

Ground Control Survey Report for the U.S. Geological Survey

Contractor: Woolpert

Date: March 2021

Contract: G16PC00022

Task Order: 140G0220F0171

Project Name: WY South Central 2020 D20



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1. Survey Report

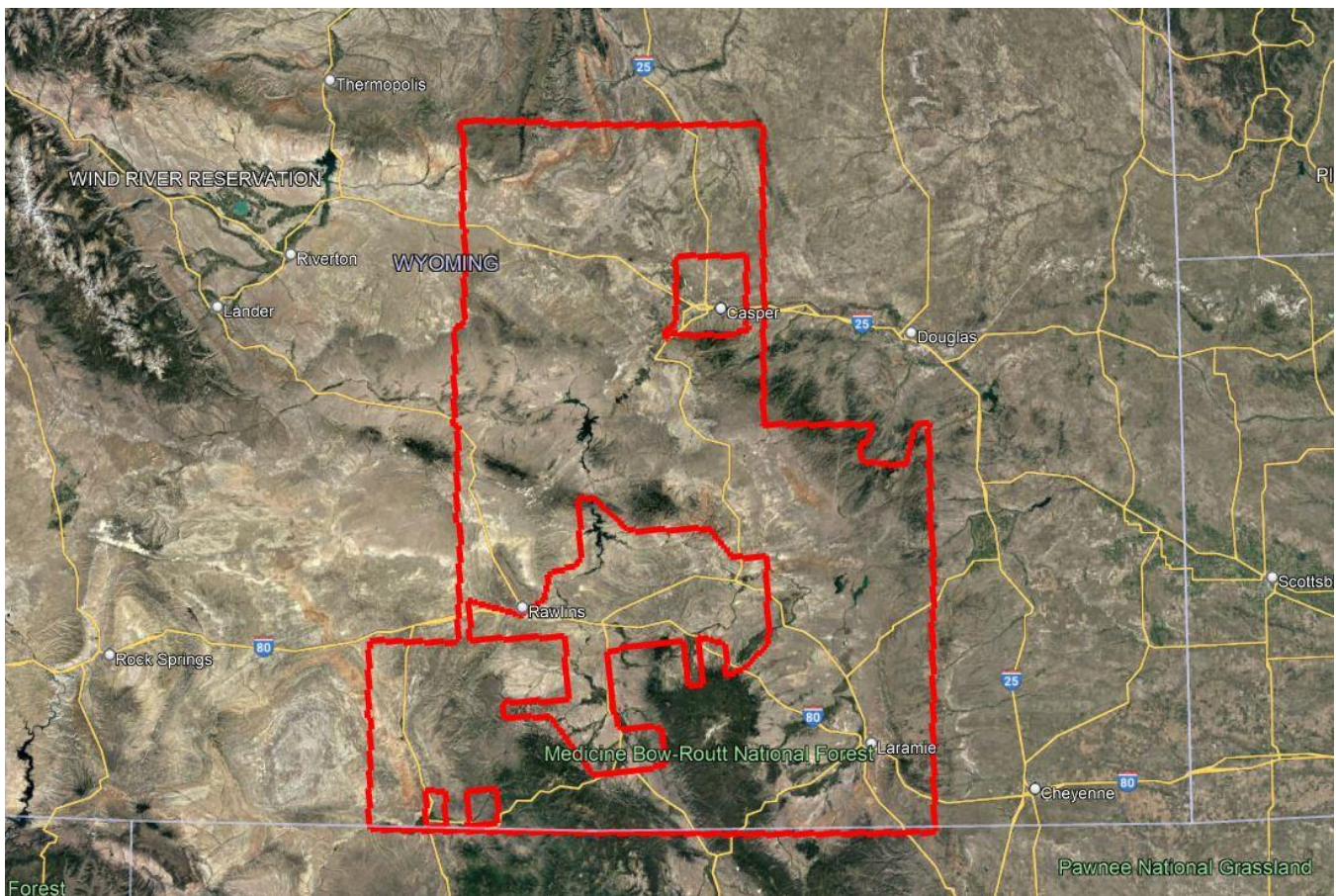
1.1. Introduction

This report contains a comprehensive outline of the Ground Control Survey that supported the lidar data collected for the task order. All survey activity was performed to achieve ground control accuracies that meet or exceed the National Mapping Accuracy Standards.

1.2. Project Area

The project area consists of approximately 15,307 square miles across South Central Wyoming.

Figure 1.2.1 – Defined Project Area



1.3. Purpose

The purpose of this survey was to establish three-dimensional coordinates for 242 lidar control points, 268 non-vegetated checkpoints, and 204 vegetated check points. The points were collected per the flight layout and were uniformly dispersed over the project area.

1.4. Date of Survey

Ground control field operations were conducted from June 24, 2020 to June 26, 2021.

1.5. Monumentation

Prior to aerial imagery acquisition, Woolpert field crews performed a field reconnaissance to verify the existence and suitability of pre-selected existing National Geodetic Survey (NGS) control stations. Existing NSRS control stations were utilized as checks to ensure that quality x, y, 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 3](#). A control diagram can be found in Section 4. of this report.

1.6. Accuracy Standards

The relative vertical accuracy of the LiDAR data will be 10 cm RMSEz with swath overlap (between adjacent swaths) and an absolute vertical accuracy of 15cm RMSE.

1.7. GPS Equipment

Woolpert survey crews used the following GPS equipment:

- Eight (8) Trimble Navigation R8 model GNSS dual-frequency GPS receivers
- Four (4) R10 Model GNSS dual- frequency GPS receivers
- Two (2) TSC3 data collectors
- Two (2) TSC7 data collectors

1.8. Methodology

1.8.1. Static GPS

The field crew utilized Static GPS surveying throughout the ground control data collection process. The survey was conducted using a 5-second epoch rate with each observation lasting at least 30 minutes. Each station was occupied twice to ensure the required horizontal and vertical accuracies were met.

1.8.2. Real-time Kinematic (RTK) GPS

The field crew utilized Real-Time Kinematic (RTK) GPS surveying throughout the ground control data collection process. The survey was conducted using a 1-second epoch rate, in a fixed solution RTK mode, with each observation lasting between 60 and 180 seconds. Each station was occupied twice to insure the required horizontal and vertical accuracies were met.

1.8.3. GPS Data Analysis and Processing

The field crew chief processed all session baselines each day using Trimble Navigation's Trimble Business Center (TBC) software, version 5.50 baseline processor, with the accompanying broadcast ephemeris. Daily processing ensured the integrity of the network as it was constructed and allowing the field crews to immediately reschedule observations of any poor baselines.

1.8.4. Datum Reference and Final Coordinates

The spatial reference system for the project is NAD83 2011 (2010.00 epoch). Orthometric heights are based on NAVD88 vertical datum, Geoid18 was used to determine the orthometric heights from the ellipsoid heights. The projected coordinates are displayed in Universal Transverse Mercator, Zone 13 North (UTM13N). Units for both the horizontal and vertical datums will be expressed in Meters to three (3) decimal places.

1.8.5. Quality Assurance

Existing NGS published benchmarks 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.

2. Ground Control/Geodetic Control Coordinates

2.1. Ground Control – Worldwide UTM

- Horizontal Datum: NAD 1983 (2011)
- Horizontal Projection: UTM 13 North
- Vertical Datum: NAVD88
- Geoid Model: Geoid18
- Units: Meters

Table 2.1 Ground Control -Worldwide UTM

Point Number	UTM 13N Northing (M)	UTM 13N Easting (M)	Orthometric Height (M)	Description
1000_2020_WY	4604625.170	365156.384	2231.199	LCP
1001_2020_WY	4595644.057	385096.646	2688.809	LCP
1002_2020_WY	4594417.601	387918.122	2757.469	LCP
1003_2020_WY	4596033.224	416214.217	2261.600	LCP
1004_2020_WY	4560092.007	449819.790	2222.569	LCP
1005_2020_WY	4563422.610	430611.161	2209.472	LCP
1006_2020_WY	4541161.019	415752.489	2436.246	LCP
1007_2020_WY	4592742.944	377468.497	2607.459	LCP
1008_2020_WY	4568035.719	451451.733	2206.617	LCP
1009_2020_WY	4573621.833	433113.757	2266.112	LCP
1010_2020_WY	4557597.022	309888.551	2455.863	LCP
1011_2020_WY	4572025.409	416915.066	2298.163	LCP
1012_2020_WY	4570885.730	327623.584	2703.243	LCP
1013_2020_WY	4605077.754	443905.924	2146.142	LCP
1014_2020_WY	4614767.846	272761.579	2162.177	LCP
1015_2020_WY	4594252.694	388617.443	2728.098	LCP
1016_2020_WY	4582298.657	291039.204	2371.152	LCP
1017_2020_WY	4582421.886	314015.781	2386.568	LCP
1018_2020_WY	4632980.239	481757.266	1630.636	LCP
1019_2020_WY	4595611.797	275053.048	2056.909	LCP
1020_2020_WY	4560165.524	341742.713	2621.742	LCP
1021_2020_WY	4597694.468	408828.520	2391.606	LCP
1022_2020_WY	4611557.088	434704.281	2161.567	LCP
1023_2020_WY	4584511.927	451577.208	2190.258	LCP
1024_2020_WY	4543778.010	338582.581	2816.310	LCP
1025_2020_WY	4584086.772	327660.195	2255.820	LCP
1026_2020_WY	4590399.720	409784.227	2497.498	LCP

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Point Number	UTM 13N Northing (M)	UTM 13N Easting (M)	Orthometric Height (M)	Description
1027_2020_WY	4557661.286	336935.586	2856.218	LCP
1028_2020_WY	4576123.101	372263.661	2760.648	LCP
1029_2020_WY	4586315.613	427017.547	2202.716	LCP
1030_2020_WY	4609320.073	436159.144	2147.045	LCP
1031_2020_WY	4563860.787	284310.005	2065.920	LCP
1032_2020_WY	4540726.702	395028.219	2620.346	LCP
1033_2020_WY	4546174.778	459615.285	2393.903	LCP
1034_2020_WY	4541892.849	348766.353	2600.389	LCP
1035_2020_WY	4544759.578	381735.272	2399.426	LCP
1036_2020_WY	4556607.861	322486.631	2572.063	LCP
1037_2020_WY	4551928.955	287796.053	2140.139	LCP
1038_2020_WY	4608673.314	271506.452	2197.438	LCP
1039_2020_WY	4565434.159	438700.145	2197.759	LCP
1040_2020_WY	4558813.872	409637.314	2498.695	LCP
1041_2020_WY	4592260.654	255097.711	2017.378	LCP
1042_2020_WY	4551103.615	446281.527	2291.248	LCP
1043_2020_WY	4549397.010	312365.191	2380.193	LCP
1044_2020_WY	4563261.091	445980.059	2221.661	LCP
1045_2020_WY	4599071.190	287943.443	2145.685	LCP
1046_2020_WY	4553560.934	365371.191	2427.901	LCP
1047_2020_WY	4547953.111	306237.272	2190.533	LCP
1048_2020_WY	4611435.288	378412.005	2271.647	LCP
1049_2020_WY	4546781.601	336201.945	2706.184	LCP
1050_2020_WY	4586007.622	377863.206	2719.097	LCP
1051_2020_WY	4583241.337	367453.263	2360.650	LCP
1052_2020_WY	4592222.286	312930.020	2273.630	LCP
1053_2020_WY	4608149.235	312106.526	2148.082	LCP
1054_2020_WY	4627610.434	294988.143	2033.386	LCP
1055_2020_WY	4656998.386	436772.905	2179.465	LCP
1056_2020_WY	4686550.720	421914.713	2265.385	LCP
1057_2020_WY	4650901.501	435393.251	2190.643	LCP
1058_2020_WY	4697462.500	425801.626	2497.139	LCP
1059_2020_WY	4654685.648	433765.306	2228.978	LCP
1060_2020_WY	4620213.090	419567.566	2086.040	LCP
1061_2020_WY	4674312.516	471338.345	2126.800	LCP
1062_2020_WY	4638292.254	450123.046	2136.284	LCP
1063_2020_WY	4698771.633	427419.077	2540.212	LCP
1064_2020_WY	4673762.618	473227.427	1912.070	LCP
1065_2020_WY	4638997.994	475404.117	1822.592	LCP
1066_2020_WY	4698761.621	442492.710	2298.006	LCP
1067_2020_WY	4674890.844	466737.491	2013.061	LCP
1068_2020_WY	4666321.232	451947.048	2152.773	LCP

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Point Number	UTM 13N Northing (M)	UTM 13N Easting (M)	Orthometric Height (M)	Description
1069_2020_WY	4643853.549	442866.746	2161.561	LCP
1070_2020_WY	4633161.800	439588.069	2123.997	LCP
1071_2020_WY	4674648.839	448142.203	2413.210	LCP
1072_2020_WY	4632925.855	467555.849	1932.279	LCP
1073_2020_WY	4624803.570	474596.994	1827.308	LCP
1074_2020_WY	4681584.812	441373.927	2291.730	LCP
1075_2020_WY	4659500.134	463011.875	2163.745	LCP
1076_2020_WY	4647016.405	464077.333	2107.604	LCP
1077_2020_WY	4674334.821	476549.773	1777.229	LCP
1078_2020_WY	4637564.608	312161.295	2139.939	LCP
1079_2020_WY	4672532.997	304380.856	2071.689	LCP
1080_2020_WY	4653893.169	294879.033	2015.633	LCP
1081_2020_WY	4640078.247	330546.316	1987.320	LCP
1082_2020_WY	4670939.805	338418.736	2199.741	LCP
1083_2020_WY	4735029.859	406382.032	1650.878	LCP
1084_2020_WY	4665243.437	406439.683	2099.925	LCP
1085_2020_WY	4693231.259	399275.344	2172.025	LCP
1086_2020_WY	4703520.271	411531.890	2294.823	LCP
1087_2020_WY	4651565.315	401118.068	2083.338	LCP
1088_2020_WY	4678152.773	395765.142	2131.747	LCP
1089_2020_WY	4721501.967	392402.973	2315.487	LCP
1090_2020_WY	4692260.281	361903.450	2122.920	LCP
1091_2020_WY	4662889.412	389918.460	2207.444	LCP
1092_2020_WY	4717195.568	375774.117	1731.168	LCP
1093_2020_WY	4688347.391	377559.963	2259.253	LCP
1094_2020_WY	4665927.057	376667.962	2578.063	LCP
1095_2020_WY	4720274.647	354497.899	2015.377	LCP
1096_2020_WY	4692920.641	384045.438	2011.056	LCP
1097_2020_WY	4670000.394	369852.244	2732.136	LCP
1098_2020_WY	4726752.113	385909.145	1916.634	LCP
1099_2020_WY	4708782.494	370576.109	1802.375	LCP
1100_2020_WY	4687682.635	356394.930	2092.074	LCP
1101_2020_WY	4669095.684	354003.065	2138.747	LCP
1102_2020_WY	4732250.136	353567.963	1837.331	LCP
1103_2020_WY	4732533.644	348924.763	1915.382	LCP
1104_2020_WY	4668331.182	299301.218	1991.065	LCP
1105_2020_WY	4680766.123	297864.895	2047.495	LCP
1106_2020_WY	4691591.583	297430.226	1924.904	LCP
1107_2020_WY	4697964.955	303553.452	1861.563	LCP
1108_2020_WY	4714208.575	311021.783	1940.394	LCP
1109_2020_WY	4727201.262	309400.773	2069.501	LCP
1110_2020_WY	4727416.957	313346.272	2028.736	LCP

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1111_2020_WY	4695535.568	314419.064	1897.580	LCP
1112_2020_WY	4694630.099	319492.245	1939.671	LCP
1113_2020_WY	4709942.330	322372.865	1810.691	LCP
1114_2020_WY	4723941.114	332848.685	1904.564	LCP
1115_2020_WY	4738630.637	337970.668	1896.625	LCP
1116_2020_WY	4685119.268	326379.755	2020.098	LCP
1117_2020_WY	4702476.384	339339.762	1803.723	LCP
1118_2020_WY	4722900.386	343183.001	1955.306	LCP
1119_2020_WY	4746854.109	411684.054	1540.941	LCP
1120_2020_WY	4811632.410	369660.274	1612.156	LCP
1121_2020_WY	4777437.875	371980.454	1695.222	LCP
1122_2020_WY	4735748.271	410288.252	1633.352	LCP
1123_2020_WY	4790702.779	363617.315	1631.358	LCP
1124_2020_WY	4756389.384	362457.527	1681.370	LCP
1125_2020_WY	4804288.598	357150.038	1700.569	LCP
1126_2020_WY	4773650.869	408831.952	1810.868	LCP
1127_2020_WY	4738082.113	349874.425	1857.026	LCP
1128_2020_WY	4788219.342	358023.055	1618.747	LCP
1129_2020_WY	4754685.210	337966.392	1862.558	LCP
1130_2020_WY	4804014.831	322918.329	2284.529	LCP
1131_2020_WY	4768823.093	322571.954	1808.982	LCP
1132_2020_WY	4817516.745	329168.743	2488.391	LCP
1133_2020_WY	4784181.055	325006.768	1800.065	LCP
1134_2020_WY	4748497.548	315318.966	1908.388	LCP
1135_2020_WY	4798288.990	328747.809	1970.880	LCP
1136_2020_WY	4760198.927	317626.650	1898.146	LCP
1137_2020_WY	4807259.403	318979.105	2537.441	LCP
1138_2020_WY	4772730.493	312604.349	1883.277	LCP
1139_2020_WY	4815900.551	320345.724	2573.123	LCP
1140_2020_WY	4783988.400	307804.920	1795.693	LCP
1141_2020_WY	4747782.028	307035.809	2030.419	LCP
1142_2020_WY	4793184.281	298390.687	1820.525	LCP
1143_2020_WY	4763773.143	296560.730	1899.476	LCP
1144_2020_WY	4812380.988	378136.917	1683.766	LCP
1145_2020_WY	4784930.258	392976.911	1619.210	LCP
1146_2020_WY	4807303.107	380494.863	1567.437	LCP
1147_2020_WY	4773404.120	400214.184	1751.411	LCP
1148_2020_WY	4799116.229	397709.484	1562.008	LCP
1149_2021_WY	4598209.212	392105.838	2859.653	LCP
1150_2021_WY	4591821.921	397569.492	3041.446	LCP
1152_2021_WY	4578435.443	402556.823	2769.967	LCP
1153_2021_WY	4554564.889	402264.220	2728.579	LCP

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1154_2021_WY	4590254.734	394122.774	3076.061	LCP
1155_2021_WY	4551662.434	412692.284	2385.026	LCP
1156_2021_WY	4572401.269	404583.155	2449.548	LCP
1157_2021_WY	4546043.399	388437.692	2701.929	LCP
1159_2021_WY	4548049.317	414966.923	2296.442	LCP
1160_2021_WY	4540224.605	395766.590	2615.488	LCP
1161_2021_WY	4563868.479	396205.615	2890.773	LCP
1162_2021_WY	4596115.607	386588.092	2667.354	LCP
1163_2021_WY	4560615.033	407554.211	2444.891	LCP
1164_2021_WY	4548584.221	399359.604	2769.504	LCP
1165_2021_WY	4606324.464	395703.855	2395.777	LCP
1166_2021_WY	4572331.141	409043.002	2409.432	LCP
1167_2021_WY	4563465.347	382561.943	2722.204	LCP
1168_2020_WY	4541306.753	319589.954	2129.355	LCP
1168A_2020_WY	4541416.204	319543.003	2140.863	LCP
1169_2020_WY	4540547.634	347634.528	2563.039	LCP
1169A_2020_WY	4542628.141	344426.583	2545.537	LCP
1170_2021_WY	4545116.324	390355.243	2664.251	LCP
1171A_2021_WY	4565004.968	389678.228	3027.723	LCP
1172_2021_WY	4581474.147	400613.313	2966.302	LCP
1173_2021_WY	4605479.682	390223.996	2401.944	LCP
1174_2021_WY	4565095.907	397384.109	2932.149	LCP
1175_2021_WY	4600768.574	391859.523	2692.228	LCP
1176_2021_WY	4586039.734	381430.576	2875.002	LCP
1177_2021_WY	4582246.530	400137.198	3056.124	LCP
1178_2021_WY	4572978.596	401960.904	2765.083	LCP
1179_2021_WY	4597940.263	384270.582	2541.212	LCP
1180_2021_WY	4567805.971	384383.915	2860.788	LCP
1181A_2021_WY	4569899.531	393378.894	3069.087	LCP
1182A_2021_WY	4586375.541	380459.749	2854.263	LCP
1184_2020_WY	4540220.196	347760.918	2581.400	LCP
1185_2020_WY	4541049.342	358271.787	2988.119	LCP
1186_2020_WY	4542127.307	360993.555	2832.161	LCP
1187_2020_WY	4542591.206	361503.794	2840.688	LCP
1188_2021_WY	4542788.010	364340.637	2649.782	LCP
1189_2020_WY	4544459.272	312634.089	2077.215	LCP
1190_2021_WY	4543563.313	366115.075	2602.798	LCP
1191A_2021_WY	4541929.838	371390.130	2445.495	LCP
1192_2021_WY	4544184.726	363790.010	2637.733	LCP
1193_2021_WY	4544452.032	363892.614	2626.585	LCP
1194A_2020_WY	4545629.584	356116.811	3056.788	LCP
1194B_2020_WY	4546317.051	355844.002	2996.824	LCP

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1195_2020_WY	4545822.388	345439.318	2686.937	LCP
1196A_2021_WY	4546779.540	336195.565	2706.123	LCP
1197_2020_WY	4546682.893	322880.130	2428.027	LCP
1198_2020_WY	4547290.672	311205.968	2238.676	LCP
1200_2020_WY	4549100.309	352980.085	2862.474	LCP
1201_2020_WY	4547887.663	322202.514	2445.949	LCP
1201A_2020_WY	4548999.666	318871.452	2340.844	LCP
1202A_2021_WY	4550504.998	369929.251	2356.675	LCP
1203_2020_WY	4550490.240	342800.946	2881.558	LCP
1204_2020_WY	4550869.954	311521.519	2420.136	LCP
1205_2020_WY	4550280.984	355973.678	2768.921	LCP
1206A_2021_WY	4558931.366	331807.011	2896.139	LCP
1207_2021_WY	4571907.234	414010.406	2322.387	LCP
1208_2021_WY	4571368.178	378028.831	2654.916	LCP
1209_2021_WY	4596893.372	377423.554	2469.055	LCP
1210_2021_WY	4554697.849	349135.916	2289.494	LCP
1211_2020_WY	4554427.718	319272.860	2544.752	LCP
1212_2020_WY	4554144.211	338603.325	3027.364	LCP
1212A_2020_WY	4552777.653	339644.123	3049.562	LCP
1213_2020_WY	4555027.381	341730.959	2725.086	LCP
1214_2020_WY	4555600.493	316731.550	2442.161	LCP
1215_2020_WY	4556955.689	307391.428	2432.315	LCP
1216_2020_WY	4557787.955	309044.890	2461.046	LCP
1216A_2020_WY	4557846.586	311808.368	2472.993	LCP
1217_2020_WY	4557435.021	327705.055	2750.111	LCP
1218_2021_WY	4593004.316	376147.292	2672.061	LCP
1219_2021_WY	4571883.234	415089.415	2312.210	LCP
1220_2020_WY	4561819.320	336784.602	2818.763	LCP
1221A_2021_WY	4565136.717	373194.766	2464.646	LCP
1222_2020_WY	4562181.179	307183.185	2531.072	LCP
1222A_2020_WY	4562579.952	307800.684	2539.701	LCP
1223A_2020_WY	4564334.305	327841.503	2998.657	LCP
1224_2020_WY	4564023.880	311285.021	2388.171	LCP
1225_2021_WY	4565712.133	371993.052	2401.345	LCP
1226_2021_WY	4576046.049	371104.337	2655.539	LCP
1227A_2020_WY	4568360.030	321287.445	2743.892	LCP
1227B_2020_WY	4567581.793	319737.240	2973.987	LCP
1228_2020_WY	4569536.937	335198.046	2431.594	LCP
1229_2020_WY	4576860.797	370245.947	2532.846	LCP
1230_2020_WY	4572288.396	330215.934	2684.312	LCP
1231_2020_WY	4574861.322	325271.519	2667.747	LCP
1232_2021_WY	4592769.740	373469.103	2651.103	LCP

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1233_2020_WY	4553575.624	304025.921	2357.939	LCP
1234_2020_WY	4553284.203	306536.496	2414.481	LCP
1235_2021_WY	4580143.848	370536.286	2393.406	LCP
1236_2021_WY	4579069.173	371605.579	2432.460	LCP
1237_2021_WY	4599500.451	384277.648	2490.266	LCP
1221A_2021_WY	4565136.717	373194.766	2464.646	LCP
1222_2020_WY	4562181.179	307183.185	2531.072	LCP
1222A_2020_WY	4562579.952	307800.684	2539.701	LCP
1223A_2020_WY	4564334.305	327841.503	2998.657	LCP
1224_2020_WY	4564023.880	311285.021	2388.171	LCP
1225_2021_WY	4565712.133	371993.052	2401.345	LCP
1226_2021_WY	4576046.049	371104.337	2655.539	LCP
1227A_2020_WY	4568360.030	321287.445	2743.892	LCP
1227B_2020_WY	4567581.793	319737.240	2973.987	LCP
1228_2020_WY	4569536.937	335198.046	2431.594	LCP
1229_2020_WY	4576860.797	370245.947	2532.846	LCP
1230_2020_WY	4572288.396	330215.934	2684.312	LCP
1231_2020_WY	4574861.322	325271.519	2667.747	LCP
1232_2021_WY	4592769.740	373469.103	2651.103	LCP
1233_2020_WY	4553575.624	304025.921	2357.939	LCP
1234_2020_WY	4553284.203	306536.496	2414.481	LCP
1235_2021_WY	4580143.848	370536.286	2393.406	LCP
1236_2021_WY	4579069.173	371605.579	2432.460	LCP
1237_2021_WY	4599500.451	384277.648	2490.266	LCP
2001_2020_WY	4650000.392	333652.913	2046.540	NVA
2002_2020_WY	4642713.958	309250.600	2194.697	NVA
2003_2020_WY	4636716.579	329025.884	1964.750	NVA
2004_2020_WY	4611296.578	354467.236	2089.070	NVA
2005_2020_WY	4564399.664	383880.303	2923.783	NVA
2006_2020_WY	4558933.516	364018.111	2251.782	NVA
2007_2020_WY	4605117.747	376960.059	2376.963	NVA
2008_2020_WY	4560951.049	362657.895	2243.565	NVA
2009_2020_WY	4551331.646	371488.411	2361.566	NVA
2010_2020_WY	4595463.109	384809.260	2687.928	NVA
2011_2020_WY	4632981.506	316299.450	2113.745	NVA
2012_2020_WY	4576386.034	389082.285	3196.569	NVA
2013_2020_WY	4690678.348	325970.256	1952.780	NVA
2014_2020_WY	4650328.042	304051.206	1994.795	NVA
2015_2020_WY	4590703.589	383431.778	2816.794	NVA
2016_2020_WY	4566750.752	392195.793	2996.558	NVA
2017_2020_WY	4605795.205	367300.786	2225.826	NVA
2018_2020_WY	4654517.942	299196.254	1990.143	NVA

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2019_2020_WY	4673324.078	370875.495	2545.656	NVA
2020_2020_WY	4639600.555	319555.694	2004.152	NVA
2021_2020_WY	4549701.565	356397.569	2747.940	NVA
2022_2020_WY	4582620.154	377474.872	2858.894	NVA
2023_2020_WY	4575860.830	375865.290	2626.345	NVA
2024_2020_WY	4563518.084	372913.757	2330.093	NVA
2025_2020_WY	4590558.994	360511.213	2213.289	NVA
2026_2020_WY	4591786.806	359278.842	2175.871	NVA
2027_2020_WY	4590198.627	393700.976	3073.271	NVA
2028_2020_WY	4565839.042	371908.385	2399.905	NVA
2029_2020_WY	4651680.344	329036.021	2054.269	NVA
2030_2020_WY	4605051.969	354336.873	2138.911	NVA
2031_2020_WY	4687279.678	399252.983	2144.205	NVA
2032_2020_WY	4681153.620	395046.608	2190.817	NVA
2033_2020_WY	4785138.787	389108.253	1652.331	NVA
2034_2020_WY	4732658.966	389040.091	2419.724	NVA
2035_2020_WY	4812236.226	397232.881	1505.116	NVA
2036_2020_WY	4775204.902	398209.737	1776.674	NVA
2037_2020_WY	4690900.766	442673.853	2256.299	NVA
2038_2020_WY	4815841.198	403441.346	1564.217	NVA
2039_2020_WY	4688288.930	432873.383	2319.337	NVA
2040_2020_WY	4801736.517	386891.395	1615.535	NVA
2041_2020_WY	4727531.587	386628.863	1977.956	NVA
2042_2020_WY	4808061.239	381400.370	1535.628	NVA
2043_2020_WY	4770234.893	398983.377	1702.497	NVA
2044_2020_WY	4780744.379	391488.048	1643.704	NVA
2045_2020_WY	4722164.855	383869.186	1745.394	NVA
2046_2020_WY	4805832.551	402532.921	1529.102	NVA
2047_2020_WY	4734318.096	377263.133	1670.320	NVA
2048_2020_WY	4775138.131	409167.906	1824.848	NVA
2049_2020_WY	4724010.802	383203.737	1754.413	NVA
2050_2020_WY	4758006.510	376525.671	1649.288	NVA
2053_2020_WY	4726052.338	396516.707	2524.289	NVA
2054_2020_WY	4671326.407	433303.765	2175.690	NVA
2055_2020_WY	4813690.479	381433.661	1539.612	NVA
2056_2020_WY	4693433.669	392958.158	2200.658	NVA
2057_2020_WY	4752049.019	376437.845	1622.032	NVA
2058_2020_WY	4675706.863	298138.092	2010.667	NVA
2059_2020_WY	4691790.320	319370.285	2016.404	NVA
2060_2020_WY	4693607.102	314470.770	1933.236	NVA
2061_2020_WY	4718614.486	325635.607	1897.987	NVA
2062_2020_WY	4736525.550	305994.401	2185.251	NVA

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2063_2020_WY	4698307.365	294513.066	1979.792	NVA
2064_2020_WY	4742367.309	318346.863	1978.584	NVA
2065_2020_WY	4708146.234	330310.666	1785.893	NVA
2066_2020_WY	4700283.736	335861.799	1851.925	NVA
2067_2020_WY	4745530.249	301862.834	2207.304	NVA
2068_2020_WY	4684419.936	324101.619	2067.057	NVA
2069_2020_WY	4738031.629	298313.014	2209.909	NVA
2070_2020_WY	4743071.834	304765.847	2271.084	NVA
2071_2020_WY	4693365.376	332750.372	1848.430	NVA
2072_2020_WY	4700232.261	308810.751	1854.235	NVA
2073_2020_WY	4672796.200	305975.076	2079.072	NVA
2074_2020_WY	4740458.467	348778.187	1781.916	NVA
2075_2020_WY	4713601.466	346939.749	1918.745	NVA
2076_2020_WY	4724629.321	378703.620	1694.876	NVA
2077_2020_WY	4697505.058	376191.622	2019.401	NVA
2078_2020_WY	4679536.753	381903.236	2211.687	NVA
2079_2020_WY	4690849.728	327856.487	1996.561	NVA
2080_2020_WY	4719795.453	347119.749	1893.103	NVA
2081_2020_WY	4743273.269	372420.614	1651.556	NVA
2082_2020_WY	4745329.955	339325.482	1825.434	NVA
2083_2020_WY	4724686.221	366436.404	1604.468	NVA
2084_2020_WY	4711459.002	349342.894	1921.815	NVA
2085_2020_WY	4720553.978	369849.605	1647.746	NVA
2086_2020_WY	4725968.663	369831.084	1633.888	NVA
2087_2020_WY	4742289.032	363229.903	1693.265	NVA
2088_2020_WY	4678878.245	357945.575	1984.395	NVA
2089_2020_WY	4736050.173	339354.596	1920.609	NVA
2090_2020_WY	4712812.231	353092.607	1803.992	NVA
2091_2020_WY	4718771.546	338930.933	1827.627	NVA
2092_2020_WY	4705010.470	374829.723	1932.804	NVA
2093_2020_WY	4703877.778	388837.894	2249.064	NVA
2094_2020_WY	4804562.294	322504.007	2339.859	NVA
2095_2020_WY	4767102.132	298173.129	1872.553	NVA
2096_2020_WY	4765263.276	321884.332	1801.460	NVA
2097_2020_WY	4744532.410	315183.848	1995.651	NVA
2098_2020_WY	4753350.843	305434.478	1962.493	NVA
2099_2020_WY	4800750.239	326340.582	2015.758	NVA
2100_2020_WY	4763010.058	304095.441	1974.278	NVA
2101_2020_WY	4760379.384	300477.986	2032.924	NVA
2102_2020_WY	4763490.277	326607.906	1797.638	NVA
2103_2020_WY	4778506.976	305127.738	1804.276	NVA
2104_2020_WY	4782710.819	326942.162	1800.203	NVA

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2105_2020_WY	4811294.641	320380.785	2480.176	NVA
2106_2020_WY	4778019.663	360939.547	1725.755	NVA
2107_2020_WY	4782710.944	341204.322	1668.036	NVA
2108_2020_WY	4781040.817	341094.739	1722.073	NVA
2109_2020_WY	4766065.098	334257.424	1725.602	NVA
2110_2020_WY	4771808.328	355719.300	1722.457	NVA
2111_2020_WY	4760119.556	330044.880	1822.040	NVA
2112_2020_WY	4804262.884	351345.723	1802.263	NVA
2113_2020_WY	4760164.096	352515.376	1763.906	NVA
2114_2020_WY	4799587.739	360782.436	1585.926	NVA
2115_2020_WY	4803994.547	332490.507	1885.955	NVA
2116_2020_WY	4809629.455	339575.927	1830.255	NVA
2117_2020_WY	4767603.201	363619.383	1687.764	NVA
2118_2020_WY	4775014.048	357953.644	1777.382	NVA
2119_2020_WY	4769909.438	370900.699	1676.477	NVA
2120_2020_WY	4773332.849	371357.739	1674.230	NVA
2121_2020_WY	4552419.849	395846.154	2602.628	NVA
2122_2020_WY	4544469.900	437316.442	2281.055	NVA
2123_2020_WY	4583065.981	424379.362	2234.556	NVA
2124_2020_WY	4572481.946	419859.774	2322.935	NVA
2125_2020_WY	4547953.336	407907.229	2719.782	NVA
2126_2020_WY	4563194.737	398361.639	2910.956	NVA
2127_2020_WY	4601111.525	408234.887	2313.977	NVA
2128_2020_WY	4584328.009	430230.352	2185.882	NVA
2129_2020_WY	4542994.980	416404.073	2446.114	NVA
2130_2020_WY	4606394.282	410111.588	2266.361	NVA
2131_2020_WY	4579173.420	437332.604	2198.054	NVA
2132_2020_WY	4574075.072	435183.491	2253.338	NVA
2133_2020_WY	4587069.768	425630.780	2212.237	NVA
2134_2020_WY	4590026.122	415671.081	2301.592	NVA
2135_2020_WY	4579524.106	419737.582	2233.389	NVA
2136_2020_WY	4550230.414	399404.769	2806.349	NVA
2137_2020_WY	4600767.756	391860.536	2692.298	NVA
2138_2020_WY	4546429.516	410619.518	2635.206	NVA
2139_2020_WY	4585251.934	421155.331	2255.252	NVA
2140_2020_WY	4575990.657	440260.203	2220.996	NVA
2141_2020_WY	4553707.487	435659.600	2227.595	NVA
2142_2020_WY	4574432.879	443801.526	2215.527	NVA
2143_2020_WY	4614572.106	472070.882	2075.710	NVA
2144_2020_WY	4553618.445	454187.978	2295.431	NVA
2145_2020_WY	4572110.162	462131.378	2594.911	NVA
2146_2020_WY	4590977.558	447350.893	2181.559	NVA

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2147_2020_WY	4571553.810	450666.429	2187.551	NVA
2148_2020_WY	4570782.434	471698.001	2417.761	NVA
2149_2020_WY	4582905.541	468747.823	2344.095	NVA
2150_2020_WY	4588907.008	448175.718	2176.646	NVA
2151_2020_WY	4601879.861	444137.999	2148.134	NVA
2152_2020_WY	4582776.529	475892.420	2271.677	NVA
2153_2020_WY	4567119.996	449590.172	2196.399	NVA
2154_2020_WY	4552015.181	454436.988	2303.182	NVA
2155_2020_WY	4603812.756	453414.445	2242.552	NVA
2156_2020_WY	4585016.436	449627.437	2181.173	NVA
2157_2020_WY	4567113.495	470447.468	2457.972	NVA
2158_2020_WY	4572922.682	453199.340	2203.183	NVA
2159_2020_WY	4560953.459	449812.096	2217.967	NVA
2160_2020_WY	4550286.850	442158.261	2270.971	NVA
2161_2020_WY	4561573.107	471497.469	2453.493	NVA
2162_2020_WY	4565390.005	463466.499	2641.833	NVA
2163_2020_WY	4653555.399	433784.150	2224.177	NVA
2164_2020_WY	4675414.703	396299.704	2118.277	NVA
2165_2020_WY	4631062.551	430417.406	2089.747	NVA
2166_2020_WY	4613318.782	433457.014	2167.347	NVA
2167_2020_WY	4621665.235	418883.748	2102.030	NVA
2168_2020_WY	4672288.687	405129.978	2121.502	NVA
2169_2020_WY	4680281.198	429345.381	2212.551	NVA
2170_2020_WY	4610738.193	413944.575	2188.571	NVA
2171_2020_WY	4669583.389	419096.199	2105.762	NVA
2172_2020_WY	4607385.253	391369.294	2346.035	NVA
2173_2020_WY	4669446.333	433385.425	2166.665	NVA
2174_2020_WY	4646548.261	435671.125	2134.981	NVA
2175_2020_WY	4631090.369	428419.743	2061.468	NVA
2176_2020_WY	4633124.521	439418.431	2122.364	NVA
2177_2020_WY	4628930.273	476800.948	1775.359	NVA
2178_2020_WY	4657437.226	467355.062	2165.629	NVA
2179_2020_WY	4665057.368	436448.621	2163.870	NVA
2180_2020_WY	4663055.471	464562.462	2157.478	NVA
2181_2020_WY	4619000.187	443530.056	2132.100	NVA
2182_2020_WY	4610287.208	454241.531	2227.024	NVA
2183_2020_WY	4661952.090	437631.177	2159.338	NVA
2184_2020_WY	4620454.624	463674.249	1960.281	NVA
2185_2020_WY	4635294.593	437572.275	2127.168	NVA
2186_2020_WY	4618767.881	426107.460	2155.435	NVA
2187_2020_WY	4621303.452	451417.947	2219.866	NVA
2188_2020_WY	4616701.427	442609.764	2153.254	NVA

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2189_2020_WY	4675174.219	469853.316	2197.887	NVA
2190_2020_WY	4716939.460	308980.126	1962.559	NVA
2191_2020_WY	4747728.463	406411.361	1600.598	NVA
2192_2020_WY	4565995.067	261568.726	2359.827	NVA
2193_2020_WY	4566349.773	336220.734	2621.376	NVA
2194_2020_WY	4598847.497	287857.166	2141.643	NVA
2195_2020_WY	4745349.382	411445.489	1537.039	NVA
2196_2020_WY	4595750.207	316100.276	2162.933	NVA
2197_2020_WY	4610266.798	309498.725	2183.064	NVA
2198_2020_WY	4548974.828	345017.025	2833.552	NVA
2199_2020_WY	4732668.172	363915.341	1689.099	NVA
2200_2020_WY	4566795.253	272865.187	1972.990	NVA
2201_2020_WY	4602838.954	403975.169	2365.576	NVA
2202_2020_WY	4605663.955	301187.622	2226.563	NVA
2203_2020_WY	4599577.373	294046.768	2266.030	NVA
2204_2020_WY	4547456.477	273223.362	1914.088	NVA
2205_2020_WY	4728258.595	406945.657	1740.592	NVA
2206_2020_WY	4560321.773	292432.302	2392.658	NVA
2207_2020_WY	4552779.558	342955.062	2811.875	NVA
2208_2020_WY	4548984.826	309266.989	2297.558	NVA
2209_2020_WY	4606761.306	257661.834	2044.859	NVA
2210_2020_WY	4757712.332	408427.146	1684.122	NVA
2211_2020_WY	4578188.446	327779.284	2504.005	NVA
2212_2020_WY	4553426.154	259800.793	2060.188	NVA
2213_2020_WY	4594114.195	255716.925	2016.237	NVA
2214_2020_WY	4609330.818	257088.693	2042.984	NVA
2215_2020_WY	4723605.197	335587.390	1869.739	NVA
2216_2020_WY	4614772.064	258791.711	2115.352	NVA
2217_2020_WY	4556370.232	342159.279	2633.860	NVA
2218_2020_WY	4571306.795	324495.804	2678.109	NVA
2219_2020_WY	4580484.351	256021.001	2016.788	NVA
2220_2020_WY	4596753.266	330931.162	2338.530	NVA
2221_2020_WY	4597411.468	258604.391	2048.463	NVA
2222_2020_WY	4573591.067	331395.695	2642.337	NVA
2223_2020_WY	4575887.413	451704.931	2192.669	NVA
2224_2020_WY	4575056.817	448166.656	2180.897	NVA
2225_2020_WY	4573664.222	450518.756	2183.122	NVA
2226_2020_WY	4628770.363	313228.077	2072.930	NVA
2227_2020_WY	4629259.081	316123.832	2040.047	NVA
2228_2020_WY	4631828.994	315249.573	2085.567	NVA
2229_2020_WY	4609580.886	392933.006	2366.721	NVA
2230_2020_WY	4582916.442	431344.761	2183.511	NVA

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Point Number	UTM 13N Northing (M)	UTM 13N Easting (M)	Orthometric Height (M)	Description
2231_2020_WY	4552760.662	474399.571	2403.620	NVA
2232_2020_WY	4551598.426	414976.367	2279.854	NVA
2233_2020_WY	4573036.877	447007.852	2185.685	NVA
2234_2020_WY	4575143.444	453594.388	2217.603	NVA
2235_2020_WY	4571119.412	455235.355	2247.946	NVA
2236_2020_WY	4577743.353	450760.153	2182.503	NVA
2237_2020_WY	4600269.763	443157.363	2147.837	NVA
2238_2020_WY	4630687.342	416547.957	2120.545	NVA
2239_2020_WY	4696802.462	386446.956	1976.494	NVA
2240_2020_WY	4713420.712	358492.733	1636.876	NVA
2241_2020_WY	4712953.699	349367.307	1921.111	NVA
2242_2020_WY	4706743.303	324414.016	1796.724	NVA
2243_2020_WY	4692885.573	298795.283	1913.359	NVA
2244_2020_WY	4545333.149	289692.879	1973.599	NVA
2245_2020_WY	4545566.369	286950.041	1939.883	NVA
2246_2020_WY	4556306.209	466107.933	2550.644	NVA
2267_2020_WY	4619514.732	422569.582	2122.092	NVA
2268_2020_WY	4710220.844	353964.553	1681.409	NVA
2269_2020_WY	4627358.789	315091.180	2065.625	NVA
2270_2020_WY	4630183.871	314377.977	2082.933	NVA
2271_2020_WY	4599646.102	409725.093	2338.858	NVA
2272_2020_WY	4602719.214	442127.097	2158.887	NVA
2273_2020_WY	4766312.091	338015.338	1743.094	NVA
2274_2020_WY	4570711.229	444114.823	2194.372	NVA
2275_2020_WY	4670913.823	395798.165	2108.583	NVA
2276_2020_WY	4574096.532	403525.766	2581.058	NVA
2277_2020_WY	4808321.299	387960.026	1572.239	NVA
2278_2020_WY	4808759.231	392185.667	1494.666	NVA
2279_2020_WY	4807021.096	396880.724	1482.006	NVA
2280_2020_WY	4807654.753	398930.824	1497.057	NVA
2281_2020_WY	4780432.503	391272.211	1637.090	NVA
2282_2020_WY	4592872.263	414470.055	2329.634	NVA
2283_2020_WY	4765695.756	352613.996	1710.188	NVA
2284_2020_WY	4790486.829	311452.422	1879.259	NVA
2285_2020_WY	4584697.327	268561.406	2018.704	NVA
2286_2020_WY	4609032.830	277805.768	2127.153	NVA
2287_2020_WY	4568787.052	292308.582	2316.159	NVA
2288_2020_WY	4807232.811	363754.502	1589.626	NVA
2289_2020_WY	4699741.915	357136.774	2055.344	NVA
2290_2020_WY	4590783.980	269736.803	2031.198	NVA
3001_2020_WY	4763825.791	316718.007	1882.800	VVA
3002_2020_WY	4721641.236	385649.649	1778.322	VVA

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Point Number	UTM 13N Northing (M)	UTM 13N Easting (M)	Orthometric Height (M)	Description
3003_2020_WY	4666066.255	392327.657	2247.940	VVA
3004_2020_WY	4604146.548	298826.530	2253.984	VVA
3005_2020_WY	4748584.750	351560.799	1790.405	VVA
3006_2020_WY	4563898.138	393433.339	2939.832	VVA
3007_2020_WY	4739141.828	322822.575	1997.397	VVA
3008_2020_WY	4552307.711	473743.376	2404.674	VVA
3009_2020_WY	4738139.013	306079.198	2187.459	VVA
3010_2020_WY	4696656.802	312346.713	1894.546	VVA
3011_2020_WY	4725568.752	392767.998	2374.408	VVA
3012_2020_WY	4732186.819	366590.713	1647.762	VVA
3013_2020_WY	4556794.956	366578.496	2374.003	VVA
3014_2020_WY	4610319.868	293437.949	2178.490	VVA
3015_2020_WY	4747756.129	334900.252	1850.344	VVA
3016_2020_WY	4665754.078	296620.646	1993.435	VVA
3017_2020_WY	4618998.394	446022.732	2134.517	VVA
3018_2020_WY	4576266.494	281865.536	2103.566	VVA
3019_2020_WY	4687269.525	399366.669	2144.216	VVA
3020_2020_WY	4553212.595	288257.279	2251.443	VVA
3021_2020_WY	4688936.100	441742.629	2291.334	VVA
3022_2020_WY	4567804.074	438695.634	2196.852	VVA
3023_2020_WY	4737487.806	346919.862	1843.400	VVA
3024_2020_WY	4800649.305	326394.971	2016.509	VVA
3025_2020_WY	4551580.206	445275.382	2291.892	VVA
3026_2020_WY	4563102.058	292817.972	2362.663	VVA
3027_2020_WY	4721852.875	351080.210	1966.262	VVA
3028_2020_WY	4615123.731	431064.252	2192.759	VVA
3029_2020_WY	4734213.209	343385.249	1915.369	VVA
3030_2020_WY	4745380.784	314704.101	1936.630	VVA
3031_2020_WY	4775128.851	409108.991	1825.471	VVA
3032_2020_WY	4603015.141	372408.508	2308.902	VVA
3033_2020_WY	4677659.240	450864.628	2361.859	VVA
3034_2020_WY	4563142.961	462785.844	2667.352	VVA
3035_2020_WY	4697536.964	308316.515	1882.987	VVA
3036_2020_WY	4673233.625	305306.248	2078.510	VVA
3037_2020_WY	4603272.097	359120.883	2169.625	VVA
3038_2020_WY	4792897.834	395950.868	1564.456	VVA
3039_2020_WY	4676383.806	344558.230	1801.078	VVA
3040_2020_WY	4660560.342	464069.283	2213.029	VVA
3041_2020_WY	4547409.731	273134.588	1913.162	VVA
3042_2020_WY	4803967.697	332498.705	1886.593	VVA
3043_2020_WY	4542630.041	283298.524	2022.211	VVA
3044_2020_WY	4614804.417	451877.285	2170.691	VVA

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Point Number	UTM 13N Northing (M)	UTM 13N Easting (M)	Orthometric Height (M)	Description
3045_2020_WY	4743796.956	372656.626	1660.056	VVA
3046_2020_WY	4780287.886	324830.135	1785.930	VVA
3047_2020_WY	4675097.025	432787.461	2207.718	VVA
3048_2020_WY	4616901.429	428557.017	2154.560	VVA
3049_2020_WY	4661250.995	467807.398	2184.416	VVA
3050_2020_WY	4654535.673	310287.501	1973.177	VVA
3051_2020_WY	4638386.988	429211.990	2100.462	VVA
3052_2020_WY	4708106.921	392999.668	2045.654	VVA
3053_2020_WY	4592139.014	258676.002	2018.041	VVA
3054_2020_WY	4627194.096	293139.241	2034.362	VVA
3055_2020_WY	4586311.375	419604.597	2247.840	VVA
3056_2020_WY	4731226.796	366580.022	1652.253	VVA
3057_2020_WY	4553545.586	259937.742	2042.433	VVA
3058_2020_WY	4588217.914	421144.754	2226.669	VVA
3059_2020_WY	4569068.043	427561.920	2213.957	VVA
3060_2020_WY	4785021.481	316515.640	1856.362	VVA
3061_2020_WY	4590955.671	454083.882	2226.876	VVA
3063_2020_WY	4576374.853	449865.750	2173.818	VVA
3064_2020_WY	4580978.071	369496.717	2392.555	VVA
3065_2020_WY	4615537.520	472794.907	2030.525	VVA
3066_2020_WY	4685587.136	357133.049	2099.508	VVA
3067_2020_WY	4550815.214	371646.652	2354.106	VVA
3068_2020_WY	4678860.980	362537.610	2143.823	VVA
3069_2020_WY	4740875.493	299008.052	2279.948	VVA
3070_2020_WY	4707097.369	384861.995	2026.433	VVA
3071_2020_WY	4547096.810	402055.654	2770.951	VVA
3072_2020_WY	4639063.850	437615.102	2121.556	VVA
3073_2020_WY	4603421.476	278688.556	2178.328	VVA
3074_2020_WY	4756870.688	328475.655	1824.098	VVA
3075_2020_WY	4582220.547	256981.629	2008.056	VVA
3076_2020_WY	4724384.529	319340.833	2053.222	VVA
3077_2020_WY	4579380.650	365515.259	2357.720	VVA
3078_2020_WY	4730964.739	389066.212	2452.065	VVA
3079_2020_WY	4692179.634	319031.481	1982.638	VVA
3080_2020_WY	4574371.380	256473.932	2041.375	VVA
3081_2020_WY	4730524.241	297501.666	2099.296	VVA
3082_2020_WY	4673467.153	414627.727	2121.802	VVA
3083_2020_WY	4554595.112	367017.543	2478.150	VVA
3084_2020_WY	4578799.278	267672.618	1988.878	VVA
3085_2020_WY	4571156.631	412890.360	2338.530	VVA
3086_2020_WY	4546618.547	468641.480	2356.915	VVA
3087_2020_WY	4688363.710	324372.635	1998.244	VVA

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Point Number	UTM 13N Northing (M)	UTM 13N Easting (M)	Orthometric Height (M)	Description
3088_2020_WY	4666351.550	451927.373	2153.947	VVA
3089_2020_WY	4600155.559	354291.826	2092.570	VVA
3090_2020_WY	4687838.440	326416.902	2002.774	VVA
3091_2020_WY	4581115.752	420495.028	2225.880	VVA
3092_2020_WY	4671342.437	433312.373	2175.631	VVA
3093_2020_WY	4556677.721	440860.896	2215.042	VVA
3094_2020_WY	4578949.335	286935.132	2226.120	VVA
3095_2020_WY	4582971.299	271415.242	2124.707	VVA
3096_2020_WY	4643823.030	435839.075	2120.238	VVA
3097_2020_WY	4667781.002	380789.971	2294.047	VVA
3098_2020_WY	4677286.841	295434.391	2020.820	VVA
3099_2020_WY	4596445.060	379103.757	2574.058	VVA
3100_2020_WY	4633330.624	434789.808	2103.181	VVA
3101_2020_WY	4640655.467	440210.466	2127.749	VVA
3102_2020_WY	4553186.326	415224.764	2283.425	VVA
3103_2020_WY	4608429.789	465322.161	2330.851	VVA
3104_2020_WY	4553938.869	270186.090	1974.053	VVA
3105_2020_WY	4659835.666	341150.608	1988.087	VVA
3106_2020_WY	4569687.459	265493.370	2048.226	VVA
3107_2020_WY	4600892.027	413882.379	2261.639	VVA
3108_2020_WY	4630302.715	293021.223	2032.856	VVA
3109_2020_WY	4691402.258	369117.955	2283.602	VVA
3110_2020_WY	4652813.268	297061.523	1992.735	VVA
3111_2020_WY	4647818.572	409494.440	2069.697	VVA
3112_2020_WY	4688511.130	325661.370	1999.737	VVA
3113_2020_WY	4701087.024	331147.785	1843.748	VVA
3114_2020_WY	4678610.479	293771.406	2036.341	VVA
3115_2020_WY	4664025.896	299070.783	1983.135	VVA
3116_2020_WY	4678511.278	468689.759	1967.186	VVA
3117_2020_WY	4587964.551	417102.088	2295.785	VVA
3118_2020_WY	4552661.507	455842.723	2320.968	VVA
3119_2020_WY	4653577.976	298073.767	1990.840	VVA
3120_2020_WY	4730085.076	295847.859	2122.188	VVA
3121_2020_WY	4650893.832	334140.473	2034.344	VVA
3122_2020_WY	4697526.707	376183.084	2018.581	VVA
3123_2020_WY	4567121.318	300877.468	2249.619	VVA
3124_2020_WY	4675174.132	442094.389	2250.527	VVA
3125_2020_WY	4689791.818	376515.079	2300.221	VVA
3126_2020_WY	4772657.440	309564.474	1859.680	VVA
3127_2020_WY	4602858.611	275095.074	2218.665	VVA
3128_2020_WY	4662967.391	416775.949	2101.024	VVA
3129_2020_WY	4733737.801	335872.021	2060.555	VVA

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Point Number	UTM 13N Northing (M)	UTM 13N Easting (M)	Orthometric Height (M)	Description
3130_2020_WY	4596780.022	417387.701	2250.342	VVA
3131_2020_WY	4771685.273	301115.617	1863.928	VVA
3132_2020_WY	4612229.137	411518.481	2213.530	VVA
3133_2020_WY	4587640.678	434042.890	2170.480	VVA
3134_2020_WY	4657395.435	337078.098	1965.838	VVA
3135_2020_WY	4688616.541	321095.586	2028.733	VVA
3136_2020_WY	4774197.142	349817.824	1787.982	VVA
3137_2020_WY	4543203.231	392194.389	2630.302	VVA
3138_2020_WY	4578112.162	374531.878	2547.183	VVA
3139_2020_WY	4558719.535	393875.925	2728.144	VVA
3140_2020_WY	4585235.504	385285.585	2975.027	VVA
3141_2020_WY	4676937.435	368606.612	2475.033	VVA
3141A_2020_WY	4671142.496	360793.038	2411.243	VVA
3142_2020_WY	4552564.465	397386.346	2641.525	VVA
3143_2020_WY	4545767.040	360517.140	2846.211	VVA
3144_2020_WY	4543263.661	361110.028	2893.407	VVA
3145_2020_WY	4593164.987	390361.313	2836.599	VVA
3146_2020_WY	4679589.220	452866.127	2354.561	VVA
3147_2020_WY	4541456.695	359268.329	2857.770	VVA
3148_2020_WY	4594492.879	392608.638	2959.455	VVA
3149_2020_WY	4731619.982	392508.053	2409.239	VVA
3150_2020_WY	4674768.966	470701.443	2164.633	VVA
3151_2020_WY	4541205.720	447408.455	2672.709	VVA
3152_2020_WY	4548025.417	356227.922	2898.355	VVA
3153_2020_WY	4801795.904	387161.043	1604.606	VVA
3154_2020_WY	4560588.521	393614.656	2859.995	VVA
3155_2020_WY	4747829.074	408226.081	1597.795	VVA
3156_2020_WY	4762893.147	369897.487	1660.324	VVA
3157_2020_WY	4773219.198	335951.643	1731.215	VVA
3158_2020_WY	4684841.612	419626.839	2257.985	VVA
3159_2020_WY	4577212.056	447585.219	2184.919	VVA
3160_2020_WY	4714299.816	326014.583	1826.212	VVA
3161_2020_WY	4714480.642	334587.711	1800.750	VVA
3162_2020_WY	4717242.032	308861.468	1967.138	VVA
3163_2020_WY	4685016.361	327828.272	1921.384	VVA
3164_2020_WY	4799083.621	397692.244	1560.530	VVA
3165_2020_WY	4681573.216	441357.635	2291.428	VVA
3166_2020_WY	4640687.453	472662.956	1858.083	VVA
3167_2020_WY	4745654.073	356756.435	1760.874	VVA
3168_2020_WY	4756379.637	376472.792	1632.613	VVA
3169_2020_WY	4702944.947	347736.542	1777.258	VVA
3170_2020_WY	4673905.109	475439.214	1805.756	VVA

Point Number	UTM 13N Northing (M)	UTM 13N Easting (M)	Orthometric Height (M)	Description
3171_2020_WY	4777524.410	326739.727	1769.569	VVA
3172_2020_WY	4683630.872	390470.507	2209.178	VVA
3173_2020_WY	4770908.362	373535.503	1657.127	VVA
3175_2020_WY	4748345.530	311770.696	1915.722	VVA
3176_2020_WY	4733847.705	367022.389	1669.585	VVA
3177_2020_WY	4808948.727	346212.627	1819.372	VVA
3178_2020_WY	4703881.289	388859.645	2248.779	VVA
3179_2020_WY	4586949.148	407873.709	2659.015	VVA
3180_2020_WY	4742547.223	333054.123	1870.536	VVA
3181_2020_WY	4752405.530	408759.109	1693.825	VVA
3182_2020_WY	4664765.891	341508.989	2018.302	VVA
3183_2020_WY	4752070.891	376461.978	1621.615	VVA
3184_2020_WY	4808879.303	319466.611	2535.094	VVA
3185_2020_WY	4692261.419	397740.276	2200.485	VVA
3186_2020_WY	4565473.156	461300.024	2654.751	VVA
3187_2020_WY	4717935.078	320880.279	1918.434	VVA
3188_2020_WY	4691572.856	333415.327	1848.348	VVA
3189_2020_WY	4767797.436	402248.924	1679.671	VVA
3190_2020_WY	4543748.874	451573.445	2521.508	VVA
3191_2020_WY	4633509.825	470479.617	1895.749	VVA
3192_2020_WY	4713435.802	331084.239	1794.657	VVA
3193_2020_WY	4704052.532	293416.455	1905.750	VVA
3194_2020_WY	4711771.432	379366.401	1837.199	VVA
3195_2020_WY	4669914.297	396822.968	2114.693	VVA
3196_2020_WY	4585872.751	434060.125	2171.509	VVA
3197_2020_WY	4556346.991	420393.851	2255.145	VVA
3198_2020_WY	4576002.993	380130.500	2893.035	VVA
3199_2020_WY	4609019.116	310643.780	2164.469	VVA
3200_2020_WY	4636986.477	438121.609	2123.389	VVA
3201_2020_WY	4789180.435	387332.723	1659.050	VVA
3202_2020_WY	4603746.877	441742.127	2157.419	VVA
3203_2020_WY	4620326.386	462957.862	1968.155	VVA
3204_2020_WY	4649830.410	304732.081	2016.048	VVA
3205_2020_WY	4788573.277	360558.102	1673.911	VVA

2.2. Ground Control-Geodetic Coordinate System

- Horizontal Datum: NAD 1983 (2011)
- Vertical Datum: NAVD88
- Units: Meters

Table 2.2 Ground Control -Geodetic Coordinate System

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Point Number	NAD1983 (2011) Latitude (N)	NAD1983 (2011) Longitude (W)	Ellipsoid Height (M)	Description
1000_2020_WY	41°34'54.99853"	-106°37'03.46354"	2218.832	LCP
1001_2020_WY	41°30'15.07540"	-106°22'36.38708"	2677.949	LCP
1002_2020_WY	41°29'36.75509"	-106°20'33.89306"	2746.769	LCP
1003_2020_WY	41°30'41.58473"	-106°00'14.55204"	2249.958	LCP
1004_2020_WY	41°11'26.27718"	-105°35'54.19756"	2210.948	LCP
1005_2020_WY	41°13'09.16831"	-105°49'40.09892"	2198.203	LCP
1006_2020_WY	41°01'02.28008"	-106°00'07.16618"	2425.258	LCP
1007_2020_WY	41°28'36.96321"	-106°28'03.20556"	2596.420	LCP
1008_2020_WY	41°15'44.22380"	-105°34'46.41627"	2195.062	LCP
1009_2020_WY	41°18'40.63684"	-105°47'56.65714"	2254.736	LCP
1010_2020_WY	41°08'50.74276"	-107°15'55.70873"	2443.471	LCP
1011_2020_WY	41°17'43.45439"	-105°59'32.45847"	2287.039	LCP
1012_2020_WY	41°16'15.66010"	-107°03'28.86378"	2691.719	LCP
1013_2020_WY	41°35'43.55288"	-105°40'23.05982"	2134.418	LCP
1014_2020_WY	41°39'08.18906"	-107°43'44.08456"	2147.473	LCP
1015_2020_WY	41°29'31.76011"	-106°20'03.63074"	2717.420	LCP
1016_2020_WY	41°21'54.32693"	-107°29'54.09933"	2357.617	LCP
1017_2020_WY	41°22'18.60624"	-107°13'26.03530"	2374.398	LCP
1018_2020_WY	41°50'54.64288"	-105°13'11.11975"	1617.865	LCP
1019_2020_WY	41°28'50.05546"	-107°41'39.29473"	2042.300	LCP
1020_2020_WY	41°10'38.61253"	-106°53'12.34528"	2610.516	LCP
1021_2020_WY	41°31'32.53970"	-106°05'34.02651"	2380.057	LCP
1022_2020_WY	41°39'11.11526"	-105°47'03.04842"	2149.708	LCP
1023_2020_WY	41°24'38.51012"	-105°34'45.75319"	2178.684	LCP
1024_2020_WY	41°01'45.23666"	-106°55'12.41141"	2805.280	LCP
1025_2020_WY	41°23'23.49178"	-107°03'40.76942"	2243.910	LCP
1026_2020_WY	41°27'36.42574"	-106°04'48.86348"	2486.239	LCP
1027_2020_WY	41°09'14.01964"	-106°56'36.15426"	2845.060	LCP
1028_2020_WY	41°19'35.29343"	-106°31'34.92430"	2749.802	LCP
1029_2020_WY	41°25'30.31467"	-105°52'24.31622"	2191.172	LCP
1030_2020_WY	41°37'59.00859"	-105°45'59.29346"	2135.197	LCP
1031_2020_WY	41°11'50.64049"	-107°34'19.96316"	2051.871	LCP
1032_2020_WY	41°00'39.53735"	-106°14'54.05545"	2609.460	LCP
1033_2020_WY	41°03'56.94378"	-105°28'50.40369"	2381.944	LCP
1034_2020_WY	41°00'51.16705"	-106°47'54.85880"	2589.474	LCP
1035_2020_WY	41°02'43.72924"	-106°24'25.78209"	2388.500	LCP
1036_2020_WY	41°08'28.96232"	-107°06'54.59024"	2560.493	LCP
1037_2020_WY	41°05'27.39723"	-107°31'35.58311"	2126.227	LCP
1038_2020_WY	41°35'49.50248"	-107°44'29.91526"	2182.720	LCP
1039_2020_WY	41°14'16.74594"	-105°43'53.45056"	2186.379	LCP
1040_2020_WY	41°10'32.28686"	-106°04'38.29382"	2487.854	LCP

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Point Number	NAD1983 (2011) Latitude (N)	NAD1983 (2011) Longitude (W)	Ellipsoid Height (M)	Description
1041_2020_WY	41°26'40.49223"	-107°55'53.80035"	2002.155	LCP
1042_2020_WY	41°06'33.99556"	-105°38'23.24840"	2279.732	LCP
1043_2020_WY	41°04'27.10241"	-107°14'00.52514"	2367.776	LCP
1044_2020_WY	41°13'08.15018"	-105°38'40.03260"	2210.160	LCP
1045_2020_WY	41°30'54.76478"	-107°32'28.40811"	2131.740	LCP
1046_2020_WY	41°07'19.88922"	-106°36'13.41289"	2416.884	LCP
1047_2020_WY	41°03'35.14441"	-107°18'21.28304"	2177.701	LCP
1048_2020_WY	41°38'43.41056"	-106°27'36.16093"	2259.215	LCP
1049_2020_WY	41°03'20.87436"	-106°56'57.17471"	2695.091	LCP
1050_2020_WY	41°24'58.84401"	-106°27'41.28941"	2708.413	LCP
1051_2020_WY	41°23'23.23712"	-106°35'07.38001"	2349.395	LCP
1052_2020_WY	41°27'35.25819"	-107°14'23.64756"	2261.043	LCP
1053_2020_WY	41°36'10.62359"	-107°15'17.02680"	2134.890	LCP
1054_2020_WY	41°46'25.92495"	-107°27'59.97822"	2019.120	LCP
1055_2020_WY	42°03'45.01065"	-105°45'51.10457"	2167.854	LCP
1056_2020_WY	42°19'38.24206"	-105°56'51.81436"	2254.066	LCP
1057_2020_WY	42°00'26.94074"	-105°46'48.71129"	2178.973	LCP
1058_2020_WY	42°25'33.34713"	-105°54'07.06123"	2486.030	LCP
1059_2020_WY	42°02'29.13837"	-105°48'01.01617"	2217.276	LCP
1060_2020_WY	41°43'46.77078"	-105°58'01.60157"	2073.795	LCP
1061_2020_WY	42°13'13.65689"	-105°20'50.21768"	2114.572	LCP
1062_2020_WY	41°53'41.97377"	-105°36'04.54243"	2124.751	LCP
1063_2020_WY	42°26'16.33707"	-105°52'56.88208"	2529.108	LCP
1064_2020_WY	42°12'56.06921"	-105°19'27.72623"	1899.704	LCP
1065_2020_WY	41°54'09.14532"	-105°17'47.53076"	1810.406	LCP
1066_2020_WY	42°26'20.56421"	-105°41'57.15643"	2286.565	LCP
1067_2020_WY	42°13'31.75105"	-105°24'11.02109"	2001.065	LCP
1068_2020_WY	42°08'51.14219"	-105°34'53.65388"	2141.319	LCP
1069_2020_WY	41°56'40.51406"	-105°41'21.36786"	2149.994	LCP
1070_2020_WY	41°50'52.98720"	-105°43'39.81561"	2112.247	LCP
1071_2020_WY	42°13'20.25807"	-105°37'42.09272"	2401.868	LCP
1072_2020_WY	41°50'51.24262"	-105°23'26.96104"	1920.506	LCP
1073_2020_WY	41°46'28.80689"	-105°18'20.36945"	1814.953	LCP
1074_2020_WY	42°17'03.40001"	-105°42'39.83613"	2280.484	LCP
1075_2020_WY	42°05'12.14844"	-105°26'50.02302"	2152.078	LCP
1076_2020_WY	41°58'27.56791"	-105°26'00.89386"	2096.027	LCP
1077_2020_WY	42°13'15.00572"	-105°17'02.90212"	1764.614	LCP
1078_2020_WY	41°52'03.73565"	-107°15'48.07145"	2126.228	LCP
1079_2020_WY	42°10'49.79331"	-107°22'07.26884"	2058.214	LCP
1080_2020_WY	42°00'37.23603"	-107°28'37.55532"	2001.390	LCP
1081_2020_WY	41°53'40.13297"	-107°02'33.67579"	1973.445	LCP

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1082_2020_WY	42°10'26.13495"	-106°57'22.85173"	2186.669	LCP
1083_2020_WY	42°45'43.50193"	-106°08'38.97014"	1638.069	LCP
1084_2020_WY	42°08'01.39634"	-106°07'55.49115"	2087.398	LCP
1085_2020_WY	42°23'05.42927"	-106°13'25.01159"	2160.052	LCP
1086_2020_WY	42°28'44.32863"	-106°04'34.79472"	2283.389	LCP
1087_2020_WY	42°00'35.64714"	-106°11'38.93320"	2070.382	LCP
1088_2020_WY	42°14'55.00403"	-106°15'48.69876"	2119.290	LCP
1089_2020_WY	42°38'18.44007"	-106°18'44.62365"	2303.491	LCP
1090_2020_WY	42°22'13.28672"	-106°40'37.97844"	2110.476	LCP
1091_2020_WY	42°06'37.36520"	-106°19'53.38411"	2194.462	LCP
1092_2020_WY	42°35'49.86361"	-106°30'51.18744"	1718.569	LCP
1093_2020_WY	42°20'15.91147"	-106°29'10.67893"	2246.809	LCP
1094_2020_WY	42°08'08.72535"	-106°29'32.49437"	2565.023	LCP
1095_2020_WY	42°37'16.24860"	-106°46'27.24287"	2002.714	LCP
1096_2020_WY	42°22'47.71644"	-106°24'30.65645"	1998.688	LCP
1097_2020_WY	42°10'16.77792"	-106°34'32.56413"	2719.276	LCP
1098_2020_WY	42°41'05.23605"	-106°23'33.48721"	1904.282	LCP
1099_2020_WY	42°31'14.13107"	-106°34'32.33446"	1789.802	LCP
1100_2020_WY	42°19'41.34605"	-106°44'34.61968"	2079.577	LCP
1101_2020_WY	42°09'37.39491"	-106°46'02.24227"	2125.545	LCP
1102_2020_WY	42°43'43.67273"	-106°47'19.16840"	1824.299	LCP
1103_2020_WY	42°43'49.62067"	-106°50'43.51818"	1902.405	LCP
1104_2020_WY	42°08'29.05037"	-107°25'43.29603"	1977.279	LCP
1105_2020_WY	42°15'10.52945"	-107°27'01.37045"	2034.195	LCP
1106_2020_WY	42°21'00.78666"	-107°27'33.96778"	1911.819	LCP
1107_2020_WY	42°24'32.89612"	-107°23'14.38286"	1848.820	LCP
1108_2020_WY	42°33'25.78315"	-107°18'07.18865"	1928.296	LCP
1109_2020_WY	42°40'25.23179"	-107°19'33.87500"	2057.508	LCP
1110_2020_WY	42°40'35.70175"	-107°16'40.92184"	2016.685	LCP
1111_2020_WY	42°23'23.81581"	-107°15'16.56933"	1884.999	LCP
1112_2020_WY	42°22'58.78328"	-107°11'33.82719"	1927.152	LCP
1113_2020_WY	42°31'17.26392"	-107°09'44.99711"	1798.470	LCP
1114_2020_WY	42°38'59.23337"	-107°02'20.93005"	1892.254	LCP
1115_2020_WY	42°46'59.12418"	-106°58'51.24417"	1883.621	LCP
1116_2020_WY	42°17'56.28120"	-107°06'22.53330"	2007.356	LCP
1117_2020_WY	42°27'28.71003"	-106°57'14.28301"	1791.358	LCP
1118_2020_WY	42°38'33.33923"	-106°54'46.28975"	1942.809	LCP
1119_2020_WY	42°52'09.03285"	-106°04'52.40731"	1527.403	LCP
1120_2020_WY	43°26'46.50878"	-106°36'38.84727"	1599.220	LCP
1121_2020_WY	43°08'19.89830"	-106°34'27.00251"	1681.953	LCP
1122_2020_WY	42°46'08.46939"	-106°05'47.54774"	1620.427	LCP

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1123_2020_WY	43°15'24.46585"	-106°40'48.84576"	1618.276	LCP
1124_2020_WY	42°56'51.82923"	-106°41'09.66643"	1668.179	LCP
1125_2020_WY	43°22'40.35010"	-106°45'48.27314"	1687.986	LCP
1126_2020_WY	43°06'36.36861"	-106°07'13.83489"	1796.960	LCP
1127_2020_WY	42°46'50.07873"	-106°50'07.08277"	1843.889	LCP
1128_2020_WY	43°14'00.27951"	-106°44'54.54873"	1605.710	LCP
1129_2020_WY	42°55'39.28413"	-106°59'08.08400"	1849.183	LCP
1130_2020_WY	43°22'05.22416"	-107°11'08.23438"	2272.830	LCP
1131_2020_WY	43°03'04.94499"	-107°10'42.91517"	1795.482	LCP
1132_2020_WY	43°29'27.81570"	-107°06'45.90453"	2477.428	LCP
1133_2020_WY	43°11'24.49665"	-107°09'12.80083"	1787.000	LCP
1134_2020_WY	42°52'00.30928"	-107°15'39.12743"	1895.452	LCP
1135_2020_WY	43°19'04.60706"	-107°06'42.95493"	1958.687	LCP
1136_2020_WY	42°58'21.35997"	-107°14'11.20523"	1884.757	LCP
1137_2020_WY	43°23'46.93936"	-107°14'06.99799"	2526.036	LCP
1138_2020_WY	43°05'02.89202"	-107°18'07.91597"	1869.703	LCP
1139_2020_WY	43°28'28.02155"	-107°13'16.52847"	2562.202	LCP
1140_2020_WY	43°11'03.21131"	-107°21'54.05276"	1782.174	LCP
1141_2020_WY	42°51'29.76455"	-107°21'42.99622"	2017.746	LCP
1142_2020_WY	43°15'52.20544"	-107°29'02.81134"	1807.107	LCP
1143_2020_WY	42°59'57.90757"	-107°29'45.06610"	1885.938	LCP
1144_2020_WY	43°27'15.90513"	-106°30'22.45390"	1670.563	LCP
1145_2020_WY	43°12'34.45476"	-106°19'03.04072"	1605.572	LCP
1146_2020_WY	43°24'32.72444"	-106°28'33.56750"	1554.136	LCP
1147_2020_WY	43°06'24.46153"	-106°13'34.89639"	1737.683	LCP
1148_2020_WY	43°20'16.56836"	-106°15'42.84477"	1548.203	LCP
1149_2021_WY	41°31'41.74233"	-106°17'35.77545"	2848.706	LCP
1150_2021_WY	41°28'17.25430"	-106°13'36.15499"	3030.823	LCP
1152_2021_WY	41°21'05.49367"	-106°09'53.41592"	2759.440	LCP
1153_2021_WY	41°08'11.44571"	-106°09'52.24174"	2718.099	LCP
1154_2021_WY	41°27'24.83631"	-106°16'03.73145"	3065.645	LCP
1155_2021_WY	41°06'41.61783"	-106°02'23.53299"	2374.189	LCP
1156_2021_WY	41°17'50.73070"	-106°08'22.82001"	2438.861	LCP
1157_2021_WY	41°03'28.75733"	-106°19'39.60156"	2691.207	LCP
1159_2021_WY	41°04'45.33473"	-106°00'44.21795"	2285.541	LCP
1160_2021_WY	41°00'23.59948"	-106°14'22.14625"	2604.584	LCP
1161_2021_WY	41°13'10.36996"	-106°14'17.73892"	2880.456	LCP
1162_2021_WY	41°30'31.12696"	-106°21'32.39038"	2656.504	LCP
1163_2021_WY	41°11'29.83938"	-106°06'08.66262"	2434.088	LCP
1164_2021_WY	41°04'56.26287"	-106°11'53.27865"	2758.960	LCP
1165_2021_WY	41°36'06.54518"	-106°15'05.62724"	2384.053	LCP

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Point Number	NAD1983 (2011) Latitude (N)	NAD1983 (2011) Longitude (W)	Ellipsoid Height (M)	Description
1166_2021_WY	41°17'50.31110"	-106°05'11.04758"	2398.526	LCP
1167_2021_WY	41°12'50.58684"	-106°24'03.26753"	2711.776	LCP
1168_2020_WY	41°00'10.80843"	-107°08'42.62078"	2117.228	LCP
1168A_2020_WY	41°00'14.31799"	-107°08'44.74435"	2128.736	LCP
1169_2020_WY	41°00'06.80528"	-106°48'42.09849"	2552.100	LCP
1169A_2020_WY	41°01'12.05953"	-106°51'01.23591"	2534.536	LCP
1170_2021_WY	41°02'59.63891"	-106°18'16.87558"	2653.511	LCP
1171A_2021_WY	41°13'44.10584"	-106°18'58.74592"	3017.501	LCP
1172_2021_WY	41°22'43.15544"	-106°11'18.82940"	2955.871	LCP
1173_2021_WY	41°35'36.51473"	-106°19'01.74329"	2390.324	LCP
1174_2021_WY	41°13'50.70550"	-106°13'27.87871"	2921.796	LCP
1175_2021_WY	41°33'04.59283"	-106°17'48.05897"	2681.062	LCP
1176_2021_WY	41°25'01.80827"	-106°25'07.68631"	2864.501	LCP
1177_2021_WY	41°23'07.98420"	-106°11'39.78122"	3045.708	LCP
1178_2021_WY	41°18'08.31679"	-106°10'15.88652"	2754.582	LCP
1179_2021_WY	41°31'29.08399"	-106°23'13.59883"	2530.143	LCP
1180_2021_WY	41°15'12.24954"	-106°22'48.00557"	2850.476	LCP
1181A_2021_WY	41°16'24.57514"	-106°16'22.90605"	3058.887	LCP
1182A_2021_WY	41°25'12.17643"	-106°25'49.73363"	2843.704	LCP
1184_2020_WY	40°59'56.27689"	-106°48'36.40041"	2570.465	LCP
1185_2020_WY	41°00'29.97418"	-106°41'07.37366"	2977.371	LCP
1186_2020_WY	41°01'06.60464"	-106°39'11.77550"	2821.381	LCP
1187_2020_WY	41°01'21.95520"	-106°38'50.31224"	2829.896	LCP
1188_2021_WY	41°01'30.05299"	-106°36'49.04282"	2638.923	LCP
1189_2020_WY	41°01'47.31933"	-107°13'43.60627"	2064.676	LCP
1190_2021_WY	41°01'56.24262"	-106°35'33.69392"	2591.914	LCP
1191A_2021_WY	41°01'06.34869"	-106°31'46.63964"	2434.523	LCP
1192_2021_WY	41°02'14.99892"	-106°37'13.72244"	2626.886	LCP
1193_2021_WY	41°02'23.72579"	-106°37'09.54215"	2615.736	LCP
1194A_2020_WY	41°02'57.08380"	-106°42'43.43464"	3046.003	LCP
1194B_2020_WY	41°03'19.19418"	-106°42'55.69474"	2986.025	LCP
1195_2020_WY	41°02'56.28755"	-106°50'20.77642"	2675.945	LCP
1196A_2021_WY	41°03'20.80294"	-106°56'57.44587"	2695.029	LCP
1197_2020_WY	41°03'07.63242"	-107°06'27.42932"	2416.347	LCP
1198_2020_WY	41°03'17.88243"	-107°14'47.83931"	2226.132	LCP
1200_2020_WY	41°04'47.56685"	-106°45'00.72428"	2851.578	LCP
1201_2020_WY	41°03'46.14384"	-107°06'57.68972"	2434.243	LCP
1201A_2020_WY	41°04'19.53519"	-107°09'21.49007"	2328.893	LCP
1202A_2021_WY	41°05'43.49908"	-106°32'55.68593"	2345.719	LCP
1203_2020_WY	41°05'25.76307"	-106°52'18.02748"	2870.537	LCP
1204_2020_WY	41°05'14.12999"	-107°14'38.27578"	2407.715	LCP

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Point Number	NAD1983 (2011) Latitude (N)	NAD1983 (2011) Longitude (W)	Ellipsoid Height (M)	Description
1205_2020_WY	41°05'27.76652"	-106°42'53.48072"	2757.997	LCP
1206A_2021_WY	41°09'51.41166"	-107°00'17.31962"	2884.928	LCP
1207_2021_WY	41°17'38.52748"	-106°01'37.27306"	2311.326	LCP
1208_2021_WY	41°17'04.36537"	-106°27'23.56660"	2644.379	LCP
1209_2021_WY	41°30'51.47953"	-106°28'08.18229"	2457.732	LCP
1210_2021_WY	41°07'46.46584"	-106°47'50.34115"	2278.343	LCP
1211_2020_WY	41°07'15.75906"	-107°09'10.04459"	2532.948	LCP
1212_2020_WY	41°07'21.23000"	-106°55'21.30935"	3016.281	LCP
1212A_2020_WY	41°06'37.68090"	-106°54'35.41537"	3038.511	LCP
1213_2020_WY	41°07'52.07101"	-106°53'08.07421"	2713.961	LCP
1214_2020_WY	41°07'51.71306"	-107°11'00.20759"	2430.193	LCP
1215_2020_WY	41°08'27.84169"	-107°17'42.02773"	2419.738	LCP
1216_2020_WY	41°08'56.21641"	-107°16'32.08823"	2448.601	LCP
1216A_2020_WY	41°09'00.44080"	-107°14'33.68567"	2460.736	LCP
1217_2020_WY	41°08'59.81790"	-107°03'11.71747"	2738.780	LCP
1218_2021_WY	41°28'44.70522"	-106°29'00.34712"	2660.945	LCP
1219_2021_WY	41°17'38.16059"	-106°00'50.87414"	2301.122	LCP
1220_2020_WY	41°11'28.67202"	-106°56'46.61734"	2807.549	LCP
1221A_2021_WY	41°13'39.67976"	-106°30'46.65169"	2453.763	LCP
1222_2020_WY	41°11'16.98309"	-107°17'56.87259"	2518.623	LCP
1222A_2020_WY	41°11'30.43254"	-107°17'30.83694"	2527.299	LCP
1223A_2020_WY	41°12'43.51269"	-107°03'12.85116"	2987.272	LCP
1224_2020_WY	41°12'20.16977"	-107°15'02.97447"	2376.001	LCP
1225_2021_WY	41°13'57.65160"	-106°31'38.68549"	2390.402	LCP
1226_2021_WY	41°19'32.13146"	-106°32'24.71975"	2644.626	LCP
1227A_2020_WY	41°14'48.85664"	-107°07'58.35361"	2732.262	LCP
1227B_2020_WY	41°14'22.39872"	-107°09'04.08570"	2962.339	LCP
1228_2020_WY	41°15'37.63782"	-106°58'02.18338"	2420.164	LCP
1229_2020_WY	41°19'58.04656"	-106°33'02.25859"	2521.867	LCP
1230_2020_WY	41°17'03.09373"	-107°01'38.91718"	2672.810	LCP
1231_2020_WY	41°18'22.67600"	-107°05'14.00008"	2656.117	LCP
1232_2021_WY	41°28'35.59608"	-106°30'55.61113"	2639.875	LCP
1233_2020_WY	41°06'35.42042"	-107°20'02.39527"	2345.084	LCP
1234_2020_WY	41°06'28.14369"	-107°18'14.50777"	2401.794	LCP
1235_2021_WY	41°21'44.63749"	-106°32'52.29255"	2382.390	LCP
1236_2021_WY	41°21'10.41722"	-106°32'05.46601"	2421.524	LCP
1237_2021_WY	41°32'19.66449"	-106°23'14.37472"	2479.071	LCP
2001_2020_WY	41°59'04.02996"	-107°00'29.02542"	2032.682	NVA
2002_2020_WY	41°54'48.05986"	-107°18'00.22006"	2180.958	NVA
2003_2020_WY	41°51'50.02390"	-107°03'36.11521"	1950.947	NVA
2004_2020_WY	41°38'24.47532"	-106°44'50.72919"	2076.073	NVA

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Point Number	NAD1983 (2011) Latitude (N)	NAD1983 (2011) Longitude (W)	Ellipsoid Height (M)	Description
2005_2020_WY	41°13'21.56119"	-106°23'07.30690"	2913.418	NVA
2006_2020_WY	41°10'13.23431"	-106°37'15.70476"	2240.593	NVA
2007_2020_WY	41°35'17.82314"	-106°28'34.23489"	2364.987	NVA
2008_2020_WY	41°11'17.80786"	-106°38'15.68541"	2232.306	NVA
2009_2020_WY	41°06'11.18987"	-106°31'49.49519"	2350.617	NVA
2010_2020_WY	41°30'09.06096"	-106°22'48.65552"	2677.070	NVA
2011_2020_WY	41°49'38.73806"	-107°12'43.57742"	2100.103	NVA
2012_2020_WY	41°19'52.77976"	-106°19'31.79818"	3186.448	NVA
2013_2020_WY	42°20'56.06712"	-107°06'46.43272"	1940.178	NVA
2014_2020_WY	41°58'50.14958"	-107°21'54.85495"	1980.875	NVA
2015_2020_WY	41°27'34.05301"	-106°23'44.74287"	2806.181	NVA
2016_2020_WY	41°14'41.92636"	-106°17'11.74307"	2986.336	NVA
2017_2020_WY	41°35'34.21624"	-106°35'31.82029"	2213.484	NVA
2018_2020_WY	42°01'01.48198"	-107°25'30.79936"	1976.049	NVA
2019_2020_WY	42°12'05.11140"	-106°33'50.63665"	2532.887	NVA
2020_2020_WY	41°53'15.89848"	-107°10'29.78200"	1990.398	NVA
2021_2020_WY	41°05'09.25481"	-106°42'34.83197"	2737.034	NVA
2022_2020_WY	41°23'08.82047"	-106°27'55.54448"	2848.295	NVA
2023_2020_WY	41°19'28.81685"	-106°28'59.84813"	2615.700	NVA
2024_2020_WY	41°12'47.04972"	-106°30'57.50573"	2319.179	NVA
2025_2020_WY	41°27'16.20233"	-106°40'12.25729"	2201.455	NVA
2026_2020_WY	41°27'55.22495"	-106°41'06.38349"	2163.928	NVA
2027_2020_WY	41°27'22.81665"	-106°16'21.87277"	3062.867	NVA
2028_2020_WY	41°14'01.71731"	-106°31'42.41707"	2388.958	NVA
2029_2020_WY	41°59'54.90795"	-107°03'51.29920"	2040.516	NVA
2030_2020_WY	41°35'01.99512"	-106°44'50.89533"	2126.192	NVA
2031_2020_WY	42°19'52.50091"	-106°13'22.24673"	2132.108	NVA
2032_2020_WY	42°16'31.92842"	-106°16'22.00357"	2178.439	NVA
2033_2020_WY	43°12'39.20279"	-106°21'54.59547"	1638.782	NVA
2034_2020_WY	42°44'18.33197"	-106°21'20.10754"	2407.360	NVA
2035_2020_WY	43°27'21.52852"	-106°16'12.88071"	1491.225	NVA
2036_2020_WY	43°07'21.86484"	-106°15'04.74927"	1762.980	NVA
2037_2020_WY	42°22'05.76901"	-105°41'46.40873"	2244.995	NVA
2038_2020_WY	43°29'21.33648"	-106°11'38.98046"	1550.119	NVA
2039_2020_WY	42°20'38.27241"	-105°48'53.77075"	2308.200	NVA
2040_2020_WY	43°21'35.90296"	-106°23'45.10174"	1602.036	NVA
2041_2020_WY	42°41'30.88255"	-106°23'02.43065"	1965.619	NVA
2042_2020_WY	43°24'57.80959"	-106°27'53.91111"	1522.292	NVA
2043_2020_WY	43°04'41.15914"	-106°14'27.26490"	1688.806	NVA
2044_2020_WY	43°10'18.03194"	-106°20'06.04842"	1630.108	NVA
2045_2020_WY	42°38'35.46220"	-106°24'59.72532"	1733.003	NVA

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2046_2020_WY	43°23'56.54564"	-106°12'12.98011"	1515.103	NVA
2047_2020_WY	42°45'05.64717"	-106°29'59.19936"	1657.521	NVA
2048_2020_WY	43°07'24.71828"	-106°06'59.84949"	1810.925	NVA
2049_2020_WY	42°39'34.92748"	-106°25'30.30475"	1741.979	NVA
2050_2020_WY	42°57'52.91129"	-106°30'50.35649"	1636.029	NVA
2053_2020_WY	42°40'47.95799"	-106°15'47.01629"	2512.253	NVA
2054_2020_WY	42°11'28.49339"	-105°48'27.93328"	2164.196	NVA
2055_2020_WY	43°28'00.24520"	-106°27'56.83415"	1526.263	NVA
2056_2020_WY	42°23'08.94933"	-106°18'01.35070"	2188.506	NVA
2057_2020_WY	42°54'39.79358"	-106°30'49.49961"	1608.842	NVA
2058_2020_WY	42°12'26.89883"	-107°26'43.12678"	1997.175	NVA
2059_2020_WY	42°21'26.67784"	-107°11'35.95375"	2003.782	NVA
2060_2020_WY	42°22'21.38430"	-107°15'12.07419"	1920.593	NVA
2061_2020_WY	42°36'00.90176"	-107°07'31.62958"	1885.814	NVA
2062_2020_WY	42°45'24.20060"	-107°22'14.90427"	2173.103	NVA
2063_2020_WY	42°24'35.56395"	-107°29'49.97608"	1966.899	NVA
2064_2020_WY	42°48'44.33430"	-107°13'18.66099"	1965.894	NVA
2065_2020_WY	42°30'25.48734"	-107°03'55.40892"	1773.596	NVA
2066_2020_WY	42°26'15.04094"	-106°59'44.21556"	1839.559	NVA
2067_2020_WY	42°50'12.06528"	-107°25'27.89300"	2194.825	NVA
2068_2020_WY	42°17'31.78405"	-107°08'01.19483"	2054.306	NVA
2069_2020_WY	42°46'05.85029"	-107°27'54.46791"	2197.717	NVA
2070_2020_WY	42°48'55.12156"	-107°23'17.05779"	2258.715	NVA
2071_2020_WY	42°22'28.48448"	-107°01'53.07927"	1835.925	NVA
2072_2020_WY	42°25'51.06980"	-107°19'27.28007"	1841.717	NVA
2073_2020_WY	42°10'59.74856"	-107°20'58.14759"	2065.650	NVA
2074_2020_WY	42°48'06.30289"	-106°50'57.59701"	1768.732	NVA
2075_2020_WY	42°33'34.74399"	-106°51'52.41274"	1906.334	NVA
2076_2020_WY	42°39'52.46726"	-106°28'48.38603"	1682.276	NVA
2077_2020_WY	42°25'11.93821"	-106°30'17.54016"	2006.984	NVA
2078_2020_WY	42°15'32.75609"	-106°25'54.46005"	2199.097	NVA
2079_2020_WY	42°21'03.13056"	-107°05'24.22754"	1983.973	NVA
2080_2020_WY	42°36'55.57917"	-106°51'50.50229"	1880.588	NVA
2081_2020_WY	42°49'53.01747"	-106°33'39.43638"	1638.501	NVA
2082_2020_WY	42°50'37.21089"	-106°57'58.52587"	1812.204	NVA
2083_2020_WY	42°39'46.99766"	-106°37'47.11379"	1591.582	NVA
2084_2020_WY	42°32'27.02025"	-106°50'05.04222"	1909.387	NVA
2085_2020_WY	42°37'35.18602"	-106°35'13.83118"	1634.979	NVA
2086_2020_WY	42°40'30.65297"	-106°35'19.10913"	1621.035	NVA
2087_2020_WY	42°49'15.40634"	-106°40'23.23255"	1680.157	NVA
2088_2020_WY	42°14'57.04037"	-106°43'19.11788"	1971.626	NVA

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2089_2020_WY	42°45'36.56461"	-106°57'47.72749"	1907.682	NVA
2090_2020_WY	42°33'13.47062"	-106°47'21.98071"	1791.481	NVA
2091_2020_WY	42°36'16.39974"	-106°57'48.69812"	1815.292	NVA
2092_2020_WY	42°29'14.40182"	-106°31'23.00522"	1920.323	NVA
2093_2020_WY	42°28'45.38624"	-106°21'08.77184"	2236.901	NVA
2094_2020_WY	43°22'22.60572"	-107°11'27.26928"	2328.211	NVA
2095_2020_WY	43°01'47.27277"	-107°28'38.25391"	1858.923	NVA
2096_2020_WY	43°01'09.04699"	-107°11'09.19276"	1787.960	NVA
2097_2020_WY	42°49'51.74547"	-107°15'40.38868"	1982.929	NVA
2098_2020_WY	42°54'28.68230"	-107°23'00.44454"	1949.499	NVA
2099_2020_WY	43°20'22.34948"	-107°08'32.55693"	2003.756	NVA
2100_2020_WY	42°59'40.31172"	-107°24'11.61727"	1960.848	NVA
2101_2020_WY	42°58'11.72309"	-107°26'47.85035"	2019.587	NVA
2102_2020_WY	43°00'15.54115"	-107°07'38.66322"	1784.143	NVA
2103_2020_WY	43°08'03.20552"	-107°23'45.60431"	1790.594	NVA
2104_2020_WY	43°10'38.47328"	-107°07'45.45838"	1787.097	NVA
2105_2020_WY	43°25'58.86014"	-107°13'09.50875"	2469.015	NVA
2106_2020_WY	43°08'31.73734"	-106°42'36.06777"	1712.586	NVA
2107_2020_WY	43°10'49.74812"	-106°57'14.10370"	1654.988	NVA
2108_2020_WY	43°09'55.55567"	-106°57'17.22845"	1708.986	NVA
2109_2020_WY	43°01'45.10006"	-107°02'03.75427"	1712.189	NVA
2110_2020_WY	43°05'06.95893"	-106°46'21.24340"	1709.254	NVA
2111_2020_WY	42°58'29.13346"	-107°05'03.26043"	1808.579	NVA
2112_2020_WY	43°22'35.45970"	-106°50'06.06518"	1789.895	NVA
2113_2020_WY	42°58'47.44443"	-106°48'31.78464"	1750.702	NVA
2114_2020_WY	43°20'10.49127"	-106°43'02.62263"	1573.084	NVA
2115_2020_WY	43°22'12.47387"	-107°04'03.17317"	1874.053	NVA
2116_2020_WY	43°25'20.59625"	-106°58'54.47524"	1818.461	NVA
2117_2020_WY	43°02'55.95910"	-106°40'28.27785"	1674.518	NVA
2118_2020_WY	43°06'52.35151"	-106°44'45.41975"	1764.202	NVA
2119_2020_WY	43°04'15.27694"	-106°35'08.48010"	1663.190	NVA
2120_2020_WY	43°06'06.49370"	-106°34'51.13111"	1660.942	NVA
2121_2020_WY	41°06'59.02672"	-106°14'26.16575"	2592.193	NVA
2122_2020_WY	41°02'56.57509"	-105°44'45.17599"	2269.753	NVA
2123_2020_WY	41°23'44.07249"	-105°54'16.50224"	2223.096	NVA
2124_2020_WY	41°17'59.32898"	-105°57'26.07658"	2311.770	NVA
2125_2020_WY	41°04'39.45468"	-106°05'46.66892"	2709.080	NVA
2126_2020_WY	41°12'49.51175"	-106°12'44.75908"	2900.574	NVA
2127_2020_WY	41°33'23.07858"	-106°06'01.51494"	2302.269	NVA
2128_2020_WY	41°24'26.89651"	-105°50'05.08749"	2174.347	NVA
2129_2020_WY	41°02'01.98714"	-105°59'40.16641"	2435.143	NVA

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2130_2020_WY	41°36'15.11622"	-106°04'43.36080"	2254.397	NVA
2131_2020_WY	41°21'41.86676"	-105°44'57.28963"	2186.541	NVA
2132_2020_WY	41°18'55.94144"	-105°46'27.82345"	2241.926	NVA
2133_2020_WY	41°25'54.30903"	-105°53'24.38967"	2200.691	NVA
2134_2020_WY	41°27'26.61803"	-106°00'34.95457"	2290.144	NVA
2135_2020_WY	41°21'47.61488"	-105°57'34.67954"	2222.068	NVA
2136_2020_WY	41°05'49.65595"	-106°11'52.31277"	2795.856	NVA
2137_2020_WY	41°33'04.56680"	-106°17'48.01474"	2681.133	NVA
2138_2020_WY	41°03'51.13638"	-106°03'49.65571"	2624.419	NVA
2139_2020_WY	41°24'53.83291"	-105°56'36.34829"	2243.793	NVA
2140_2020_WY	41°19'59.46629"	-105°42'50.16378"	2209.504	NVA
2141_2020_WY	41°07'55.64998"	-105°45'59.62370"	2216.332	NVA
2142_2020_WY	41°19'09.87143"	-105°40'17.29842"	2204.029	NVA
2143_2020_WY	41°40'56.74627"	-105°20'08.06235"	2063.495	NVA
2144_2020_WY	41°07'57.28910"	-105°32'44.94067"	2283.673	NVA
2145_2020_WY	41°17'58.40220"	-105°27'08.37417"	2583.103	NVA
2146_2020_WY	41°28'07.20292"	-105°37'49.81473"	2170.001	NVA
2147_2020_WY	41°17'38.13146"	-105°35'21.18965"	2176.015	NVA
2148_2020_WY	41°17'16.75962"	-105°20'16.78924"	2405.374	NVA
2149_2020_WY	41°23'49.48425"	-105°22'25.87037"	2331.983	NVA
2150_2020_WY	41°27'00.25837"	-105°37'13.61679"	2165.090	NVA
2151_2020_WY	41°33'59.92249"	-105°40'11.96365"	2136.439	NVA
2152_2020_WY	41°23'46.18616"	-105°17'18.17519"	2259.020	NVA
2153_2020_WY	41°15'14.11977"	-105°36'06.14227"	2184.865	NVA
2154_2020_WY	41°07'05.34975"	-105°32'33.83233"	2291.417	NVA
2155_2020_WY	41°35'04.73633"	-105°33'31.99324"	2230.976	NVA
2156_2020_WY	41°24'54.43769"	-105°36'09.88405"	2169.606	NVA
2157_2020_WY	41°15'17.62373"	-105°21'09.91193"	2445.650	NVA
2158_2020_WY	41°18'23.06220"	-105°33'32.66652"	2191.610	NVA
2159_2020_WY	41°11'54.20959"	-105°35'54.78225"	2206.356	NVA
2160_2020_WY	41°06'06.49116"	-105°41'19.75014"	2259.576	NVA
2161_2020_WY	41°12'18.09696"	-105°20'23.86172"	2441.059	NVA
2162_2020_WY	41°14'20.70797"	-105°26'09.51443"	2629.910	NVA
2163_2020_WY	42°01'52.50070"	-105°47'59.73700"	2212.471	NVA
2164_2020_WY	42°13'26.50620"	-106°15'23.61516"	2105.749	NVA
2165_2020_WY	41°49'42.21564"	-105°50'16.58297"	2077.718	NVA
2166_2020_WY	41°40'07.86284"	-105°47'57.67508"	2155.478	NVA
2167_2020_WY	41°44'33.60030"	-105°58'31.90964"	2089.744	NVA
2168_2020_WY	42°11'49.21219"	-106°08'56.66219"	2109.152	NVA
2169_2020_WY	42°16'17.54812"	-105°51'24.42329"	2201.224	NVA
2170_2020_WY	41°38'37.47005"	-106°02'00.04261"	2176.457	NVA

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Point Number	NAD1983 (2011) Latitude (N)	NAD1983 (2011) Longitude (W)	Ellipsoid Height (M)	Description
2171_2020_WY	42°10'27.16198"	-105°58'46.42591"	2093.804	NVA
2172_2020_WY	41°36'38.85299"	-106°18'13.52832"	2334.241	NVA
2173_2020_WY	42°10'27.56691"	-105°48'23.59843"	2155.127	NVA
2174_2020_WY	41°58'05.88592"	-105°46'34.91660"	2123.266	NVA
2175_2020_WY	41°49'42.47674"	-105°51'43.18957"	2049.369	NVA
2176_2020_WY	41°50'51.73186"	-105°43'47.15784"	2110.610	NVA
2177_2020_WY	41°48'42.85735"	-105°16'45.48372"	1762.899	NVA
2178_2020_WY	42°04'05.95670"	-105°23'40.56255"	2153.820	NVA
2179_2020_WY	42°08'06.19285"	-105°46'08.36851"	2152.316	NVA
2180_2020_WY	42°07'07.67891"	-105°25'43.30714"	2145.706	NVA
2181_2020_WY	41°43'14.87382"	-105°40'44.03128"	2120.399	NVA
2182_2020_WY	41°38'34.84056"	-105°32'58.05446"	2215.439	NVA
2183_2020_WY	42°06'25.86022"	-105°45'15.66500"	2147.773	NVA
2184_2020_WY	41°44'06.26540"	-105°26'12.53687"	1948.506	NVA
2185_2020_WY	41°52'01.57354"	-105°45'08.03537"	2115.377	NVA
2186_2020_WY	41°43'02.20029"	-105°53'17.90421"	2143.384	NVA
2187_2020_WY	41°44'31.43050"	-105°35'03.33677"	2208.269	NVA
2188_2020_WY	41°42'00.10322"	-105°41'23.06206"	2141.539	NVA
2189_2020_WY	42°13'41.39389"	-105°21'55.15425"	2185.742	NVA
2190_2020_WY	42°34'52.43951"	-107°19'39.93964"	1950.499	NVA
2191_2020_WY	42°52'35.11300"	-106°08'45.27443"	1587.119	NVA
2192_2020_WY	41°12'36.82181"	-107°50'38.18622"	2344.753	NVA
2193_2020_WY	41°13'55.09237"	-106°57'15.17964"	2610.035	NVA
2194_2020_WY	41°30'47.43606"	-107°32'31.84296"	2127.697	NVA
2195_2020_WY	42°51'20.16027"	-106°05'02.06652"	1523.571	NVA
2196_2020_WY	41°29'32.21102"	-107°12'10.96338"	2150.274	NVA
2197_2020_WY	41°37'17.00916"	-107°17'12.02244"	2169.746	NVA
2198_2020_WY	41°04'38.17687"	-106°50'41.71276"	2822.554	NVA
2199_2020_WY	42°44'04.07365"	-106°39'44.71088"	1676.083	NVA
2200_2020_WY	41°13'14.43332"	-107°42'34.72126"	1958.296	NVA
2201_2020_WY	41°34'17.28118"	-106°09'06.36725"	2353.887	NVA
2202_2020_WY	41°34'40.58821"	-107°23'05.37712"	2213.129	NVA
2203_2020_WY	41°31'16.89618"	-107°28'05.96405"	2252.439	NVA
2204_2020_WY	41°02'48.35815"	-107°41'53.63430"	1899.372	NVA
2205_2020_WY	42°42'04.26881"	-106°08'10.16825"	1728.233	NVA
2206_2020_WY	41°10'03.62202"	-107°28'27.25652"	2379.160	NVA
2207_2020_WY	41°06'40.07119"	-106°52'13.53048"	2800.801	NVA
2208_2020_WY	41°04'11.15224"	-107°16'12.73073"	2284.941	NVA
2209_2020_WY	41°34'32.89656"	-107°54'24.44251"	2029.835	NVA
2210_2020_WY	42°57'59.59526"	-106°07'22.31076"	1670.357	NVA
2211_2020_WY	41°20'12.43875"	-107°03'29.61676"	2492.326	NVA

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Point Number	NAD1983 (2011) Latitude (N)	NAD1983 (2011) Longitude (W)	Ellipsoid Height (M)	Description
2212_2020_WY	41°05'47.85580"	-107°51'36.28769"	2045.015	NVA
2213_2020_WY	41°27'41.19759"	-107°55'29.84785"	2001.039	NVA
2214_2020_WY	41°35'55.48230"	-107°54'52.90577"	2027.977	NVA
2215_2020_WY	42°38'50.47252"	-107°00'20.37449"	1857.387	NVA
2216_2020_WY	41°38'53.55294"	-107°53'47.32168"	2100.428	NVA
2217_2020_WY	41°08'35.89487"	-106°52'50.95684"	2622.698	NVA
2218_2020_WY	41°16'26.88092"	-107°05'43.64918"	2666.508	NVA
2219_2020_WY	41°20'20.12467"	-107°54'56.99159"	2001.530	NVA
2220_2020_WY	41°30'16.47173"	-107°01'32.77231"	2326.076	NVA
2221_2020_WY	41°29'31.12666"	-107°53'30.28570"	2033.354	NVA
2222_2020_WY	41°17'46.20057"	-107°00'49.52862"	2630.818	NVA
2223_2020_WY	41°19'58.88008"	-105°34'37.77861"	2181.100	NVA
2224_2020_WY	41°19'31.15596"	-105°37'09.74102"	2169.366	NVA
2225_2020_WY	41°18'46.53160"	-105°35'28.15676"	2171.579	NVA
2226_2020_WY	41°47'19.71174"	-107°14'51.85282"	2059.308	NVA
2227_2020_WY	41°47'37.98173"	-107°12'47.03071"	2026.449	NVA
2228_2020_WY	41°49'00.51727"	-107°13'27.76437"	2071.932	NVA
2229_2020_WY	41°37'50.79161"	-106°17'07.39608"	2354.740	NVA
2230_2020_WY	41°23'41.47322"	-105°49'16.51661"	2171.992	NVA
2231_2020_WY	41°07'32.67379"	-105°18'17.92521"	2390.872	NVA
2232_2020_WY	41°06'40.41478"	-106°00'45.58024"	2268.941	NVA
2233_2020_WY	41°18'25.38637"	-105°37'58.95313"	2174.176	NVA
2234_2020_WY	41°19'35.15555"	-105°33'16.28846"	2206.017	NVA
2235_2020_WY	41°17'25.00436"	-105°32'04.63370"	2236.337	NVA
2236_2020_WY	41°20'58.85499"	-105°35'18.96516"	2170.931	NVA
2237_2020_WY	41°33'07.46747"	-105°40'53.75328"	2136.148	NVA
2238_2020_WY	41°49'25.22834"	-106°00'17.58695"	2108.087	NVA
2239_2020_WY	42°24'54.81201"	-106°22'48.42548"	1964.193	NVA
2240_2020_WY	42°33'36.81855"	-106°43'25.83094"	1624.267	NVA
2241_2020_WY	42°33'15.47191"	-106°50'05.39125"	1908.671	NVA
2242_2020_WY	42°29'35.29817"	-107°08'12.06679"	1784.463	NVA
2243_2020_WY	42°21'43.97726"	-107°26'35.98090"	1900.331	NVA
2244_2020_WY	41°01'55.47855"	-107°30'06.24857"	1959.686	NVA
2245_2020_WY	41°02'00.46891"	-107°32'03.88946"	1925.814	NVA
2246_2020_WY	41°09'26.55518"	-105°24'14.22648"	2538.512	NVA
2267_2020_WY	41°43'25.20234"	-105°55'51.34615"	2109.935	NVA
2268_2020_WY	42°31'50.09121"	-106°46'41.37917"	1668.901	NVA
2269_2020_WY	41°46'35.54675"	-107°13'29.61127"	2052.041	NVA
2270_2020_WY	41°48'06.48155"	-107°14'03.66158"	2069.310	NVA
2271_2020_WY	41°32'36.17908"	-106°04'56.40104"	2327.189	NVA
2272_2020_WY	41°34'26.62269"	-105°41'39.07404"	2147.154	NVA

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Point Number	NAD1983 (2011) Latitude (N)	NAD1983 (2011) Longitude (W)	Ellipsoid Height (M)	Description
2273_2020_WY	43°01'56.01992"	-106°59'18.05874"	1729.748	NVA
2274_2020_WY	41°17'09.27256"	-105°40'02.59257"	2182.902	NVA
2275_2020_WY	42°11'00.37012"	-106°15'42.58368"	2095.929	NVA
2276_2020_WY	41°18'45.24086"	-106°09'09.24562"	2570.449	NVA
2277_2020_WY	43°25'09.87026"	-106°23'02.49311"	1558.690	NVA
2278_2020_WY	43°25'26.29359"	-106°19'54.93806"	1480.970	NVA
2279_2020_WY	43°24'32.34308"	-106°16'25.00092"	1468.168	NVA
2280_2020_WY	43°24'53.88382"	-106°14'54.29050"	1483.152	NVA
2281_2020_WY	43°10'07.81286"	-106°20'15.38481"	1623.499	NVA
2282_2020_WY	41°28'58.43749"	-106°01'28.16894"	2318.133	NVA
2283_2020_WY	43°01'46.75072"	-106°48'32.69143"	1696.966	NVA
2284_2020_WY	43°14'37.00591"	-107°19'20.59096"	1866.222	NVA
2285_2020_WY	41°22'49.89537"	-107°46'03.85491"	2003.824	NVA
2286_2020_WY	41°36'07.54496"	-107°39'58.57962"	2112.595	NVA
2287_2020_WY	41°14'37.76718"	-107°28'42.91043"	2302.719	NVA
2288_2020_WY	43°24'20.16905"	-106°40'57.53652"	1576.832	NVA
2289_2020_WY	42°26'12.64170"	-106°44'12.98622"	2042.915	NVA
2290_2020_WY	41°26'08.25443"	-107°45'21.64231"	2016.373	NVA
3001_2020_WY	43°00'18.06086"	-107°14'55.57275"	1869.341	VVA
3002_2020_WY	42°38'19.45063"	-106°23'41.18232"	1766.016	VVA
3003_2020_WY	42°08'21.54608"	-106°18'10.61457"	2235.116	VVA
3004_2020_WY	41°33'49.30107"	-107°24'45.42006"	2240.510	VVA
3005_2020_WY	42°52'31.57809"	-106°49'02.86723"	1777.188	VVA
3006_2020_WY	41°13'10.03427"	-106°16'16.79294"	2929.568	VVA
3007_2020_WY	42°47'03.61680"	-107°09'58.07563"	1984.764	VVA
3008_2020_WY	41°07'17.90983"	-105°18'45.99732"	2391.974	VVA
3009_2020_WY	42°46'16.54088"	-107°22'13.17018"	2175.259	VVA
3010_2020_WY	42°23'58.34743"	-107°16'48.45184"	1881.962	VVA
3011_2020_WY	42°40'30.43524"	-106°18'31.36301"	2362.333	VVA
3012_2020_WY	42°43'50.16532"	-106°37'46.69215"	1634.788	VVA
3013_2020_WY	41°09'05.44192"	-106°35'24.18976"	2362.930	VVA
3014_2020_WY	41°37'04.34632"	-107°28'45.51257"	2164.565	VVA
3015_2020_WY	42°51'52.42319"	-107°01'15.92671"	1837.101	VVA
3016_2020_WY	42°07'03.08180"	-107°27'36.73675"	1979.495	VVA
3017_2020_WY	41°43'15.43895"	-105°38'56.15395"	2122.848	VVA
3018_2020_WY	41°18'30.16307"	-107°36'20.77243"	2089.404	VVA
3019_2020_WY	42°19'52.22475"	-106°13'17.27382"	2132.123	VVA
3020_2020_WY	41°06'09.41703"	-107°31'17.42333"	2237.581	VVA
3021_2020_WY	42°21'01.82629"	-105°42'26.40615"	2280.080	VVA
3022_2020_WY	41°15'33.59062"	-105°43'54.50169"	2185.455	VVA
3023_2020_WY	42°46'28.71779"	-106°52'16.46714"	1830.295	VVA

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Point Number	NAD1983 (2011) Latitude (N)	NAD1983 (2011) Longitude (W)	Ellipsoid Height (M)	Description
3024_2020_WY	43°20'19.12509"	-107°08'30.02808"	2004.499	VVA
3025_2020_WY	41°06'49.20813"	-105°39'06.53838"	2280.405	VVA
3026_2020_WY	41°11'34.05401"	-107°28'14.10764"	2349.219	VVA
3027_2020_WY	42°38'05.03943"	-106°48'58.68700"	1953.616	VVA
3028_2020_WY	41°41'05.65114"	-105°49'41.89103"	2180.851	VVA
3029_2020_WY	42°44'40.04531"	-106°54'48.66133"	1902.431	VVA
3030_2020_WY	42°50'18.80984"	-107°16'02.50856"	1923.873	VVA
3031_2020_WY	43°07'24.39204"	-106°07'02.45088"	1811.549	VVA
3032_2020_WY	41°34'07.09721"	-106°31'49.14578"	2296.889	VVA
3033_2020_WY	42°14'58.49146"	-105°35'44.26160"	2350.461	VVA
3034_2020_WY	41°13'07.73044"	-105°26'38.26220"	2655.434	VVA
3035_2020_WY	42°24'23.31722"	-107°19'45.65867"	1870.346	VVA
3036_2020_WY	42°11'13.32117"	-107°21'27.80677"	2065.092	VVA
3037_2020_WY	41°34'07.39366"	-106°41'22.86737"	2157.108	VVA
3038_2020_WY	43°16'54.17096"	-106°16'56.68831"	1550.732	VVA
3039_2020_WY	42°13'27.02551"	-106°53'00.63080"	1788.075	VVA
3040_2020_WY	42°05'46.69991"	-105°26'04.23197"	2201.318	VVA
3041_2020_WY	41°02'46.75487"	-107°41'57.37082"	1898.442	VVA
3042_2020_WY	43°22'11.61062"	-107°04'02.77955"	1874.689	VVA
3043_2020_WY	41°00'21.87461"	-107°34'36.40565"	2007.947	VVA
3044_2020_WY	41°41'00.80659"	-105°34'41.56156"	2159.090	VVA
3045_2020_WY	42°50'10.13030"	-106°33'29.47107"	1646.998	VVA
3046_2020_WY	43°09'18.23255"	-107°09'16.18423"	1772.686	VVA
3047_2020_WY	42°13'30.57598"	-105°48'52.01167"	2196.309	VVA
3048_2020_WY	41°42'02.49206"	-105°51'31.09916"	2142.588	VVA
3049_2020_WY	42°06'09.67686"	-105°23'21.63518"	2172.552	VVA
3050_2020_WY	42°01'11.96172"	-107°17'28.96441"	1959.414	VVA
3051_2020_WY	41°53'39.29809"	-105°51'11.99111"	2088.431	VVA
3052_2020_WY	42°31'04.57498"	-106°18'09.38235"	2033.625	VVA
3053_2020_WY	41°26'40.45220"	-107°53'19.61244"	2002.882	VVA
3054_2020_WY	41°46'10.71118"	-107°29'19.46821"	2020.042	VVA
3055_2020_WY	41°25'27.62978"	-105°57'43.64639"	2236.386	VVA
3056_2020_WY	42°43'19.04743"	-106°37'46.34750"	1639.289	VVA
3057_2020_WY	41°05'51.86966"	-107°51'30.59207"	2027.263	VVA
3058_2020_WY	41°26'29.99467"	-105°56'38.19658"	2215.152	VVA
3059_2020_WY	41°16'11.25707"	-105°51'53.45590"	2202.696	VVA
3060_2020_WY	43°11'44.46891"	-107°15'29.71137"	1843.149	VVA
3061_2020_WY	41°28'07.98248"	-105°32'59.54905"	2215.332	VVA
3063_2020_WY	41°20'14.28145"	-105°35'57.04569"	2162.261	VVA
3064_2020_WY	41°22'11.07513"	-106°33'37.66735"	2381.464	VVA
3065_2020_WY	41°41'28.14030"	-105°19'36.90391"	2018.266	VVA

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Point Number	NAD1983 (2011) Latitude (N)	NAD1983 (2011) Longitude (W)	Ellipsoid Height (M)	Description
3066_2020_WY	42°18'33.92543"	-106°44'00.51820"	2086.956	VVA
3067_2020_WY	41°05'54.53847"	-106°31'42.32523"	2343.158	VVA
3068_2020_WY	42°14'59.44039"	-106°39'58.79468"	2131.120	VVA
3069_2020_WY	42°47'38.61916"	-107°27'27.55748"	2267.662	VVA
3070_2020_WY	42°30'27.64666"	-106°24'05.19162"	2014.140	VVA
3071_2020_WY	41°04'09.22255"	-106°09'56.90146"	2760.328	VVA
3072_2020_WY	41°54'03.79206"	-105°45'07.61068"	2109.795	VVA
3073_2020_WY	41°33'06.66699"	-107°39'13.03533"	2163.856	VVA
3074_2020_WY	42°56'42.61390"	-107°06'08.90783"	1810.676	VVA
3075_2020_WY	41°21'17.39762"	-107°54'18.21354"	1992.816	VVA
3076_2020_WY	42°39'02.61517"	-107°12'14.26205"	2041.126	VVA
3077_2020_WY	41°21'16.93591"	-106°36'27.71526"	2346.438	VVA
3078_2020_WY	42°43'23.43433"	-106°21'17.76342"	2439.759	VVA
3079_2020_WY	42°21'39.00737"	-107°11'51.19319"	1970.025	VVA
3080_2020_WY	41°17'02.64291"	-107°54'28.71993"	2026.138	VVA
3081_2020_WY	42°42'01.91949"	-107°28'20.46571"	2087.266	VVA
3082_2020_WY	42°12'31.35558"	-106°02'03.21941"	2109.819	VVA
3083_2020_WY	41°07'54.39036"	-106°35'03.64336"	2467.133	VVA
3084_2020_WY	41°19'37.93880"	-107°46'33.94986"	1973.950	VVA
3085_2020_WY	41°17'13.75851"	-106°02'25.03720"	2327.507	VVA
3086_2020_WY	41°04'12.76746"	-105°22'23.73978"	2344.472	VVA
3087_2020_WY	42°19'39.78143"	-107°07'53.67991"	1985.564	VVA
3088_2020_WY	42°08'52.12080"	-105°34'54.52009"	2142.493	VVA
3089_2020_WY	41°32'23.26619"	-106°44'48.56333"	2080.061	VVA
3090_2020_WY	42°19'24.41294"	-107°06'23.85067"	1990.091	VVA
3091_2020_WY	41°22'39.49152"	-105°57'02.83300"	2214.513	VVA
3092_2020_WY	42°11'29.01570"	-105°48'27.56461"	2164.138	VVA
3093_2020_WY	41°09'33.38831"	-105°42'17.58304"	2203.673	VVA
3094_2020_WY	41°20'01.95230"	-107°32'46.35001"	2212.310	VVA
3095_2020_WY	41°21'56.92421"	-107°43'58.78498"	2109.964	VVA
3096_2020_WY	41°56'37.57967"	-105°46'26.55092"	2108.487	VVA
3097_2020_WY	42°09'11.11323"	-106°26'34.35522"	2281.096	VVA
3098_2020_WY	42°13'15.54865"	-107°28'42.93019"	2007.326	VVA
3099_2020_WY	41°30'37.86626"	-106°26'55.39344"	2562.862	VVA
3100_2020_WY	41°50'57.09011"	-105°47'07.94515"	2091.298	VVA
3101_2020_WY	41°54'56.11775"	-105°43'15.55685"	2116.074	VVA
3102_2020_WY	41°07'31.99422"	-106°00'35.72043"	2272.486	VVA
3103_2020_WY	41°37'36.62574"	-105°24'58.68576"	2319.015	VVA
3104_2020_WY	41°06'15.27190"	-107°44'12.30188"	1959.227	VVA
3105_2020_WY	42°04'28.31808"	-106°55'12.96448"	1974.372	VVA
3106_2020_WY	41°14'40.54312"	-107°47'54.95909"	2033.239	VVA

Ground Control Survey Report for the U.S. Geological Survey
 Task Order: #140G0220F0171 - WY South Central 2020 D20

Point Number	NAD1983 (2011) Latitude (N)	NAD1983 (2011) Longitude (W)	Ellipsoid Height (M)	Description
3107_2020_WY	41°33'18.22345"	-106°01'57.63781"	2249.844	VVA
3108_2020_WY	41°47'51.30274"	-107°29'28.47478"	2018.517	VVA
3109_2020_WY	42°21'49.97213"	-106°35'21.95936"	2271.145	VVA
3110_2020_WY	42°00'04.28949"	-107°27'01.41341"	1978.547	VVA
3111_2020_WY	41°58'37.81247"	-106°05'32.75609"	2056.976	VVA
3112_2020_WY	42°19'45.60048"	-107°06'57.56881"	1987.069	VVA
3113_2020_WY	42°26'37.42517"	-107°03'11.26783"	1831.413	VVA
3114_2020_WY	42°13'56.85040"	-107°29'57.09324"	2022.857	VVA
3115_2020_WY	42°06'09.37204"	-107°25'47.99222"	1969.204	VVA
3116_2020_WY	42°15'29.42296"	-105°22'46.56196"	1955.045	VVA
3117_2020_WY	41°26'20.31406"	-105°59'32.26204"	2284.348	VVA
3118_2020_WY	41°07'26.58813"	-105°31'33.72147"	2309.167	VVA
3119_2020_WY	42°00'29.99853"	-107°26'18.39784"	1976.694	VVA
3120_2020_WY	42°41'46.12034"	-107°29'32.51996"	2110.153	VVA
3121_2020_WY	41°59'33.35118"	-107°00'08.75742"	2020.491	VVA
3122_2020_WY	42°25'12.63496"	-106°30'17.93039"	2006.163	VVA
3123_2020_WY	41°13'51.55613"	-107°22'33.12506"	2236.759	VVA
3124_2020_WY	42°13'35.75888"	-105°42'06.07523"	2239.224	VVA
3125_2020_WY	42°21'02.13237"	-106°29'57.43818"	2287.792	VVA
3126_2020_WY	43°04'57.79986"	-107°20'22.16109"	1846.068	VVA
3127_2020_WY	41°32'44.82813"	-107°41'47.22805"	2204.055	VVA
3128_2020_WY	42°06'51.80762"	-106°00'24.14607"	2088.780	VVA
3129_2020_WY	42°44'18.98961"	-107°00'18.43945"	2047.828	VVA
3130_2020_WY	41°31'06.23617"	-105°59'24.30378"	2238.656	VVA
3131_2020_WY	43°04'18.50706"	-107°26'34.24136"	1850.236	VVA
3132_2020_WY	41°39'24.85101"	-106°03'45.69617"	2201.357	VVA
3133_2020_WY	41°26'15.46588"	-105°47'22.19164"	2158.898	VVA
3134_2020_WY	42°03'06.24079"	-106°58'07.65173"	1952.084	VVA
3135_2020_WY	42°19'45.28699"	-107°10'17.04689"	2016.038	VVA
3136_2020_WY	43°06'20.23389"	-106°50'44.44866"	1774.810	VVA
3137_2020_WY	41°01'58.49835"	-106°16'56.90636"	2619.500	VVA
3138_2020_WY	41°20'41.05442"	-106°29'58.86219"	2536.445	VVA
3139_2020_WY	41°10'22.35012"	-106°15'54.55499"	2717.837	VVA
3140_2020_WY	41°24'37.75109"	-106°22'21.11932"	2964.700	VVA
3141_2020_WY	42°14'00.86051"	-106°35'32.47957"	2462.362	VVA
3141A_2020_WY	42°10'48.18135"	-106°41'08.23784"	2398.304	VVA
3142_2020_WY	41°07'04.42126"	-106°13'20.22306"	2631.089	VVA
3143_2020_WY	41°03'04.29659"	-106°39'35.12924"	2835.413	VVA
3144_2020_WY	41°01'43.51220"	-106°39'07.71129"	2882.622	VVA
3145_2020_WY	41°28'57.36400"	-106°18'47.72921"	2826.024	VVA
3146_2020_WY	42°16'01.50752"	-105°34'17.48570"	2343.095	VVA

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Point Number	NAD1983 (2011) Latitude (N)	NAD1983 (2011) Longitude (W)	Ellipsoid Height (M)	Description
3147_2020_WY	41°00'43.80034"	-106°40'25.06346"	2847.018	VVA
3148_2020_WY	41°29'41.50753"	-106°17'11.69777"	2948.795	VVA
3149_2020_WY	42°43'46.43403"	-106°18'46.91285"	2396.951	VVA
3150_2020_WY	42°13'28.37092"	-105°21'18.08164"	2152.444	VVA
3151_2020_WY	41°01'13.29849"	-105°37'31.88914"	2661.267	VVA
3152_2020_WY	41°04'14.81501"	-106°42'40.69025"	2887.510	VVA
3153_2020_WY	43°21'37.97350"	-106°23'33.16955"	1591.098	VVA
3154_2020_WY	41°11'22.82062"	-106°16'06.93461"	2849.711	VVA
3155_2020_WY	42°52'39.16686"	-106°07'25.35812"	1584.284	VVA
3156_2020_WY	43°00'27.29364"	-106°35'46.92426"	1647.069	VVA
3157_2020_WY	43°05'38.20153"	-107°00'56.52851"	1717.942	VVA
3158_2020_WY	42°18'41.99881"	-105°58'30.90983"	2246.554	VVA
3159_2020_WY	41°20'40.90601"	-105°37'35.42109"	2173.372	VVA
3160_2020_WY	42°33'41.42118"	-107°07'10.27179"	1813.987	VVA
3161_2020_WY	42°33'54.06205"	-107°00'54.71104"	1788.454	VVA
3162_2020_WY	42°35'02.13523"	-107°19'45.50597"	1955.084	VVA
3163_2020_WY	42°17'54.10374"	-107°05'19.20283"	1908.634	VVA
3164_2020_WY	43°20'15.50313"	-106°15'43.58836"	1546.726	VVA
3165_2020_WY	42°17'03.01965"	-105°42'40.54320"	2280.182	VVA
3166_2020_WY	41°55'03.59994"	-105°19'46.78492"	1846.107	VVA
3167_2020_WY	42°51'00.18401"	-106°45'11.27353"	1747.710	VVA
3168_2020_WY	42°57'00.15796"	-106°30'51.39659"	1619.371	VVA
3169_2020_WY	42°27'49.99605"	-106°51'07.28116"	1764.841	VVA
3170_2020_WY	42°13'00.95062"	-105°17'51.27883"	1793.225	VVA
3171_2020_WY	43°07'50.29268"	-107°07'48.57860"	1756.271	VVA
3172_2020_WY	42°17'49.95993"	-106°19'43.42114"	2196.776	VVA
3173_2020_WY	43°04'49.24566"	-106°33'12.83524"	1643.817	VVA
3175_2020_WY	42°51'52.26824"	-107°18'15.19862"	1902.881	VVA
3176_2020_WY	42°44'44.25889"	-106°37'29.12197"	1656.603	VVA
3177_2020_WY	43°25'03.55028"	-106°53'58.79703"	1807.349	VVA
3178_2020_WY	42°28'45.51127"	-106°21'07.82187"	2236.616	VVA
3179_2020_WY	41°25'43.77283"	-106°06'09.30981"	2647.988	VVA
3180_2020_WY	42°49'02.21811"	-107°02'31.67295"	1857.482	VVA
3181_2020_WY	42°55'07.73220"	-106°07'04.54593"	1680.169	VVA
3182_2020_WY	42°07'08.34400"	-106°55'02.18894"	2004.815	VVA
3183_2020_WY	42°54'40.51649"	-106°30'48.45297"	1608.425	VVA
3184_2020_WY	43°24'39.83319"	-107°13'47.26801"	2523.797	VVA
3185_2020_WY	42°22'33.27077"	-106°14'31.51008"	2188.450	VVA
3186_2020_WY	41°14'23.04147"	-105°27'42.60444"	2642.919	VVA
3187_2020_WY	42°35'34.96800"	-107°10'59.39331"	1906.304	VVA
3188_2020_WY	42°21'30.91785"	-107°01'22.15703"	1835.787	VVA

Point Number	NAD1983 (2011) Latitude (N)	NAD1983 (2011) Longitude (W)	Ellipsoid Height (M)	Description
3189_2020_WY	43°03'23.69970"	-106°12'01.34198"	1665.927	VVA
3190_2020_WY	41°02'36.69696"	-105°34'34.27854"	2509.895	VVA
3191_2020_WY	41°51'10.58937"	-105°21'20.27734"	1883.820	VVA
3192_2020_WY	42°33'17.47902"	-107°03'27.15937"	1782.376	VVA
3193_2020_WY	42°27'40.60423"	-107°30'45.34308"	1893.125	VVA
3194_2020_WY	42°32'56.11997"	-106°28'09.47576"	1824.733	VVA
3195_2020_WY	42°10'28.45914"	-106°14'57.28081"	2102.039	VVA
3196_2020_WY	41°25'18.14744"	-105°47'20.75479"	2159.944	VVA
3197_2020_WY	41°09'16.36095"	-105°56'55.54258"	2244.020	VVA
3198_2020_WY	41°19'35.74898"	-106°25'56.53039"	2882.634	VVA
3199_2020_WY	41°36'37.56452"	-107°16'21.15952"	2151.216	VVA
3200_2020_WY	41°52'56.58311"	-105°44'44.84557"	2111.623	VVA
3201_2020_WY	43°14'49.23612"	-106°23'16.23386"	1645.537	VVA
3202_2020_WY	41°34'59.84294"	-105°41'56.05591"	2145.671	VVA
3203_2020_WY	41°44'01.98828"	-105°26'43.51958"	1956.407	VVA
3204_2020_WY	41°58'34.63635"	-107°21'24.69730"	2002.159	VVA
3205_2020_WY	43°14'13.45007"	-106°43'02.52950"	1660.851	VVA

2.3. Survey Control-Worldwide/UTM Coordinate System

- Horizontal Datum: NAD 1983 (2011)
- Horizontal Projection: UTM 13 North
- Vertical Datum: NAVD88
- Geoid Model: Geoid18
- Units: Meters

Table 2.3 Survey Control -Worldwide UTM

Point Number	UTM 13N Northing (M)	UTM 13N Easting (M)	Orthometric Height (M)	Description
17 JFM	4599395.545	409924.552	2356.019	MP0510
A 338	4713244.207	348927.619	1934.162	TSM
B 15	4566528.032	274300.860	1959.112	MP0334
BARRETT	4576134.811	372271.856	2761.953	MP0552
C 167	4604680.329	448000.604	2190.469	DISK F
C 334	4768866.842	328606.555	1853.162	TSM OV0253
D 15	4559490.003	276064.905	1942.379	NGS
K 31	4707041.514	324685.877	1796.976	NR0159 TSM
K 334	4766021.166	344236.738	1732.824	OV0261
L 336	4686236.665	297208.234	1967.427	TSM
LS 70	4570615.621	456263.678	2273.155	MO0965
MILLER	4594357.330	305827.047	2565.295	NGS

Point Number	UTM 13N Northing (M)	UTM 13N Easting (M)	Orthometric Height (M)	Description
P032	4623553.872	312411.497	2181.658	DI2248
Q 360	4782143.464	392145.750	1639.528	TSM OV0309
R 334	4750810.779	378359.164	1617.114	NR0223
S 74	4562984.029	347371.545	2341.471	MP0149
S 88	4599954.518	443331.760	2145.780	TSM
S 335	4737941.423	381235.994	1633.729	NR0242
U 16	4746787.705	411558.316	1541.585	NR0002
X 358	4807264.425	398226.644	1491.590	OV0289
Y 336	4665072.980	299942.725	1990.775	NR0313
Z 338	4630402.655	314277.207	2092.805	MP0454

2.4. Survey Control-Geodetic Coordinate System

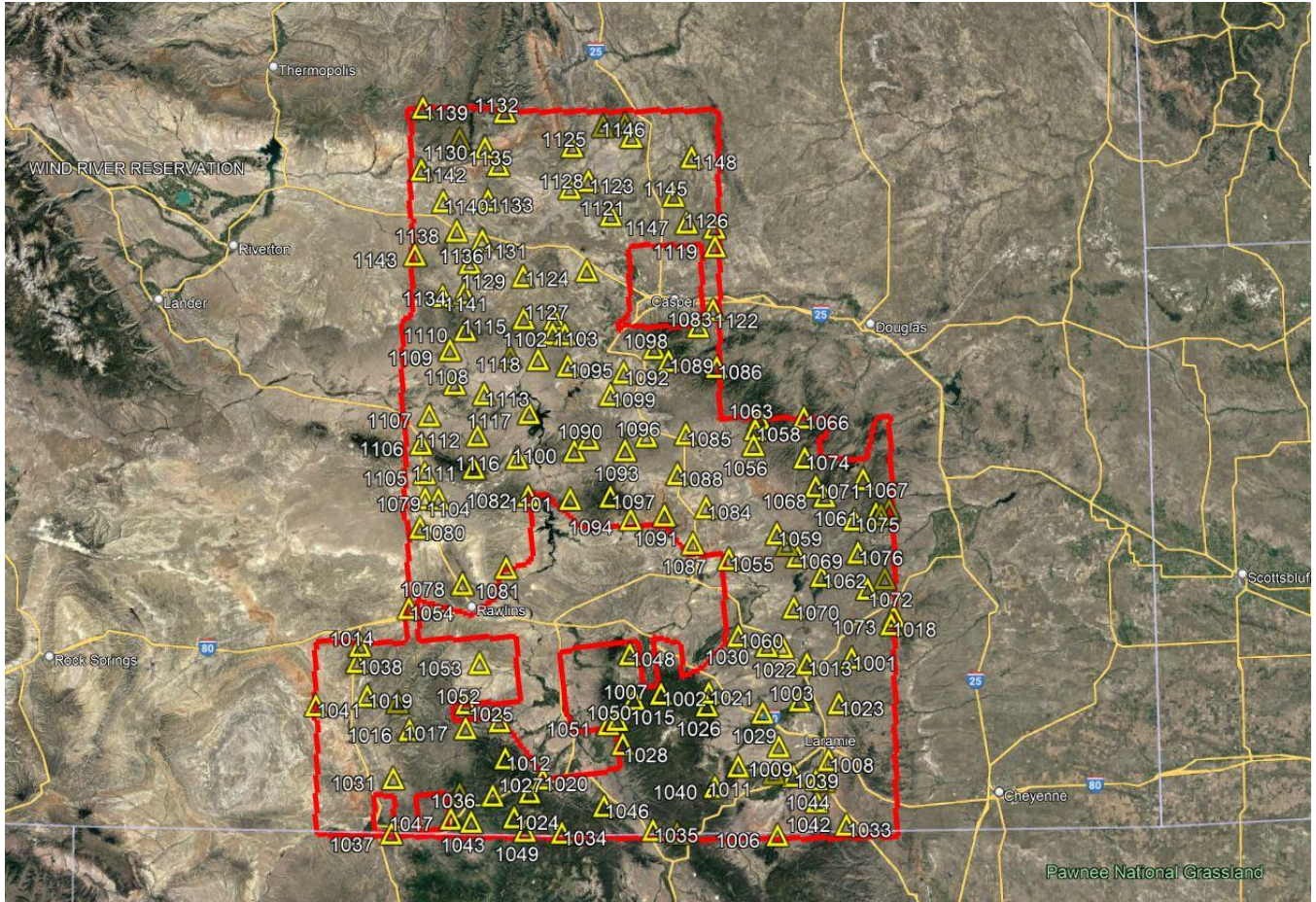
- Horizontal Datum: NAD 1983 (2011)
- Vertical Datum: NAVD88
- Units: Meters

Table 2.4 Survey Control -Geodetic Coordinate System

Point Number	NAD1983 (2011) Latitude (N)	NAD1983 (2011) Longitude (W)	Ellipsoid Height (M)	Description
17 JFM	41°32'28.13677"	-106°04'47.65837"	2344.358	MP0510
A 338	42°33'24.57645"	-106°50'24.93904"	1921.727	TSM
B 15	41°13'07.22312"	-107°41'32.77376"	1944.482	MP0334
BARRETT	41°19'35.67770"	-106°31'34.58075"	2751.107	MP0552
C 167	41°35'31.66429"	-105°37'26.07092"	2178.817	DISK F
C 334	43°03'11.35286"	-107°06'16.39323"	1839.717	TSM OV0253
D 15	41°09'21.00179"	-107°40'07.82652"	1927.823	NGS
K 31	42°29'45.18161"	-107°08'00.49368"	1784.714	NR0159 TSM
K 334	43°01'51.27771"	-106°54'42.99681"	1719.566	OV0261
L 336	42°18'07.12096"	-107°27'36.89660"	1954.232	TSM
LS 70	41°17'08.87102"	-105°31'20.29294"	2261.519	MO0965
MILLER	41°28'38.36104"	-107°19'32.05639"	2552.444	NGS
P032	41°44'30.00320"	-107°15'21.27885"	2168.099	DI2248
Q 360	43°11'03.71317"	-106°19'37.90826"	1625.915	TSM OV0309
R 334	42°54'00.77648"	-106°29'23.82460"	1603.932	NR0223
S 74	41°12'13.85302"	-106°49'13.40748"	2330.09	MP0149
S 88	41°32'57.29044"	-105°40'46.11848"	2134.098	TSM
S 335	42°47'05.32770"	-106°27'07.23126"	1620.881	NR0242
U 16	42°52'06.82812"	-106°04'57.91045"	1528.052	NR0002
X 358	43°24'40.89102"	-106°15'25.33453"	1477.709	OV0289
Y 336	42°06'44.09364"	-107°25'11.35339"	1976.895	NR0313
Z 338	41°48'13.48532"	-107°14'08.27162"	2079.179	MP0454

3. GPS Control Diagram

Image 3.1. Overview of the Lidar Control Network



Not to Scale

Image 3.2. Overview of the Lidar NVA Network

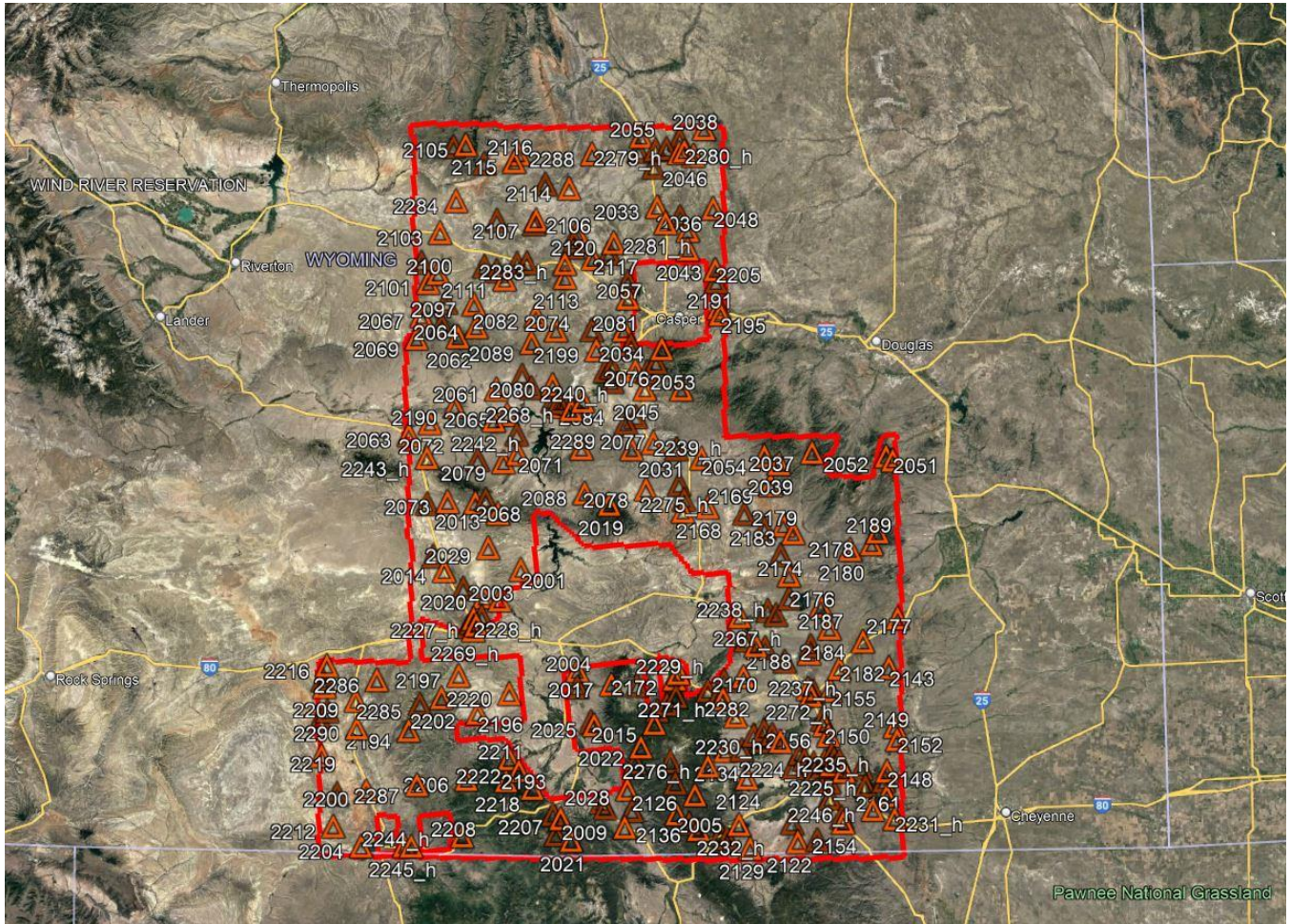
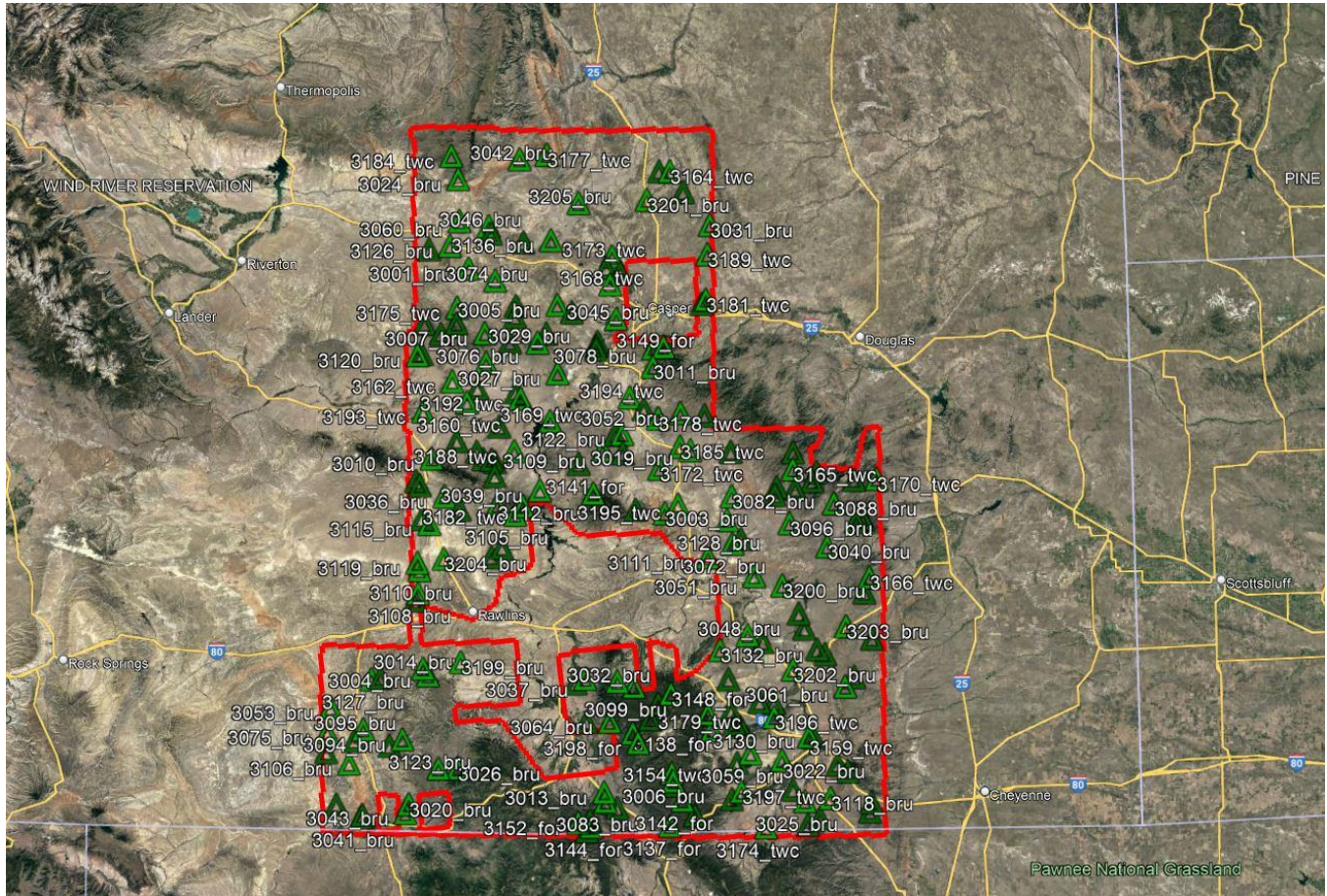


Image 3.3. Overview of the Lidar VVA Network



4. NGS Datasheets

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

4.1. The NGS Data Sheet for 17 JFM

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

PROGRAM = datasheet95, VERSION = 8.12.5.9

Starting Datasheet Retrieval...

1 National Geodetic Survey, Retrieval Date = AUGUST 18, 2020

MP0510 *****

MP0510 DESIGNATION - 17 JFM

MP0510 PID - MP0510

MP0510 STATE/COUNTY- WY/CARBON

MP0510 COUNTRY - US

MP0510 USGS QUAD - BENGOUGH HILL (2017)

MP0510

MP0510 *CURRENT SURVEY CONTROL

MP0510

MP0510* NAD 83(1993) POSITION- 41 32 28.13486(N) 106 04 47.65966(W) ADJUSTED

MP0510* NAVD 88 ORTHO HEIGHT - 2356.04 (+/-2cm) 7729.8 (feet) VERTCON

MP0510

MP0510 GEOID HEIGHT - -11.661 (meters) GEOID18

MP0510 LAPLACE CORR - -4.35 (seconds) DEFLEC18

MP0510 HORZ ORDER - THIRD

MP0510 VERT ORDER - THIRD ? (See Below)

MP0510

MP0510.The horizontal coordinates were established by classical geodetic methods

MP0510.and adjusted by the National Geodetic Survey in January 1997.

MP0510.

MP0510.The NAVD 88 height was computed by applying the VERTCON shift value to

MP0510.the NGVD 29 height (displayed under SUPERSEDED SURVEY CONTROL.)

MP0510

MP0510.Significant digits in the geoid height do not necessarily reflect accuracy.

MP0510.GEOID18 height accuracy estimate available [here](#).

MP0510

MP0510.The vertical order pertains to the NGVD 29 superseded value.

MP0510

MP0510.Click [photographs](#) - Photos may exist for this station.

MP0510

MP0510.The Laplace correction was computed from DEFLEC18 derived deflections.

MP0510

MP0510. The following values were computed from the NAD 83(1993) position.

MP0510

MP0510;

	North	East	Units	Scale	Factor	Converg.
MP0510;SPC WYEC	- 216,375.507	504,584.636	MT	1.00007206	+0 49 52.7	
MP0510;SPC WYEC	- 709,891.98	1,655,458.09	sFT	1.00007206	+0 49 52.7	
MP0510;UTM 13	- 4,599,395.487	409,924.522	MT	0.99969985	-0 42 58.3	

MP0510;SPC WYEC - 216,375.507 504,584.636 MT 1.00007206 +0 49 52.7

MP0510;SPC WYEC - 709,891.98 1,655,458.09 sFT 1.00007206 +0 49 52.7

MP0510;UTM 13 - 4,599,395.487 409,924.522 MT 0.99969985 -0 42 58.3

MP0510

MP0510! - Elev Factor x Scale Factor = Combined Factor

MP0510!SPC WYEC - 0.99963242 x 1.00007206 = 0.99970445

MP0510!UTM 13 - 0.99963242 x 0.99969985 = 0.99933238

MP0510

Ground Control Survey Report for the U.S. Geological Survey
 Task Order: #140G0220F0171 - WY South Central 2020 D20

MP0510: Primary Azimuth Mark Grid Az
 MP0510:SPC WYEC - STROUSS 159 46 31.1
 MP0510:UTM 13 - STROUSS 161 19 22.1

MP0510 U.S. NATIONAL GRID SPATIAL ADDRESS: 13TDF0992499395 (NAD 83)

```

MP0510|-----|
MP0510| PID      Reference Object          Distance      Geod. Az  |
MP0510|          |                                     dddmmss.s |
MP0510| MP0521 STROUSS                APPROX. 6.8 KM 1603623.8 |
MP0510|-----|
  
```

MP0510 SUPERSEDED SURVEY CONTROL

MP0510 NAD 83(1986)- 41 32 28.12290(N) 106 04 47.65631(W) AD() 3
 MP0510 NAD 27 - 41 32 28.23569(N) 106 04 45.62768(W) AD() 3
 MP0510 NGVD 29 2354.81 (m) 7725.7 (f) LEVELING 3

MP0510 Superseded values are not recommended for survey control.

MP0510 NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
 MP0510 See file [dsdata.pdf](#) to determine how the superseded data were derived.

MP0510 MARKER: DB = BENCH MARK DISK
 MP0510 SETTING: 0 = UNSPECIFIED SETTING
 MP0510 STABILITY: D = MARK OF QUESTIONABLE OR UNKNOWN STABILITY

HISTORY	Date	Condition	Report By
HISTORY	1953	MONUMENTED	USGS

MP0510 STATION DESCRIPTION

MP0510 DESCRIBED BY US GEOLOGICAL SURVEY 1953
 MP0510 STATION IS LOCATED ABOUT 36 MI. (AIRLINE) NW. OF LARAMIE, ON THE
 MP0510 EDGE OF A GRASS COVERED, ROCKY MESA, IN THE SW. CORNER OF SEC. 8,
 MP0510 T 18 N, R 77 W.
 MP0510 TO REACH FROM LARAMIE POST OFFICE, GO W. 7.0 MI. ON STATE HIGHWAY
 MP0510 130 TO A RD. FORK, TURN RIGHT (N.) AND FOLLOW BLACK TOP RD. 6.7
 MP0510 MI. TO END OF BLACK TOP, CONTINUE ON MAIN TRAVELED, GRADED RD. 19.8
 MP0510 MI. TO CATTLEGUARD ON AN E-W. FENCE LINE. RD. TURNS NW. AT THIS
 MP0510 POINT, LEAVE RD., GO N. 0.1 MI. TO EDGE OF MESA AND STATION.
 MP0510 STATION MARK--STANDARD USGS BENCH MARK TABLET, STAMPED ---17 JFM
 MP0510 1953---.
 MP0510 REFERENCE MARKS--NONE.

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

4.2. The NGS Data Sheet for A 338

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

PROGRAM = datasheet95, VERSION = 8.12.5.9

Starting Datasheet Retrieval...

```

1      National Geodetic Survey,      Retrieval Date = AUGUST 18, 2020
NR0270 *****
NR0270 DESIGNATION - A 338
NR0270 PID - NR0270
NR0270 STATE/COUNTY- WY/NATRONA
NR0270 COUNTRY - US
NR0270 USGS QUAD - BENTON BASIN (2017)
NR0270
NR0270 *CURRENT SURVEY CONTROL
NR0270
NR0270* NAD 83(2011) POSITION- 42 33 24.57626(N) 106 50 24.93910(W) ADJUSTED
NR0270* NAD 83(2011) ELLIP HT- 1921.722 (meters) (06/27/12) ADJUSTED
NR0270* NAD 83(2011) EPOCH - 2010.00
NR0270* NAVD 88 ORTHO HEIGHT - 1934.144 (meters) 6345.60 (feet) ADJUSTED
NR0270
NR0270 GEOID HEIGHT - -12.435 (meters) GEOID18
NR0270 NAD 83(2011) X - -1,363,582.217 (meters) COMP
NR0270 NAD 83(2011) Y - -4,504,959.169 (meters) COMP
NR0270 NAD 83(2011) Z - 4,292,666.391 (meters) COMP
NR0270 LAPLACE CORR - -2.32 (seconds) DEFLEC18
NR0270 DYNAMIC HEIGHT - 1932.795 (meters) 6341.18 (feet) COMP
NR0270 MODELED GRAVITY - 979,853.9 (mgal) NAVD 88
NR0270
NR0270 VERT ORDER - FIRST CLASS II
NR0270
NR0270 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
NR0270 Standards:
NR0270 FGDC (95% conf, cm) Standard deviation (cm) CorrNE
NR0270 Horiz Ellip SD_N SD_E SD_h (unitless)
NR0270 -----
NR0270 NETWORK 2.24 2.06 0.44 1.12 1.05 0.12975147
NR0270 -----
NR0270 Click here for local accuracies and other accuracy information.
NR0270
NR0270
NR0270.The horizontal coordinates were established by GPS observations
NR0270.and adjusted by the National Geodetic Survey in June 2012.
NR0270
NR0270.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
NR0270.been affixed to the stable North American tectonic plate. See
NR0270.NA2011 for more information.
NR0270
NR0270.The horizontal coordinates are valid at the epoch date displayed above
NR0270.which is a decimal equivalence of Year/Month/Day.
NR0270
NR0270.The orthometric height was determined by differential leveling and
NR0270.adjusted by the NATIONAL GEODETIC SURVEY
NR0270.in June 1991.
NR0270
NR0270.Significant digits in the geoid height do not necessarily reflect accuracy.
NR0270.GEOID18 height accuracy estimate available here.
  
```


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NR0270

NR0270.Click photographs - Photos may exist for this station.

NR0270

NR0270.The X, Y, and Z were computed from the position and the ellipsoidal ht.

NR0270

NR0270.The Laplace correction was computed from DEFLEC18 derived deflections.

NR0270

NR0270.The ellipsoidal height was determined by GPS observations

NR0270.and is referenced to NAD 83.

NR0270

NR0270.The dynamic height is computed by dividing the NAVD 88

NR0270.geopotential number by the normal gravity value computed on the

NR0270.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45

NR0270.degrees latitude (g = 980.6199 gals.).

NR0270

NR0270.The modeled gravity was interpolated from observed gravity values.

NR0270

NR0270. The following values were computed from the NAD 83(2011) position.

NR0270

NR0270;		North	East	Units	Scale	Factor	Converg.
NR0270;SPC WYEC	-	328,543.272	440,490.862	MT	0.99995766	+0 20	00.5
NR0270;SPC WYEC	-	1,077,895.72	1,445,177.10	sFT	0.99995766	+0 20	00.5
NR0270;UTM 13	-	4,713,244.202	348,927.617	MT	0.99988080	-1 14	41.4

NR0270

NR0270! - Elev Factor x Scale Factor = Combined Factor

NR0270!SPC WYEC - 0.99969870 x 0.99995766 = 0.99965638

NR0270!UTM 13 - 0.99969870 x 0.99988080 = 0.99957954

NR0270

NR0270_U.S. NATIONAL GRID SPATIAL ADDRESS: 13TCH4892713244(NAD 83)

NR0270

SUPERSEDED SURVEY CONTROL

NR0270

NR0270	NAD 83(2007)-	42 33 24.57598(N)	106 50 24.94023(W)	AD(2002.00)	0
NR0270	ELLIP H (02/10/07)	1921.742 (m)		GP(2002.00)	
NR0270	NAD 83(1993)-	42 33 24.57551(N)	106 50 24.94003(W)	AD()	A
NR0270	ELLIP H (02/28/01)	1921.758 (m)		GP()	2 1
NR0270	NAVD 88	1934.14 (m)	6345.6 (f)	LEVELING	3
NR0270	NGVD 29 (06/08/92)	1933.194 (m)	6342.49 (f)	ADJUSTED	1 2

NR0270

NR0270.Superseded values are not recommended for survey control.

NR0270

NR0270.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

NR0270.See file dsdata.pdf to determine how the superseded data were derived.

NR0270

NR0270_MARKER: I = METAL ROD

NR0270_SETTING: 49 = STAINLESS STEEL ROD W/O SLEEVE (10 FT.+)

NR0270_STAMPING: A 338 1982

NR0270_MARK LOGO: NGS

NR0270_PROJECTION: FLUSH

NR0270_MAGNETIC: I = MARKER IS A STEEL ROD

NR0270_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL

NR0270_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

NR0270+SATELLITE: SATELLITE OBSERVATIONS - September 17, 2009

NR0270_ROD/PIPE-DEPTH: 3.4 meters

NR0270

NR0270 HISTORY - Date Condition Report By

Ground Control Survey Report for the U.S. Geological Survey
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NR0270 HISTORY - 1982 MONUMENTED NGS
 NR0270 HISTORY - 19990902 GOOD BLM
 NR0270 HISTORY - 20090917 GOOD INDIV

NR0270

NR0270 STATION DESCRIPTION

NR0270

NR0270'DESCRIBED BY NATIONAL GEODETIC SURVEY 1982

NR0270'53.1 KM (33.0 MI) SW FROM CASPER.

NR0270'53.1 KM (33.0 MI) SOUTHWESTERLY ALONG STATE HIGHWAY 220 FROM ITS
 NR0270'JUNCTION WITH STATE HIGHWAY 257 IN CASPER, 0.5 KM (0.3 MI) EAST OF
 NR0270'MILEPOST 80, 0.5 KM (0.3 MI) WEST OF A PAVED ROAD LEADING SOUTH TO
 NR0270'PATHFINDER DAM, 40.2 METERS (131.9 FT) NORTHEAST OF THE CENTERLINE OF
 NR0270'THE HIGHWAY, 28.1 METERS (92.2 FT) NORTHEAST OF THE NORTHEAST END OF A
 NR0270'CONCRETE DRAINAGE PIPE AND 8.4 KM (27.6 FT) NORTHWEST OF THE CENTER OF
 NR0270'A FIELD ENTRANCE. NOTE, ACCESS TO THE DATUM POINT IS THROUGH A 5-INCH
 NR0270'LOGO CAP.

NR0270'THE MARK IS 0.3 METERS SW FROM A WITNESS POST AND FENCE

NR0270'THE MARK IS ABOVE LEVEL WITH THE HIGHWAY.

NR0270

NR0270 STATION RECOVERY (1999)

NR0270

NR0270'RECOVERY NOTE BY BUREAU OF LAND MANAGEMENT 1999 (MDL)

NR0270'RECOVERED AS DESCRIBED.

NR0270

NR0270 STATION RECOVERY (2009)

NR0270

NR0270'RECOVERY NOTE BY INDIVIDUAL CONTRIBUTORS 2009 (DK)

NR0270'RECOVERED AS DESCRIBED

*** retrieval complete.

Elapsed Time = 00:00:02

4.3. The NGS Data Sheet for B 15

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

PROGRAM = datasheet95, VERSION = 8.12.5.10

Starting Datasheet Retrieval...

1 National Geodetic Survey, Retrieval Date = SEPTEMBER 22, 2020

MP0334 *****

MP0334 DESIGNATION - B 15

MP0334 PID - MP0334

MP0334 STATE/COUNTY- WY/CARBON

MP0334 COUNTRY - US

MP0334 USGS QUAD - PEACH ORCHARD FLAT (2017)

MP0334

MP0334 *CURRENT SURVEY CONTROL

MP0334

MP0334* NAD 83(1986) POSITION- 41 13 07. (N) 107 41 33. (W) SCALED

MP0334* NAVD 88 ORTHO HEIGHT - 1959.068 (meters) 6427.38 (feet) ADJUSTED

MP0334

MP0334 GEOID HEIGHT - -14.631 (meters) GEOID18

MP0334 DYNAMIC HEIGHT - 1957.299 (meters) 6421.57 (feet) COMP

MP0334 MODELED GRAVITY - 979,651.5 (mgal) NAVD 88

MP0334

MP0334 VERT ORDER - FIRST CLASS II

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MP0334
 MP0334.The horizontal coordinates were scaled from a map and have
 MP0334.an estimated accuracy of +/- 6 seconds.
 MP0334.
 MP0334.The orthometric height was determined by differential leveling and
 MP0334.adjusted by the NATIONAL GEODETIC SURVEY
 MP0334.in June 1991.
 MP0334
 MP0334.Significant digits in the geoid height do not necessarily reflect accuracy.
 MP0334.GEOID18 height accuracy estimate available [here](#).
 MP0334
 MP0334.Click [photographs](#) - Photos may exist for this station.
 MP0334
 MP0334.The dynamic height is computed by dividing the NAVD 88
 MP0334.geopotential number by the normal gravity value computed on the
 MP0334.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
 MP0334.degrees latitude (g = 980.6199 gals.).
 MP0334
 MP0334.The modeled gravity was interpolated from observed gravity values.
 MP0334
 MP0334;

		North	East	Units	Estimated Accuracy
MP0334;SPC WYEC	-	179,860.	369,880.	MT	(+/- 180 meters Scaled)

 MP0334
 MP0334_U.S. NATIONAL GRID SPATIAL ADDRESS: 13TBF742665(NAD 83)
 MP0334
 MP0334

SUPERSEDED SURVEY CONTROL

 MP0334
 MP0334

MP0334	NGVD 29	(??/??/92)	1957.838	(m)	6423.34	(f)	ADJ UNCH	1 2
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 MP0334
 MP0334.Superseded values are not recommended for survey control.
 MP0334
 MP0334.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
 MP0334.See file [dsdata.pdf](#) to determine how the superseded data were derived.
 MP0334
 MP0334_MARKER: DB = BENCH MARK DISK
 MP0334_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
 MP0334_STAMPING: B 15 1933
 MP0334_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
 MP0334+STABILITY: SURFACE MOTION
 MP0334

MP0334	HISTORY	-	Date	Condition	Report By
MP0334	HISTORY	-	1933	MONUMENTED	CGS
MP0334	HISTORY	-	1945	GOOD	CGS

 MP0334

STATION DESCRIPTION

 MP0334
 MP0334'DESCRIBED BY COAST AND GEODETIC SURVEY 1933
 MP0334'13.7 MI N FROM BAGGS.
 MP0334'ABOUT 13.7 MILES NORTH ALONG THE BAGGS-WAMSUTTER HIGHWAY FROM BAGGS,
 MP0334'CARBON COUNTY, ABOUT 115 FEET NORTH OF THE NORTH END OF A BRIDGE OVER
 MP0334'A DRY GULCH, AND 63 FEET EAST OF THE CENTER LINE OF THE HIGHWAY. A
 MP0334'STANDARD DISK, STAMPED B 15 1933 AND SET IN THE TOP OF A CONCRETE
 MP0334'POST.
 MP0334

STATION RECOVERY (1945)

 MP0334
 MP0334

MP0334'RECOVERY NOTE BY COAST AND GEODETIC SURVEY 1945
 MP0334'RECOVERED IN GOOD CONDITION.

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

4.4. The NGS Data Sheet for Barrett

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

PROGRAM = datasheet95, VERSION = 8.12.5.10

Starting Datasheet Retrieval...

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1      National Geodetic Survey,   Retrieval Date = OCTOBER  5, 2020
MP0552 *****
MP0552 CBN          - This is a Cooperative Base Network Control Station.
MP0552 DESIGNATION - BARRETT
MP0552 PID          - MP0552
MP0552 STATE/COUNTY- WY/CARBON
MP0552 COUNTRY      - US
MP0552 USGS QUAD    - RYAN PARK (2017)
MP0552
MP0552                      *CURRENT SURVEY CONTROL
MP0552
MP0552* NAD 83(2011) POSITION- 41 19 35.67787(N) 106 31 34.57981(W) ADJUSTED
MP0552* NAD 83(2011) ELLIP HT- 2751.158 (meters) (06/27/12) ADJUSTED
MP0552* NAD 83(2011) EPOCH   - 2010.00
MP0552* NAVD 88 ORTHO HEIGHT - 2762.2 (meters) 9062. (feet) GPS OBS
MP0552
MP0552 NAVD 88 orthometric height was determined with geoid model GEOID93
MP0552 GEOID HEIGHT - -10.52 (meters) GEOID93
MP0552 GEOID HEIGHT - -10.845 (meters) GEOID18
MP0552 NAD 83(2011) X - -1,365,038.157 (meters) COMP
MP0552 NAD 83(2011) Y - -4,600,544.065 (meters) COMP
MP0552 NAD 83(2011) Z - 4,191,544.305 (meters) COMP
MP0552 LAPLACE CORR - 8.23 (seconds) DEFLEC18
MP0552
MP0552 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
MP0552 Standards:
MP0552          FGDC (95% conf, cm)          Standard deviation (cm)          CorrNE
MP0552          Horiz Ellip                SD_N   SD_E   SD_h          (unitless)
MP0552 -----
MP0552 NETWORK      1.80   5.15                0.83   0.60   2.63          0.06517090
MP0552 -----
MP0552 Click here for local accuracies and other accuracy information.
MP0552
MP0552
MP0552.The horizontal coordinates were established by GPS observations
MP0552.and adjusted by the National Geodetic Survey in June 2012.
MP0552
MP0552.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
MP0552.been affixed to the stable North American tectonic plate. See
MP0552.NA2011 for more information.
MP0552
MP0552.The horizontal coordinates are valid at the epoch date displayed above
MP0552.which is a decimal equivalence of Year/Month/Day.
MP0552
MP0552.The orthometric height was determined by GPS observations and a
  
```

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MP0552.high-resolution geoid model.
 MP0552
 MP0552.Significant digits in the geoid height do not necessarily reflect accuracy.
 MP0552.GEOID18 height accuracy estimate available [here](#).
 MP0552
 MP0552.Click [photographs](#) - Photos may exist for this station.
 MP0552
 MP0552.The X, Y, and Z were computed from the position and the ellipsoidal ht.
 MP0552
 MP0552.The Laplace correction was computed from DEFLEC18 derived deflections.
 MP0552
 MP0552.The ellipsoidal height was determined by GPS observations
 MP0552.and is referenced to NAD 83.
 MP0552
 MP0552. The following values were computed from the NAD 83(2011) position.
 MP0552

MP0552;		North	East	Units	Scale Factor	Converg.
MP0552;SPC WYEC	-	192,101.736	467,562.046	MT	0.99999366	+0 31 58.7
MP0552;SPC WYEC	-	630,253.78	1,533,993.15	sFT	0.99999366	+0 31 58.7
MP0552;UTM 13	-	4,576,134.816	372,271.878	MT	0.99980078	-1 00 28.8

MP0552!	-	Elev Factor	x	Scale Factor	=	Combined Factor
MP0552!SPC WYEC	-	0.99956866	x	0.99999366	=	0.99956232
MP0552!UTM 13	-	0.99956866	x	0.99980078	=	0.99936952

MP0552:		Primary Azimuth Mark		Grid Az
MP0552:SPC WYEC	-	MEDICINE BOW		077 17 59.6
MP0552:UTM 13	-	MEDICINE BOW		078 50 27.1

 MP0552_U.S. NATIONAL GRID SPATIAL ADDRESS: 13TCF7227176134(NAD 83)
 MP0552

MP0552	-----		
MP0552	PID	Reference Object	Distance Geod. Az
MP0552			ddmmss.s
MP0552	MP0546	MEDICINE BOW	APPROX.17.9 KM 0774958.3
MP0552	CP5324	BARRETT LOT RM 1	9.285 METERS 14330
MP0552	CP5325	BARRETT LOT RM 2	9.369 METERS 25058
MP0552	-----		

 MP0552
 MP0552
 MP0552

MP0552	SUPERSEDED SURVEY CONTROL					
MP0552	NAD 83(2007)-	41 19 35.67766(N)	106 31 34.58063(W)	AD(2002.00)	0	
MP0552	ELLIP H (02/10/07)	2751.178 (m)		GP(2002.00)		
MP0552	ELLIP H (09/07/01)	2751.186 (m)		GP()	4 1	
MP0552	NAD 83(1993)-	41 19 35.67695(N)	106 31 34.58050(W)	AD()	B	
MP0552	ELLIP H (10/19/94)	2751.229 (m)		GP()	4 1	
MP0552	NAD 83(1986)-	41 19 35.67052(N)	106 31 34.57480(W)	AD()	3	
MP0552	NAD 27	- 41 19 35.79300(N)	106 31 32.49000(W)	AD()	3	
MP0552	NGVD 29 (07/19/86)	2766. (m)	9075. (f)	VERT ANG		

 MP0552
 MP0552.Superseded values are not recommended for survey control.
 MP0552
 MP0552.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
 MP0552.See file [dsdata.pdf](#) to determine how the superseded data were derived.
 MP0552
 MP0552_MARKER: DS = TRIANGULATION STATION DISK

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MP0552_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
 MP0552_STAMPING: BARRETT 1948
 MP0552_MARK LOGO: CGS
 MP0552_MAGNETIC: N = NO MAGNETIC MATERIAL
 MP0552_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
 MP0552+STABILITY: SURFACE MOTION
 MP0552_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
 MP0552+SATELLITE: SATELLITE OBSERVATIONS - August 12, 1993

MP0552

HISTORY	- Date	Condition	Report By
MP0552	1948	MONUMENTED	CGS
MP0552	1959	GOOD	USGS
MP0552	19930812	GOOD	NGS

MP0552
 MP0552 STATION DESCRIPTION
 MP0552

MP0552'DESCRIBED BY COAST AND GEODETIC SURVEY 1948 (DHK)
 MP0552'THE STATION IS LOCATED ABOUT 17.0 MILES AIRLINE SOUTHEAST OF
 MP0552'SARATOGA, ON A HIGH, HEAVILY TIMBERED, NORTHWEST-SOUTHEAST
 MP0552'RIDGE, WHICH IS LOCALLY KNOWN AS BARRETT RIDGE. THE STATION
 MP0552'IS BELIEVED TO BE NEAR THE HIGHEST POINT, IN THE CENTER OF THE
 MP0552'BASE OF THE BARRETT RIDGE FOREST SERVICE LOOKOUT TOWER,
 MP0552'APPROXIMATELY 25 YARDS SOUTHEAST OF THE HIGHEST POINT, 19
 MP0552'FEET WEST-NORTHWEST OF A 4X4 WITNESS POST, PROJECTS 3 INCHES,
 MP0552'STAMPED, BARRETT 1948.

MP0552'
 MP0552'REFERENCE MARK NO. 1, IS APPROXIMATELY 3 FEET LOWER THAN
 MP0552'THE STATION, 18 FEET SOUTH OF A 4X4 WITNESS POST, PROJECTS
 MP0552'3 INCHES, STAMPED, BARRETT NO 1 1948.

MP0552'
 MP0552'REFERENCE MARK NO. 2, IS APPROXIMATELY 2 FEET LOWER THAN THE
 MP0552'STATION, ON THE WEST SLOPE, PROJECTS 4 INCHES, STAMPED, BARRETT
 MP0552'NO 2 1948.

MP0552'
 MP0552'TRIANGULATION STATION MEDICINE BOW 1948 IS THE AZIMUTH.
 MP0552'

MP0552'TO REACH FROM SARATOGA. GO SOUTH ON STATE HIGHWAY 230 FOR
 MP0552'8.4 MILES TO THE JUNCTION OF STATE HIGHWAY 130. TURN LEFT (EAST)
 MP0552'AND FOLLOW STATE HIGHWAY 130 FOR 12.1 MILES TO THE BRUSH CREEK
 MP0552'RANGER STATION ON LEFT. CONTINUE STRAIGHT AHEAD FOR 1.85
 MP0552'MILES TO A DIRT ROAD SHARP RIGHT. TURN RIGHT ON DIRT ROAD
 MP0552'FOR 0.25 MILE TO A FORK. TAKE THE EXTREME LEFT FORK FOR
 MP0552'0.1 MILE TO A FORK. TAKE THE RIGHT FORK MAIN TRAVELED ROAD
 MP0552'(PASSING CABINS) FOR 0.35 TO A FORK. TAKE THE LEFT FORK UP
 MP0552'HILL AND CONTINUE FOR 0.95 MILE TO A FORK AND SIGN BARRETT
 MP0552'RIDGE LOOKOUT. TAKE THE RIGHT FORK UP HILL FOR 0.5 MILE TO THE
 MP0552'HIGHEST POINT AND STATION AS DESCRIBED. A DRIVE
 MP0552'STATION.

MP0552
 MP0552 STATION RECOVERY (1959)
 MP0552

MP0552'RECOVERY NOTE BY US GEOLOGICAL SURVEY 1959
 MP0552'RECOVERED.
 MP0552'
 MP0552'STATION MARK--STANDARD USC AND GS DISK, STAMPED ---BARRETT 1948---.
 MP0552

MP0552 STATION RECOVERY (1993)
 MP0552
 MP0552'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1993 (GRH)
 MP0552'STATION MARK AND REFERENCE MARKS 1 AND 2 WERE RECOVERED IN GOOD
 MP0552'CONDITION. NO AZIMUTH MARK FOR THIS STATION. THE LOOKOUT TOWER HAS
 MP0552'BEEN REMOVED, LEAVING ONLY THE CONCRETE PAD FOR THE LADDER. STATION IS
 MP0552'LOCATED ABOUT 29 KM (18.00 MI) SOUTHEAST OF SARATOGA, 32 KM (19.90 MI)
 MP0552'WEST OF CENTENNIAL, 2 KM (1.25 MI) NORTHWEST OF THE RYAN PARK
 MP0552'COMMUNITY, IN THE MEDICINE BOW NATIONAL FOREST, ON BARRETT RIDGE, ON A
 MP0552'MOSTLY CLEAR KNOLL, IN THE NORTHWEST 1/4 OF SECTION 29, T 16 N, R 81
 MP0552'W. OWNERSHIP--US DEPARTMENT OF AGRICULTURE. TO REACH FROM THE
 MP0552'CENTENNIAL SCHOOL IN CENTENNIAL, GO WEST ON STATE HIGHWAY 130 FOR
 MP0552'18.93 KM (11.75 MI) TO THE LIBBY FLATS OBSERVATION POINT ON THE LEFT.
 MP0552'CONTINUE AHEAD FOR 21.75 KM (13.50 MI) TO THE ENTRANCE TO THE RYAN
 MP0552'PARK CAMPGROUND ON THE LEFT. CONTINUE AHEAD FOR 1.02 KM (0.65 MI) TO
 MP0552'A DIRT ROAD LEFT. TURN LEFT, SOUTHWEST, ON RYAN PARK ROAD FOR 0.38 KM
 MP0552'(0.25 MI) TO A FORK. BEAR LEFT, SOUTHEAST, ON GRADED ROAD FOR 0.23 KM
 MP0552'(0.15 MI) TO A FORK. BEAR RIGHT, SOUTHERLY, ON GRADED ROAD FOR 0.26
 MP0552'KM (0.15 MI) TO A ROAD RIGHT. TURN RIGHT, WEST, ON FOREST SERVICE
 MP0552'ROAD 210 FOR 1.07 KM (0.65 MI) TO A CATTLE GUARD. CONTINUE AHEAD,
 MP0552'WEST, ON GRADED ROAD FOR 0.82 KM (0.50 MI) TO A FORK. BEAR RIGHT,
 MP0552'NORTHWEST, UPHILL, ON ROAD 232 FOR 0.31 KM (0.20 MI) TO A TRACK ROAD
 MP0552'RIGHT AT TOP OF GRADE. TURN RIGHT, NORTH, ON ROAD 232 1A FOR 0.67 KM
 MP0552'(0.40 MI) TO TOP OF RISE AND STATION ON THE LEFT. STATION MARK IS A
 MP0552'DISK SET IN THE TOP OF A 30-CM SQUARE CONCRETE POST PROJECTING 5 CM
 MP0552'ABOVE GROUND. IT IS ON THE SOUTHEAST END OF THE SHORT
 MP0552'NORTHWEST-SOUTHEAST ROCKY KNOLL THAT IS COVERED WITH LOW ASPEN AND
 MP0552'PINES. IT IS 13.9 M (45.6 FT) NORTH OF, AND 1 M (3.3 FT) HIGHER THAN
 MP0552'THE ROAD CENTER, 1.5 M (4.9 FT) NORTH OF THE SMALL CONCRETE PAD, AND
 MP0552'1.1 M (3.6 FT) SOUTH OF A FIBERGLASS WITNESS POST. DESCRIBED BY
 MP0552'G.R.HEID

*** retrieval complete.
 Elapsed Time = 00:00:02

4.5. The NGS Data Sheet for C 167

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

PROGRAM = datasheet95, VERSION = 8.12.5.9

Starting Datasheet Retrieval...

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1 National Geodetic Survey, Retrieval Date = SEPTEMBER 10, 2020
MO0754 *****
MO0754 DESIGNATION - C 167
MO0754 PID - MO0754
MO0754 STATE/COUNTY- WY/ALBANY
MO0754 COUNTRY - US
MO0754 USGS QUAD - BOSLER SE (2017)
MO0754
MO0754 *CURRENT SURVEY CONTROL
MO0754
MO0754* NAD 83(1986) POSITION- 41 35 30. (N) 105 37 28. (W) SCALED
MO0754* NAVD 88 ORTHO HEIGHT - 2190.438 (meters) 7186.46 (feet) ADJUSTED
MO0754
MO0754 GEOID HEIGHT - -11.652 (meters) GEOID18
MO0754 DYNAMIC HEIGHT - 2188.593 (meters) 7180.41 (feet) COMP
  
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MO0754 MODELED GRAVITY - 979,701.1 (mgal) NAVD 88
 MO0754
 MO0754 VERT ORDER - SECOND CLASS 0
 MO0754
 MO0754.The horizontal coordinates were scaled from a map and have
 MO0754.an estimated accuracy of +/- 6 seconds.
 MO0754.
 MO0754.The orthometric height was determined by differential leveling and
 MO0754.adjusted by the NATIONAL GEODETIC SURVEY
 MO0754.in June 1991.
 MO0754
 MO0754.Significant digits in the geoid height do not necessarily reflect accuracy.
 MO0754.GEOID18 height accuracy estimate available [here](#).
 MO0754
 MO0754.Click [photographs](#) - Photos may exist for this station.
 MO0754
 MO0754.The dynamic height is computed by dividing the NAVD 88
 MO0754.geopotential number by the normal gravity value computed on the
 MO0754.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
 MO0754.degrees latitude (g = 980.6199 gals.).
 MO0754
 MO0754.The modeled gravity was interpolated from observed gravity values.
 MO0754
 MO0754;

	North	East	Units	Estimated Accuracy
MO0754;SPC WY E -	121,330.	161,830.	MT	(+/- 180 meters Scaled)

 MO0754
 MO0754_U.S. NATIONAL GRID SPATIAL ADDRESS: 13TDG479046(NAD 83)
 MO0754
 MO0754 SUPERSEDED SURVEY CONTROL
 MO0754
 MO0754 NGVD 29 (??/??/92) 2189.389 (m) 7183.02 (f) ADJ UNCH 2 0
 MO0754
 MO0754.Superseded values are not recommended for survey control.
 MO0754
 MO0754.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
 MO0754.See file [dsdata.pdf](#) to determine how the superseded data were derived.
 MO0754
 MO0754_MARKER: DB = BENCH MARK DISK
 MO0754_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
 MO0754_STAMPING: C 167 1966
 MO0754_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
 MO0754+STABILITY: SURFACE MOTION
 MO0754

HISTORY	- Date	Condition	Report By
MO0754 HISTORY	- 1966	MONUMENTED	CGS

 MO0754
 MO0754 STATION DESCRIPTION
 MO0754
 MO0754'DESCRIBED BY COAST AND GEODETIC SURVEY 1966
 MO0754'5.9 MI NE FROM BOSLER.
 MO0754'1.95 MILES SOUTH ALONG U.S. HIGHWAY 30 FROM THE SCHOOL AT
 MO0754'BOSLER, THENCE 3.95 MILES NORTHEAST ALONG STATE HIGHWAY 34, 0.15
 MO0754'MILE NORTHEAST OF A T FENCE JUNCTION, 99 FEET NORTHWEST OF THE
 MO0754'CENTER LINE OF THE HIGHWAY, 46 FEET NORTHEAST OF BENCH MARK 7182
 MO0754'(WSHD), 16.8 FEET NORTHEAST OF THE NORTHEAST END OF A GATE, 2.7
 MO0754'FEET SOUTHEAST OF A FENCE, 1.9 FEET SOUTHWEST OF A WITNESS

MO0754'POST, ABOUT LEVEL WITH THE HIGHWAY, AND SET IN THE TOP OF A
 MO0754'CONCRETE POST PROJECTING 0.4 FOOT ABOVE THE GROUND.

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

4.6. The NGS Data Sheet for C 334

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

PROGRAM = datasheet95, VERSION = 8.12.5.9

Starting Datasheet Retrieval...

```

1 National Geodetic Survey, Retrieval Date = AUGUST 18, 2020
OV0253 *****
OV0253 FBN - This is a Federal Base Network Control Station.
OV0253 DESIGNATION - C 334
OV0253 PID - OV0253
OV0253 STATE/COUNTY- WY/NATRONA
OV0253 COUNTRY - US
OV0253 USGS QUAD - HELLS HALF ACRE (2017)
OV0253
OV0253 *CURRENT SURVEY CONTROL
OV0253
OV0253* NAD 83(2011) POSITION- 43 03 11.35267(N) 107 06 16.39328(W) ADJUSTED
OV0253* NAD 83(2011) ELLIP HT- 1839.648 (meters) (06/27/12) ADJUSTED
OV0253* NAD 83(2011) EPOCH - 2010.00
OV0253* NAVD 88 ORTHO HEIGHT - 1853.096 (meters) 6079.70 (feet) ADJUSTED
OV0253
OV0253 GEOID HEIGHT - -13.444 (meters) GEOID18
OV0253 NAD 83(2011) X - -1,373,307.882 (meters) COMP
OV0253 NAD 83(2011) Y - -4,462,744.967 (meters) COMP
OV0253 NAD 83(2011) Z - 4,333,074.417 (meters) COMP
OV0253 LAPLACE CORR - 2.35 (seconds) DEFLEC18
OV0253 DYNAMIC HEIGHT - 1851.814 (meters) 6075.49 (feet) COMP
OV0253 MODELED GRAVITY - 979,862.7 (mgal) NAVD 88
OV0253
OV0253 VERT ORDER - FIRST CLASS II
OV0253
OV0253 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
OV0253 Standards:
OV0253 FGDC (95% conf, cm) Standard deviation (cm) CorrNE
OV0253 Horiz Ellip SD_N SD_E SD_h (unitless)
OV0253 -----
OV0253 NETWORK 0.56 1.41 0.22 0.24 0.72 -0.02276177
OV0253 -----
OV0253 Click here for local accuracies and other accuracy information.
OV0253
OV0253
OV0253.The horizontal coordinates were established by GPS observations
OV0253.and adjusted by the National Geodetic Survey in June 2012.
OV0253
OV0253.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
OV0253.been affixed to the stable North American tectonic plate. See
OV0253.NA2011 for more information.
OV0253
OV0253.The horizontal coordinates are valid at the epoch date displayed above
  
```

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OV0253.which is a decimal equivalence of Year/Month/Day.

OV0253

OV0253.The orthometric height was determined by differential leveling and
 OV0253.adjusted by the NATIONAL GEODETIC SURVEY

OV0253.in June 1991.

OV0253

OV0253.Significant digits in the geoid height do not necessarily reflect accuracy.

OV0253.GEOID18 height accuracy estimate available here.

OV0253

OV0253.Click [photographs](#) - Photos may exist for this station.

OV0253

OV0253.The X, Y, and Z were computed from the position and the ellipsoidal ht.

OV0253

OV0253.The Laplace correction was computed from DEFLEC18 derived deflections.

OV0253

OV0253.The ellipsoidal height was determined by GPS observations

OV0253.and is referenced to NAD 83.

OV0253

OV0253.The dynamic height is computed by dividing the NAVD 88

OV0253.geopotential number by the normal gravity value computed on the

OV0253.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45

OV0253.degrees latitude (g = 980.6199 gals.).

OV0253

OV0253.The modeled gravity was interpolated from observed gravity values.

OV0253

OV0253. The following values were computed from the NAD 83(2011) position.

OV0253

OV0253;		North	East	Units	Scale Factor	Converg.
OV0253;SPC WYEC	-	383,583.809	418,637.664	MT	0.99994177	+0 09 22.3
OV0253;SPC WYEC	-	1,258,474.55	1,373,480.40	sFT	0.99994177	+0 09 22.3
OV0253;UTM 13	-	4,768,866.836	328,606.554	MT	0.99996139	-1 26 13.5

OV0253

OV0253! - Elev Factor x Scale Factor = Combined Factor

OV0253!SPC WYEC - 0.99971159 x 0.99994177 = 0.99965337

OV0253!UTM 13 - 0.99971159 x 0.99996139 = 0.99967299

OV0253

OV0253_U.S. NATIONAL GRID SPATIAL ADDRESS: 13TCH2860668866(NAD 83)

OV0253

OV0253

SUPERSEDED SURVEY CONTROL

OV0253

OV0253	NAD 83(2007)-	43 03 11.35248(N)		107 06 16.39448(W)	AD(2002.00)	0
OV0253	ELLIP H (02/10/07)	1839.671 (m)			GP(2002.00)	
OV0253	ELLIP H (07/24/97)	1839.706 (m)			GP()	1 1
OV0253	NAD 83(1993)-	43 03 11.35163(N)		107 06 16.39404(W)	AD()	A
OV0253	ELLIP H (10/19/94)	1839.769 (m)			GP()	3 1
OV0253	NAVD 88	1853.10 (m)		6079.7 (f)	LEVELING	3
OV0253	NAVD 88 (10/19/94)	1852.9 (m)	UNKNOWN	model used	GPS OBS	
OV0253	NAVD 88	1853.10 (m)		6079.7 (f)	LEVELING	3
OV0253	NGVD 29 (06/08/92)	1852.079 (m)		6076.36 (f)	ADJUSTED	1 2

OV0253

OV0253.Superseded values are not recommended for survey control.

OV0253

OV0253.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

OV0253.See file [dsdata.pdf](#) to determine how the superseded data were derived.

OV0253

OV0253_MARKER: I = METAL ROD

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OV0253_SETTING: 59 = STAINLESS STEEL ROD IN SLEEVE (10 FT.+)
OV0253_STAMPING: C334 1982
OV0253_MARK LOGO: NGS
OV0253_PROJECTION: FLUSH
OV0253_MAGNETIC: N = NO MAGNETIC MATERIAL
OV0253_STABILITY: A = MOST RELIABLE AND EXPECTED TO HOLD
OV0253+STABILITY: POSITION/ELEVATION WELL
OV0253_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
OV0253+SATELLITE: SATELLITE OBSERVATIONS - September 20, 2008
OV0253_ROD/PIPE-DEPTH: 2.7 meters

OV0253

OV0253	HISTORY	- Date	Condition	Report By
OV0253	HISTORY	- 1982	MONUMENTED	NGS
OV0253	HISTORY	- 19930723	GOOD	WYDT
OV0253	HISTORY	- 19990729	GOOD	NGS
OV0253	HISTORY	- 20080920	GOOD	GEOCAC

OV0253

OV0253

STATION DESCRIPTION

OV0253

OV0253'DESCRIBED BY NATIONAL GEODETIC SURVEY 1982
OV0253'7.7 KM (4.8 MI) EAST FROM WALTMAN.
OV0253'7.7 KM (4.8 MI) EASTERLY ALONG U. S. HIGHWAY 20 FROM ITS JUNCTION WITH
OV0253'COUNTY ROADS 104 AND 212 IN WALTMAN, 1.1 KM (0.7 MI) NORTHWEST OF THE
OV0253'NORTHWEST ENTRANCE TO HELLS HALF ACRE, 85.6 METERS (280.8 FT)
OV0253'NORTHEAST OF THE CENTERLINE OF THE HIGHWAY, 22.1 METERS (72.5 FT) WEST
OV0253'OF THE CENTER OF A DIRT ROAD LEADING NORTH AND 16.8 METERS (55.1 FT)
OV0253'NORTHWEST OF A FENCE CORNER. NOTE=ACCESS TO THE DATUM POINT IS
OV0253'THROUGH A 5-INCH LOGO CAP.
OV0253'THE MARK IS 0.3 METERS SW FROM A WITNESS POST AND FENCE
OV0253'THE MARK IS 1.2 M BELOW THE HIGHWAY.

OV0253

OV0253

STATION RECOVERY (1993)

OV0253

OV0253'RECOVERY NOTE BY WYOMING DEPARTMENT OF TRANSPORTATION 1993 (RR)
OV0253'NOTE--PUNCH HOLE NEEDED TOP CENTER ON ROD FOR GPS OBSERVATIONS.
OV0253'STATION IS LOCATED ABOUT 9 KM (5.60 MI) WEST OF POWDER RIVER, 10 KM
OV0253'(6.20 MI) EAST OF WALTMAN, 1 KM (0.60 MI) WEST OF THE WEST ENTRANCE
OV0253'HELLS HALF ACRE PARK, ALONG US HIGHWAYS 20 AND 26, ON THE
OV0253'RIGHT-OF-WAY, NEAR MILE 45.9, IN SECTION 35, T 36 N, R 86 W.
OV0253'OWNERSHIP--STATE HIGHWAY DEPARTMENT. TO REACH FROM THE JUNCTION OF US
OV0253'HIGHWAYS 20, 26 AND COUNTY ROADS 106 AND 211 AT POWDER RIVER, GO WEST
OV0253'ON HIGHWAYS 20 AND 26 FOR 8.88 KM (5.50 MI) TO THE WEST ENTRANCE TO
OV0253'HELLS HALF ACRE PARK. CONTINUE AHEAD FOR 1.22 KM (0.75 MI) TO A TRACK
OV0253'ROAD RIGHT AT MILE 45.9. TURN SHARP RIGHT, EASTERLY, ON TRACK ROAD
OV0253'FOR 0.09 KM (0.05 MI) TO THE RIGHT-OF-WAY FENCE AND THE STATION.
OV0253'STATION MARK IS A PUNCH HOLE TOP CENTER ON A STEEL ROD ENCASED IN A
OV0253'PVC PIPE WITH LOGO CAP SET IN A CONCRETE POST FLUSH WITH THE GROUND.
OV0253'IT IS 61 M (200.1 FT) NORTHEAST OF THE HIGHWAY CENTER, 16.8 M (55.1
OV0253'FT) NORTHEAST OF THE TRACK ROAD CENTER, 0.3 M (1.0 FT) SOUTHWEST OF A
OV0253'FIBERGLASS WITNESS POST IN THE FENCELINE, 16.8 M (55.1 FT) NORTHWEST
OV0253'OF A FENCE CORNER, AND 2.6 M (8.5 FT) WEST OF A BRACED FENCE POST.
OV0253'DESCRIBED BY WHD. TYPED BY GRH.

OV0253

OV0253

STATION RECOVERY (1999)

OV0253

OV0253'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1999 (CSM)

OV0253'RECOVERED BY NATIONAL GEODETIC SURVEY 1999. RECOVERED IN GOOD
 OV0253'CONDITION AND AS PREVIOUSLY DESCRIBED. ADD THE STATION IS NOW
 OV0253'SURROUNDED BY 3 METAL I-BEAM POSTS AND IS 0.3 M (1.0 FT) SOUTHWEST OF
 OV0253'A WYDOT FIBERGLASS WITNESS POST.
 OV0253
 OV0253 STATION RECOVERY (2008)
 OV0253
 OV0253'RECOVERY NOTE BY GEOCACHING 2008 (WD)
 OV0253'RECOVERED IN GOOD CONDITION.

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

4.7. The NGS Data Sheet for D 15

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

PROGRAM = datasheet95, VERSION = 8.12.5.9

Starting Datasheet Retrieval...

1 National Geodetic Survey, Retrieval Date = AUGUST 25, 2020

MP0337 *****

MP0337 DESIGNATION - D 15

MP0337 PID - MP0337

MP0337 STATE/COUNTY- WY/CARBON

MP0337 COUNTRY - US

MP0337 USGS QUAD - PEACH ORCHARD FLAT (2017)

MP0337

MP0337 *CURRENT SURVEY CONTROL

MP0337

MP0337* NAD 83(1986) POSITION- 41 09 21.2 (N) 107 40 07.7 (W) HD_HELD2

MP0337* NAVD 88 ORTHO HEIGHT - 1942.374 (meters) 6372.61 (feet) ADJUSTED

MP0337

MP0337 GEOID HEIGHT - -14.555 (meters) GEOID18

MP0337 DYNAMIC HEIGHT - 1940.625 (meters) 6366.87 (feet) COMP

MP0337 MODELED GRAVITY - 979,654.6 (mgal) NAVD 88

MP0337

MP0337 VERT ORDER - FIRST CLASS II

MP0337

MP0337.The horizontal coordinates were established by autonomous hand held GPS

MP0337.observations and have an estimated accuracy of +/- 10 meters.

MP0337.

MP0337.The orthometric height was determined by differential leveling and

MP0337.adjusted by the NATIONAL GEODETIC SURVEY

MP0337.in June 1991.

MP0337

MP0337.Significant digits in the geoid height do not necessarily reflect accuracy.

MP0337.GEOID18 height accuracy estimate available [here](#).

MP0337

MP0337.Click [photographs](#) - Photos may exist for this station.

MP0337

MP0337.The dynamic height is computed by dividing the NAVD 88

MP0337.geopotential number by the normal gravity value computed on the

MP0337.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45

MP0337.degrees latitude (g = 980.6199 gals.).

MP0337

MP0337.The modeled gravity was interpolated from observed gravity values.

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MP0337
 MP0337;
 MP0337;SPC WYEC North East Units Estimated Accuracy
 - 172,887. 371,843. MT (+/- 10 meters HH2 GPS)

MP0337 U.S. NATIONAL GRID SPATIAL ADDRESS: 13TBF7606859496 (NAD 83)

MP0337
 MP0337 SUPERSEDED SURVEY CONTROL

MP0337
 MP0337 NGVD 29 (??/??/92) 1941.160 (m) 6368.62 (f) ADJ UNCH 1 2

MP0337
 MP0337.Superseded values are not recommended for survey control.

MP0337
 MP0337.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
 MP0337.See file [dsdata.pdf](#) to determine how the superseded data were derived.

MP0337
 MP0337_MARKER: DB = BENCH MARK DISK
 MP0337_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
 MP0337_STAMPING: D 15 1933
 MP0337_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
 MP0337+STABILITY: SURFACE MOTION

MP0337

HISTORY	- Date	Condition	Report By
MP0337	HISTORY - 1933	MONUMENTED	CGS
MP0337	HISTORY - 1945	GOOD	CGS
MP0337	HISTORY - 1978	GOOD	USGS

MP0337
 MP0337 STATION DESCRIPTION

MP0337
 MP0337'DESCRIBED BY COAST AND GEODETIC SURVEY 1933
 MP0337'9.2 MI N FROM BAGGS.
 MP0337'ABOUT 9.2 MILES NORTH ALONG THE BAGGS-WAMSUTTER HIGHWAY FROM BAGGS,
 MP0337'CARBON COUNTY, ABOUT 500 FEET NORTH OF WHERE MUDDY RIVER HAS NEARLY
 MP0337'CUT INTO THE HIGHWAY, AT THE POINT OF A REVERSE CURVE WHERE THE OLD
 MP0337'ROAD RUNS INTO A SIDEHILL CUT ON A SMALL HILL WEST OF THE NEW ROAD,
 MP0337'NEAR RAMPS ON BOTH SIDES OF THE ROAD, 35 FEET SOUTH OF A 30-INCH
 MP0337'CORRUGATED IRON PIPE CULVERT, 77 FEET EAST OF THE CENTER LINE OF THE
 MP0337'HIGHWAY, AND 27 FEET SOUTH OF THE CENTER LINE OF THE EAST RAMP. A
 MP0337'STANDARD DISK, STAMPED D 15 1933 AND SET IN THE TOP OF A CONCRETE
 MP0337'POST.

MP0337
 MP0337 STATION RECOVERY (1945)

MP0337
 MP0337'RECOVERY NOTE BY COAST AND GEODETIC SURVEY 1945
 MP0337'RECOVERED IN GOOD CONDITION.

MP0337
 MP0337 STATION RECOVERY (1978)

MP0337
 MP0337'RECOVERY NOTE BY US GEOLOGICAL SURVEY 1978
 MP0337'ABOUT 9.2 MILES NORTH ALONG STATE HIGHWAY 789 FROM THE POST OFFICE
 MP0337'AT, APPROXIMATELY 1.2 MILES NORTH OF TWO LARGE METAL BUILDINGS ON
 MP0337'EAST SIDE OF HIGHWAY, ABOUT 500 FT. NORTH OF WHERE MUDDY CREEK HAS
 MP0337'NEARLY CUT INTO THE HIGHWAY, 47 FT. SOUTH OF A SMALL DRAIN, 137 FT.
 MP0337'EAST OF CENTER OF HIGHWAY, 38 FT. EAST OF ROW FENCE, IN CONCRETE POST
 MP0337'PROJECTING 0.5 FT., A STANDARD DISK STAMPED D 15, 1933.

*** retrieval complete.

Elapsed Time = 00:00:01

4.8. The NGS Data Sheet for K 31

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

PROGRAM = datasheet95, VERSION = 8.12.5.9

Starting Datasheet Retrieval...

```

1      National Geodetic Survey,      Retrieval Date = AUGUST 18, 2020
NR0159 *****
NR0159 DESIGNATION - K 31
NR0159 PID - NR0159
NR0159 STATE/COUNTY- WY/NATRONA
NR0159 COUNTRY - US
NR0159 USGS QUAD - INDEPENDENCE ROCK (2017)
NR0159
NR0159 *CURRENT SURVEY CONTROL
NR0159
NR0159* NAD 83(1993) POSITION- 42 29 45.16970(N) 107 08 00.51248(W) ADJUSTED
NR0159* NAVD 88 ORTHO HEIGHT - 1796.961 (meters) 5895.53 (feet) ADJUSTED
NR0159
NR0159 GEOID HEIGHT - -12.262 (meters) GEOID18
NR0159 LAPLACE CORR - -1.47 (seconds) DEFLEC18
NR0159 DYNAMIC HEIGHT - 1795.744 (meters) 5891.54 (feet) COMP
NR0159 MODELED GRAVITY - 979,879.8 (mgal) NAVD 88
NR0159
NR0159 HORZ ORDER - THIRD
NR0159 VERT ORDER - FIRST CLASS II
NR0159
NR0159.The horizontal coordinates were established by classical geodetic methods
NR0159.and adjusted by the National Geodetic Survey in January 1997.
NR0159.
NR0159.The orthometric height was determined by differential leveling and
NR0159.adjusted by the NATIONAL GEODETIC SURVEY
NR0159.in June 1991.
NR0159
NR0159.Significant digits in the geoid height do not necessarily reflect accuracy.
NR0159.GEOID18 height accuracy estimate available here.
NR0159
NR0159.Click photographs - Photos may exist for this station.
NR0159
NR0159.The Laplace correction was computed from DEFLEC18 derived deflections.
NR0159
NR0159.The dynamic height is computed by dividing the NAVD 88
NR0159.geopotential number by the normal gravity value computed on the
NR0159.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
NR0159.degrees latitude (g = 980.6199 gals.).
NR0159
NR0159.The modeled gravity was interpolated from observed gravity values.
NR0159
NR0159. The following values were computed from the NAD 83(1993) position.
NR0159
NR0159;
NR0159;SPC WYEC - 321,675.091 416,428.155 MT 0.99994082 +0 08 06.0
NR0159;SPC WYEC - 1,055,362.36 1,366,231.37 sFT 0.99994082 +0 08 06.0
NR0159;UTM 13 - 4,707,041.157 324,685.438 MT 0.99997816 -1 26 29.8
  
```

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NR0159
NR0159!          - Elev Factor x Scale Factor = Combined Factor
NR0159!SPC WYEC  - 0.99972018 x 0.99994082 = 0.99966102
NR0159!UTM 13    - 0.99972018 x 0.99997816 = 0.99969835
NR0159
NR0159:          Primary Azimuth Mark                Grid Az
NR0159:SPC WYEC  - SANFORD                          067 54 11.1
NR0159:UTM 13    - SANFORD                          069 28 46.9
NR0159
NR0159_U.S. NATIONAL GRID SPATIAL ADDRESS: 13TCH2468507041(NAD 83)
NR0159
NR0159|-----|
NR0159| PID      Reference Object                Distance      Geod. Az      |
NR0159|                                     dddmmss.s |
NR0159| NR0401 SANFORD                        APPROX.10.0 KM 0680217.1 |
NR0159|-----|
NR0159
NR0159                                SUPERSEDED SURVEY CONTROL
NR0159
NR0159 NAD 83(1986)- 42 29 45.15619(N) 107 08 00.50391(W) AD(      ) 3
NR0159 NAD 27      - 42 29 45.30700(N) 107 07 58.29674(W) AD(      ) 3
NR0159 NGVD 29 (??/??/92) 1796.03 (m) 5892.5 (f) COMPUTED 1 2
NR0159 NGVD 29      1796.04 (m) 5892.5 (f) LEVELING 3
NR0159
NR0159.Superseded values are not recommended for survey control.
NR0159
NR0159.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
NR0159.See file dsdata.pdf to determine how the superseded data were derived.
NR0159
NR0159_MARKER: DB = BENCH MARK DISK
NR0159_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
NR0159_STAMPING: K 31 1933
NR0159_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
NR0159+STABILITY: SURFACE MOTION
NR0159_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
NR0159+SATELLITE: SATELLITE OBSERVATIONS - May 22, 2009
NR0159
NR0159 HISTORY      - Date      Condition      Report By
NR0159 HISTORY      - 1933      MONUMENTED    CGS
NR0159 HISTORY      - 1957      GOOD          USGS
NR0159 HISTORY      - 1982      MARK NOT FOUND NGS
NR0159 HISTORY      - 20090522 GOOD          GEOCAC
NR0159
NR0159                                STATION DESCRIPTION
NR0159
NR0159'DESCRIBED BY COAST AND GEODETIC SURVEY 1933
NR0159'19.4 MI NE FROM THREE FORKS.
NR0159'IN NATRONA COUNTY, 19.4 MILES NORTHEAST ALONG STATE HIGHWAY 220 FROM
NR0159'THREE FORKS, CARBON COUNTY, AT THE JUNCTION OF A ROAD LEADING SOUTH TO
NR0159'INDEPENDENCE ROCK, 80 FEET EAST OF THE ROAD, 56 FEET SOUTH OF THE
NR0159'CENTER LINE OF THE HIGHWAY, AND 34 FEET NORTH OF THE CORNER OF A WIRE
NR0159'FENCE. A STANDARD DISK, STAMPED K 31 1933 AND SET IN THE TOP OF A
NR0159'CONCRETE POST PROJECTING 6 INCHES ABOVE GROUND.
NR0159
NR0159                                STATION RECOVERY (1957)
NR0159

```

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NR0159'RECOVERY NOTE BY US GEOLOGICAL SURVEY 1957 (PHJ)
 NR0159'RECOVERED IN GOOD CONDITION.
 NR0159'
 NR0159'STATION LOCATED 25 MI. SW. OF ALCOVA, 54 FT. R. OF CENTER OF HIGHWAY
 NR0159'220, 34 FT. N. OF FENCE CORNER, 670 FT. NW. OF INDEPENDENCE ROCK.
 NR0159'
 NR0159'TO REACH FROM N. ENTRANCE TO INDEPENDENCE ROCK, GO NW. 90 FT. TO
 NR0159'STATION, 3 FT. W. OF FENCE LINE.
 NR0159'
 NR0159'STATION MARK--STANDARD USC AND GS CAP SET IN CONCRETE PROJECTING 2
 NR0159'IN., STAMPED ---K-31 1933---.
 NR0159'
 NR0159'REFERENCE MARK NO. 1--EASTERLY OF TWO POSTS SUPPORTING INDEPENDENCE
 NR0159'ROCK SIGN AND IS 118.00 FT. SW. OF STATION, N 56 DEG 38 MIN E.
 NR0159'
 NR0159'REFERENCE MARK NO. 2--STANDARD GLO MARKER, STAMPED ---1/4 COR. S. 9,
 NR0159'10 1923---, AND IS 1293.10 FT. NE. OF STATION, S 21 DEG 41 MIN W.
 NR0159
 NR0159 STATION RECOVERY (1982)
 NR0159
 NR0159'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1982
 NR0159'MARK NOT FOUND.
 NR0159
 NR0159 STATION RECOVERY (2009)
 NR0159
 NR0159'RECOVERY NOTE BY GEOCACHING 2009 (MEL)
 NR0159'RECOVERED IN GOOD CONDITION.

*** retrieval complete.
 Elapsed Time = 00:00:02

4.9. The NGS Data Sheet for K 334

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

PROGRAM = datasheet95, VERSION = 8.12.5.14

Starting Datasheet Retrieval...

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1      National Geodetic Survey,   Retrieval Date = MARCH  2, 2022
OV0261 *****
OV0261 DESIGNATION - K 334
OV0261 PID - OV0261
OV0261 STATE/COUNTY- WY/NATRONA
OV0261 COUNTRY - US
OV0261 USGS QUAD - POWDER RIVER (2017)
OV0261
OV0261 *CURRENT SURVEY CONTROL
OV0261
OV0261* NAD 83(1986) POSITION- 43 01 51.3 (N) 106 54 43.3 (W) HD_HELD2
OV0261* NAVD 88 ORTHO HEIGHT - 1732.799 (meters) 5685.02 (feet) ADJUSTED
OV0261
OV0261 GEOID HEIGHT - -13.257 (meters) GEOID18
OV0261 DYNAMIC HEIGHT - 1731.681 (meters) 5681.36 (feet) COMP
OV0261 MODELED GRAVITY - 979,913.7 (mgal) NAVD 88
OV0261
OV0261 VERT ORDER - FIRST CLASS II
OV0261
  
```


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OV0261.The horizontal coordinates were established by autonomous hand held GPS
 OV0261.observations and have an estimated accuracy of +/- 10 meters.
 OV0261.
 OV0261.The orthometric height was determined by differential leveling and
 OV0261.adjusted by the NATIONAL GEODETIC SURVEY
 OV0261.in June 1991.
 OV0261
 OV0261.Significant digits in the geoid height do not necessarily reflect accuracy.
 OV0261.GEOID18 height accuracy estimate available [here](#).
 OV0261
 OV0261.Click [photographs](#) - Photos may exist for this station.
 OV0261
 OV0261.The dynamic height is computed by dividing the NAVD 88
 OV0261.geopotential number by the normal gravity value computed on the
 OV0261.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
 OV0261.degrees latitude (g = 980.6199 gals.).
 OV0261
 OV0261.The modeled gravity was interpolated from observed gravity values.
 OV0261

OV0261;		North	East	Units	Estimated Accuracy
OV0261;SPC WYEC	-	381,174.	434,334.	MT	(+/- 10 meters HH2 GPS)

 OV0261
 OV0261_U.S. NATIONAL GRID SPATIAL ADDRESS: 13TCH4422966022 (NAD 83)
 OV0261
 OV0261 SUPERSEDED SURVEY CONTROL
 OV0261

OV0261	NGVD 29 (06/08/92)	1731.860 (m)	5681.94 (f)	ADJUSTED	1 2
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 OV0261
 OV0261.Superseded values are not recommended for survey control.
 OV0261
 OV0261.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
 OV0261.See file [dsdata.pdf](#) to determine how the superseded data were derived.
 OV0261
 OV0261_MARKER: I = METAL ROD
 OV0261_SETTING: 49 = STAINLESS STEEL ROD W/O SLEEVE (10 FT.+)
 OV0261_STAMPING: K 334 1982
 OV0261_MARK LOGO: NGS
 OV0261_PROJECTION: FLUSH
 OV0261_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL
 OV0261_ROD/PIPE-DEPTH: 7.0 meters
 OV0261

OV0261	HISTORY	- Date	Condition	Report By
OV0261	HISTORY	- 1982	MONUMENTED	NGS
OV0261	HISTORY	- 20090523	GOOD	GEOCAC

 OV0261
 OV0261 STATION DESCRIPTION
 OV0261
 OV0261'DESCRIBED BY NATIONAL GEODETIC SURVEY 1982
 OV0261'24.0 KM (14.9 MI) EAST FROM WALTMAN.
 OV0261'24.0 KM (14.9 MI) EASTERLY ALONG U. S. HIGHWAY 20 FROM ITS JUNCTION
 OV0261'WITH COUNTY ROADS 104 AND 212 IN WALTMAN, 0.5 KM (0.3 MI) EAST OF
 OV0261'MILEPOST 36, 41.4 METERS (135.8 FT) NORTH OF THE CENTERLINE OF THE
 OV0261'HIGHWAY AND 8.2 METERS (26.9 FT) WEST OF THE CENTER OF A PRIVATE
 OV0261'DRIVEWAY. NOTE=ACCESS TO THE DATUM POINT IS THROUGH A 5-INCH LOGO
 OV0261'CAP.
 OV0261'THE MARK IS 0.3 METERS SSE FROM A WITNESS POST AND FENCE

OV0261'THE MARK IS 1.0 M BELOW THE HIGHWAY.
 OV0261
 OV0261 STATION RECOVERY (2009)
 OV0261
 OV0261'RECOVERY NOTE BY GEOCACHING 2009 (WD)
 OV0261'THE STATION IS 26.9 FEET WEST OF THE CENTERLINE OF A DRIVEWAY LEADING
 OV0261'TO A RANCH SIGNED AS THE DAN MILLER RANCH.

*** retrieval complete.
 Elapsed Time = 00:00:04

4.10. The NGS Data Sheet for L 336

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

PROGRAM = datasheet95, VERSION = 8.12.5.9

Starting Datasheet Retrieval...

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1      National Geodetic Survey,      Retrieval Date = AUGUST 25, 2020
NR0301 *****
NR0301 DESIGNATION - L 336
NR0301 PID - NR0301
NR0301 STATE/COUNTY- WY/CARBON
NR0301 COUNTRY - US
NR0301 USGS QUAD - MUDDY GAP (2018)
NR0301
NR0301 *CURRENT SURVEY CONTROL
NR0301
NR0301* NAD 83(1986) POSITION- 42 17 36.51 (N) 107 27 33.18 (W) HD_HELD1
NR0301* NAVD 88 ORTHO HEIGHT - 1972.197 (meters) 6470.45 (feet) ADJUSTED
NR0301
NR0301 GEOID HEIGHT - -13.212 (meters) GEOID18
NR0301 DYNAMIC HEIGHT - 1970.663 (meters) 6465.42 (feet) COMP
NR0301 MODELED GRAVITY - 979,773.4 (mgal) NAVD 88
NR0301
NR0301 VERT ORDER - FIRST CLASS II
NR0301
NR0301.The horizontal coordinates were determined by differentially corrected
NR0301.hand held GPS observations or other comparable positioning techniques
NR0301.and have an estimated accuracy of +/- 3 meters.
NR0301.
NR0301.The orthometric height was determined by differential leveling and
NR0301.adjusted by the NATIONAL GEODETIC SURVEY
NR0301.in June 1991.
NR0301
NR0301.Significant digits in the geoid height do not necessarily reflect accuracy.
NR0301.GEOID18 height accuracy estimate available here.
NR0301
NR0301.Click photographs - Photos may exist for this station.
NR0301
NR0301.The dynamic height is computed by dividing the NAVD 88
NR0301.geopotential number by the normal gravity value computed on the
NR0301.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
NR0301.degrees latitude (g = 980.6199 gals.).
  
```

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NR0301
 NR0301.The modeled gravity was interpolated from observed gravity values.
 NR0301
 NR0301;

	North	East	Units	Estimated Accuracy
NR0301;SPC WYEC	- 299,181.4	389,619.2	MT	(+/- 3 meters HH1 GPS)

 NR0301
 NR0301_U.S. NATIONAL GRID SPATIAL ADDRESS: 13TBG9726685289(NAD 83)
 NR0301
 NR0301 SUPERSEDED SURVEY CONTROL
 NR0301
 NR0301 NGVD 29 (06/08/92) 1971.111 (m) 6466.89 (f) ADJUSTED 1 2
 NR0301
 NR0301.Superseded values are not recommended for survey control.
 NR0301
 NR0301.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
 NR0301.See file [dsdata.pdf](#) to determine how the superseded data were derived.
 NR0301
 NR0301_MARKER: I = METAL ROD
 NR0301_SETTING: 15 = METAL ROD DRIVEN INTO GROUND. SEE TEXT FOR ADDITIONAL
 NR0301+WITH SETTING: INFORMATION.
 NR0301_STAMPING: L 336 1982
 NR0301_MARK LOGO: NGS
 NR0301_PROJECTION: FLUSH
 NR0301_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL
 NR0301_ROD/PIPE-DEPTH: 1.2 meters
 NR0301

HISTORY	Date	Condition	Report By
HISTORY	- 1982	MONUMENTED	NGS

 NR0301
 NR0301 STATION DESCRIPTION
 NR0301
 NR0301'DESCRIBED BY NATIONAL GEODETIC SURVEY 1982
 NR0301'8.4 KM (5.2 MI) SOUTH FROM MUDDY GAP.
 NR0301'8.4 KM (5.2 MI) SOUTHERLY ALONG U.S. HIGHWAY 287 FROM ITS JUNCTION
 NR0301'WITH STATE HIGHWAY 220 IN MUDDY GAP, 0.1 KM (0.05 MI) NORTH OF
 NR0301'MILEPOST 39, 52.4 METERS (171.9 FT) WEST OF THE CENTERLINE OF THE
 NR0301'HIGHWAY AND 6.1 METERS (20.0 FT) SOUTH OF THE CENTER OF A FIELD
 NR0301'ENTRANCE. NOTE, REFUSAL WAS REACHED AT 4.0 FT. ACCESS TO THE DATUM
 NR0301'POINT IS THROUGH A 5-INCH LOGO CAP.
 NR0301'THE MARK IS 0.3 METERS E FROM A WITNESS POST AND FENCE
 NR0301'THE MARK IS 2.0 M ABOVE THE HIGHWAY.

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

4.11. The NGS Data Sheet for LS 70

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

PROGRAM = datasheet95, VERSION = 8.12.5.14

Starting Datasheet Retrieval...

1 National Geodetic Survey, Retrieval Date = MARCH 2, 2022
 MO0965 *****
 MO0965 DESIGNATION - LS 70
 MO0965 PID - MO0965
 MO0965 STATE/COUNTY- WY/ALBANY

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MO0965 COUNTRY - US
 MO0965 USGS QUAD - LARAMIE (2017)
 MO0965
 MO0965 *CURRENT SURVEY CONTROL
 MO0965
 MO0965* NAD 83(1986) POSITION- 41 17 09. (N) 105 31 20. (W) SCALED
 MO0965* NAVD 88 ORTHO HEIGHT - 2273.126 (meters) 7457.75 (feet) ADJUSTED
 MO0965
 MO0965 GEOID HEIGHT - -11.636 (meters) GEOID18
 MO0965 DYNAMIC HEIGHT - 2271.134 (meters) 7451.21 (feet) COMP
 MO0965 MODELED GRAVITY - 979,664.4 (mgal) NAVD 88
 MO0965
 MO0965 VERT ORDER - FIRST CLASS II
 MO0965

MO0965.The horizontal coordinates were scaled from a map and have
 MO0965.an estimated accuracy of +/- 6 seconds.
 MO0965.

MO0965.The orthometric height was determined by differential leveling and
 MO0965.adjusted by the NATIONAL GEODETIC SURVEY
 MO0965.in June 1991.

MO0965
 MO0965.Significant digits in the geoid height do not necessarily reflect accuracy.
 MO0965.GEOID18 height accuracy estimate available [here](#).

MO0965
 MO0965.Click [photographs](#) - Photos may exist for this station.

MO0965
 MO0965.The dynamic height is computed by dividing the NAVD 88
 MO0965.geopotential number by the normal gravity value computed on the
 MO0965.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
 MO0965.degrees latitude (g = 980.6199 gals.).

MO0965
 MO0965.The modeled gravity was interpolated from observed gravity values.

MO0965
 MO0965;
 MO0965;SPC WY E - North East Units Estimated Accuracy
 MO0965; 87,320. 170,220. MT (+/- 180 meters Scaled)

MO0965
 MO0965_U.S. NATIONAL GRID SPATIAL ADDRESS: 13TDF562706(NAD 83)

MO0965
 MO0965 SUPERSEDED SURVEY CONTROL

MO0965
 MO0965 NGVD 29 (06/08/92) 2272.060 (m) 7454.25 (f) ADJUSTED 1 2

MO0965
 MO0965.Superseded values are not recommended for survey control.

MO0965
 MO0965.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
 MO0965.See file [dsdata.pdf](#) to determine how the superseded data were derived.

MO0965
 MO0965_MARKER: DB = BENCH MARK DISK
 MO0965_SETTING: 32 = SET IN A RETAINING WALL OR CONCRETE LEDGE
 MO0965_SP_SET: HEADWALL
 MO0965_STAMPING: LS 70 7454 1947
 MO0965_MARK LOGO: USGS
 MO0965_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
 MO0965+STABILITY: SURFACE MOTION

MO0965
 MO0965 HISTORY - Date Condition Report By

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MO0965 HISTORY - 1947 MONUMENTED USGS
MO0965 HISTORY - 1983 GOOD NGS
MO0965 HISTORY - 1983 GOOD NGS
MO0965
MO0965 STATION DESCRIPTION
MO0965
MO0965 'DESCRIBED BY NATIONAL GEODETIC SURVEY 1983
MO0965 '7.8 KM (4.85 MI) EAST FROM LARAMIE.
MO0965 '0.3 KM (0.2 MI) NORTH ALONG THE UNION PACIFIC RAILROAD FROM THE
MO0965 'STATION IN LARAMIE, THENCE 6.7 KM (4.15 MI) EASTERLY ALONG GRAND
MO0965 'AVENUE, THENCE 0.8 KM (0.5 MI) SOUTHEAST ALONG INTERSTATE HIGHWAY 80,
MO0965 'IN TOP OF THE NORTHWEST END OF THE NORTHEAST CONCRETE HEADWALL OF A
MO0965 'CULVERT UNDER OLD U.S. HIGHWAY 30, 30.5 METERS (100.1 FT) SOUTHWEST OF
MO0965 'THE CENTERLINE OF THE EAST BOUND LANES OF THE HIGHWAY, AND 9.2 METERS
MO0965 '(30.2 FT) NORTHEAST OF THE CENTERLINE OF THE OLD HIGHWAY.
MO0965
MO0965 STATION RECOVERY (1983)
MO0965
MO0965 'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1983
MO0965 'RECOVERED IN GOOD CONDITION.
  
```

*** retrieval complete.
 Elapsed Time = 00:00:03

4.12. The NGS Data Sheet for Miller

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

PROGRAM = datasheet95, VERSION = 8.12.5.9

Starting Datasheet Retrieval...

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1 National Geodetic Survey, Retrieval Date = SEPTEMBER 8, 2020
MP0657 *****
MP0657 DESIGNATION - MILLER
MP0657 PID - MP0657
MP0657 STATE/COUNTY- WY/CARBON
MP0657 COUNTRY - US
MP0657 USGS QUAD - PINE GROVE RANCH (2017)
MP0657
MP0657 *CURRENT SURVEY CONTROL
MP0657
MP0657* NAD 83(1993) POSITION- 41 28 38.35812(N) 107 19 32.05569(W) ADJUSTED
MP0657* NAVD 88 ORTHO HEIGHT - 2565.2 (meters) 8416. (feet) VERTCON
MP0657
MP0657 GEOID HEIGHT - -12.851 (meters) GEOID18
MP0657 LAPLACE CORR - 5.16 (seconds) DEFLEC18
MP0657 HORZ ORDER - SECOND
MP0657
MP0657.The horizontal coordinates were established by classical geodetic methods
MP0657.and adjusted by the National Geodetic Survey in January 1997.
MP0657.
MP0657.The NAVD 88 height was computed by applying the VERTCON shift value to
MP0657.the NGVD 29 height (displayed under SUPERSEDED SURVEY CONTROL.)
MP0657
  
```

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MP0657.Significant digits in the geoid height do not necessarily reflect accuracy.
 MP0657.GEOID18 height accuracy estimate available [here](#).

MP0657

MP0657.Click [photographs](#) - Photos may exist for this station.

MP0657

MP0657.The Laplace correction was computed from DEFLEC18 derived deflections.

MP0657

MP0657. The following values were computed from the NAD 83(1993) position.

MP0657

MP0657;		North	East	Units	Scale Factor	Converg.
MP0657;SPC WYEC	-	208,528.429	400,648.309	MT	0.99993751	+0 00 18.5
MP0657;SPC WYEC	-	684,147.02	1,314,460.33	sFT	0.99993751	+0 00 18.5
MP0657;UTM 13	-	4,594,357.240	305,827.061	MT	1.00006401	-1 32 26.7

MP0657

MP0657! - Elev Factor x Scale Factor = Combined Factor

MP0657!SPC WYEC - 0.99959982 x 0.99993751 = 0.99953736

MP0657!UTM 13 - 0.99959982 x 1.00006401 = 0.99966381

MP0657

MP0657:		Primary Azimuth Mark	Grid Az
MP0657:SPC WYEC	-	MILLER AZ MK	284 34 42.4
MP0657:UTM 13	-	MILLER AZ MK	286 07 27.6

MP0657

MP0657_U.S. NATIONAL GRID SPATIAL ADDRESS: 13TCF0582794357(NAD 83)

MP0657

MP0657	PID	Reference Object	Distance	Geod. Az
MP0657				ddmmss.s
MP0657	CP6242	MILLER RM 2	10.622 METERS	01409
MP0657	CP6241	MILLER RM 1	11.123 METERS	27625
MP0657	CP6240	MILLER AZ MK		2843500.9

MP0657

SUPERSEDED SURVEY CONTROL

MP0657

MP0657 NAD 83(1986)- 41 28 38.34758(N) 107 19 32.04669(W) AD() 2

MP0657 NAD 27 - 41 28 38.49100(N) 107 19 29.84700(W) AD() 2

MP0657 NGVD 29 (07/19/86) 2563.9 (m) 8412. (f) VERT ANG

MP0657

MP0657.Superseded values are not recommended for survey control.

MP0657

MP0657.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

MP0657.See file [dsdata.pdf](#) to determine how the superseded data were derived.

MP0657

MP0657_MARKER: DS = TRIANGULATION STATION DISK

MP0657_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT

MP0657

MP0657	HISTORY	- Date	Condition	Report By
MP0657	HISTORY	- 1937	MONUMENTED	CGS
MP0657	HISTORY	- 1948	GOOD	CGS
MP0657	HISTORY	- 1955	GOOD	USGS
MP0657	HISTORY	- 1961	GOOD	USGS

MP0657

STATION DESCRIPTION

MP0657

MP0657'DESCRIBED BY COAST AND GEODETIC SURVEY 1937 (FGJ)

MP0657'ABOUT 31 MILES NORTH AND 11 MILES EAST OF DIXON, WYO. STATION

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MP0657' IS LOCATED ON THE HIGHEST POINT OF A BARE FLAT TOPPED HILL
MP0657' ON THE CONTINENTAL DIVIDE. STATION IS ON THE WESTERN SIDE
MP0657' OF THE HILL AND IS ABOUT 0.2 MILES EAST OF A NORTH AND SOUTH
MP0657' TRACK ROAD. R.M. NO. 1 IS NORTH NORTHWEST OF THE STATION AT
MP0657' ABOUT THE SAME ELEVATION. R.M. NO. 2 IS EAST NORTHEAST OF
MP0657' THE STATION AND ABOUT TWO FEET LOWER IN ELEVATION. AZIMUTH
MP0657' MARK IS ABOUT 0.2 MILES WEST OF THE STATION, ABOUT 150 FEET
MP0657' WEST OF THE ROAD AND ABOUT 30 FEET EAST NORTHEAST OF A ROCK
MP0657' CAIRN.

MP0657'

MP0657' STATION IS REACHED FROM DIXON, WYO. BY GOING NORTH ON A
MP0657' GRADED DIRT ROAD FOR 5.6 MILES TO A BRIDGE OVER COTTONWOOD
MP0657' CREEK. THENCE CROSS BRIDGE AND CONTINUE FOR 0.85 MILES TO
MP0657' AN OLD FORK. THENCE TAKE RIGHT FORK ON GRADED ROAD EAST UP
MP0657' RIDGE AND NORTH ALONG TOP OF RIDGE FOR 5.6 MILES TO A FORK
MP0657' AT THE CORNER OF A FIELD. THENCE LEFT FORK FOR 0.05 MILES
MP0657' TO ANOTHER FORK. THENCE RIGHT FORK ON MAIN TRAVELED TRAIL
MP0657' ROAD NORTHWEST FOR 0.25 MILES, TO CROSS ROADS. THENCE RIGHT
MP0657' FORK NORTHERLY ALONG A FENCE FOR 2.7 MILES. THENCE RIGHT,
MP0657' NORTH, ON A SECTION LINE ROAD FOR 1.75 MILES TO A FORK.
MP0657' THENCE RIGHT FORK NORTHEASTERLY FOR 0.4 MILES TO A FORK.
MP0657' THENCE TAKE LEFT FORK, NORTHERLY, KEEPING TO THE RIGHT
MP0657' OF A BUTTE FOR 1.6 MILES TO A GATE AND A FORK. PASS THRU
MP0657' GATE AND TAKE LEFT FORK FOR 0.95 MILES TO ANOTHER
MP0657' GATE. PASS THRU GATE AND CONTINUE FOR 0.35 MILES TO A
MP0657' FORK. THENCE GO STRAIGHT AHEAD ON RIGHT FORK, MAIN TRAVELED
MP0657' ROAD, EAST AND NORTHEAST FOR 0.5 MILES TO ANOTHER FORK.
MP0657' THENCE STRAIGHT AHEAD ON LEFT FORK, MAIN TRAVELED ROAD, FOR
MP0657' 2.9 MILES TO WHERE A WELL TRAVELED ROAD COMES IN ON THE RIGHT.
MP0657' THENCE KEEP LEFT AND CONTINUE NORTH AND NORTHEAST ON A
MP0657' BLADED ROAD FOR 5.35 MILES TO A RANCH WITH A LARGE GRAY BARN.
MP0657' THENCE CONTINUE STRAIGHT AHEAD ON A BLADED ROAD UP A
MP0657' CANYON, NORTHEASTERLY, FOR 4.3 MILES TO THE TOP OF THE
MP0657' CONTINENTAL DIVE. THENCE CONTINUE STRAIGHT AHEAD DOWN
MP0657' HILL ON MAIN ROAD FOR 1.1 MILES TO A DIM TRAIL ROAD GOING TO
MP0657' THE LEFT JUST 0.1 MILES AFTER PASSING THRU A CATTLE GUARD.
MP0657' THENCE LEAVE GRADED ROAD, TURN LEFT ON THIS ROAD AND FOLLOW
MP0657' IT SOUTH AND WEST FOR 2.3 MILES TO A CATTLE GUARD. PASS THRU
MP0657' CATTLE GUARD AND CONTINUE WEST AND NORTH FOR 2.55 MILES TO
MP0657' A FORK. THENCE TAKE RIGHT FORK NORTHERLY ON MAIN TRAVELED
MP0657' ROAD FOR 1.80 MILES TO A POINT ON TOP OF RIDGE WHERE THERE
MP0657' IS A ROCK CAIRN ABOUT 75 YARDS TO THE LEFT. THENCE LEAVE ROAD,
MP0657' TURN RIGHT AND GO UP HILL THRU THE SAGE BRUSH SOUTHEASTERLY
MP0657' FOR 0.15 MILES TO THE TOP OF HILL AND THE STATION SITE.

MP0657'

MP0657'

STATION RECOVERY (1948)

MP0657'

MP0657' RECOVERY NOTE BY COAST AND GEODETIC SURVEY 1948 (DHK)
MP0657' STATION MARK AND ALL REFERENCE MARKS RECOVERED AS DESCRIBED
MP0657' AND FOUND IN GOOD CONDITION, EXCEPT FOR THE DISTANCE TO
MP0657' REFERENCE MARK NO. 2. THE CORRECT DISTANCE IS SHOWN BELOW.
MP0657' THE DISTANCE WAS CHECKED IN THE FIELD.

MP0657'

MP0657' THE STATION IS LOCATED ABOUT 26 MILES AIRLINE WEST OF SARATOGA,
MP0657' ABOUT 23 MILES AIRLINE SOUTH-SOUTHWEST OF RAWLINS, ABOUT 0.15
MP0657' MILE AIRLINE EAST OF A GRADED ROAD, ON THE WEST SIDE AND THE

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MP0657'HIGHEST POINT OF A BARE FLAT-TOPPED HILL ON THE CONTINENTAL
MP0657'DIVIDE. THE STATION MARK IS 10 FEET WEST OF A CAIRN WITH A
MP0657'WHITE WITNESS POST IN THE CENTER,
MP0657'PROJECTS 10 INCHES AND STAMPED, MILLER 1937.
MP0657'
MP0657'REFERENCE MARK NO. 1 IS APPROXIMATELY 1 FOOT LOWER THAN THE
MP0657'STATION MARK, PROJECTS 10 INCHES AND
MP0657'STAMPED, MILLER NO 1 1937.
MP0657'
MP0657'REFERENCE MARK NO. 2 IS APPROXIMATELY 1 FOOT LOWER THAN THE
MP0657'STATION MARK, PROJECTS 10 INCHES AND
MP0657'STAMPED, MILLER NO 2 1937.
MP0657'
MP0657'THE AZIMUTH MARK IS ON THE TOP OF A SMALL KNOLL ABOUT 150 FEET
MP0657'WEST OF THE ROAD, 3 FEET NORTH OF CAIRN WITH A WHITE WITNESS
MP0657'POST IN THE CENTER, PROJECTS 8 INCHES
MP0657'AND STAMPED, MILLER 1937.
MP0657'
MP0657'TO REACH THE STATION FROM THE POST OFFICE IN RAWLINS, GO SOUTH
MP0657'ON 6TH STREET ACROSS THE RAILROAD TRACKS FOR 0.3 MILE TO
MP0657'HUGHES STREET. TURN RIGHT, WEST, ON HUGHES STREET AND GO
MP0657'0.2 MILE TO BENNETT STREET. TURN LEFT, SOUTH, ON BENNETT
MP0657'STREET AND FOLLOW GRADED ROAD FOR 9.8 MILES TO AN OIL FIELD
MP0657'ON THE RIGHT, WEST. CONTINUE ON THE MAIN GRADED ROAD FOR
MP0657'6.0 MILES TO A WOODEN BRIDGE. CONTINUE STRAIGHT AHEAD FOR
MP0657'0.5 MILE TO A GRADED ROAD ON THE RIGHT, WEST. TURN RIGHT,
MP0657'WEST, AND GO 5.1 MILES TO FORK JUST AFTER REACHING THE TOP
MP0657'OF A LARGE HILL. TAKE LEFT FORK FOR 3.7 MILES TO THE TOP
MP0657'OF A RIDGE (THE AZIMUTH MARK IS 150 FEET WEST OF THE ROAD
MP0657'AT THIS POINT). HERE TURN LEFT, EAST, AND GO ACROSS
MP0657'COUNTRY 0.15 MILE TO THE HIGHEST POINT AND STATION. A
MP0657'DRIVE STATION.
MP0657'
MP0657'OBSERVATIONS MADE FROM A 1.1 METER TRIPOD.
MP0657
MP0657 STATION RECOVERY (1955)
MP0657
MP0657'RECOVERY NOTE BY US GEOLOGICAL SURVEY 1955
MP0657'TO REACH STATION FROM THE POST OFFICE IN RAWLINS PROCEED EAST
MP0657'FOR 7 BLOCKS TO WASHINGTON STREET. TURN RIGHT PASS THROUGH
MP0657'RAILROAD UNDERPASS AND GO 4 BLOCKS TO HUGUS STREET. TURN
MP0657'RIGHT, (W) GO 6 BLOCKS AND THEN TURN LEFT FOR 1 BLOCK. MAKE
MP0657'HALF RIGHT TURN AND FOLLOW HIGHWAY FOR 8.9 MILES TO HATFIELD
MP0657'OILFIELD ON RIGHT. FROM THIS POINT FOLLOW C AND GS DESCRIPTION
MP0657'TO STATION.
MP0657
MP0657 STATION RECOVERY (1961)
MP0657
MP0657'RECOVERY NOTE BY US GEOLOGICAL SURVEY 1961
MP0657'RECOVERED.
MP0657'
MP0657'STATION MARK--STANDARD USC AND GS DISK, SET IN CONCRETE POST, STAMPED
MP0657'---MILLER 1937---

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

4.13. The NGS Data Sheet for P032

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

PROGRAM = datasheet95, VERSION = 8.12.5.14

Starting Datasheet Retrieval...

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1      National Geodetic Survey,      Retrieval Date = MARCH  2, 2022
DI2248 *****
DI2248  CORS          - This is a GPS Continuously Operating Reference Station.
DI2248  DESIGNATION - RAWLINSWWTWY2005 CORS ARP
DI2248  CORS_ID      - P032
DI2248  PID          - DI2248
DI2248  STATE/COUNTY- WY/CARBON
DI2248  COUNTRY      - US
DI2248  USGS QUAD    - COAL MINE RIDGE (2017)
DI2248
DI2248                               *CURRENT SURVEY CONTROL
DI2248
DI2248* NAD 83(2011) POSITION- 41 44 30.00319(N) 107 15 21.27885(W) ADJUSTED
DI2248* NAD 83(2011) ELLIP HT- 2168.100 (meters) (06/??/19) ADJUSTED
DI2248* NAD 83(2011) EPOCH - 2010.00
DI2248
DI2248  GEOID HEIGHT - -13.558 (meters) GEOID18
DI2248  NAD 83(2011) X - -1,414,311.174 (meters) COMP
DI2248  NAD 83(2011) Y - -4,553,167.706 (meters) COMP
DI2248  NAD 83(2011) Z - 4,225,680.896 (meters) COMP
DI2248
DI2248  Network accuracy estimates per FGDC Geospatial Positioning Accuracy
DI2248  Standards:
DI2248      FGDC (95% conf, cm)      Standard deviation (cm)      CorrNE
DI2248      Horiz Ellip              SD_N   SD_E   SD_h      (unitless)
DI2248  -----
DI2248  NETWORK      0.15   0.36           0.05   0.07   0.18      0.17117600
DI2248  -----
DI2248
DI2248  The coordinates were established by GPS observations
DI2248  and adjusted by the National Geodetic Survey in June 2019.
DI2248
DI2248  NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
DI2248  been affixed to the stable North American Tectonic Plate.
DI2248
DI2248  The coordinates are valid at the epoch date displayed above
DI2248  which is a decimal equivalence of Year/Month/Day.
DI2248
DI2248  Due to the release of the International GNSS Service (IGS) 2014
DI2248  realization of the International Terrestrial Reference Frame of 2014
DI2248  (ITRF2014), NGS reprocessed all NOAA CORS Network and some IGS stations
DI2248  using data collected between 1/1/1996 and 1/30/2017. The resulting ITRF2014
DI2248  epoch 2010.00 coordinates, referred to as Multi-Year CORS Solution 2
DI2248  (MYCS2), were transformed to NAD 83 (2011/PA11/MA11) maintaining the
DI2248  currently published epoch of 2010.00.
DI2248
DI2248  Additional information on MYCS2 is available at
DI2248  https://geodesy.noaa.gov/CORS/news/mycs2/mycs2.shtml
DI2248
DI2248  Significant digits in the geoid height do not necessarily reflect accuracy.
  
```

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DI2248.GEOID18 height accuracy estimate available [here](#).
DI2248
DI2248.The PID for the CORS L1 Phase Center is DQ7758.
DI2248
DI2248.Click [photographs](#) - Photos may exist for this station.
DI2248
DI2248.The XYZ, and position/ellipsoidal ht. are equivalent.
DI2248
DI2248.The ellipsoidal height was determined by GPS observations
DI2248.and is referenced to NAD 83.
DI2248
DI2248. The following values were computed from the NAD 83(2011) position.
DI2248
DI2248;
DI2248;SPC WYEC - North 237,889.221 East 406,439.993 Units MT Scale Factor 0.99993801 Converg. +0 03 05.6
DI2248;SPC WYEC - 780,474.89 1,333,461.88 sFT 0.99993801 +0 03 05.6
DI2248;UTM 13 - 4,623,553.871 312,411.497 MT 1.00003305 -1 30 08.5
DI2248
DI2248!
DI2248!SPC WYEC - Elev Factor x Scale Factor = Combined Factor
DI2248!SPC WYEC - 0.99966006 x 0.99993801 = 0.99959809
DI2248!UTM 13 - 0.99966006 x 1.00003305 = 0.99969310
DI2248
DI2248_U.S. NATIONAL GRID SPATIAL ADDRESS: 13TCG1241123553(NAD 83)
DI2248
DI2248 SUPERSEDED SURVEY CONTROL
DI2248
DI2248 NAD 83(2011)- 41 44 30.00326(N) 107 15 21.27882(W) AD(2010.00) c
DI2248 ELLIP H (08/??/11) 2168.093 (m) GP(2010.00) c c
DI2248 NAD 83(CORS)- 41 44 30.00318(N) 107 15 21.27881(W) AD(2002.00) c
DI2248 ELLIP H (11/??/06) 2168.086 (m) GP(2002.00) c c
DI2248
DI2248.Superseded values are not recommended for survey control.
DI2248
DI2248.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
DI2248.See file [dsdata.pdf](#) to determine how the superseded data were derived.
DI2248
DI2248_MARKER: STATION IS THE ANTENNA REFERENCE POINT OF THE GPS ANTENNA
DI2248
DI2248 STATION DESCRIPTION
DI2248
DI2248'DESCRIBED BY NATIONAL GEODETIC SURVEY 2019
DI2248'STATION IS A GPS CORS. LATEST INFORMATION INCLUDING POSITIONS AND
DI2248'VELOCITIES ARE AVAILABLE IN THE COORDINATE AND LOG FILES ACCESSIBLE
DI2248'BY ANONYMOUS FTP OR THE WORLDWIDE WEB.
DI2248' https://geodesy.noaa.gov/corsdata/coord/coord_14
DI2248' https://geodesy.noaa.gov/corsdata/station_log
DI2248' <https://geodesy.noaa.gov/CORS>

*** retrieval complete.
Elapsed Time = 00:00:04

4.14. The NGS Data Sheet for Q 360

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

PROGRAM = datasheet95, VERSION = 8.12.5.9

Starting Datasheet Retrieval...

```

1      National Geodetic Survey,      Retrieval Date = AUGUST 18, 2020
OV0309 *****
OV0309 DESIGNATION - Q 360
OV0309 PID - OV0309
OV0309 STATE/COUNTY- WY/NATRONA
OV0309 COUNTRY - US
OV0309 USGS QUAD - TEAPOT ROCK (2017)
OV0309
OV0309 *CURRENT SURVEY CONTROL
OV0309
OV0309* NAD 83(1986) POSITION- 43 11 03. (N) 106 19 39. (W) SCALED
OV0309* NAVD 88 ORTHO HEIGHT - 1639.511 (meters) 5378.96 (feet) ADJUSTED
OV0309
OV0309 GEOID HEIGHT - -13.612 (meters) GEOID18
OV0309 DYNAMIC HEIGHT - 1638.520 (meters) 5375.71 (feet) COMP
OV0309 MODELED GRAVITY - 979,957.9 (mgal) NAVD 88
OV0309
OV0309 VERT ORDER - FIRST CLASS II
OV0309
OV0309.The horizontal coordinates were scaled from a map and have
OV0309.an estimated accuracy of +/- 6 seconds.
OV0309.
OV0309.The orthometric height was determined by differential leveling and
OV0309.adjusted by the NATIONAL GEODETIC SURVEY
OV0309.in June 1991.
OV0309
OV0309.Significant digits in the geoid height do not necessarily reflect accuracy.
OV0309.GEOID18 height accuracy estimate available here.
OV0309
OV0309.Click photographs - Photos may exist for this station.
OV0309
OV0309.The dynamic height is computed by dividing the NAVD 88
OV0309.geopotential number by the normal gravity value computed on the
OV0309.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
OV0309.degrees latitude (g = 980.6199 gals.).
OV0309
OV0309.The modeled gravity was interpolated from observed gravity values.
OV0309
OV0309; North East Units Estimated Accuracy
OV0309;SPC WYEC - 398,600. 481,770. MT (+/- 180 meters Scaled)
OV0309
OV0309_U.S. NATIONAL GRID SPATIAL ADDRESS: 13TCH921821(NAD 83)
OV0309
OV0309 SUPERSEDED SURVEY CONTROL
OV0309
OV0309 NGVD 29 (06/08/92) 1638.634 (m) 5376.09 (f) ADJUSTED 1 2
OV0309
OV0309.Superseded values are not recommended for survey control.
OV0309
OV0309.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
OV0309.See file dsdata.pdf to determine how the superseded data were derived.
  
```

OV0309
 OV0309_MARKER: I = METAL ROD
 OV0309_SETTING: 49 = STAINLESS STEEL ROD W/O SLEEVE (10 FT.+)
 OV0309_STAMPING: Q 360 1985
 OV0309_MARK LOGO: NGS
 OV0309_PROJECTION: FLUSH
 OV0309_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL
 OV0309_ROD/PIPE-DEPTH: 18.3 meters

OV0309

OV0309	HISTORY	- Date	Condition	Report By
OV0309	HISTORY	- 1985	MONUMENTED	NGS

OV0309
 STATION DESCRIPTION
 OV0309

OV0309'DESCRIBED BY NATIONAL GEODETIC SURVEY 1985
 OV0309'26.8 KM (16.65 MI) SOUTH FROM MIDWEST.
 OV0309'26.82 KM (16.67 MI) SOUTH ALONG STATE HIGHWAY 259 FROM THE JUNCTION OF
 OV0309'STATE HIGHWAY 387 AT MIDWEST, IN THE TOP OF THE SOUTH END OF A FLAT
 OV0309'BETWEEN TWO RAVINES, 1.60 KM (0.99 MI) NORTH OF THE T JUNCTION OF
 OV0309'HORSE CREEK ROAD LEADING WEST, 0.77 KM (0.48 MI) SOUTH OF MILEPOST 12,
 OV0309'45.7 METERS (150 FT) EAST OF THE HIGHWAY CENTERLINE, 61.6 METERS (202
 OV0309'FT) NORTHEAST OF THE EAST END OF A 24-INCH CONCRETE PIPE CULVERT AND
 OV0309'0.3 METER (1 FT) WEST OF THE RIGHT OF WAY FENCE. NOTE--ACCESS TO
 OV0309'DATUM POINT IS HAD THROUGH A 5-INCH LOGO CAP.
 OV0309'THE MARK IS 0.3 METERS SW FROM A WITNESS POST
 OV0309'THE MARK IS ABOVE LEVEL WITH THE HIGHWAY.

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

4.15. The NGS Data Sheet for R 334

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

PROGRAM = datasheet95, VERSION = 8.12.5.14

Starting Datasheet Retrieval...

```

1      National Geodetic Survey,   Retrieval Date = MARCH  2, 2022
NR0223 *****
NR0223 DESIGNATION - R 334
NR0223 PID - NR0223
NR0223 STATE/COUNTY- WY/NATRONA
NR0223 COUNTRY - US
NR0223 USGS QUAD - BISHOP (2017)
NR0223
NR0223 *CURRENT SURVEY CONTROL
NR0223
NR0223* NAD 83(2011) POSITION- 42 54 00.77690(N) 106 29 23.82404(W) NO CHECK
NR0223* NAD 83(2011) ELLIP HT- 1603.946 (meters) (06/27/12) NO CHECK
NR0223* NAD 83(2011) EPOCH - 2010.00
NR0223* NAVD 88 ORTHO HEIGHT - 1617.131 (meters) 5305.54 (feet) ADJUSTED
NR0223
NR0223 GEOID HEIGHT - -13.183 (meters) GEOID18
NR0223 NAD 83(2011) X - -1,328,598.170 (meters) COMP
NR0223 NAD 83(2011) Y - -4,488,162.681 (meters) COMP
NR0223 NAD 83(2011) Z - 4,320,479.820 (meters) COMP
NR0223 LAPLACE CORR - -0.40 (seconds) DEFLEC18
  
```

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NR0223 DYNAMIC HEIGHT - 1616.128 (meters) 5302.25 (feet) COMP
 NR0223 MODELED GRAVITY - 979,943.4 (mgal) NAVD 88

NR0223
 NR0223 VERT ORDER - FIRST CLASS II

NR0223
 NR0223 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
 NR0223 Standards:

	FGDC (95% conf, cm)		Standard deviation (cm)			CorrNE (unitless)	
	Horiz	Ellip	SD_N	SD_E	SD_h		
NR0223	-----						
NR0223	NETWORK	1.02	2.55	0.45	0.36	1.30	-0.33127975
NR0223	-----						

NR0223 Click [here](#) for local accuracies and other accuracy information.

NR0223
 NR0223

NR0223.The horizontal coordinates were established by GPS observations
 NR0223.and adjusted by the National Geodetic Survey in June 2012.

NR0223
 NR0223.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
 NR0223.been affixed to the stable North American tectonic plate. See
 NR0223.[NA2011](#) for more information.

NR0223
 NR0223.The horizontal coordinates are valid at the epoch date displayed above
 NR0223.which is a decimal equivalence of Year/Month/Day.

NR0223
 NR0223.No horizontal observational check was made to the station.
 NR0223.

NR0223.The orthometric height was determined by differential leveling and
 NR0223.adjusted by the NATIONAL GEODETIC SURVEY
 NR0223.in June 1991.

NR0223
 NR0223.Significant digits in the geoid height do not necessarily reflect accuracy.
 NR0223.GEOID18 height accuracy estimate available [here](#).

NR0223
 NR0223.Click [photographs](#) - Photos may exist for this station.

NR0223
 NR0223.The X, Y, and Z were computed from the position and the ellipsoidal ht.

NR0223
 NR0223.The Laplace correction was computed from DEFLEC18 derived deflections.

NR0223
 NR0223.The ellipsoidal height was determined by GPS observations
 NR0223.and is referenced to NAD 83.

NR0223
 NR0223.The dynamic height is computed by dividing the NAVD 88
 NR0223.geopotential number by the normal gravity value computed on the
 NR0223.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
 NR0223.degrees latitude (g = 980.6199 gals.).

NR0223
 NR0223.The modeled gravity was interpolated from observed gravity values.

NR0223
 NR0223. The following values were computed from the NAD 83(2011) position.

NR0223;	North	East	Units	Scale	Factor	Converg.
NR0223;SPC WYEC	- 366,914.361	468,877.263	MT	0.99999584	+0 34	26.9
NR0223;SPC WYEC	- 1,203,784.87	1,538,308.15	sFT	0.99999584	+0 34	26.9
NR0223;UTM 13	- 4,750,810.792	378,359.177	MT	0.99978203	-1 00	51.7

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NR0223
 NR0223! - Elev Factor x Scale Factor = Combined Factor
 NR0223!SPC WYEC - 0.99974852 x 0.99999584 = 0.99974436
 NR0223!UTM 13 - 0.99974852 x 0.99978203 = 0.99953061
 NR0223
 NR0223_U.S. NATIONAL GRID SPATIAL ADDRESS: 13TCH7835950810 (NAD 83)
 NR0223
 NR0223 SUPERSEDED SURVEY CONTROL
 NR0223
 NR0223 NAD 83(2007)- 42 54 00.77657(N) 106 29 23.82528(W) AD(2002.00) 0
 NR0223 ELLIP H (02/10/07) 1603.976 (m) GP(2002.00)
 NR0223 NAD 83(1993)- 42 54 00.77624(N) 106 29 23.82516(W) AD() 1
 NR0223 ELLIP H (05/24/02) 1603.984 (m) GP() 2 1
 NR0223 NAVD 88 1617.13 (m) 5305.5 (f) LEVELING 3
 NR0223 NGVD 29 (06/08/92) 1616.255 (m) 5302.66 (f) ADJUSTED 1 2
 NR0223
 NR0223.Superseded values are not recommended for survey control.
 NR0223
 NR0223.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
 NR0223.See file dsdata.pdf to determine how the superseded data were derived.
 NR0223
 NR0223_MARKER: F = FLANGE-ENCASED ROD
 NR0223_SETTING: 49 = STAINLESS STEEL ROD W/O SLEEVE (10 FT.+)
 NR0223_STAMPING: R 334 1982
 NR0223_MARK LOGO: NGS
 NR0223_PROJECTION: FLUSH
 NR0223_MAGNETIC: I = MARKER IS A STEEL ROD
 NR0223_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL
 NR0223_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
 NR0223+SATELLITE: SATELLITE OBSERVATIONS - August 08, 2001
 NR0223_ROD/PIPE-DEPTH: 11.0 meters
 NR0223

NR0223	HISTORY	- Date	Condition	Report By
NR0223	HISTORY	- 1982	MONUMENTED	NGS
NR0223	HISTORY	- 20010808	GOOD	NGS
NR0223	HISTORY	- 20090519	GOOD	GEOCAC

 NR0223
 NR0223 STATION DESCRIPTION
 NR0223
 NR0223'DESCRIBED BY NATIONAL GEODETIC SURVEY 1982
 NR0223'13.2 KM (8.2 MI) NW FROM CASPER.
 NR0223'13.2 KM (8.2 MI) NORTHWESTERLY ALONG U. S. HIGHWAY 20 FROM ITS
 NR0223'JUNCTION WITH INTERSTATE HIGHWAY 25 IN CASPER, 0.9 KM (0.55 MI)
 NR0223'SOUTHEAST OF MILEPOST 12, 29.6 METERS (97.1 FT) SOUTHWEST OF THE
 NR0223'CENTERLINE OF THE HIGHWAY AND 0.5 METER (1.6 FT) EAST OF A FENCE
 NR0223'CORNER. NOTE=ACCESS TO THE DATUM POINT IS THROUGH A 5-INCH LOGO CAP.
 NR0223'THE MARK IS 0.3 METERS NE FROM A WITNESS POST AND FENCE
 NR0223'THE MARK IS 1.5 M BELOW THE HIGHWAY.
 NR0223
 NR0223 STATION RECOVERY (2001)
 NR0223
 NR0223'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 2001 (AJL)
 NR0223'RECOVERED AS DESCRIBED.
 NR0223'
 NR0223
 NR0223 STATION RECOVERY (2009)

NR0223
 NR0223'RECOVERY NOTE BY GEOCACHING 2009 (WD)
 NR0223'RECOVERED IN GOOD CONDITION.

*** retrieval complete.
 Elapsed Time = 00:00:04

4.16. The NGS Data Sheet for S 74

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

PROGRAM = datasheet95, VERSION = 8.12.5.14

Starting Datasheet Retrieval...

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1      National Geodetic Survey,   Retrieval Date = MARCH  2, 2022
MP0149 *****
MP0149 DESIGNATION - S 74
MP0149 PID - MP0149
MP0149 STATE/COUNTY- WY/CARBON
MP0149 COUNTRY - US
MP0149 USGS QUAD - ENCAMPMENT (2017)
MP0149
MP0149 *CURRENT SURVEY CONTROL
MP0149
MP0149* NAD 83(2011) POSITION- 41 12 13.85393(N) 106 49 13.40719(W) NO CHECK
MP0149* NAD 83(2011) ELLIP HT- 2330.081 (meters) (06/27/12) NO CHECK
MP0149* NAD 83(2011) EPOCH - 2010.00
MP0149* NAVD 88 ORTHO HEIGHT - 2341.449 (meters) 7681.90 (feet) ADJUSTED
MP0149
MP0149 GEOID HEIGHT - -11.381 (meters) GEOID18
MP0149 NAD 83(2011) X - -1,391,147.047 (meters) COMP
MP0149 NAD 83(2011) Y - -4,601,781.836 (meters) COMP
MP0149 NAD 83(2011) Z - 4,181,017.194 (meters) COMP
MP0149 LAPLACE CORR - -4.05 (seconds) DEFLEC18
MP0149 DYNAMIC HEIGHT - 2339.267 (meters) 7674.75 (feet) COMP
MP0149 MODELED GRAVITY - 979,607.0 (mgal) NAVD 88
MP0149
MP0149 VERT ORDER - SECOND CLASS 0
MP0149
MP0149 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
MP0149 Standards:
MP0149 FGDC (95% conf, cm) Standard deviation (cm) CorrNE
MP0149 Horiz Ellip SD_N SD_E SD_h (unitless)
MP0149 -----
MP0149 NETWORK 1.26 3.80 0.57 0.45 1.94 0.01468005
MP0149 -----
MP0149 Click here for local accuracies and other accuracy information.
MP0149
MP0149
MP0149.The horizontal coordinates were established by GPS observations
MP0149.and adjusted by the National Geodetic Survey in June 2012.
MP0149
MP0149.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
MP0149.been affixed to the stable North American tectonic plate. See
  
```

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MP0149.[NA2011](#) for more information.

MP0149

MP0149.The horizontal coordinates are valid at the epoch date displayed above
 MP0149.which is a decimal equivalence of Year/Month/Day.

MP0149

MP0149.No horizontal observational check was made to the station.

MP0149.

MP0149.The orthometric height was determined by differential leveling and
 MP0149.adjusted by the NATIONAL GEODETIC SURVEY

MP0149.in June 1991.

MP0149

MP0149.Significant digits in the geoid height do not necessarily reflect accuracy.

MP0149.GEOID18 height accuracy estimate available [here](#).

MP0149

MP0149.Click [photographs](#) - Photos may exist for this station.

MP0149

MP0149.The X, Y, and Z were computed from the position and the ellipsoidal ht.

MP0149

MP0149.The Laplace correction was computed from DEFLEC18 derived deflections.

MP0149

MP0149.The ellipsoidal height was determined by GPS observations

MP0149.and is referenced to NAD 83.

MP0149

MP0149.The dynamic height is computed by dividing the NAVD 88

MP0149.geopotential number by the normal gravity value computed on the

MP0149.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45

MP0149.degrees latitude (g = 980.6199 gals.).

MP0149

MP0149.The modeled gravity was interpolated from observed gravity values.

MP0149

MP0149. The following values were computed from the NAD 83(2011) position.

MP0149

MP0149;		North	East	Units	Scale	Factor	Converg.
MP0149;SPC WYEC	-	178,285.065	443,020.659	MT	0.99996027		+0 20 16.4
MP0149;SPC WYEC	-	584,923.58	1,453,476.95	sFT	0.99996027		+0 20 16.4
MP0149;UTM 13	-	4,562,984.057	347,371.553	MT	0.99988671		-1 11 57.8

MP0149

MP0149!
 - Elev Factor x Scale Factor = Combined Factor

MP0149!SPC WYEC - 0.99963465 x 0.99996027 = 0.99959493

MP0149!UTM 13 - 0.99963465 x 0.99988671 = 0.99952140

MP0149

MP0149_U.S. NATIONAL GRID SPATIAL ADDRESS: 13TCF4737162984(NAD 83)

MP0149

MP0149 SUPERSEDED SURVEY CONTROL

MP0149

MP0149	NAD 83(2007)-	41 12 13.85376(N)	106 49 13.40752(W)	AD(2002.00)	1
MP0149	ELLIP H (11/28/08)	2330.075 (m)		GP(2002.00)	2 1
MP0149	NAVD 88	2341.45 (m)	7681.9 (f)	LEVELING	3
MP0149	NGVD 29 (??/??/92)	2340.203 (m)	7677.82 (f)	ADJ UNCH	2 0

MP0149

MP0149.Superseded values are not recommended for survey control.

MP0149

MP0149.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

MP0149.See file [dsdata.pdf](#) to determine how the superseded data were derived.

MP0149

MP0149_MARKER: DB = BENCH MARK DISK

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MP0149_SETTING: 80 = SET IN A BOULDER
MP0149_STAMPING: S 74 1934
MP0149_MARK LOGO: CGS
MP0149_MAGNETIC: O = OTHER; SEE DESCRIPTION
MP0149_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
MP0149+STABILITY: SURFACE MOTION
MP0149_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
MP0149+SATELLITE: SATELLITE OBSERVATIONS - October 07, 2008

MP0149
MP0149 HISTORY - Date Condition Report By
MP0149 HISTORY - 1934 MONUMENTED CGS
MP0149 HISTORY - 20081007 GOOD WOOLPT

MP0149

STATION DESCRIPTION

MP0149

MP0149'DESCRIBED BY COAST AND GEODETIC SURVEY 1934
MP0149'2.4 MI W FROM ENCAMPMENT.
MP0149'2.4 MILES WEST ALONG THE SLATER ROAD FROM ENCAMPMENT, AT THE
MP0149'APPROXIMATE FOCAL POINT OF A SEMI-CIRCULAR CURVE, 250 FEET NORTH OF
MP0149'THE MOST SOUTHERLY POINT OF THE CURVE, IN THE TOP OF THE SOUTHEAST END
MP0149'OF THE EAST ONE OF TWO LARGE GRANITE BOULDERS, AND 2.8 FEET ABOVE THE
MP0149'GROUND. A STANDARD DISK, STAMPED S 74 1934.

MP0149

STATION RECOVERY (2008)

MP0149

MP0149'RECOVERY NOTE BY WOOLPERT CONSULTANTS 2008 (KCH)
MP0149'THE STATION IS LOCATED ABOUT 2.4 MI (3.9 KM) WEST FROM ENCAMPMENT.
MP0149'APPROXIMATELY 17 MI (27.4 KM) SOUTH OF SARATOGA AND 35 MI (56.3 KM)
MP0149'NORTHEAST FROM SAVERY, AND SET IN THE TOP OF A LARGE GRANITE BOULDER.
MP0149'

MP0149'TO REACH THE STATION FROM THE INTERSECTION OF STATE HIGHWAY 70 AND
MP0149'STATE HIGHWAY 230 AT THE NORTH END OF ENCAMPMENT. GO SOUTHWEST ON
MP0149'STATE HIGHWAY 70 FOR 0.9 MI (1.4 KM) TO THE INTERSECTION WITH SIXTH
MP0149'STREET (STATE HIGHWAY 70), TURN RIGHT, NORTHWEST, ON SIXTH STREET FOR
MP0149'0.25 MI (0.4 KM) TO MCFARLAN AVENUE (STATE HIGHWAY 70), TURN LEFT,
MP0149'SOUTHWEST, ON MCFARLAN AVENUE FOR 1.45 MI (2.3 KM) TO THE STATION ON
MP0149'YOUR LEFT, SOUTHEAST.

MP0149'

MP0149'THE STATION IS A BENCH MARK DISK SET IN THE SOUTHEAST END OF THE EAST
MP0149'ONE OF TWO LARGE GRANITE BOULDERS, THE STATION IS 37.8 M (124.0 FT)
MP0149'EAST OF A WHITE FENCE POST IN A BARB WIRE FENCE LINE, 32.92 M (108.0
MP0149'FT) SOUTHEAST OF THE SOUTHEAST EDGE OF STATE HIGHWAY 70, AND 9.45 M
MP0149'(31.0 FT) SOUTHEAST OF THE ROW FENCE FOR STATE HIGHWAY 70 AND 2.8 FT
MP0149'(0.9 M) ABOVE THE GROUND.

*** retrieval complete.
Elapsed Time = 00:00:04

4.17. The NGS Data Sheet for S 88

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

PROGRAM = datasheet95, VERSION = 8.12.5.9

Starting Datasheet Retrieval...

1 National Geodetic Survey, Retrieval Date = SEPTEMBER 10, 2020
 MO0688 *****
 MO0688 DESIGNATION - S 88
 MO0688 PID - MO0688
 MO0688 STATE/COUNTY- WY/ALBANY
 MO0688 COUNTRY - US
 MO0688 USGS QUAD - BOSLER (2017)

MO0688
 MO0688 *CURRENT SURVEY CONTROL
 MO0688

MO0688* NAD 83(1986) POSITION- 41 32 57.2 (N) 105 40 46.1 (W) HD_HELD2
 MO0688* NAVD 88 ORTHO HEIGHT - 2145.758 (meters) 7039.87 (feet) ADJUSTED

MO0688
 MO0688 GEOID HEIGHT - -11.682 (meters) GEOID18
 MO0688 DYNAMIC HEIGHT - 2143.952 (meters) 7033.95 (feet) COMP
 MO0688 MODELED GRAVITY - 979,703.6 (mgal) NAVD 88

MO0688
 MO0688 VERT ORDER - FIRST CLASS II
 MO0688

MO0688.The horizontal coordinates were established by autonomous hand held GPS
 MO0688.observations and have an estimated accuracy of +/- 10 meters.

MO0688.
 MO0688.The orthometric height was determined by differential leveling and
 MO0688.adjusted by the NATIONAL GEODETIC SURVEY
 MO0688.in June 1991.

MO0688
 MO0688.Significant digits in the geoid height do not necessarily reflect accuracy.
 MO0688.GEOID18 height accuracy estimate available [here](#).

MO0688
 MO0688.Click [photographs](#) - Photos may exist for this station.
 MO0688

MO0688.The dynamic height is computed by dividing the NAVD 88
 MO0688.geopotential number by the normal gravity value computed on the
 MO0688.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
 MO0688.degrees latitude (g = 980.6199 gals.).

MO0688
 MO0688.The modeled gravity was interpolated from observed gravity values.
 MO0688

	North	East	Units	Estimated Accuracy
MO0688; SPC WY E	- 116,640.	157,218.	MT	(+/- 10 meters HH2 GPS)

MO0688
 MO0688_U.S. NATIONAL GRID SPATIAL ADDRESS: 13TDF4333299951(NAD 83)
 MO0688

MO0688 SUPERSEDED SURVEY CONTROL
 MO0688
 MO0688 NGVD 29 (??/??/92) 2144.720 (m) 7036.47 (f) SUPERSEDED 1 2
 MO0688 NGVD 29 (06/08/92) 2144.713 (m) 7036.45 (f) ADJUSTED 1 2

MO0688
 MO0688.Superseded values are not recommended for survey control.
 MO0688
 MO0688.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

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MO0688. See file dsdata.pdf to determine how the superseded data were derived.

MO0688

MO0688_MARKER: DB = BENCH MARK DISK

MO0688_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT

MO0688_STAMPING: S 88 1934

MO0688_MARK LOGO: CGS

MO0688_MAGNETIC: N = NO MAGNETIC MATERIAL

MO0688_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO

MO0688+STABILITY: SURFACE MOTION

MO0688_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

MO0688+SATELLITE: SATELLITE OBSERVATIONS - October 27, 2010

MO0688

MO0688	HISTORY	- Date	Condition	Report By
MO0688	HISTORY	- 1934	MONUMENTED	CGS
MO0688	HISTORY	- 1966	GOOD	CGS
MO0688	HISTORY	- 1983	GOOD	NGS
MO0688	HISTORY	- 19990823	GOOD	WYDT
MO0688	HISTORY	- 20101027	GOOD	GEOCAC

MO0688

MO0688 STATION DESCRIPTION

MO0688

MO0688'DESCRIBED BY COAST AND GEODETIC SURVEY 1966

MO0688'2.2 MI S FROM BOSLER.

MO0688'2.15 MILES SOUTH ALONG U.S. HIGHWAY 30 FROM THE SCHOOL AT BOSLER,

MO0688'0.2 MILE SOUTH OF THE JUNCTION OF STATE HIGHWAY 34, 104 FEET

MO0688'EAST OF THE CENTER LINE OF THE HIGHWAY, 32 FEET NORTH OF A

MO0688'TELEPHONE POLE, 44.3 FEET WEST OF A FENCE, 1.6 FEET EAST OF A

MO0688'WITNESS POST, ABOUT 5 FEET LOWER THAN THE HIGHWAY, AND SET IN

MO0688'THE TOP OF A CONCRETE POST PROJECTING 0.1 FOOT ABOVE THE GROUND.

MO0688

MO0688 STATION RECOVERY (1983)

MO0688

MO0688'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1983

MO0688'RECOVERED IN GOOD CONDITION. A NEW TO REACH FOLLOWS. 27.5 KM

MO0688'(17.1 MI) NORTHWESTERLY ALONG THE UNION PACIFIC RAILROAD FROM THE

MO0688'STATION IN LARAMIE.

MO0688

MO0688 STATION RECOVERY (1999)

MO0688

MO0688'RECOVERY NOTE BY WYOMING DEPARTMENT OF TRANSPORTATION 1999 (JSB)

MO0688'ORGANIZATION, WYOMING DEPARTMENT OF TRANSPORTATION, PHONE NUMBER,

MO0688'307-777-3819.

MO0688

MO0688 STATION RECOVERY (2010)

MO0688

MO0688'RECOVERY NOTE BY GEOCACHING 2010 (MEL)

MO0688'MARK IS NOW FLUSH WITH THE GROUND, 1.5 EAST OF A METAL WP, 4 FT SOUTH

MO0688'OF A WOOD WP AND 4 FT NORTH OF A CARSONITE WP.

*** retrieval complete.

Elapsed Time = 00:00:03

4.18. The NGS Data Sheet for S 335

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

PROGRAM = datasheet95, VERSION = 8.12.5.14

Starting Datasheet Retrieval...

```

1      National Geodetic Survey,      Retrieval Date = MARCH  2, 2022
NR0242 *****
NR0242 DESIGNATION - S 335
NR0242 PID - NR0242
NR0242 STATE/COUNTY- WY/NATRONA
NR0242 COUNTRY - US
NR0242 USGS QUAD - GOOSE EGG (2017)
NR0242
NR0242 *CURRENT SURVEY CONTROL
NR0242
NR0242* NAD 83(2011) POSITION- 42 47 05.32779(N) 106 27 07.23140(W) ADJUSTED
NR0242* NAD 83(2011) ELLIP HT- 1620.862 (meters) (06/27/12) ADJUSTED
NR0242* NAD 83(2011) EPOCH - 2010.00
NR0242* NAVD 88 ORTHO HEIGHT - 1633.691 (meters) 5359.87 (feet) ADJUSTED
NR0242
NR0242 GEOID HEIGHT - -12.848 (meters) GEOID18
NR0242 NAD 83(2011) X - -1,328,098.750 (meters) COMP
NR0242 NAD 83(2011) Y - -4,497,416.052 (meters) COMP
NR0242 NAD 83(2011) Z - 4,311,088.971 (meters) COMP
NR0242 LAPLACE CORR - 2.86 (seconds) DEFLEC18
NR0242 DYNAMIC HEIGHT - 1632.660 (meters) 5356.49 (feet) COMP
NR0242 MODELED GRAVITY - 979,931.3 (mgal) NAVD 88
NR0242
NR0242 VERT ORDER - FIRST CLASS II
NR0242
NR0242 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
NR0242 Standards:
NR0242 FGDC (95% conf, cm) Standard deviation (cm) CorrNE
NR0242 Horiz Ellip SD_N SD_E SD_h (unitless)
NR0242 -----
NR0242 NETWORK 2.19 2.06 0.44 1.09 1.05 0.13966403
NR0242 -----
NR0242 Click here for local accuracies and other accuracy information.
NR0242
NR0242
NR0242.The horizontal coordinates were established by GPS observations
NR0242.and adjusted by the National Geodetic Survey in June 2012.
NR0242
NR0242.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
NR0242.been affixed to the stable North American tectonic plate. See
NR0242.NA2011 for more information.
NR0242
NR0242.The horizontal coordinates are valid at the epoch date displayed above
NR0242.which is a decimal equivalence of Year/Month/Day.
NR0242
NR0242.The orthometric height was determined by differential leveling and
NR0242.adjusted by the NATIONAL GEODETIC SURVEY
NR0242.in June 1991.
NR0242
NR0242.Significant digits in the geoid height do not necessarily reflect accuracy.
NR0242.GEOID18 height accuracy estimate available here.
  
```

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NR0242

NR0242.Click [photographs](#) - Photos may exist for this station.

NR0242

NR0242.The X, Y, and Z were computed from the position and the ellipsoidal ht.

NR0242

NR0242.The Laplace correction was computed from DEFLEC18 derived deflections.

NR0242

NR0242.The ellipsoidal height was determined by GPS observations

NR0242.and is referenced to NAD 83.

NR0242

NR0242.The dynamic height is computed by dividing the NAVD 88

NR0242.geopotential number by the normal gravity value computed on the

NR0242.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45

NR0242.degrees latitude (g = 980.6199 gals.).

NR0242

NR0242.The modeled gravity was interpolated from observed gravity values.

NR0242

NR0242. The following values were computed from the NAD 83(2011) position.

NR0242

NR0242;		North	East	Units	Scale	Factor	Converg.
NR0242;SPC WYEC	-	354,126.766	472,110.052	MT	1.00000145	+0 35	55.2
NR0242;SPC WYEC	-	1,161,830.90	1,548,914.40	sFT	1.00000145	+0 35	55.2
NR0242;UTM 13	-	4,737,941.425	381,235.991	MT	0.99977353	-0 59	11.0

NR0242

NR0242! - Elev Factor x Scale Factor = Combined Factor

NR0242!SPC WYEC - 0.99974587 x 1.00000145 = 0.99974732

NR0242!UTM 13 - 0.99974587 x 0.99977353 = 0.99951946

NR0242

NR0242_U.S. NATIONAL GRID SPATIAL ADDRESS: 13TCH8123537941(NAD 83)

NR0242

SUPERSEDED SURVEY CONTROL

NR0242

NR0242 NAD 83(2007)- 42 47 05.32752(N) 106 27 07.23255(W) AD(2002.00) 0

NR0242 ELLIP H (02/10/07) 1620.882 (m) GP(2002.00)

NR0242 NAD 83(1993)- 42 47 05.32706(N) 106 27 07.23237(W) AD() A

NR0242 ELLIP H (02/28/01) 1620.896 (m) GP() 2 1

NR0242 NAVD 88 1633.69 (m) 5359.9 (f) LEVELING 3

NR0242 NGVD 29 (06/08/92) 1632.810 (m) 5356.98 (f) ADJUSTED 1 2

NR0242

NR0242.Superseded values are not recommended for survey control.

NR0242

NR0242.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

NR0242.See file [dsdata.pdf](#) to determine how the superseded data were derived.

NR0242

NR0242_MARKER: DV = VERTICAL CONTROL DISK

NR0242_SETTING: 66 = SET IN ROCK OUTCROP

NR0242_STAMPING: S 335 1982

NR0242_MARK LOGO: NGS

NR0242_MAGNETIC: N = NO MAGNETIC MATERIAL

NR0242_STABILITY: A = MOST RELIABLE AND EXPECTED TO HOLD

NR0242+STABILITY: POSITION/ELEVATION WELL

NR0242_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

NR0242+SATELLITE: SATELLITE OBSERVATIONS - July 14, 1999

NR0242

NR0242 HISTORY - Date Condition Report By

NR0242 HISTORY - 1982 MONUMENTED NGS

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NR0242 HISTORY - 19990714 GOOD BLM
 NR0242
 NR0242 STATION DESCRIPTION
 NR0242
 NR0242'DESCRIBED BY NATIONAL GEODETIC SURVEY 1982
 NR0242'8.2 KM (5.1 MI) SW FROM CASPER.
 NR0242'8.2 KM (5.1 MI) SOUTHWESTERLY ALONG STATE HIGHWAY 220 FROM ITS
 NR0242'JUNCTION WITH STATE HIGHWAY 257 IN CASPER, IN THE CENTER OF THE
 NR0242'SOUTHWESTERN 1/2 OF A 6 BY 24 FT. EXPOSED AREA OF BEDROCK IN A HIGHWAY
 NR0242'CUT, 87.5 METERS (287.1 FT) SOUTHWEST OF THE CENTER OF A PRIVATE ROAD
 NR0242'LEADING NORTHWEST, 81.0 METERS (265.7 FT) NORTHEAST OF A T-FENCE
 NR0242'CORNER, 25.0 METERS (82.0 FT) SOUTH-SOUTHWEST OF A UTILITY POLE, 21.5
 NR0242'METERS (70.5 FT) NORTHWEST OF THE CENTERLINE OF THE SOUTHWEST BOUND
 NR0242'LANES OF THE HIGHWAY AND 14.5 (47.6 FT) SOUTHEAST OF A FENCE.
 NR0242'THE MARK IS 0.3 METERS NE FROM A WITNESS POST.
 NR0242'THE MARK IS 0.5 M ABOVE THE HIGHWAY.
 NR0242
 NR0242 STATION RECOVERY (1999)
 NR0242
 NR0242'RECOVERY NOTE BY BUREAU OF LAND MANAGEMENT 1999 (SSS)
 NR0242'RECOVERED IN GOOD CONDITION IN RIGHT-OF-WAY OF WY STATE HWY 220 AS
 NR0242'DESCRIBED.

*** retrieval complete.
 Elapsed Time = 00:00:04

4.19. The NGS Data Sheet U 16

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

PROGRAM = datasheet95, VERSION = 8.12.5.9

Starting Datasheet Retrieval...

```

1      National Geodetic Survey,      Retrieval Date = AUGUST 18, 2020
NR0002 *****
NR0002 DESIGNATION - U 16
NR0002 PID - NR0002
NR0002 STATE/COUNTY- WY/NATRONA
NR0002 COUNTRY - US
NR0002 USGS QUAD - LOCKETT (2017)
NR0002
NR0002 *CURRENT SURVEY CONTROL
NR0002
NR0002* NAD 83(1986) POSITION- 42 52 06. (N) 106 04 59. (W) SCALED
NR0002* NAVD 88 ORTHO HEIGHT - 1541.534 (meters) 5057.52 (feet) ADJUSTED
NR0002
NR0002 GEOID HEIGHT - -13.531 (meters) GEOID18
NR0002 DYNAMIC HEIGHT - 1540.575 (meters) 5054.37 (feet) COMP
NR0002 MODELED GRAVITY - 979,944.2 (mgal) NAVD 88
NR0002
NR0002 VERT ORDER - FIRST CLASS II
NR0002
NR0002.The horizontal coordinates were scaled from a map and have
NR0002.an estimated accuracy of +/- 6 seconds.
```

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NR0002.

NR0002.The orthometric height was determined by differential leveling and
NR0002.adjusted by the NATIONAL GEODETIC SURVEY
NR0002.in June 1991.

NR0002

NR0002.Significant digits in the geoid height do not necessarily reflect accuracy.
NR0002.GEOID18 height accuracy estimate available [here](#).

NR0002

NR0002.Click [photographs](#) - Photos may exist for this station.

NR0002

NR0002.The dynamic height is computed by dividing the NAVD 88
NR0002.geopotential number by the normal gravity value computed on the
NR0002.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
NR0002.degrees latitude (g = 980.6199 gals.).

NR0002

NR0002.The modeled gravity was interpolated from observed gravity values.

NR0002

NR0002;	North	East	Units	Estimated Accuracy
NR0002;SPC WYEC	- 363,790.	502,160.	MT	(+/- 180 meters Scaled)

NR0002

NR0002_U.S. NATIONAL GRID SPATIAL ADDRESS: 13TDH115467(NAD 83)

NR0002

NR0002 SUPERSEDED SURVEY CONTROL

NR0002

NR0002	NGVD 29 (??/??/92)	1540.659	(m)	5054.65	(f)	ADJ UNCH	1 2
--------	--------------------	----------	-----	---------	-----	----------	-----

NR0002

NR0002.Superseded values are not recommended for survey control.

NR0002

NR0002.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

NR0002.See file [dsdata.pdf](#) to determine how the superseded data were derived.

NR0002

NR0002_MARKER: DB = BENCH MARK DISK

NR0002_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT

NR0002_STAMPING: U 16 1934

NR0002_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO

NR0002+STABILITY: SURFACE MOTION

NR0002

NR0002	HISTORY	- Date	Condition	Report By
NR0002	HISTORY	- 1934	MONUMENTED	CGS

NR0002

NR0002

NR0002 STATION DESCRIPTION

NR0002

NR0002'DESCRIBED BY COAST AND GEODETIC SURVEY 1934

NR0002'2.4 MI E FROM FRY.

NR0002'ABOUT 2.4 MILES EAST ALONG THE CHICAGO, BURLINGTON AND QUINCY RAILROAD

NR0002'FROM THE STATION AT FRY, NATRONA COUNTY, ABOUT 0.6 MILE EAST OF

NR0002'MILEPOST 190, AT A CHANGE IN THE WIDTH OF THE RIGHT-OF-WAY, 36.0 FEET

NR0002'SOUTH OF THE CENTER LINE OF A ROAD, 84 FEET NORTH OF THE NORTH RAIL,

NR0002'8.5 FEET SOUTH OF THE NORTH CORNER POST OF THE RIGHT-OF-WAY FENCE, AND

NR0002'3.0 FEET EAST OF THE FENCE. A STANDARD DISK, STAMPED U 16 1934 AND

NR0002'SET IN THE TOP OF A CONCRETE POST.

*** retrieval complete.

Elapsed Time = 00:00:01

4.20. The NGS Data Sheet for X 358

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

PROGRAM = datasheet95, VERSION = 8.12.5.9

Starting Datasheet Retrieval...

```

1      National Geodetic Survey,      Retrieval Date = AUGUST 12, 2020
OV0289 *****
OV0289 FBN          - This is a Federal Base Network Control Station.
OV0289 DESIGNATION - X 358
OV0289 PID          - OV0289
OV0289 STATE/COUNTY- WY/NATRONA
OV0289 COUNTRY      - US
OV0289 USGS QUAD    - MIDWEST (2017)
OV0289
OV0289                      *CURRENT SURVEY CONTROL
OV0289
OV0289* NAD 83(2011) POSITION- 43 24 40.89072(N) 106 15 25.33511(W) ADJUSTED
OV0289* NAD 83(2011) ELLIP HT- 1477.646 (meters) (06/27/12) ADJUSTED
OV0289* NAD 83(2011) EPOCH   - 2010.00
OV0289* NAVD 88 ORTHO HEIGHT - 1491.495 (meters) 4893.35 (feet) ADJUSTED
OV0289
OV0289 GEOID HEIGHT   - -13.881 (meters) GEOID18
OV0289 NAD 83(2011) X - -1,299,440.676 (meters) COMP
OV0289 NAD 83(2011) Y - -4,456,141.549 (meters) COMP
OV0289 NAD 83(2011) Z - 4,361,828.369 (meters) COMP
OV0289 LAPLACE CORR   - -5.04 (seconds) DEFLEC18
OV0289 DYNAMIC HEIGHT - 1490.673 (meters) 4890.65 (feet) COMP
OV0289 MODELED GRAVITY - 980,016.7 (mgal) NAVD 88
OV0289
OV0289 VERT ORDER      - FIRST CLASS II
OV0289
OV0289 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
OV0289 Standards:
OV0289          FGDC (95% conf, cm)          Standard deviation (cm)          CorrNE
OV0289          Horiz Ellip                   SD_N   SD_E   SD_h          (unitless)
OV0289 -----
OV0289 NETWORK      0.67   1.88                   0.30   0.24   0.96          0.05209243
OV0289 -----
OV0289 Click here for local accuracies and other accuracy information.
OV0289
OV0289
OV0289.The horizontal coordinates were established by GPS observations
OV0289.and adjusted by the National Geodetic Survey in June 2012.
OV0289
OV0289.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
OV0289.been affixed to the stable North American tectonic plate. See
OV0289.NA2011 for more information.
OV0289
OV0289.The horizontal coordinates are valid at the epoch date displayed above
OV0289.which is a decimal equivalence of Year/Month/Day.
OV0289
OV0289.The orthometric height was determined by differential leveling and
OV0289.adjusted by the NATIONAL GEODETIC SURVEY
OV0289.in June 1991.
OV0289
OV0289.Significant digits in the geoid height do not necessarily reflect accuracy.
  
```


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OV0289.GEOID18 height accuracy estimate available [here](#).
OV0289
OV0289.Click [photographs](#) - Photos may exist for this station.
OV0289
OV0289.The X, Y, and Z were computed from the position and the ellipsoidal ht.
OV0289
OV0289.The Laplace correction was computed from DEFLEC18 derived deflections.
OV0289
OV0289.The ellipsoidal height was determined by GPS observations
OV0289.and is referenced to NAD 83.
OV0289
OV0289.The dynamic height is computed by dividing the NAVD 88
OV0289.geopotential number by the normal gravity value computed on the
OV0289.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
OV0289.degrees latitude (g = 980.6199 gals.).
OV0289
OV0289.The modeled gravity was interpolated from observed gravity values.
OV0289
OV0289. The following values were computed from the NAD 83(2011) position.
OV0289

OV0289;		North	East	Units	Scale	Factor	Converg.
OV0289;SPC WYEC	-	423,914.210	487,169.315	MT	1.00003094	+0 44	23.0
OV0289;SPC WYEC	-	1,390,791.87	1,598,321.33	sFT	1.00003094	+0 44	23.0
OV0289;UTM 13	-	4,807,264.416	398,226.631	MT	0.99972741	-0 51	50.2

OV0289!
OV0289!SPC WYEC - Elev Factor x Scale Factor = Combined Factor
OV0289!UTM 13 - 0.99976834 x 1.00003094 = 0.99979927
OV0289!UTM 13 - 0.99976834 x 0.99972741 = 0.99949581
OV0289
OV0289_U.S. NATIONAL GRID SPATIAL ADDRESS: 13TCJ9822607264(NAD 83)
OV0289
OV0289 SUPERSEDED SURVEY CONTROL
OV0289

OV0289	NAD 83(2007)-	43 24 40.89048(N)	106 15 25.33615(W)	AD(2002.00)	0
OV0289	ELLIP H (02/10/07)	1477.669 (m)		GP(2002.00)	
OV0289	ELLIP H (02/28/01)	1477.694 (m)		GP()	2 1
OV0289	NAD 83(1993)-	43 24 40.88959(N)	106 15 25.33570(W)	AD()	B
OV0289	ELLIP H (10/19/94)	1477.747 (m)		GP()	4 1
OV0289	NAVD 88	1491.50 (m)	4893.4	(f) LEVELING	3
OV0289	NGVD 29 (06/08/92)	1490.694 (m)	4890.72	(f) ADJUSTED	1 2

OV0289
OV0289.Superseded values are not recommended for survey control.
OV0289
OV0289.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
OV0289.See [file dsdata.pdf](#) to determine how the superseded data were derived.
OV0289
OV0289_MARKER: I = METAL ROD
OV0289_SETTING: 49 = STAINLESS STEEL ROD W/O SLEEVE (10 FT.+)
OV0289_STAMPING: X 358 1985
OV0289_MARK LOGO: NGS
OV0289_PROJECTION: FLUSH
OV0289_MAGNETIC: N = NO MAGNETIC MATERIAL
OV0289_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL
OV0289_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
OV0289+SATELLITE: SATELLITE OBSERVATIONS - August 27, 2001
OV0289_ROD/PIPE-DEPTH: 17.1 meters

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OV0289				
OV0289	HISTORY	- Date	Condition	Report By
OV0289	HISTORY	- 1985	MONUMENTED	NGS
OV0289	HISTORY	- 19931015	GOOD	NGS
OV0289	HISTORY	- 19991028	GOOD	NGS
OV0289	HISTORY	- 20010827	GOOD	WYHD

OV0289

OV0289 STATION DESCRIPTION

OV0289

OV0289'DESCRIBED BY NATIONAL GEODETIC SURVEY 1985

OV0289'1.0 KM (0.6 MI) NE FROM MIDWEST.

OV0289'1.04 KM (0.65 MI) NORTHEAST ALONG STATE HIGHWAY 387 FROM THE JUNCTION
 OV0289'OF STATE HIGHWAY 259 AT MIDWEST, IN THE INSIDE CORNER OF THE SOUTH ONE
 OV0289'OF A DOUBLE RIGHT ANGLE OFFSET IN THE RIGHT OF WAY FENCE, AT THE
 OV0289'SOUTHEAST CORNER OF THE T JUNCTION OF COUNTY ROAD 117 LEADING
 OV0289'SOUTHEAST TO EDGERTON, 34.4 METERS (113 FT) SOUTH OF THE HIGHWAY
 OV0289'CENTERLINE, 75.0 METERS (246 FT) EAST OF THE CENTER OF THE COUNTY
 OV0289'ROAD, 4.6 METERS (15 FT) SOUTHEAST OF THE SOUTHEAST CORNER OF THE WEST
 OV0289'ONE OF TWO 12 BY 12 FOOT ABANDONDED CONCRETE PADS, 0.6 METER (2 FT)
 OV0289'NORTHWEST OF THE INSIDE BRACED WOODEN POST AND 0.5 METER (1.5 FT)
 OV0289'NORTH OF THE EAST-WEST PORTION OF THE RIGHT OF WAY FENCE.

OV0289'THE MARK IS 0.3 METERS E FROM A WITNESS POST

OV0289'THE MARK IS 2.5 M BELOW THE HIGHWAY.

OV0289

OV0289 STATION RECOVERY (1993)

OV0289

OV0289'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1993 (AJL)

OV0289'STATION IS LOCATED ABOUT 1 KM (0.60 MI) EAST OF MIDWEST, ANDON THE
 OV0289'WESTERN EDGE OF EDGERTON, ALONG STATE HIGHWAY 387, ON THE
 OV0289'RIGHT-OF-WAY, IN A DIP, AT A JOG IN THE RIGHT-OF-WAY FENCE, AT AN
 OV0289'INTERIOR FENCE CORNER AT SEVERAL SMALL CONCRETE PADS, IN THE NORTHEAST
 OV0289'1/4 OF SECTION 30, T 40 N, R 78 W. OWNERSHIP--WYOMING DEPARTMENT OF
 OV0289'TRANSPORTATION. TO REACH FROM THE UNDERPASS AT THE JUNCTION OF
 OV0289'INTERSTATE HIGHWAY 25 AND STATE HIGHWAY 387 (EXIT 227), ABOUT 9 KM
 OV0289'(5.60 MI) NORTHWEST OF MIDWEST, GO EASTERLY ON HIGHWAY 387 FOR 10.58
 OV0289'KM (6.55 MI) TO ITS JUNCTION WITH STATE HIGHWAY 259 AT MIDWEST. TURN
 OV0289'LEFT, EAST, ON HIGHWAY 387 FOR 0.96 KM (0.60 MI) TO COUNTY ROAD 117 ON
 OV0289'THE RIGHT. CONTINUE AHEAD FOR 0.08 KM (0.05 MI) TO THE STATION ON THE
 OV0289'RIGHT. STATION MARK IS A PUNCH HOLE TOP CENTER ON A STEEL ROD ENCASED
 OV0289'IN A PVC PIPE WITH LOGO CAP SET IN A CONCRETE POST FLUSH WITH THE
 OV0289'GROUND. IT IS 76 M (249.3 FT) EAST OF ROAD 117, 34.2 M (112.2 FT)
 OV0289'SOUTH OF, AND 1.5 M (4.9 FT) LOWER THAN THE HIGHWAY CENTER, 0.3 M (1.0
 OV0289'FT) EAST OF A FIBERGLASS WITNESS POST, 0.5 M (1.6 FT) NORTHWEST OF AN
 OV0289'INTERIOR FENCE CORNER, 10.4 M (34.1 FT) SOUTH OF AN EXTERIOR FENCE
 OV0289'CORNER, AND 4.7 M (15.4 FT) SOUTHEAST OF THE SOUTHEAST CORNER OF THE
 OV0289'WEST ONE OF TWO 3 M (9.8 FT) SQUARE CONCRETE PADS. DESCRIBED BY

OV0289'G.R.HEID

OV0289

OV0289 STATION RECOVERY (1999)

OV0289

OV0289'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1999 (CSM)

OV0289'THE STATION IS LOCATED ABOUT 1 KM (0.60 MI) EAST OF MIDWEST, ON THE
 OV0289'WESTERN EDGE OF EDGERTON, ALONG STATE HIGHWAY 387, IN A DIP AT A JOG
 OV0289'IN A RIGHT-OF-WAY FENCE AT IN INTERIOR FENCE CORNER NEAR SEVERAL SMALL
 OV0289'CONCRETE PADS. OWNERSHIP--WYDOT HIGHWAY RIGHT-OF-WAY. TO REACH THE
 OV0289'STATION FROM THE UNDERPASS AT THE JUNCTION INTERSTATE HIGHWAY 25 AND

OV0289'STATE HIGHWAY 387 (EXIT 227) , ABOUT 9 KM (5.60 MI) NORTHWEST OF
 OV0289'MIDWEST, GO EASTERLY ON HIGHWAY 387 FOR 10.58 KM (6.55 MI) TO THE
 OV0289'JUNCTION WITH STATE HWY 259 AT MIDWEST. TURN LEFT AND GO EAST ON HWY
 OV0289'387 FOR 0.96 KM (0.60 MI) TO COUNTY ROAD 117 ON THE RIGHT, CONTINUE
 OV0289' AHEAD FOR 0.08 KM (0.05 MI) TO THE STATION ON THE RIGHT. THE STATION
 OV0289'MARK IS A PUNCH MARK IN THE TOP CENTER OF A DATUM POINT CRIMPED TO THE
 OV0289'TOP OF A STAINLESS STEEL ROD ENCASED IN A PVC PIPE WITH AN ALUMINUM
 OV0289'ACCESS COVER ANCHORED IN CONCRETE AND FLUSH WITH THE GROUND. IT IS,
 OV0289'76 M (249.3 FT) EAST OF COUNTY ROAD 117, 34.2 M (112.2 FT) SOUTH OF
 OV0289'AND 1.5 M (4.9 FT) LOWER THAN THE HIGHWAY CENTER, 0.3 M (1.0 FT) EAST
 OV0289'OF A FIBERGLASS WITNESS POST, 0.5 M (1.6 FT) NORTHWEST OF AN INTERIOR
 OV0289'FENCE CORNER, 10.4 M (34.1 FT) SOUTH OF AN EXTERIOR FENCE CORNER AND
 OV0289'4.7 M (15.4 FT) SOUTHEAST OF THE SOUTHEAST CORNER OF THE WEST ONE OF
 OV0289'TWO 3 M (9.8 FT) SQUARE CONCRETE PADS. NOTE--THE STATION IS NOW
 OV0289'SURROUNDED BY 3 METAL I-BEAM POSTS. DESCRIBED BY J.D. DIMARE.
 OV0289
 OV0289 STATION RECOVERY (2001)
 OV0289
 OV0289'RECOVERY NOTE BY WYOMING HIGHWAY DEPARTMENT 2001 (JE)
 OV0289'RECOVERED IN GOOD CONDITION.

*** retrieval complete.
 Elapsed Time = 00:00:02

4.21. The NGS Data Sheet for Y 336

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

PROGRAM = datasheet95, VERSION = 8.12.5.14

Starting Datasheet Retrieval...

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1 National Geodetic Survey, Retrieval Date = MARCH 2, 2022
NR0313 *****
NR0313 DESIGNATION - Y 336
NR0313 PID - NR0313
NR0313 STATE/COUNTY- WY/CARBON
NR0313 COUNTRY - US
NR0313 USGS QUAD - SEPARATION RIM (2017)
NR0313
NR0313 *CURRENT SURVEY CONTROL
NR0313
NR0313* NAD 83(1986) POSITION- 42 06 44.09 (N) 107 25 11.35 (W) HD_HELD1
NR0313* NAVD 88 ORTHO HEIGHT - 1990.781 (meters) 6531.42 (feet) ADJUSTED
NR0313
NR0313 GEOID HEIGHT - -13.880 (meters) GEOID18
NR0313 DYNAMIC HEIGHT - 1989.151 (meters) 6526.07 (feet) COMP
NR0313 MODELED GRAVITY - 979,732.8 (mgal) NAVD 88
NR0313
NR0313 VERT ORDER - FIRST CLASS II
NR0313
NR0313.The horizontal coordinates were determined by differentially corrected
NR0313.hand held GPS observations or other comparable positioning techniques
NR0313.and have an estimated accuracy of +/- 3 meters.
NR0313.
NR0313.The orthometric height was determined by differential leveling and
NR0313.adjusted by the NATIONAL GEODETIC SURVEY
NR0313.in June 1991.
  
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Ground Control Survey Report for the U.S. Geological Survey
Task Order: #140G0220F0171 - WY South Central 2020 D20

NR0313

NR0313.Significant digits in the geoid height do not necessarily reflect accuracy.
NR0313.GEOID18 height accuracy estimate available [here](#).

NR0313

NR0313.Click [photographs](#) - Photos may exist for this station.

NR0313

NR0313.The dynamic height is computed by dividing the NAVD 88
NR0313.geopotential number by the normal gravity value computed on the
NR0313.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
NR0313.degrees latitude (g = 980.6199 gals.).

NR0313

NR0313.The modeled gravity was interpolated from observed gravity values.

NR0313

NR0313;		North	East	Units	Estimated Accuracy
NR0313;SPC WYEC	-	279,048.3	392,847.6	MT	(+/- 3 meters HH1 GPS)

NR0313

NR0313_U.S. NATIONAL GRID SPATIAL ADDRESS: 13TBG9994265072 (NAD 83)

NR0313

NR0313 SUPERSEDED SURVEY CONTROL

NR0313

NR0313 NGVD 29 (06/08/92) 1989.642 (m) 6527.68 (f) ADJUSTED 1 2

NR0313

NR0313.Superseded values are not recommended for survey control.

NR0313

NR0313.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
NR0313.See file [dsdata.pdf](#) to determine how the superseded data were derived.

NR0313

NR0313_MARKER: F = FLANGE-ENCASED ROD

NR0313_SETTING: 49 = STAINLESS STEEL ROD W/O SLEEVE (10 FT.+)

NR0313_STAMPING: Y 336 1982

NR0313_MARK LOGO: NGS

NR0313_PROJECTION: FLUSH

NR0313_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL

NR0313_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

NR0313+SATELLITE: SATELLITE OBSERVATIONS - August 08, 2018

NR0313_ROD/PIPE-DEPTH: 20.7 meters

NR0313

NR0313	HISTORY	- Date	Condition	Report By
NR0313	HISTORY	- 1982	MONUMENTED	NGS
NR0313	HISTORY	- 20100302	GOOD	WYDT
NR0313	HISTORY	- 20180808	GOOD	WYDT

NR0313

NR0313 STATION DESCRIPTION

NR0313

NR0313'DESCRIBED BY NATIONAL GEODETIC SURVEY 1982

NR0313'30.6 KM (19.0 MI) SOUTH FROM MUDDY GAP.

NR0313'30.6 KM (19.0 MI) SOUTHERLY ALONG U.S. HIGHWAY 287 FROM ITS JUNCTION
NR0313'WITH STATE HIGHWAY 220 IN MUDDY GAP, 0.5 KM (0.3 MI) NORTH OF MILEPOST
NR0313'25 AND 53.0 METERS (173.9 FT) SOUTHWEST OF THE CENTERLINE OF THE
NR0313'HIGHWAY. NOTE, ACCESS TO THE DATUM POINT IS THROUGH A 5-INCH LOGO
NR0313'CAP.

NR0313'THE MARK IS 0.3 METERS NE FROM A WITNESS POST AND FENCE

NR0313'THE MARK IS 0.6 M ABOVE THE HIGHWAY.

NR0313

NR0313 STATION RECOVERY (2010)

NR0313

NR0313'RECOVERY NOTE BY WYOMING DEPARTMENT OF TRANSPORTATION 2010 (ABC)
 NR0313'RECOVERED IN GOOD CONDITION.
 NR0313
 NR0313 STATION RECOVERY (2018)
 NR0313
 NR0313'RECOVERY NOTE BY WYOMING DEPARTMENT OF TRANSPORTATION 2018 (ABC)
 NR0313'RECOVERED IN GOOD CONDITION.

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

4.22. The NGS Data Sheet for Z 338

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

PROGRAM = datasheet95, VERSION = 8.12.5.14

Starting Datasheet Retrieval...

1 National Geodetic Survey, Retrieval Date = MARCH 2, 2022

MP0454 *****

MP0454 DESIGNATION - Z 338

MP0454 PID - MP0454

MP0454 STATE/COUNTY- WY/CARBON

MP0454 COUNTRY - US

MP0454 USGS QUAD - RAWLINS (2017)

MP0454

MP0454 *CURRENT SURVEY CONTROL

MP0454

MP0454* NAD 83(1986) POSITION- 41 48 13.5 (N) 107 14 08.3 (W) HD_HELD2

MP0454* NAVD 88 ORTHO HEIGHT - 2092.785 (meters) 6866.08 (feet) ADJUSTED

MP0454

MP0454 GEOID HEIGHT - -13.625 (meters) GEOID18

MP0454 DYNAMIC HEIGHT - 2091.016 (meters) 6860.28 (feet) COMP

MP0454 MODELED GRAVITY - 979,702.2 (mgal) NAVD 88

MP0454

MP0454 VERT ORDER - FIRST CLASS II

MP0454

MP0454.The horizontal coordinates were established by autonomous hand held GPS

MP0454.observations and have an estimated accuracy of +/- 10 meters.

MP0454.

MP0454.The orthometric height was determined by differential leveling and

MP0454.adjusted by the NATIONAL GEODETIC SURVEY

MP0454.in June 1991.

MP0454

MP0454.Significant digits in the geoid height do not necessarily reflect accuracy.

MP0454.GEOID18 height accuracy estimate available [here](#).

MP0454

MP0454.Click [photographs](#) - Photos may exist for this station.

MP0454

MP0454.The dynamic height is computed by dividing the NAVD 88

MP0454.geopotential number by the normal gravity value computed on the

MP0454.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45

MP0454.degrees latitude (g = 980.6199 gals.).

MP0454

