323	495619.315	1337.711	VVA
3015	4759144.605	487425.668	1317.781	VVA
3015A	4759169.045	487445.545	1317.900	VVA
3016	4766286.302	484466.342	1416.242	VVA
3016A	4766267.619	484458.283	1416.754	VVA
3017	4766650.041	474808.340	1309.449	VVA
3017A	4766667.388	474822.089	1310.669	VVA
3018	4756320.968	473117.726	1290.935	VVA
3018A	4756330.158	473103.060	1290.778	VVA
3019	4752255.868	477163.173	1294.735	VVA
3019A	4752252.584	477183.443	1295.016	VVA
3020	4747021.516	473931.417	1302.070	VVA
3020A	4747045.781	473902.005	1302.302	VVA
3020B	4745163.707	444464.022	1042.449	VVA
3020C	4745175.311	444479.565	1042.135	VVA
3021	4771449.715	487810.762	1367.409	VVA
3021A	4771439.950	487798.082	1367.143	VVA
3022	4788134.987	492074.726	1339.028	VVA
3022A	4788105.427	492096.621	1339.142	VVA
3024	4755028.192	483057.020	1340.409	VVA
3024A	4755042.435	483073.686	1340.876	VVA
3025	4757113.651	490209.278	1326.117	VVA
3026	4742461.135	498053.684	1425.356	VVA
3026A	4742435.108	498042.052	1425.758	VVA
3028	4776987.527	477766.450	1434.842	VVA
3028A	4776969.654	477754.956	1434.695	VVA
3029	4733817.824	460704.916	1287.760	VVA
3029A	4733815.847	460717.961	1287.738	VVA
3030	4731778.671	451084.696	1170.527	VVA
3030A	4731801.055	451082.468	1169.607	VVA
3031	4745036.908	453407.542	1189.625	VVA
3031A	4745041.067	453424.625	1190.513	VVA
3032	4747519.593	463886.380	1238.317	VVA
3032A	4747535.254	463903.404	1237.936	VVA
3032B	4750655.425	480647.233	1320.485	VVA
3032C	4750658.344	480671.355	1319.866	VVA
3033	4736819.804	448777.235	1106.763	VVA
3033A	4736807.368	448791.609	1107.210	VVA

Point No.	NAD-83 (2011) Epoch 2010.00 UTM Zone 11N		Ortho Height (NAVD88) (m)	Description
	UTM Northing (m)	UTM Easting (m)		
3034	4766301.698	494282.830	1362.101	VVA
3034A	4766281.979	494302.051	1361.350	VVA
3035	4778270.428	474818.617	1432.768	VVA
3035A	4778269.446	474793.212	1433.658	VVA
3036	4784599.280	496096.124	1251.050	VVA
3036A	4784616.171	496091.977	1250.990	VVA
3037	4774067.666	487848.145	1358.579	VVA
3037A	4774037.808	487850.115	1358.165	VVA
3037B	4743473.098	498205.163	1414.401	VVA
3037C	4743456.707	498191.233	1415.081	VVA
3038	4751608.624	497568.466	1390.264	VVA
3038A	4751575.792	497562.017	1390.055	VVA
3039	4735787.044	445988.311	1190.116	VVA
3039A	4735807.626	445990.783	1190.038	VVA
3041	4774502.241	480218.879	1336.641	VVA
3041A	4774521.674	480195.657	1336.809	VVA
3042	4761482.351	480547.581	1335.339	VVA
3042A	4761464.109	480571.962	1334.228	VVA
3043	4748612.883	470122.187	1302.633	VVA
3043A	4748651.491	470128.180	1302.762	VVA
3044	4744022.001	441572.928	1111.187	VVA
3045	4744316.746	443550.653	1057.274	VVA
3046	4730086.078	467870.864	1389.547	VVA
3047	4734451.923	458329.519	1252.967	VVA

- Coordinate System: Geodetic
- Horizontal Datum: NAD83 (2011) Epoch 2010.00
- Vertical Datum: NAVD88
- Units: Meter

Point No.	Geodetic Coordinates NAD-83 (1992) (CHARN)		Ellipsoid Height (m)	Description
	Latitude (N)	Longitude (W)		
1	42°59'18.04969"	-117°37'45.78444"	1166.922	LIDAR CTL
1A	42°57'03.40446"	-117°34'42.77162"	1138.275	LIDAR CTL
2	42°57'03.54531"	-117°34'06.89114"	1129.162	LIDAR CTL
3	42°52'44.50669"	-117°26'04.32944"	1236.880	LIDAR CTL
5	42°51'59.68798"	-117°38'54.29543"	1011.080	LIDAR CTL
6	42°52'17.02330"	-117°31'14.63601"	1154.869	LIDAR CTL
7	42°54'54.13342"	-117°26'59.61023"	1210.617	LIDAR CTL
8	42°47'46.32601"	-117°27'01.94041"	1264.667	LIDAR CTL
9	42°47'48.06997"	-117°44'59.66744"	1082.224	LIDAR CTL
10	42°46'47.22489"	-117°37'28.90925"	1096.720	LIDAR CTL
11	42°47'25.24766"	-117°32'47.68845"	1180.118	LIDAR CTL
12	42°50'37.30463"	-117°01'18.96025"	1397.975	LIDAR CTL
13	42°44'08.34172"	-117°35'50.36493"	1160.170	LIDAR CTL
14	42°48'41.85941"	-117°01'32.04844"	1440.392	LIDAR CTL
14A	42°49'09.42432"	-117°01'28.22614"	1438.354	LIDAR CTL
15	42°54'28.94052"	-117°16'56.60416"	1349.488	LIDAR CTL
16	42°52'01.09525"	-117°00'47.54751"	1394.023	LIDAR CTL
16A	42°47'55.04535"	-117°26'41.02124"	1246.313	LIDAR CTL
16B	42°43'41.34790"	-117°24'01.82085"	1368.400	LIDAR CTL
17	42°52'29.42668"	-117°19'09.57267"	1284.889	LIDAR CTL
18	42°59'18.78546"	-117°08'04.02389"	1304.886	LIDAR CTL
19	42°54'36.64580"	-117°16'14.44869"	1337.977	LIDAR CTL
20	42°58'38.37930"	-117°04'12.11031"	1317.756	LIDAR CTL
21	43°01'06.81750"	-117°18'50.08155"	1292.190	LIDAR CTL
22	43°02'15.65921"	-117°04'11.61140"	1336.563	LIDAR CTL
23	43°02'56.91208"	-117°11'26.01797"	1399.592	LIDAR CTL
24	43°15'05.31542"	-117°01'31.87571"	1249.639	LIDAR CTL
25	43°14'44.71123"	-117°05'53.12169"	1323.268	LIDAR CTL
26	43°07'17.29461"	-117°14'13.32190"	1323.058	LIDAR CTL
27	43°15'55.86686"	-117°05'35.57083"	1255.524	LIDAR CTL
27A	43°15'31.91031"	-117°05'35.66523"	1271.609	LIDAR CTL
28	43°13'49.73929"	-117°04'44.18579"	1295.770	LIDAR CTL

Point No.	Geodetic Coordinates NAD-83 (1992) (CHARN)		Ellipsoid Height (m)	Description
	Latitude (N)	Longitude (W)		
29	42°45'29.73942"	-117°29'33.36946"	1267.434	LIDAR CTL
30	43°10'14.63839"	-117°02'10.60244"	1274.481	LIDAR CTL
30A	43°08'08.03437"	-117°02'46.12955"	1382.923	LIDAR CTL
31	42°50'30.26107"	-117°37'04.78980"	1044.690	LIDAR CTL
32	42°59'17.71649"	-117°08'56.10411"	1303.680	LIDAR CTL
33	43°09'31.87375"	-117°10'51.40149"	1374.150	LIDAR CTL
34	43°07'55.05632"	-117°08'49.03454"	1360.749	LIDAR CTL
35	43°05'03.53077"	-117°10'41.15003"	1341.112	LIDAR CTL
36	43°09'24.74227"	-117°18'35.82830"	1416.285	LIDAR CTL
37	42°48'54.73917"	-117°42'36.32931"	1109.494	LIDAR CTL
38	42°50'55.88519"	-117°43'05.79426"	1093.288	LIDAR CTL
39	42°58'35.65254"	-117°10'02.11121"	1302.328	LIDAR CTL
40	42°47'44.26163"	-117°29'15.45620"	1179.080	LIDAR CTL
41	43°00'04.77942"	-117°13'23.20667"	1310.108	LIDAR CTL
42	42°58'36.70382"	-117°19'53.32341"	1289.206	LIDAR CTL
43	42°49'15.47495"	-117°40'37.62549"	1100.391	LIDAR CTL
44	42°57'07.69682"	-117°12'05.44167"	1323.660	LIDAR CTL
45	42°55'20.36697"	-117°33'32.44001"	1116.953	LIDAR CTL
45A	42°53'11.08031"	-117°38'27.05756"	1144.884	LIDAR CTL
2002	42°56'54.42891"	-117°34'06.78811"	1128.383	NVA
2002A	42°56'55.35963"	-117°34'06.79641"	1128.430	NVA
2003	42°52'08.24388"	-117°31'42.17740"	1151.606	NVA
2003A	42°52'07.83461"	-117°31'43.98831"	1151.675	NVA
2004	42°50'30.97789"	-117°37'21.45717"	1011.951	NVA
2004A	42°50'31.61741"	-117°37'21.96837"	1011.639	NVA
2005	42°53'11.34471"	-117°38'38.17017"	1153.916	NVA
2005A	42°53'10.89740"	-117°38'38.34467"	1154.207	NVA
2006	42°48'09.79317"	-117°44'15.05023"	1074.388	NVA
2006A	42°48'10.33628"	-117°44'14.43158"	1074.052	NVA
2007	42°59'43.63967"	-117°19'57.31406"	1285.485	NVA
2007A	42°59'44.14223"	-117°19'57.47364"	1285.560	NVA
2008	42°51'34.20586"	-117°43'41.71830"	1040.330	NVA
2008A	42°51'34.46790"	-117°43'42.48407"	1040.052	NVA
2009	42°47'43.73114"	-117°27'15.08114"	1265.253	NVA
2009A	42°47'43.68881"	-117°27'16.23166"	1265.085	NVA
2010	42°47'51.32822"	-117°33'08.70218"	1183.923	NVA
2010A	42°47'51.92563"	-117°33'09.27956"	1183.870	NVA
2011	42°45'29.63059"	-117°29'32.63125"	1267.427	NVA
2011A	42°45'29.47293"	-117°29'31.72316"	1267.379	NVA

Point No.	Geodetic Coordinates NAD-83 (1992) (CHARN)		Ellipsoid Height (m)	Description
	Latitude (N)	Longitude (W)		
2012	43°15'04.54364"	-117°01'32.18995"	1249.312	NVA
2012A	43°15'03.71071"	-117°01'33.21602"	1249.232	NVA
2013	43°07'35.35413"	-117°03'02.89233"	1376.217	NVA
2013A	43°07'34.99024"	-117°03'03.79306"	1376.221	NVA
2014	42°58'31.95545"	-117°03'15.04685"	1321.300	NVA
2014A	42°58'32.44703"	-117°03'13.92871"	1321.386	NVA
2015	42°59'06.34644"	-117°09'15.57816"	1302.933	NVA
2015A	42°59'06.61246"	-117°09'14.68405"	1302.987	NVA
2016	43°02'56.79111"	-117°11'26.21284"	1399.373	NVA
2016A	43°02'56.25669"	-117°11'26.65126"	1399.614	NVA
2017	43°03'07.27469"	-117°18'33.27208"	1291.885	NVA
2017A	43°03'08.10215"	-117°18'33.25261"	1293.070	NVA
2018	42°57'32.12965"	-117°19'47.48039"	1273.269	NVA
2018A	42°57'32.13962"	-117°19'46.50663"	1273.564	NVA
2019	42°55'21.07446"	-117°16'47.01163"	1278.025	NVA
2019A	42°55'21.08151"	-117°16'47.67551"	1277.795	NVA
2020	42°52'31.18055"	-117°19'09.58330"	1284.882	NVA
2020A	42°52'32.49428"	-117°19'09.65622"	1285.169	NVA
2020B	42°57'06.52815"	-117°20'21.17290"	1272.025	NVA
2020C	42°57'06.76705"	-117°20'21.88839"	1271.701	NVA
2021	42°47'54.71327"	-117°26'39.97461"	1246.707	NVA
2021A	42°47'54.44202"	-117°26'39.12111"	1247.132	NVA
2022	43°14'44.91380"	-117°05'51.72073"	1322.653	NVA
2022A	43°14'44.94959"	-117°05'48.66350"	1322.561	NVA
2023	42°54'55.50984"	-117°28'30.63166"	1172.645	NVA
2023A	42°54'55.43470"	-117°28'31.34318"	1172.664	NVA
2024	42°56'52.24051"	-117°12'27.75981"	1324.438	NVA
2024A	42°56'51.82812"	-117°12'27.29981"	1323.553	NVA
2025	43°05'21.14850"	-117°10'13.58061"	1330.628	NVA
2025A	43°05'20.56485"	-117°10'14.45291"	1330.903	NVA
2026	42°50'02.85386"	-117°01'25.55410"	1409.890	NVA
2026A	42°50'04.14728"	-117°01'25.89126"	1409.120	NVA
2027B	42°50'37.56927"	-117°01'18.63756"	1397.949	NVA
2027C	42°50'37.60120"	-117°01'19.33518"	1397.647	NVA
2029	42°45'20.87043"	-117°28'49.10904"	1270.279	NVA
2029A	42°45'20.74254"	-117°28'48.16238"	1270.492	NVA
2030	42°44'13.21790"	-117°35'51.89983"	1152.125	NVA
2030A	42°44'13.80052"	-117°35'51.95975"	1151.372	NVA
2031	42°47'59.29657"	-117°26'30.03858"	1251.361	NVA

Point No.	Geodetic Coordinates NAD-83 (1992) (CHARN)		Ellipsoid Height (m)	Description
	Latitude (N)	Longitude (W)		
2031A	42°47'59.57179"	-117°26'29.29207"	1251.381	NVA
2032	42°52'45.68950"	-117°26'31.52887"	1220.889	NVA
2032A	42°52'46.30934"	-117°26'31.63500"	1220.272	NVA
2033	42°46'55.67778"	-117°37'34.63226"	1088.989	NVA
2033A	42°46'55.23683"	-117°37'34.06315"	1089.529	NVA
2034	43°02'57.49813"	-117°04'13.35306"	1344.144	NVA
2034A	43°02'56.91431"	-117°04'12.18740"	1343.203	NVA
2035	43°09'24.82069"	-117°18'35.00841"	1415.210	NVA
2035A	43°09'24.70830"	-117°18'36.34512"	1416.470	NVA
2036	43°07'08.54151"	-117°13'43.47849"	1320.672	NVA
2036A	43°07'08.93849"	-117°13'42.69038"	1320.509	NVA
2037	43°07'09.32401"	-117°08'58.33853"	1341.454	NVA
2037A	43°07'08.20936"	-117°08'58.27831"	1340.703	NVA
2038	42°55'01.21833"	-117°01'47.61143"	1373.329	NVA
2038A	42°55'00.82798"	-117°01'47.13749"	1373.200	NVA
2039	42°46'21.80561"	-117°39'37.29405"	1171.782	NVA
2039A	42°46'22.51140"	-117°39'37.18611"	1171.675	NVA
2041	43°07'23.17113"	-117°14'35.51264"	1319.901	NVA
2041A	43°07'23.59912"	-117°14'35.83176"	1319.726	NVA
2042	43°00'21.11863"	-117°14'19.01453"	1319.851	NVA
2042A	43°00'20.46636"	-117°14'17.89365"	1319.191	NVA
2043	42°53'22.90633"	-117°21'57.33192"	1285.742	NVA
2043A	42°53'23.32070"	-117°21'57.44431"	1285.516	NVA
2044	42°49'15.88355"	-117°40'37.84588"	1100.210	NVA
2044A	42°49'16.17464"	-117°40'38.47143"	1100.465	NVA
2045	42°52'06.51667"	-117°39'04.12973"	1012.045	NVA
2045A	42°52'06.91353"	-117°39'03.69474"	1012.856	NVA
2046	42°54'48.87891"	-117°31'30.97207"	1120.793	NVA
2046A	42°54'48.89581"	-117°31'31.55493"	1119.927	NVA
2047	43°01'02.61942"	-117°19'32.20176"	1288.494	NVA
2047A	43°01'02.81576"	-117°19'33.03029"	1288.611	NVA
2048	43°06'43.52552"	-117°16'46.10985"	1378.165	NVA
2048A	43°06'42.94819"	-117°16'46.70050"	1377.715	NVA
2049	43°03'31.88733"	-117°09'18.03496"	1366.801	NVA
2049A	43°03'31.24542"	-117°09'18.56166"	1367.509	NVA
2050	42°58'15.65103"	-117°10'32.82827"	1313.277	NVA
2050A	42°58'16.05713"	-117°10'33.15933"	1312.834	NVA
2051	43°11'35.74802"	-117°02'21.65056"	1254.632	NVA
2051A	43°11'34.93790"	-117°02'21.23345"	1255.153	NVA

Point No.	Geodetic Coordinates NAD-83 (1992) (CHARN)		Ellipsoid Height (m)	Description
	Latitude (N)	Longitude (W)		
2052	42°57'59.13127"	-117°06'38.34847"	1310.125	NVA
2052A	42°57'59.13428"	-117°06'36.87941"	1310.299	NVA
2053	42°55'46.86755"	-117°20'23.13444"	1289.793	NVA
2053A	42°55'45.71186"	-117°20'23.11710"	1290.110	NVA
2054	42°50'48.13713"	-117°42'55.35721"	1093.007	NVA
2055	42°50'58.28612"	-117°41'28.02315"	1039.673	NVA
2056	42°45'40.81027"	-117°30'34.06664"	1235.692	NVA
2057	42°43'21.17342"	-117°23'33.35588"	1371.939	NVA
3002	42°56'54.21609"	-117°34'06.57826"	1128.566	VVA
3002A	42°56'55.15990"	-117°34'06.56987"	1127.904	VVA
3003	42°52'08.65119"	-117°31'42.27997"	1150.429	VVA
3003A	42°52'07.97647"	-117°31'44.43059"	1151.029	VVA
3004	42°50'31.18665"	-117°37'21.26475"	1012.095	VVA
3004A	42°50'31.41934"	-117°37'22.67283"	1011.387	VVA
3005	42°53'11.25556"	-117°38'37.44067"	1154.674	VVA
3005A	42°53'10.83161"	-117°38'37.96971"	1154.537	VVA
3006	42°48'08.94554"	-117°44'14.82242"	1073.370	VVA
3006A	42°48'09.80342"	-117°44'13.92058"	1072.944	VVA
3007	43°00'52.79696"	-117°04'01.14010"	1360.150	VVA
3007A	43°00'53.29797"	-117°04'01.15726"	1359.920	VVA
3008	42°51'34.35935"	-117°43'41.46874"	1040.471	VVA
3008A	42°51'34.05679"	-117°43'41.02041"	1040.772	VVA
3009	42°47'44.05017"	-117°27'15.08048"	1265.064	VVA
3009A	42°47'44.00669"	-117°27'16.21959"	1264.938	VVA
3010	42°47'51.32833"	-117°33'08.14657"	1184.228	VVA
3010A	42°47'52.04732"	-117°33'08.77676"	1184.107	VVA
3011	42°45'29.28928"	-117°29'32.73230"	1267.581	VVA
3011A	42°45'29.17261"	-117°29'31.89254"	1267.544	VVA
3012	43°15'02.87017"	-117°01'33.08239"	1248.617	VVA
3012A	43°15'03.74944"	-117°01'31.43933"	1248.434	VVA
3013	43°07'35.11965"	-117°03'02.55708"	1375.528	VVA
3013A	43°07'35.74085"	-117°03'03.79816"	1376.838	VVA
3014	42°58'32.03701"	-117°03'14.42664"	1320.717	VVA
3014A	42°58'32.18270"	-117°03'13.40632"	1320.821	VVA
3015	42°59'05.48105"	-117°09'15.23731"	1300.706	VVA
3015A	42°59'06.27454"	-117°09'14.36161"	1300.826	VVA
3016	43°02'56.80416"	-117°11'26.62605"	1399.158	VVA
3016A	43°02'56.19790"	-117°11'26.98038"	1399.670	VVA
3017	43°03'07.66306"	-117°18'33.58792"	1292.119	VVA



Point No.	Geodetic Coordinates NAD-83 (1992) (CHARN)		Ellipsoid Height (m)	Description
	Latitude (N)	Longitude (W)		
3017A	43°03'08.22704"	-117°18'32.98295"	1293.340	VVA
3018	42°57'32.60892"	-117°19'46.52823"	1273.452	VVA
3018A	42°57'32.90498"	-117°19'47.17713"	1273.294	VVA
3019	42°55'21.30081"	-117°16'47.37583"	1277.355	VVA
3019A	42°55'21.19655"	-117°16'46.48121"	1277.637	VVA
3020	42°52'31.23841"	-117°19'09.05713"	1284.621	VVA
3020A	42°52'32.02141"	-117°19'10.35758"	1284.852	VVA
3020B	42°51'25.34688"	-117°40'47.20134"	1024.302	VVA
3020C	42°51'25.72713"	-117°40'46.52063"	1023.988	VVA
3021	43°05'44.41050"	-117°08'59.20245"	1350.440	VVA
3021A	43°05'44.09321"	-117°08'59.76257"	1350.173	VVA
3022	43°14'45.50580"	-117°05'51.44273"	1322.120	VVA
3022A	43°14'44.54838"	-117°05'50.47029"	1322.236	VVA
3024	42°56'51.72884"	-117°12'27.69095"	1323.217	VVA
3024A	42°56'52.19191"	-117°12'26.95703"	1323.685	VVA
3025	42°57'59.78807"	-117°07'12.19532"	1309.111	VVA
3026	42°50'04.98750"	-117°01'25.73398"	1408.552	VVA
3026A	42°50'04.14361"	-117°01'26.24607"	1408.953	VVA
3028	43°08'43.11010"	-117°16'24.31729"	1417.699	VVA
3028A	43°08'42.52951"	-117°16'24.82353"	1417.551	VVA
3029	42°45'21.16048"	-117°28'48.72620"	1270.032	VVA
3029A	42°45'21.09879"	-117°28'48.15184"	1270.011	VVA
3030	42°44'13.06349"	-117°35'51.29752"	1152.537	VVA
3030A	42°44'13.78865"	-117°35'51.40249"	1151.617	VVA
3031	42°51'23.38772"	-117°34'13.08685"	1171.675	VVA
3031A	42°51'23.52632"	-117°34'12.33534"	1172.564	VVA
3032	42°52'45.91296"	-117°26'31.92882"	1220.666	VVA
3032A	42°52'46.42354"	-117°26'31.18203"	1220.285	VVA
3032B	42°54'29.76381"	-117°14'13.48979"	1303.218	VVA
3032C	42°54'29.86064"	-117°14'12.42635"	1302.599	VVA
3033	42°46'55.94375"	-117°37'34.41915"	1088.725	VVA
3033A	42°46'55.54406"	-117°37'33.78251"	1089.172	VVA
3034	43°02'57.79789"	-117°04'12.71417"	1345.219	VVA
3034A	43°02'57.15917"	-117°04'11.86384"	1344.468	VVA
3035	43°09'24.36537"	-117°18'35.03110"	1415.543	VVA
3035A	43°09'24.33049"	-117°18'36.15584"	1416.432	VVA
3036	43°12'51.00234"	-117°02'53.02563"	1234.203	VVA
3036A	43°12'51.54981"	-117°02'53.20986"	1234.142	VVA
3037	43°07'09.28038"	-117°08'57.75508"	1341.645	VVA

Point No.	Geodetic Coordinates NAD-83 (1992) (CHARN)		Ellipsoid Height (m)	Description
	Latitude (N)	Longitude (W)		
3037A	43°07'08.31257"	-117°08'57.66556"	1341.231	VVA
3037B	42°50'37.79588"	-117°01'19.07308"	1397.591	VVA
3037C	42°50'37.26441"	-117°01'19.68656"	1398.271	VVA
3038	42°55'01.53518"	-117°01'47.25009"	1373.408	VVA
3038A	42°55'00.47075"	-117°01'47.53404"	1373.199	VVA
3039	42°46'21.77486"	-117°39'36.80199"	1172.042	VVA
3039A	42°46'22.44271"	-117°39'36.70030"	1171.963	VVA
3041	43°07'22.78906"	-117°14'35.42581"	1319.535	VVA
3041A	43°07'23.41684"	-117°14'36.45598"	1319.703	VVA
3042	43°00'20.74513"	-117°14'19.24004"	1318.108	VVA
3042A	43°00'20.15600"	-117°14'18.16081"	1316.997	VVA
3043	42°53'22.32559"	-117°21'57.26297"	1285.097	VVA
3043A	42°53'23.57805"	-117°21'57.00614"	1285.226	VVA
3044	42°50'47.56060"	-117°42'54.16138"	1093.007	VVA
3045	42°50'57.65022"	-117°41'27.14018"	1039.119	VVA
3046	42°43'21.38214"	-117°23'32.71638"	1372.005	VVA
3047	42°45'41.26556"	-117°30'33.39254"	1235.165	VVA

# Section 3: Ground / Geodetic Control Photos

This section contains the station recovery information sheets and photographs regarding the ground control positions established for the project. The stations appear as they are ordered in the final coordinate listing of Section 2.

The data is assembled on the following pages.



**1, LiDAR CTL, 3S, 16MAR2016**



**1A, LiDAR CTL, 3E, 16MAR2016**



**2, LiDAR CTL, 3N, 16MAR2016**



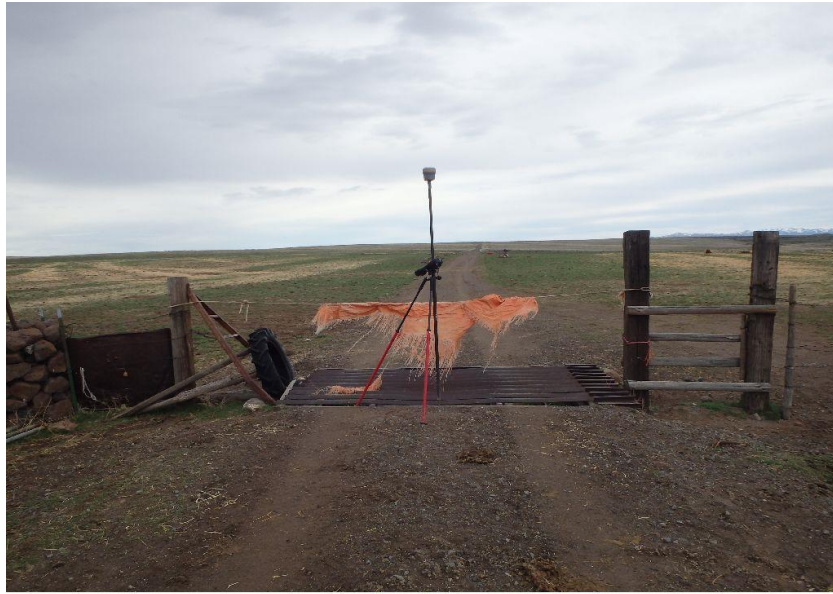
**3, LiDAR CTL, 3E, 11MAR2016**



**5, LiDAR CTL, 3N, 16MAR2016**



**6, LiDAR CTL, 3N, 16MAR2016**



**7, LiDAR CTL, 3E, 11MAR2016**



**8, LiDAR CTL, 3N, 16MAR2016**



**9, LiDAR CTL, 3E, 16MAR2016**



**10, LiDAR CTL, 3E, 16MAR2016**



**11, LiDAR CTL, 3N, 16MAR2016**



**12, LiDAR CTL, 3N, 17MAR2016**





**13, LiDAR CTL, 3E, 16MAR2016**



**14, LiDAR CTL, 3E, 10MAR2016**



**14A, LiDAR CTL, 3N, 17MAR2016**



**15, LiDAR CTL, 3N, 16MAR2016**



16, LiDAR CTL, 3N, 10MAR2016





**17, LiDAR CTL, 3E, 11MAR2016**



**18, LiDAR CTL, 3N, 16MAR2016**



**19, LiDAR CTL, 3E, 11MAR2016**



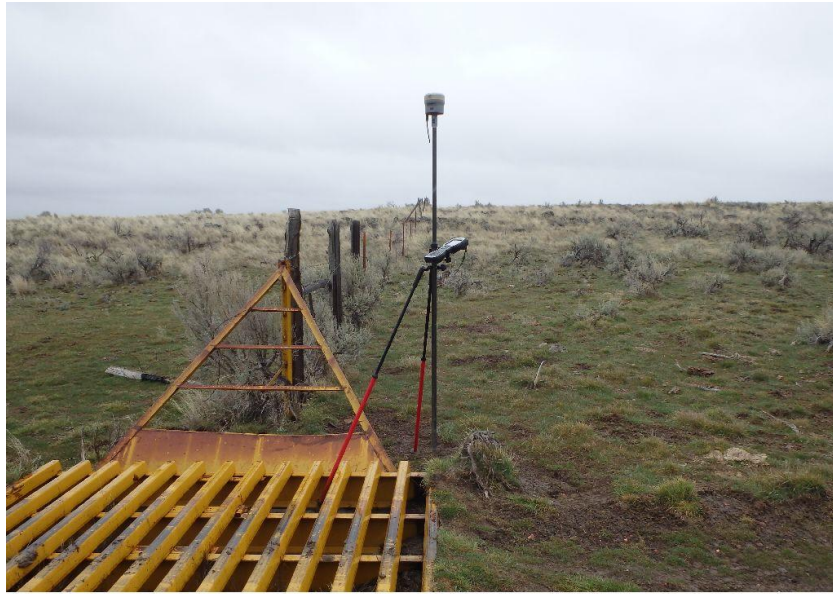
**20, LiDAR CTL, 3E, 10MAR2016**



**21, LiDAR CTL, 3E, 11MAR2016**



**22, LiDAR CTL, 3E, 09MAR2016**



**23, LiDAR CTL, 3N, 09MAR2016**



**24, LiDAR CTL, 3N, 09MAR2016**



**25, LiDAR CTL, 3W, 17MAR2016**



**26, LiDAR CTL, 3N, 10MAR2016**





**27, LiDAR CTL, 3N, 09MAR2016**



**27A, LiDAR CTL, 3E, 17MAR2016**



**28, LiDAR CTL, 3E, 09MAR2016**



**29, LiDAR CTL, 3N, 16MAR2016**



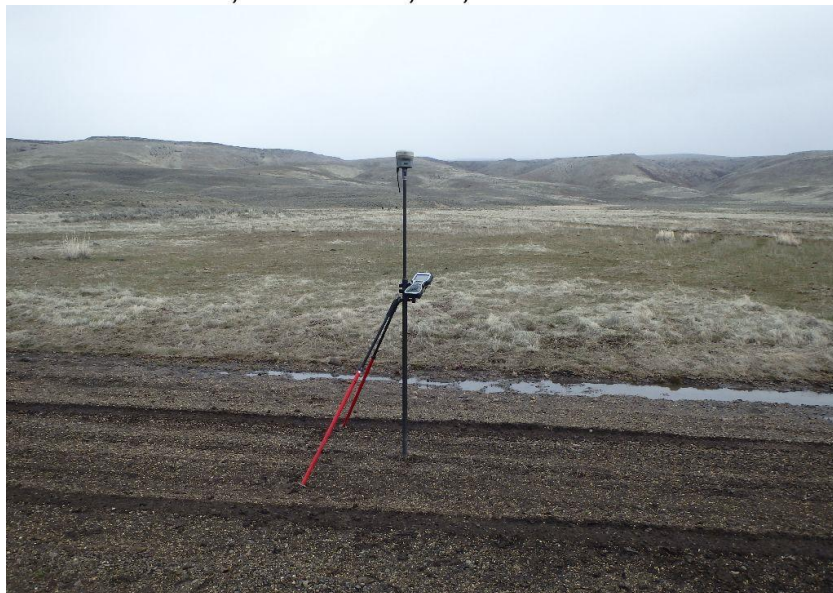
**30, LiDAR CTL, 3E, 09MAR2016**



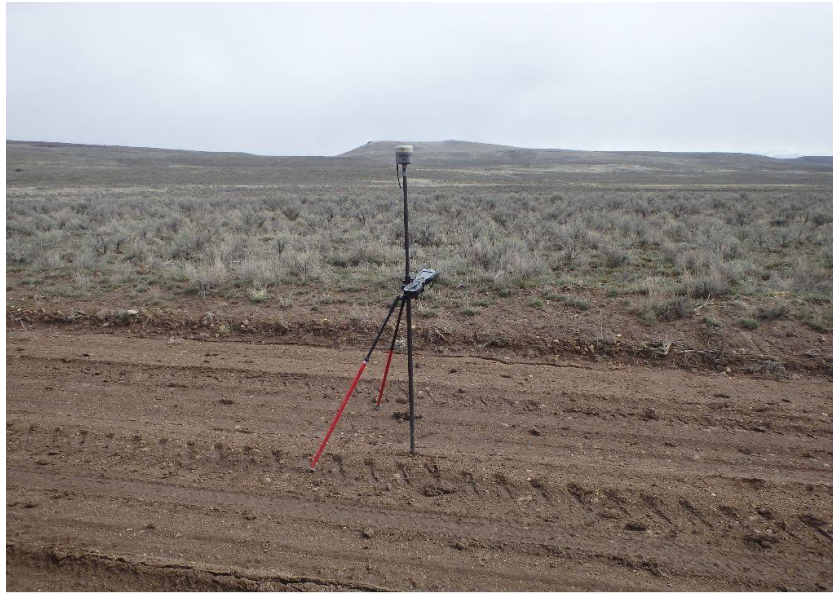
**31, LiDAR CTL, 3E, 16MAR2016**



**32, LiDAR CTL, 3S, 10MAR2016**



**33, LiDAR CTL, 3E, 09MAR2016**



**34, LiDAR CTL, 3E, 09MAR2016**



**35, LiDAR CTL, 3E, 09MAR2016**



**36, LiDAR CTL, 3E, 10MAR2016**



**37, LiDAR CTL, 3E, 16MAR2016**



**38, LiDAR CTL, 3N, 16MAR2016**



**39, LiDAR CTL, 3N, 16MAR2016**



**40, LiDAR CTL, 3N, 16MAR2016**



**41, LiDAR CTL, 3E, 11MAR2016**





**42, LiDAR CTL, 3E, 11MAR2016**



**43, LiDAR CTL, 3E, 16MAR2016**



**44, LiDAR CTL, 3N, 11MAR2016**



**45, LiDAR CTL, 3S, 16MAR2016**



**45A, LiDAR CTL, 3S, 16MAR2016**

## 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 existing NGS datasheets used for this survey are assembled on the following pages.

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

PROGRAM = datasheet95, VERSION = 8.8

```

1      National Geodetic Survey,      Retrieval Date = APRIL 25, 2016
OH0903 *****
OH0903 DESIGNATION - Q 602
OH0903 PID - OH0903
OH0903 STATE/COUNTY- OR/MALHEUR
OH0903 COUNTRY - US
OH0903 USGS QUAD - MC CAIN CREEK (1969)
OH0903
OH0903 *CURRENT SURVEY CONTROL
OH0903
OH0903* NAD 83(1986) POSITION- 43 08 11. (N) 117 16 01. (W) SCALED
OH0903* NAVD 88 ORTHO HEIGHT - 1401.863 (meters) 4599.28 (feet) ADJUSTED
OH0903
OH0903 GEOID HEIGHT - -17.137 (meters) GEOID12B
OH0903 DYNAMIC HEIGHT - 1401.132 (meters) 4596.88 (feet) COMP
OH0903 MODELED GRAVITY - 980,048.9 (mgal) NAVD 88
OH0903
OH0903 VERT ORDER - SECOND CLASS 0
OH0903
OH0903.The horizontal coordinates were scaled from a topographic map and have
OH0903.an estimated accuracy of +/- 6 seconds.
OH0903.
OH0903.The orthometric height was determined by differential leveling and
OH0903.adjusted by the NATIONAL GEODETIC SURVEY
OH0903.in June 1991.
OH0903
OH0903.Significant digits in the geoid height do not necessarily reflect accuracy.
OH0903.GEOID12B height accuracy estimate available here.
OH0903
OH0903.The dynamic height is computed by dividing the NAVD 88
OH0903.geopotential number by the normal gravity value computed on the
OH0903.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
OH0903.degrees latitude (g = 980.6199 gals.).
OH0903
OH0903.The modeled gravity was interpolated from observed gravity values.
OH0903
OH0903; North East Units Estimated Accuracy
OH0903;SPC OR S - 168,340. 1,762,950. MT (+/- 180 meters Scaled)
OH0903
OH0903 SUPERSEDED SURVEY CONTROL
OH0903
OH0903 NGVD 29 (??/??/92) 1400.793 (m) 4595.77 (f) ADJ UNCH 2 0
OH0903

```

OH0903.Superseded values are not recommended for survey control.

OH0903

OH0903.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

OH0903.[See file dsdata.txt](#) to determine how the superseded data were derived.

OH0903

OH0903\_U.S. NATIONAL GRID SPATIAL ADDRESS: 11TMH782759(NAD 83)

OH0903

OH0903\_MARKER: DB = BENCH MARK DISK

OH0903\_SETTING: 66 = SET IN ROCK OUTCROP

OH0903\_STAMPING: Q 602 1966

OH0903\_STABILITY: A = MOST RELIABLE AND EXPECTED TO HOLD

OH0903+STABILITY: POSITION/ELEVATION WELL

OH0903

HISTORY	Date	Condition	Report By
HISTORY	1966	MONUMENTED	CGS

OH0903 HISTORY - 1966 MONUMENTED CGS

OH0903

OH0903 STATION DESCRIPTION

OH0903

OH0903'DESCRIBED BY COAST AND GEODETIC SURVEY 1966

OH0903'20.45 MI NW FROM JORDAN VALLEY.

OH0903'7.7 MILES NORTH ALONG U.S. HIGHWAY 95 FROM THE SCHOOL AT JORDAN

OH0903'VALLEY, THENCE 12.75 MILES WEST ALONG JORDAN CRATER ROAD, IN THE TOP

OH0903'OF A LAVA OUTCROP PROJECTING ABOUT 3 FEET, 25 FEET SOUTHWEST OF THE

OH0903'CENTER LINE OF THE ROAD, 4.8 FEET WEST-NORTHWEST OF A WITNESS POST,

OH0903'AND ABOUT 4 1/2 FEET HIGHER THAN THE ROAD.

1 National Geodetic Survey, Retrieval Date = APRIL 25, 2016

NW0312 \*\*\*\*\*

NW0312 DESIGNATION - ZIP ET

NW0312 PID - NW0312

NW0312 STATE/COUNTY- OR/MALHEUR

NW0312 COUNTRY - US

NW0312 USGS QUAD - DANNER (1969)

NW0312

NW0312 \*CURRENT SURVEY CONTROL

NW0312

NW0312\* NAD 83(1991) POSITION- 42 54 29.67820(N) 117 16 59.15621(W) ADJUSTED

NW0312\* [NAVD 88](#) ORTHO HEIGHT - 1368.04 (+/-2cm) 4488.3 (feet) VERTCON

NW0312

NW0312 GEOID HEIGHT - -17.379 (meters) GEOID12B

NW0312 LAPLACE CORR - 4.95 (seconds) DEFLEC12B

NW0312 HORZ ORDER - SECOND

NW0312 VERT ORDER - THIRD ? (See Below)

NW0312

NW0312.The horizontal coordinates were established by classical geodetic methods

NW0312.and adjusted by the National Geodetic Survey in October 1991.

NW0312.

NW0312.The NAVD 88 height was computed by applying the VERTCON shift value to

NW0312.the NGVD 29 height (displayed under SUPERSEDED SURVEY CONTROL.)

NW0312

NW0312.Significant digits in the geoid height do not necessarily reflect accuracy.

NW0312.GEOID12B height accuracy estimate available [here](#).

NW0312

NW0312.The vertical order pertains to the NGVD 29 superseded value.

NW0312

NW0312.The Laplace correction was computed from DEFLEC12B derived deflections.

NW0312

NW0312. The following values were computed from the NAD 83(1991) position.

NW0312

NW0312;		North	East	Units	Scale Factor	Converg.
NW0312;SPC OR S	-	142,961.567	1,762,609.627	MT	0.99990488	+2 12 03.0
NW0312;SPC OR S	-	469,034.01	5,782,839.98	iFT	0.99990488	+2 12 03.0
NW0312;UTM 11	-	4,750,664.394	476,890.759	MT	0.99960657	-0 11 33.9

NW0312

NW0312!	-	Elev Factor	x	Scale Factor	=	Combined Factor
NW0312!SPC OR S	-	0.99978823	x	0.99990488	=	0.99969313
NW0312!UTM 11	-	0.99978823	x	0.99960657	=	0.99939488

NW0312

NW0312:		Primary Azimuth Mark		Grid Az
NW0312:SPC OR S	-	GRAVEL		056 36 53.5
NW0312:UTM 11	-	GRAVEL		059 00 30.4

NW0312

NW0312	-----			
NW0312	PID	Reference Object	Distance	Geod. Az
NW0312				ddmmss.s
NW0312	NW0307	GRAVEL	APPROX. 8.2 KM	0584856.5
NW0312	NW0311	81 FMK	13.374 METERS	08418
NW0312	CD8920	ZIP RM 1	15.194 METERS	25751
NW0312	-----			

NW0312

NW0312

## SUPERSEDED SURVEY CONTROL

NW0312

NW0312	NAD 83(1986)-	42 54 29.68018(N)	117 16 59.15420(W)	AD( )	2
NW0312	NAD 27	- 42 54 30.12334(N)	117 16 55.63026(W)	AD( )	2
NW0312	NGVD 29 (07/19/86)	1366.96 (m)	4484.8 (f)	LEVELING	3

NW0312

NW0312. Superseded values are not recommended for survey control.

NW0312

NW0312. NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

NW0312. [See file dsdata.txt](#) to determine how the superseded data were derived.

NW0312

NW0312\_U.S. NATIONAL GRID SPATIAL ADDRESS: 11TMH7689050664(NAD 83)

NW0312

NW0312\_MARKER: DD = SURVEY DISK

NW0312\_SETTING: 9 = SET IN PREFABRICATED CONCRETE POST IMBEDDED IN GROUND

NW0312\_STAMPING: ET ZIP 1969 ETT

NW0312\_MARK LOGO: USGS

NW0312

NW0312	HISTORY	- Date	Condition	Report By
NW0312	HISTORY	- 1969	MONUMENTED	USGS

NW0312

NW0312

## STATION DESCRIPTION

NW0312

NW0312'DESCRIBED BY US GEOLOGICAL SURVEY 1969

NW0312'LOCATED ABOUT 12.5 MI SW. OF JORDAN VALLEY, ABOUT 12.5 MI E. OF

NW0312'AROCK, ABOUT 2.5 MI W. OF ANTELOPE RESERVOIR, 100 FT S. OF

NW0312'CENTERLINE OF U.S. HWY. 95. ON TOP OF LOW RIDGE.

NW0312'

NW0312'TO REACH FROM POST OFFICE IN JORDAN VALLEY, GO W. ON U.S. HWY. 95

NW0312'5.0 MI TO RD. FORK TO COW LAKE. KEEP LEFT ON U.S. HWY. 95 (SW.)

NW0312'6.9 MI TO T-RD. SE. TO ANTELOPE RESERVOIR. KEEP STRAIGHT AHEAD ON

NW0312'U.S. HWY. 95 2.0 MI TO HWY. CUT AT TOP OF LOW RIDGE AND STATION

UNITED STATES GEOLOGICAL SURVEY FEMA HQ MALHEUR, OR QL1 LIDAR

Ground Control Survey Report

October 2016

NW0312'100 FT S. OF HWY. CENTERLINE AND 5 FT N. OF RIGHT-OF-WAY FENCE.  
 NW0312'  
 NW0312'STATION MARK--STANDARD ALUMINUM TABLET STAMPED---ZIP 1969 ET---,  
 NW0312'SET IN TOP OF CONCRETE POST FLUSH WITH GROUND.  
 NW0312'  
 NW0312'RM 1--STANDARD RM TABLET STAMPED---NO 1 1969---, SET IN TOP OF  
 NW0312'CONCRETE POST PROJECTING 0.2 FT.  
 NW0312'  
 NW0312'RM 2--STANDARD BRASS BM TABLET STAMPED---81 FMK 1968---, CRIMPED TO  
 NW0312'TOP OF COPPER-COATED ROD INSIDE FIBER PIPE FLUSH WITH GROUND.  
 NW0312'  
 NW0312'HEIGHT OF INSTRUMENT ABOVE STATION MARK--5.2 FT

1 National Geodetic Survey, Retrieval Date = APRIL 25, 2016

OH0902 \*\*\*\*\*  
 OH0902 DESIGNATION - P 602  
 OH0902 PID - OH0902  
 OH0902 STATE/COUNTY- OR/MALHEUR  
 OH0902 COUNTRY - US  
 OH0902 USGS QUAD - MAHOGANY GAP (1969)  
 OH0902  
 OH0902 \*CURRENT SURVEY CONTROL  
 OH0902

OH0902*	NAD 83(1986) POSITION-	43 07 40.	(N) 117 14 53.	(W)	SCALED
OH0902*	<u>NAVD 88</u> ORTHO HEIGHT -	1346.922 (meters)	4419.03 (feet)		ADJUSTED
OH0902	GEOID HEIGHT -	-17.110 (meters)			GEOID12B
OH0902	DYNAMIC HEIGHT -	1346.221 (meters)	4416.73 (feet)		COMP
OH0902	MODELED GRAVITY -	980,052.7 (mgal)			NAVD 88

OH0902  
 OH0902 VERT ORDER - SECOND CLASS 0  
 OH0902  
 OH0902.The horizontal coordinates were scaled from a topographic map and have  
 OH0902.an estimated accuracy of +/- 6 seconds.  
 OH0902.  
 OH0902.The orthometric height was determined by differential leveling and  
 OH0902.adjusted by the NATIONAL GEODETIC SURVEY  
 OH0902.in June 1991.  
 OH0902  
 OH0902.Significant digits in the geoid height do not necessarily reflect accuracy.  
 OH0902.GEOID12B height accuracy estimate available [here](#).  
 OH0902  
 OH0902.The dynamic height is computed by dividing the NAVD 88  
 OH0902.geopotential number by the normal gravity value computed on the  
 OH0902.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45  
 OH0902.degrees latitude (g = 980.6199 gals.).  
 OH0902  
 OH0902.The modeled gravity was interpolated from observed gravity values.  
 OH0902

OH0902;	North	East	Units	Estimated Accuracy
OH0902;SPC OR S -	167,440.	1,764,520.	MT	(+/- 180 meters Scaled)

OH0902  
 OH0902 SUPERSEDED SURVEY CONTROL  
 OH0902  
 OH0902 NGVD 29 (??/??/92) 1345.852 (m) 4415.52 (f) ADJ UNCH 2 0  
 OH0902

OH0902.Superseded values are not recommended for survey control.

OH0902

OH0902.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

OH0902.[See file dsdata.txt](#) to determine how the superseded data were derived.

OH0902

OH0902\_U.S. NATIONAL GRID SPATIAL ADDRESS: 11TMH798750 (NAD 83)

OH0902

OH0902\_MARKER: DB = BENCH MARK DISK

OH0902\_SETTING: 80 = SET IN A BOULDER

OH0902\_STAMPING: P 602 1966

OH0902\_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO

OH0902+STABILITY: SURFACE MOTION

OH0902

HISTORY	Date	Condition	Report By
HISTORY	- 1966	MONUMENTED	CGS

OH0902 HISTORY - 1966 MONUMENTED CGS

OH0902

OH0902 STATION DESCRIPTION

OH0902

OH0902'DESCRIBED BY COAST AND GEODETIC SURVEY 1966

OH0902'19.3 MI NW FROM JORDAN VALLEY.

OH0902'7.7 MILES NORTH ALONG U.S. HIGHWAY 95 FROM THE SCHOOL AT JORDAN

OH0902'VALLEY, THENCE 11.6 MILES WEST ALONG JORDAN CRATER ROAD, 0.4 MILE

OH0902'NORTHWEST OF THE JUNCTION OF A ROAD WEST TO SESSIONS RANCH, 77 FEET

OH0902'NORTHEAST OF THE CENTER LINE OF THE ROAD, 162 FEET EAST OF THE CENTER

OH0902'OF THE CROSSING OF A WASH, IN THE TOP OF A LAVA BOULDER PROJECTING

OH0902'ABOUT 1 FOOT, 3.8 FEET SOUTHEAST OF A WITNESS POST, AND ABOUT 2 FEET

OH0902'LOWER THAN THE ROAD.

1 National Geodetic Survey, Retrieval Date = APRIL 25, 2016

NW0588 \*\*\*\*\*

NW0588 FBN - This is a Federal Base Network Control Station.

NW0588 DESIGNATION - JORD

NW0588 PID - NW0588

NW0588 STATE/COUNTY- OR/MALHEUR

NW0588 COUNTRY - US

NW0588 USGS QUAD - JORDAN VALLEY (1969)

NW0588

NW0588 \*CURRENT SURVEY CONTROL

NW0588

NW0588*	NAD 83(2011)	POSITION-	42 58 46.63829(N)	117 03 11.65954(W)	ADJUSTED
NW0588*	NAD 83(2011)	ELLIP HT-	1323.216 (meters)	(06/27/12)	ADJUSTED
NW0588*	NAD 83(2011)	EPOCH	- 2010.00		
NW0588*	<a href="#">NAVD 88</a>	ORTHO HEIGHT	- 1340.10 (meters)	4396.6 (feet)	N HEIGHT

NW0588

NW0588 NAD 83(2011) X - -2,126,031.863 (meters) COMP

NW0588 NAD 83(2011) Y - -4,163,005.147 (meters) COMP

NW0588 NAD 83(2011) Z - 4,326,747.880 (meters) COMP

NW0588 LAPLACE CORR - 4.45 (seconds) DEFLEC12B

NW0588 GEOID HEIGHT - -16.888 (meters) GEOID12B

NW0588 DYNAMIC HEIGHT - 1339.38 (meters) 4394.3 (feet) COMP

NW0588 MODELED GRAVITY - 980,037.4 (mgal) NAVD 88

NW0588

NW0588 VERT ORDER - THIRD

NW0588

NW0588 Network accuracy estimates per FGDC Geospatial Positioning Accuracy

NW0588 Standards:



```

NW0588          FGDC (95% conf, cm)          Standard deviation (cm)          CorrNE
NW0588          Horiz Ellip                SD_N   SD_E   SD_h          (unitless)
NW0588 -----
NW0588 NETWORK    0.55   1.16          0.24   0.21   0.59          -0.03395872
NW0588 -----

```

NW0588 Click [here](#) for local accuracies and other accuracy information.

NW0588

NW0588

NW0588.The horizontal coordinates were established by GPS observations

NW0588.and adjusted by the National Geodetic Survey in June 2012.

NW0588

NW0588.NAD 83(2011) refers to NAD 83 coordinates where the reference

NW0588.frame has been affixed to the stable North American tectonic plate. See

NW0588.[NA2011](#) for more information.

NW0588

NW0588.The horizontal coordinates are valid at the epoch date displayed above

NW0588.which is a decimal equivalence of Year/Month/Day.

NW0588

NW0588.The orthometric height was determined by differential leveling

NW0588.and adjusted by the NATIONAL GEODETIC SURVEY in April 1995.

NW0588

NW0588.The height was determined by precise leveling from only one NSRS

NW0588.bench mark. This was not adequate "tie leveling" to NSRS and was

NW0588.allowed ONLY to validate the GPS-derived height.

NW0588

NW0588.Significant digits in the geoid height do not necessarily reflect accuracy.

NW0588.GEOID12B height accuracy estimate available [here](#).

NW0588

NW0588.The X, Y, and Z were computed from the position and the ellipsoidal ht.

NW0588

NW0588.The Laplace correction was computed from DEFLEC12B derived deflections.

NW0588

NW0588.The ellipsoidal height was determined by GPS observations

NW0588.and is referenced to NAD 83.

NW0588

NW0588.The dynamic height is computed by dividing the NAVD 88

NW0588.geopotential number by the normal gravity value computed on the

NW0588.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45

NW0588.degrees latitude (g = 980.6199 gals.).

NW0588

NW0588.The modeled gravity was interpolated from observed gravity values.

NW0588

NW0588. The following values were computed from the NAD 83(2011) position.

NW0588

NW0588;		North	East	Units	Scale Factor	Converg.
NW0588;SPC ID W	-	146,656.983	693,703.962	MT	1.00007229	-0 53 18.8
NW0588;SPC ID W	-	481,157.12	2,275,927.08	sFT	1.00007229	-0 53 18.8
NW0588;SPC OR S	-	151,630.072	1,781,037.646	MT	0.99990002	+2 21 29.1
NW0588;SPC OR S	-	497,473.99	5,843,299.36	iFT	0.99990002	+2 21 29.1
NW0588;UTM 11	-	4,758,553.205	495,659.163	MT	0.99960023	-0 02 10.7

NW0588

NW0588!  
NW0588!SPC ID W

- Elev Factor x Scale Factor = Combined Factor

- 0.99979253 x 1.00007229 = 0.99986481

NW0588!SPC OR S - 0.99979253 x 0.99990002 = 0.99969257

NW0588!UTM 11 - 0.99979253 x 0.99960023 = 0.99939284

NW0588  
 NW0588 SUPERSEDED SURVEY CONTROL  
 NW0588  
 NW0588 NAD 83(2007)- 42 58 46.63762(N) 117 03 11.66042(W) AD(2007.00) 0  
 NW0588 ELLIP H (02/10/07) 1323.230 (m) GP(2007.00)  
 NW0588 NAD 83(1998)- 42 58 46.63749(N) 117 03 11.65962(W) AD( ) A  
 NW0588 ELLIP H (04/24/00) 1323.236 (m) GP( ) 3 1  
 NW0588 NAD 83(1991)- 42 58 46.63600(N) 117 03 11.65729(W) AD( ) B  
 NW0588 NAD 27 - 42 58 47.07011(N) 117 03 08.15988(W) AD( ) 1  
 NW0588 ELLIP H (02/25/91) 1323.357 (m) GP( ) 4 1  
 NW0588 NAVD 88 (10/13/99) 1340.10 (m) 4396.6 (f) LEVELING 3  
 NW0588 NAVD 88 (05/28/92) 1340.1 (m) UNKNOWN model used GPS OBS  
 NW0588 NGVD 29 (??/??/??) 1339.04 (m) 4393.2 (f) N HEIGHT 3  
 NW0588 NGVD 29 (02/25/91) 1339.04 (m) 4393.2 (f) LEVELING 3

NW0588  
 NW0588.Superseded values are not recommended for survey control.

NW0588  
 NW0588.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.  
 NW0588.[See file dsdata.txt](#) to determine how the superseded data were derived.

NW0588  
 NW0588\_U.S. NATIONAL GRID SPATIAL ADDRESS: 11TMH9565958553(NAD 83)

NW0588  
 NW0588\_MARKER: DD = SURVEY DISK  
 NW0588\_SETTING: 35 = SET IN A MAT FOUNDATION OR CONCRETE SLAB OTHER THAN  
 NW0588+WITH SETTING: PAVEMENT  
 NW0588\_SP\_SET: CONCRETE MAT  
 NW0588\_STAMPING: JORD 1989  
 NW0588\_MARK LOGO: ORDT  
 NW0588\_MAGNETIC: N = NO MAGNETIC MATERIAL  
 NW0588\_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO  
 NW0588+STABILITY: SURFACE MOTION  
 NW0588\_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR  
 NW0588+SATELLITE: SATELLITE OBSERVATIONS - March 16, 2000

NW0588  

HISTORY	- Date	Condition	Report By
NW0588	HISTORY - 1989	MONUMENTED	NGS
NW0588	HISTORY - 19900116	GOOD	
NW0588	HISTORY - 19911015	GOOD	NGS
NW0588	HISTORY - 19980422	GOOD	OR-045
NW0588	HISTORY - 19990721	GOOD	NGS
NW0588	HISTORY - 20000316	GOOD	NGS

NW0588  
 NW0588  
 NW0588 STATION DESCRIPTION

NW0588'DESCRIBED BY NATIONAL GEODETIC SURVEY 1989  
 NW0588'THE STATION IS LOCATED IN JORDAN VALLEY, 0.4 MILE NORTH OF THE POST  
 NW0588'OFFICE, ACROSS STREET FROM THE CITY PARK (WEST) ON ORDOT PROPERTY AT  
 NW0588'AN OLD SCALE SITE AND ON EAST SIDE OF HIGHWAY MAINTENANCE STATION.  
 NW0588'TO REACH FROM THE POST OFFIC IN JORDAY VALLEY GO NORTH ON US 95 FOR  
 NW0588'0.64 KM (0.40 MI) TO THE MARK ON THE LEFT.  
 NW0588'THE STATION IS 63.9 M (209.6 FT) SOUTH OF MP 20, 24.7 M (81.0 FT)  
 NW0588'NORTH OF A POWER POLE, 13.8 M (45.3 FT) WEST OF THE CENTERLINE OF THE  
 NW0588'HIGHWAY, 1.1 M (3.6 FT) EAST OF A WITNESS POST THAT IS IN A FENCE  
 NW0588'LINE, AND 0.5 M (1.6 FT) WEST OF WEST EDGE OF OLD SCALE PLATFORM.  
 NW0588'DESCRIBED BY L.L. RIGGERS.

NW0588 STATION RECOVERY (1990)

NW0588

NW0588'RECOVERED 1990

NW0588'RECOVERED IN GOOD CONDITION.

NW0588

NW0588

STATION RECOVERY (1991)

NW0588

NW0588'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1991

NW0588'THE STATION IS LOCATED IN JORDAN VALLEY, ABOUT 0.65 KM (0.40 MI) NORTH  
NW0588'OF THE OREGON DEPARTMENT OF TRANSPORTATION OFFICE, ACROSS THE STREET  
NW0588'FROM THE CITY PARK (WEST) ON ORDOT PROPERTY, AN OLD SCALE SITE AND ON  
NW0588'THE EAST SIDE OF THE HIGHWAY MAINTINANCE STATION.

NW0588'TO REACH THE STATION FROM THE POST OFFICE IN JORDAN VALLEY, GO NORTH  
NW0588'ON U.S. HIGHWAY 95 FOR 0.64 KM (0.40 MI) TO THE STATION ON THE LEFT.

NW0588'THE STATION IS A STANDARD DISK SET IN A DRILL HOLE IN A MAT  
NW0588'FOUNDATION. LOCATED 63.9 M (209.6 FT) SOUTH OF MP 20, 24.7 M

NW0588'(81.0 FT) NORTH OF A POWER POLE, 13.8 M (45.3 FT) WEST OF THE CENTER  
NW0588'OF THE HIGHWAY, 1.1 M (3.6 FT) EAST OF A WITNESS POST IN THE  
NW0588'FENCELINE AND 0.5 M (1.6 FT) WEST OF THE WEST EDGE OF THE OLD SCALE  
NW0588'PLATFORM.

NW0588

NW0588

STATION RECOVERY (1998)

NW0588

NW0588'RECOVERY NOTE BY MALHEUR COUNTY OREGON 1998 (JK)

NW0588'THE STATION IS LOCATED IN JORDAN VALLEY, ABOUT 0.65 KM (0.40 MI) NORTH  
NW0588'OF DOWNTOWN, ON WEST SIDE OF U.S. HIGHWAY 95 ON EAST SIDE OF HIGHWAY  
NW0588'MAINTENANCE STATION, AND WEST ACROSS THE STREET FROM THE CITY PARK.  
NW0588'OWNERSHIP--OREGON STATE DEPARTMENT OF TRANSPORTATION. TO REACH THE  
NW0588'STATION FROM THE POST OFFICE IN JORDAN VALLEY, GO NORTH ON U.S.

NW0588'HIGHWAY 95 FOR 0.64 KM (0.40 MI) TO THE STATION ON THE LEFT. THE  
NW0588'STATION IS AN OREGON PRIMARY GPS STATION DISK SET IN A DRILL HOLE IN A  
NW0588'CONCRETE MAT FOUNDATION. IT IS 24.7 M (81.0 FT) NORTH FROM A POWER  
NW0588'POLE, 13.8 M (45.3 FT) WEST FROM THE CENTER OF THE HIGHWAY, 1.0 M (3.3  
NW0588'FT) SOUTHEAST FROM A WITNESS POST, 0.5 M (1.6 FT) EAST FROM A FENCE,  
NW0588'AND 0.5 M (1.6 FT) WEST FROM THE WEST EDGE OF THE OLD SCALE PLATFORM.

NW0588

NW0588

STATION RECOVERY (1999)

NW0588

NW0588'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1999 (CSM)

NW0588'RECOVERED AS DESCRIBED.

NW0588

NW0588

STATION RECOVERY (2000)

NW0588

NW0588'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 2000 (GAS)

NW0588'IN JORDAN VALLEY, AT THE INTERSECTION OF U.S. HIGHWAY 95 AND IOWA  
NW0588'AVENUE, NEAR THE NORTHWEST CORNER OF THE CONCRETE FOUNDATION OF A  
NW0588'SCALE (ABANDONED), 55.1 M (180.8 FT) NORTH OF THE EXTENDED CENTER OF  
NW0588'THE AVENUE, 44.2 M (145.0 FT) NORTH OF THE CENTER OF THE ENTRANCE ROAD  
NW0588'TO AN OREGON DEPARTMENT OF TRANSPORTATION MAINTENANCE YARD, 24.6 M  
NW0588'(80.7 FT) NORTH OF A UTILITY POLE, 18.8 M (61.7 FT) WEST OF THE  
NW0588'HIGHWAY CENTERLINE, 5.1 M (16.7 FT) SOUTH OF AN UNDERGROUND CABLE  
NW0588'JUNCTION BOX, 1.1 M (3.6 FT) SOUTHEAST OF A WITNESS POST AND THE  
NW0588'NORTHWEST CORNER OF THE FOUNDATION, 0.5 M (1.6 FT) EAST OF A FENCE  
NW0588'ENCLOSING THE MAINTENANCE YARD, AND 0.3 M (1.0 FT) BELOW THE LEVEL OF  
NW0588'THE HIGHWAY. NOTE--THE MARK IS ON THE HIGHWAY RIGHT-OF-WAY. THIS IS  
NW0588'A FEDERAL BASE NETWORK CONTROL STATION.

1 National Geodetic Survey, Retrieval Date = APRIL 25, 2016

NW0126 \*\*\*\*\*

NW0126 DESIGNATION - J 106

NW0126 PID - NW0126

NW0126 STATE/COUNTY- ID/OWYHEE

NW0126 COUNTRY - US

NW0126 USGS QUAD - PARSNIP PEAK (1969)

NW0126

NW0126 \*CURRENT SURVEY CONTROL

NW0126

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NW0126\* NAD 83(1986) POSITION- 42 52 10. (N) 117 00 45. (W) SCALED

NW0126\* [NAVD 88](#) ORTHO HEIGHT - 1403.687 (meters) 4605.26 (feet) ADJUSTED

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NW0126 GEOID HEIGHT - -16.821 (meters) GEOID12B

NW0126 DYNAMIC HEIGHT - 1402.905 (meters) 4602.70 (feet) COMP

NW0126 MODELED GRAVITY - 980,014.1 (mgal) NAVD 88

NW0126

NW0126 VERT ORDER - SECOND CLASS 0

NW0126

NW0126.The horizontal coordinates were scaled from a topographic map and have  
 NW0126.an estimated accuracy of +/- 6 seconds.

NW0126.

NW0126.The orthometric height was determined by differential leveling and  
 NW0126.adjusted by the NATIONAL GEODETIC SURVEY  
 NW0126.in June 1991.

NW0126

NW0126.Significant digits in the geoid height do not necessarily reflect accuracy.  
 NW0126.GEOID12B height accuracy estimate available [here](#).

NW0126

NW0126.The dynamic height is computed by dividing the NAVD 88  
 NW0126.geopotential number by the normal gravity value computed on the  
 NW0126.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45  
 NW0126.degrees latitude (g = 980.6199 gals.).

NW0126

NW0126.The modeled gravity was interpolated from observed gravity values.

NW0126

	North	East	Units	Estimated Accuracy
NW0126; SPC ID W -	134,370.	696,840.	MT	(+/- 180 meters Scaled)

NW0126

NW0126 SUPERSEDED SURVEY CONTROL

NW0126

NW0126 NGVD 29 (??/??/92) 1402.613 (m) 4601.74 (f) ADJ UNCH 2 0

NW0126

NW0126.Superseded values are not recommended for survey control.

NW0126

NW0126.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.  
 NW0126.[See file dsdata.txt](#) to determine how the superseded data were derived.

NW0126

NW0126\_U.S. NATIONAL GRID SPATIAL ADDRESS: 11TMH989463(NAD 83)

NW0126

NW0126\_MARKER: DB = BENCH MARK DISK

NW0126\_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT

NW0126\_STAMPING: J 106 1963

NW0126\_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO

NW0126+STABILITY: SURFACE MOTION

NW0126  
 NW0126 HISTORY - Date Condition Report By  
 NW0126 HISTORY - 1963 MONUMENTED CGS

NW0126  
 NW0126 STATION DESCRIPTION  
 NW0126

NW0126'DESCRIBED BY COAST AND GEODETIC SURVEY 1963  
 NW0126'9.9 MI SE FROM JORDAN VALLEY, OR.  
 NW0126'9.9 MILES SOUTHEAST ALONG A GRAVELED ROAD FROM THE JORDAN VALLEY HOTEL  
 NW0126'AT JORDAN VALLEY, 44 FEET WEST OF THE CENTER LINE OF THE ROAD, 57 FEET  
 NW0126'NORTH OF A TELEPHONE POLE, 2.8 FEET NORTH OF A WITNESS POST, ABOUT  
 NW0126'LEVEL WITH THE ROAD, AND SET IN THE TOP OF A CONCRETE POST PROJECTING  
 NW0126'0.3 FOOT ABOVE THE GROUND.

1 National Geodetic Survey, Retrieval Date = APRIL 25, 2016

OH0864 \*\*\*\*\*  
 OH0864 DESIGNATION - D 37  
 OH0864 PID - OH0864  
 OH0864 STATE/COUNTY- OR/MALHEUR  
 OH0864 COUNTRY - US  
 OH0864 USGS QUAD - VALE EAST (1975)  
 OH0864  
 OH0864 \*CURRENT SURVEY CONTROL  
 OH0864

OH0864*	NAD 83(1986) POSITION-	43 59 09.1	(N)	117 14 17.8	(W)	HD_HELD2
OH0864*	<u>NAVD 88</u> ORTHO HEIGHT -	683.991 (meters)		2244.06	(feet)	ADJUSTED
OH0864	GEOID HEIGHT -	-17.979 (meters)				GEOID12B
OH0864	DYNAMIC HEIGHT -	683.780 (meters)		2243.37	(feet)	COMP
OH0864	MODELED GRAVITY -	980,288.6 (mgal)				NAVD 88
OH0864	VERT ORDER -	FIRST	CLASS II			

OH0864.The horizontal coordinates were established by autonomous hand held GPS  
 OH0864.observations and have an estimated accuracy of +/- 10 meters.

OH0864.  
 OH0864.The orthometric height was determined by differential leveling and  
 OH0864.adjusted by the NATIONAL GEODETIC SURVEY  
 OH0864.in June 1991.

OH0864  
 OH0864.Significant digits in the geoid height do not necessarily reflect accuracy.  
 OH0864.GEOID12B height accuracy estimate available [here](#).

OH0864  
 OH0864.The dynamic height is computed by dividing the NAVD 88  
 OH0864.geopotential number by the normal gravity value computed on the  
 OH0864.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45  
 OH0864.degrees latitude (g = 980.6199 gals.).

OH0864  
 OH0864.The modeled gravity was interpolated from observed gravity values.  
 OH0864

OH0864;	North	East	Units	Estimated Accuracy
OH0864;SPC OR S -	262,728.	1,761,605.	MT	(+/- 10 meters HH2 GPS)

OH0864  
 OH0864 SUPERSEDED SURVEY CONTROL  
 OH0864  
 OH0864 NGVD 29 (??/??/92) 682.994 (m) 2240.79 (f) ADJ UNCH 1 2

OH0864  
OH0864.Superseded values are not recommended for survey control.  
OH0864  
OH0864.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.  
OH0864.[See file dsdata.txt](#) to determine how the superseded data were derived.  
OH0864  
OH0864\_U.S. NATIONAL GRID SPATIAL ADDRESS: 11TMJ8089170330(NAD 83)  
OH0864  
OH0864\_MARKER: DB = BENCH MARK DISK  
OH0864\_SETTING: 34 = SET IN THE FOOTINGS OF SMALL/MEDIUM STRUCTURES  
OH0864\_SP\_SET: FOOTING  
OH0864\_STAMPING: 2241.311 D 37 1930  
OH0864\_MARK LOGO: CGS  
OH0864\_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO  
OH0864+STABILITY: SURFACE MOTION  
OH0864\_SATELLITE: THE SITE LOCATION WAS REPORTED AS NOT SUITABLE FOR  
OH0864+SATELLITE: SATELLITE OBSERVATIONS - August 21, 1989  
OH0864  
OH0864 HISTORY - Date Condition Report By  
OH0864 HISTORY - 1930 MONUMENTED CGS  
OH0864 HISTORY - 1985 GOOD NGS  
OH0864 HISTORY - 19890821 GOOD LOCSUR  
OH0864  
OH0864 STATION DESCRIPTION  
OH0864  
OH0864'DESCRIBED BY COAST AND GEODETIC SURVEY 1930  
OH0864'IN VALE.  
OH0864'AT VALE, MALHEUR COUNTY, ON THE UNION PACIFIC RAILROAD, AT THE JOHN  
OH0864'DAY HIGHWAY (U. S. 28) CROSSING, 84 FEET WEST OF THE CENTER LINE OF  
OH0864'THE HIGHWAY, 71.5 FEET SOUTH OF THE MAIN TRACK, AT THE WOODEN WATER  
OH0864'TANK JUST NORTH OF THE STATION, AND IN THE NORTH CONCRETE FOOTING. A  
OH0864'STANDARD DISK, STAMPED 2241.311 D 37 1930.  
OH0864  
OH0864 STATION RECOVERY (1985)  
OH0864  
OH0864'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1985  
OH0864'RECOVERED IN GOOD CONDITION. EXCEPT THE WATER TANK DESCRIBED IS NOW  
OH0864'DESTROYED.  
OH0864  
OH0864 STATION RECOVERY (1989)  
OH0864  
OH0864'RECOVERY NOTE BY LOCAL SURVEYOR (INDIVIDUAL OR FIRM) 1989  
OH0864'RECOVERED IN GOOD CONDITION.

1 National Geodetic Survey, Retrieval Date = APRIL 25, 2016

OH0893 \*\*\*\*\*  
OH0893 DESIGNATION - G 602  
OH0893 PID - OH0893  
OH0893 STATE/COUNTY- OR/MALHEUR  
OH0893 COUNTRY - US  
OH0893 USGS QUAD - HOOKER CREEK (1969)  
OH0893  
OH0893 \*CURRENT SURVEY CONTROL  
OH0893  
OH0893\* NAD 83(1986) POSITION- 43 05 31. (N) 117 07 19. (W) SCALED  
OH0893\* [NAVD 88](#) ORTHO HEIGHT - 1367.005 (meters) 4484.92 (feet) ADJUSTED

OH0893

OH0893	GEOID HEIGHT	-	-16.928	(meters)			GEOID12B
OH0893	DYNAMIC HEIGHT	-	1366.278	(meters)	4482.53	(feet)	COMP
OH0893	MODELED GRAVITY	-	980,040.9	(mgal)			NAVD 88

OH0893

OH0893 VERT ORDER - SECOND CLASS 0

OH0893

OH0893.The horizontal coordinates were scaled from a topographic map and have  
OH0893.an estimated accuracy of +/- 6 seconds.

OH0893.

OH0893.The orthometric height was determined by differential leveling and  
OH0893.adjusted by the NATIONAL GEODETIC SURVEY  
OH0893.in June 1991.

OH0893

OH0893.Significant digits in the geoid height do not necessarily reflect accuracy.  
OH0893.GEOID12B height accuracy estimate available [here](#).

OH0893

OH0893.The dynamic height is computed by dividing the NAVD 88  
OH0893.geopotential number by the normal gravity value computed on the  
OH0893.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45  
OH0893.degrees latitude (g = 980.6199 gals.).

OH0893

OH0893.The modeled gravity was interpolated from observed gravity values.

OH0893

OH0893;		North	East	Units	Estimated Accuracy
OH0893;SPC OR S	-	163,870.	1,774,940.	MT	(+/- 180 meters Scaled)

OH0893

OH0893 SUPERSEDED SURVEY CONTROL

OH0893

OH0893	NGVD 29 (??/??/92)	1365.934	(m)	4481.40	(f)	ADJ UNCH	2 0
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OH0893

OH0893.Superseded values are not recommended for survey control.

OH0893

OH0893.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.  
OH0893.[See file dsdata.txt](#) to determine how the superseded data were derived.

OH0893

OH0893 U.S. NATIONAL GRID SPATIAL ADDRESS: 11TMH900710(NAD 83)

OH0893

OH0893\_MARKER: DB = BENCH MARK DISK

OH0893\_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT

OH0893\_STAMPING: G 602 1966

OH0893\_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO

OH0893+STABILITY: SURFACE MOTION

OH0893

OH0893	HISTORY	-	Date	Condition	Report By
OH0893	HISTORY	-	1966	MONUMENTED	CGS

OH0893

OH0893 STATION DESCRIPTION

OH0893

OH0893'DESCRIBED BY COAST AND GEODETIC SURVEY 1966  
OH0893'10.65 MI NW FROM JORDAN VALLEY.  
OH0893'7.7 MILES NORTH ALONG U.S. HIGHWAY 95 FROM THE SCHOOL AT JORDAN  
OH0893'VALLEY, THENCE 2.95 MILES WEST ALONG JORDAN CRATER ROAD, 0.1 MILE WEST  
OH0893'OF THE CREST OF A RISE IN THE ROAD, 145 FEET EAST OF THE CENTER OF THE  
OH0893'CROSSING OF A DRY WASH, 76 FEET NORTH OF THE CENTER LINE OF THE ROAD,

OH0893'2 1/2 FEET EAST OF A TELEPHONE POLE, 2.0 FEET WEST OF A WITNESS POST,  
 OH0893'ABOUT 4 1/2 FEET LOWER THAN THE ROAD, AND SET IN THE TOP OF A CONCRETE  
 OH0893'POST PROJECTING 0.4 FOOT ABOVE THE GROUND.

1 National Geodetic Survey, Retrieval Date = APRIL 25, 2016  
 OH0878 \*\*\*\*\*  
 OH0878 DESIGNATION - D 131  
 OH0878 PID - OH0878  
 OH0878 STATE/COUNTY- OR/MALHEUR  
 OH0878 COUNTRY - US  
 OH0878 USGS QUAD - SHEAVILLE (1969)  
 OH0878  
 OH0878 \*CURRENT SURVEY CONTROL  
 OH0878  
 OH0878\* NAD 83(1986) POSITION- 43 13 45.5 (N) 117 03 33.1 (W) HD\_HELD2  
 OH0878\* NAVD 88 ORTHO HEIGHT - 1254.946 (meters) 4117.27 (feet) ADJUSTED  
 OH0878  
 OH0878 GEOID HEIGHT - -16.873 (meters) GEOID12B  
 OH0878 DYNAMIC HEIGHT - 1254.341 (meters) 4115.28 (feet) COMP  
 OH0878 MODELED GRAVITY - 980,093.7 (mgal) NAVD 88  
 OH0878  
 OH0878 VERT ORDER - SECOND CLASS 0  
 OH0878  
 OH0878.The horizontal coordinates were established by autonomous hand held GPS  
 OH0878.observations and have an estimated accuracy of +/- 10 meters.  
 OH0878.  
 OH0878.The orthometric height was determined by differential leveling and  
 OH0878.adjusted by the NATIONAL GEODETIC SURVEY  
 OH0878.in June 1991.  
 OH0878  
 OH0878.Significant digits in the geoid height do not necessarily reflect accuracy.  
 OH0878.GEOID12B height accuracy estimate available [here](#).  
 OH0878  
 OH0878.The dynamic height is computed by dividing the NAVD 88  
 OH0878.geopotential number by the normal gravity value computed on the  
 OH0878.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45  
 OH0878.degrees latitude (g = 980.6199 gals.).  
 OH0878  
 OH0878.The modeled gravity was interpolated from observed gravity values.  
 OH0878  

	North	East	Units	Estimated Accuracy
OH0878; SPC OR S	- 179,322.	1,779,413.	MT	(+/- 10 meters HH2 GPS)

 OH0878  
 OH0878 SUPERSEDED SURVEY CONTROL  
 OH0878  
 OH0878 NGVD 29 (??/??/92) 1253.928 (m) 4113.93 (f) ADJ UNCH 2 0  
 OH0878  
 OH0878.Superseded values are not recommended for survey control.  
 OH0878  
 OH0878.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.  
 OH0878.[See file dsdata.txt](#) to determine how the superseded data were derived.  
 OH0878  
 OH0878\_U.S. NATIONAL GRID SPATIAL ADDRESS: 11TMH9519386281(NAD 83)  
 OH0878  
 OH0878\_MARKER: DB = BENCH MARK DISK  
 OH0878\_SETTING: 66 = SET IN ROCK OUTCROP



OH0878\_STAMPING: D 131 1934

OH0878\_STABILITY: A = MOST RELIABLE AND EXPECTED TO HOLD

OH0878+STABILITY: POSITION/ELEVATION WELL

OH0878

OH0878	HISTORY	- Date	Condition	Report By
OH0878	HISTORY	- 1934	MONUMENTED	CGS
OH0878	HISTORY	- 1966	GOOD	CGS

OH0878

OH0878 STATION DESCRIPTION

OH0878

OH0878'DESCRIBED BY COAST AND GEODETIC SURVEY 1966

OH0878'43.0 MI S FROM ADRIAN.

OH0878'8.0 MILES SOUTH ALONG STATE HIGHWAY 201 FROM THE POST OFFICE AT

OH0878'ADRIAN, THENCE 35.0 MILES SOUTH ALONG SUCCOR CREEK ROAD, 0.2 MILE

OH0878'NORTH OF A STEEL CATTLEGUARD, IN THE TOP OF THE SOUTH END OF A RIDGE

OH0878'OF SANDSTONE OUTCROP PROJECTING ABOUT 1 1/2 FEET, 71 FEET NORTH OF THE

OH0878'CENTER LINE OF THE ROAD, AND ABOUT 4 FEET HIGHER THAN THE ROAD.

1 National Geodetic Survey, Retrieval Date = APRIL 25, 2016

NW0230 \*\*\*\*\*

NW0230 DESIGNATION - C 130

NW0230 PID - NW0230

NW0230 STATE/COUNTY- OR/MALHEUR

NW0230 COUNTRY - US

NW0230 USGS QUAD - SCOTT RESERVOIR (1972)

NW0230

NW0230 \*CURRENT SURVEY CONTROL

NW0230

NW0230*	NAD 83(1986) POSITION-	42 51 02.	(N)	117 36 15.	(W)	SCALED
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NW0230*	<a href="#">NAVD 88</a> ORTHO HEIGHT -	1157.715 (meters)	3798.27 (feet)	ADJUSTED
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NW0230

NW0230	GEOID HEIGHT -	-18.022 (meters)	GEOID12B
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NW0230	DYNAMIC HEIGHT -	1157.124 (meters)	3796.33 (feet)	COMP
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NW0230	MODELED GRAVITY -	980,070.4 (mgal)	NAVD 88
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NW0230

NW0230 VERT ORDER - SECOND CLASS 0

NW0230

NW0230.The horizontal coordinates were scaled from a topographic map and have an estimated accuracy of +/- 6 seconds.

NW0230.

NW0230.The orthometric height was determined by differential leveling and adjusted by the NATIONAL GEODETIC SURVEY

NW0230.in August 1995.

NW0230

NW0230.Significant digits in the geoid height do not necessarily reflect accuracy.

NW0230.GEOID12B height accuracy estimate available [here](#).

NW0230

NW0230.The dynamic height is computed by dividing the NAVD 88

NW0230.geopotential number by the normal gravity value computed on the

NW0230.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45

NW0230.degrees latitude (g = 980.6199 gals.).

NW0230

NW0230.The modeled gravity was interpolated from observed gravity values.

NW0230

NW0230;	North	East	Units	Estimated Accuracy
NW0230;SPC OR S	- 135,600.	1,736,630.	MT	(+/- 180 meters Scaled)

NW0230  
 NW0230 SUPERSEDED SURVEY CONTROL  
 NW0230  
 NW0230 NAVD 88 (06/15/91) 1157.791 (m) 3798.52 (f) SUPERSEDED 2 0  
 NW0230 NGVD 29 (??/??/92) 1156.755 (m) 3795.12 (f) ADJ UNCH 2 0  
 NW0230  
 NW0230.Superseded values are not recommended for survey control.  
 NW0230  
 NW0230.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.  
 NW0230.[See file dsdata.txt](#) to determine how the superseded data were derived.  
 NW0230  
 NW0230\_U.S. NATIONAL GRID SPATIAL ADDRESS: 11TMH506443(NAD 83)  
 NW0230  
 NW0230\_MARKER: DB = BENCH MARK DISK  
 NW0230\_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT  
 NW0230\_STAMPING: C 130 1934  
 NW0230\_MARK LOGO: CGS  
 NW0230\_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO  
 NW0230+STABILITY: SURFACE MOTION  
 NW0230\_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR  
 NW0230+SATELLITE: SATELLITE OBSERVATIONS - June 24, 1968  
 NW0230  
 NW0230 HISTORY - Date Condition Report By  
 NW0230 HISTORY - 1934 MONUMENTED CGS  
 NW0230 HISTORY - 19680624 GOOD USGS  
 NW0230  
 NW0230 STATION DESCRIPTION  
 NW0230  
 NW0230'DESCRIBED BY COAST AND GEODETIC SURVEY 1934  
 NW0230'2.1 MI NE FROM ROME.  
 NW0230'2.1 MILES NORTHEAST ALONG THE 1934 SURVEY FOR THE IDAHO-OREGON-NEVADA  
 NW0230'HIGHWAY FROM ROME, MALHEUR COUNTY, ABOUT 1/2 MILE EAST OF OWYHEE RIM,  
 NW0230'ABOUT 1/4 MILE NORTHEAST OF THE ROAD LEADING FROM FRETWELL RANCH TO A  
 NW0230'ROCK, AND 60 FEET SOUTH OF HIGHWAY-SURVEY STATION 3633. A STANDARD  
 NW0230'DISK, STAMPED C 130 1934 AND SET IN THE TOP OF A CONCRETE POST.  
 NW0230  
 NW0230 STATION RECOVERY (1968)  
 NW0230  
 NW0230'RECOVERY NOTE BY US GEOLOGICAL SURVEY 1968  
 NW0230'RECOVERED IN GOOD CONDITION.  
 1 National Geodetic Survey, Retrieval Date = APRIL 25, 2016  
 NW0662 \*\*\*\*\*  
 NW0662 DESIGNATION - 94 FMK  
 NW0662 PID - NW0662  
 NW0662 STATE/COUNTY- OR/MALHEUR  
 NW0662 COUNTRY - US  
 NW0662 USGS QUAD - SCOTT RESERVOIR (1972)  
 NW0662  
 NW0662 \*CURRENT SURVEY CONTROL  
 NW0662  
 NW0662\* NAD 83(1986) POSITION- 42 51 34. (N) 117 33 26. (W) SCALED  
 NW0662\* [NAVD 88](#) ORTHO HEIGHT - 1196.459 (meters) 3925.38 (feet) ADJUSTED  
 NW0662  
 NW0662 GEOID HEIGHT - -17.921 (meters) GEOID12B  
 NW0662 DYNAMIC HEIGHT - 1195.840 (meters) 3923.35 (feet) COMP

NW0662 MODELED GRAVITY - 980,061.8 (mgal) NAVD 88  
 NW0662  
 NW0662 VERT ORDER - SECOND CLASS 0  
 NW0662  
 NW0662.The horizontal coordinates were scaled from a topographic map and have  
 NW0662.an estimated accuracy of +/- 6 seconds.  
 NW0662.  
 NW0662.The orthometric height was determined by differential leveling and  
 NW0662.adjusted by the NATIONAL GEODETIC SURVEY  
 NW0662.in August 1995.  
 NW0662  
 NW0662.Significant digits in the geoid height do not necessarily reflect accuracy.  
 NW0662.GEOID12B height accuracy estimate available [here](#).  
 NW0662  
 NW0662.The dynamic height is computed by dividing the NAVD 88  
 NW0662.geopotential number by the normal gravity value computed on the  
 NW0662.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45  
 NW0662.degrees latitude (g = 980.6199 gals.).  
 NW0662  
 NW0662.The modeled gravity was interpolated from observed gravity values.  
 NW0662  
 NW0662;  
 NW0662;SPC OR S - North East Units Estimated Accuracy  
 136,720. 1,740,430. MT (+/- 180 meters Scaled)  
 NW0662  
 NW0662 SUPERSEDED SURVEY CONTROL  
 NW0662  
 NW0662.No superseded survey control is available for this station.  
 NW0662  
 NW0662\_U.S. NATIONAL GRID SPATIAL ADDRESS: 11TMH544453(NAD 83)  
 NW0662  
 NW0662\_MARKER: DB = BENCH MARK DISK  
 NW0662\_SETTING: 46 = COPPER-CLAD STEEL ROD W/O SLEEVE (10 FT.+)  
 NW0662\_STAMPING: 94 FMK 1968 3922  
 NW0662\_MARK LOGO: USGS  
 NW0662\_PROJECTION: FLUSH  
 NW0662\_MAGNETIC: I = MARKER IS A STEEL ROD  
 NW0662\_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL  
 NW0662\_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR  
 NW0662+SATELLITE: SATELLITE OBSERVATIONS - 1968  
 NW0662\_ROD/PIPE-DEPTH: 6.10 meters  
 NW0662  
 NW0662 HISTORY - Date Condition Report By  
 NW0662 HISTORY - 1968 MONUMENTED USGS  
 NW0662  
 NW0662 STATION DESCRIPTION  
 NW0662  
 NW0662'DESCRIBED BY US GEOLOGICAL SURVEY 1968  
 NW0662'FROM THE U.S. HIGHWAY 95 BRIDGE OVER THE OWYHEE RIVER AT ROME,  
 NW0662'OREGON, PROCEED 4.0 MILES NORTHEAST ALONG U.S. HIGHWAY 95, 200 FEET  
 NW0662'SOUTHEAST OF MILE POST 49, 108 FEET SOUTH OF THE CENTERLINE OF THE  
 NW0662'HIGHWAY, 1 FOOT NORTH OF A RIGHT-OF-WAY FENCE, BENCH MARK IS ENCASED  
 NW0662'IN A 6 INCH BLACK FIBER PIPE.

