GROUND CONTROL SURVEY REPORT

**GPS SURVEY
FOR LIDAR CONTROL**

GREEN COUNTY, WI WROC LIDAR SURVEY

GREEN COUNTY, WISCONSIN

Services provided by:

**AYRES
ASSOCIATES**

**Geospatial Services
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ABSTRACT

This report documents the GPS ground surveys conducted in support of FEMA accuracy testing of the lidar data collection for Green County, Wisconsin, in 2010. Surveys were conducted at 5 sites utilizing the base stations established in the static network. These surveys established "ground truth" data at each site on different surface types, including bare earth, low grass, brush lands, low trees, forest, high grass, weeds, crops, and urban areas. Statistical comparisons were made between ground truth points collected from the ground survey and the elevation at the associated horizontal coordinates represented on the LiDAR-derived digital terrain model.

SAMPLE POINTS/TEST POINTS

The ground survey test points were distributed and categorized into sites as shown in the Test Survey Locations map on the next page.

DATA ANALYSIS

To qualify as an acceptable accuracy test, the lidar data must be compared with a dataset of higher accuracy – in this instance ground survey. To develop a comparable dataset of points from the lidar dataset, a utility from proprietary software was used.
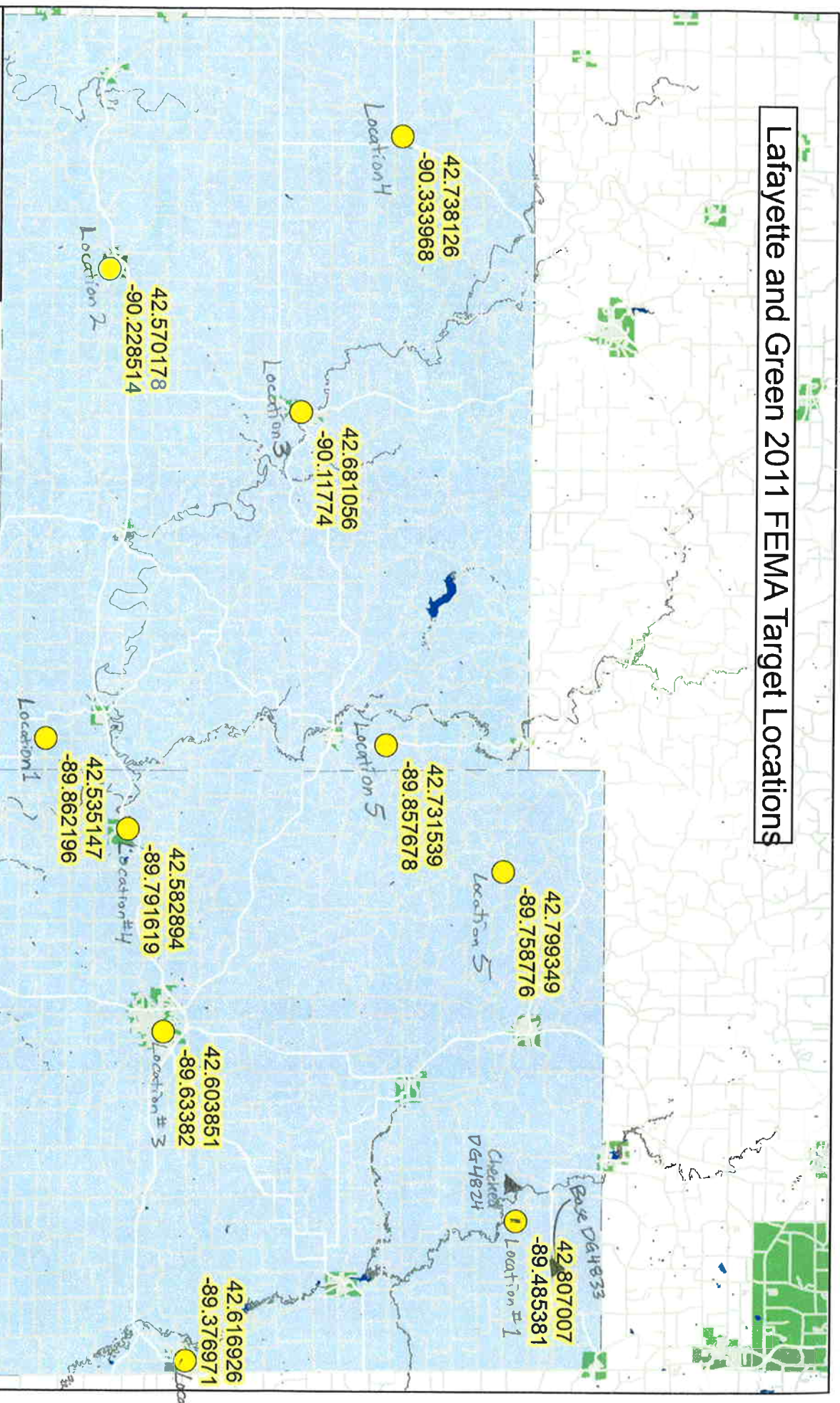
The ground control survey results were imported into an ESRI Pointz shapefile with each point's information as attributes. The utility then accessed the lidar and generated a triangulated irregular network (TIN), which is a continuous digital terrain surface, using the bare-earth lidar points and the compiled breaklines. The utility probed the TIN surface to determine its elevations at each of the survey point's horizontal locations.

The elevation was then appended as a field to the Pointz shapefile; the attributes for each point were exported to a database; and then statistical analysis was performed. The results can be seen on the following pages.

OVERALL ACCURACY

A comparison of ground survey versus lidar model values indicates a vertical root mean square error (RMSEz) of 0.387 feet. This is within the FEMA specified vertical accuracy tolerance of 0.6. This RMSEz equates to a tested 0.7594 feet vertical accuracy at 95% confidence level.

Lafayette and Green 2011 FEMA Target Locations

Legend

- Planned FEMA Points
- State Highways
- Roads
- Municipalities

Location 4
42.738126
-90.333968

Location 2
42.570178
-90.228514

Location 3
42.681056
-90.11774

Location 1
42.535147
-89.862196

Location #4
42.582894
-89.791619

Location 5
42.731539
-89.857678

Location 5
42.799349
-89.758776

Location #3
42.603851
-89.63382

Checked DG4824

Base DG4833

Location #1
42.807007
-89.485381

Location #2
42.616926
-89.376971

GROUND TRUTH ANALYSIS
Comparison of Lidar Points to Ground-Truth Points
Green County Coordinate System WISCRS
NAD 83 HARN / NAVD 88, survey feet

<u>Field definitions</u>

Name – The designation given to the ground survey point to identify it with its coordinates and land cover type

X, Y, and Z – The coordinates that describe the point's horizontal and vertical location within the Green County WISCRS Coordinate System. The X and Y values are shared between the ground control points and lidar comparison points. The Z field shows the elevation of the survey number. The lidar comparison point's elevation is implicit in the analysis' delta Z

Delta Z – The error, the difference between the elevation at a horizontal location as determined by ground survey and as determined by the lidar dataset

Delta Z Squared – The value of squaring Delta Z

Land Cover – The predominant land cover category at the location of the survey point

<u>Statistic definitions</u>

Sum – The sum of the analysis' Delta Z Squared values

Average – The average of the analysis' Delta Z Squared values

RMSE – The root mean squared error, the square root of the average of the squared errors

Accuracyz – The product of multiplying the RMSE with 1.96, a conversion between the RMSE value and a value with a 95% confidence level

Name	X	Y	Z	Delta_Z	Delta_Z_Squared	TYPE
1001	664094.440	219929.810	888.200	0.061	0.003721	BRUSH/LOW
1002	664095.120	219933.830	888.210	0.356	0.126736	BRUSH/LOW
1003	664096.020	219938.250	888.360	0.208	0.043264	BRUSH/LOW
1004	664096.470	219942.370	888.460	-0.019	0.000361	BRUSH/LOW
1005	664097.290	219945.550	888.580	-0.083	0.006889	BRUSH/LOW
1006	664094.550	219945.870	888.400	-0.028	0.000784	BRUSH/LOW
1007	664093.580	219942.720	888.290	0.104	0.010816	BRUSH/LOW
1008	664092.840	219939.100	888.290	0.115	0.013225	BRUSH/LOW
1009	664092.200	219935.580	888.290	0.057	0.003249	BRUSH/LOW
1010	664092.070	219931.900	888.260	0.002	0.000004	BRUSH/LOW
1011	664088.440	219932.610	888.290	-0.146	0.021316	BRUSH/LOW
1012	664088.270	219935.700	888.230	-0.243	0.059049	BRUSH/LOW
1013	664087.910	219939.400	888.380	-0.128	0.016384	BRUSH/LOW
1014	664090.000	219944.960	888.420	-0.219	0.047961	BRUSH/LOW
1015	664091.220	219949.130	888.700	-0.383	0.146689	BRUSH/LOW
1016	664086.720	219949.510	888.520	-0.268	0.071824	BRUSH/LOW
1017	664085.700	219945.370	888.310	-0.150	0.022500	BRUSH/LOW
1018	664084.830	219940.920	888.250	-0.120	0.014400	BRUSH/LOW
1019	664084.620	219936.000	888.200	-0.063	0.003969	BRUSH/LOW
1020	664083.540	219933.690	888.090	0.101	0.010201	BRUSH/LOW
1021	664081.200	219936.340	888.180	0.096	0.009216	BRUSH/LOW
1022	664081.440	219939.390	888.010	0.229	0.052441	BRUSH/LOW
1023	664082.630	219942.840	888.150	-0.155	0.024025	BRUSH/LOW
1024	664083.670	219945.760	888.280	-0.101	0.010201	BRUSH/LOW
1025	664084.680	219948.720	888.370	-0.126	0.015876	BRUSH/LOW
1026	660680.390	219440.500	893.460	-0.096	0.009216	MOWED GRASS
1027	660680.380	219436.690	893.340	-0.110	0.012100	MOWED GRASS
1028	660680.600	219433.330	893.320	-0.221	0.048841	MOWED GRASS
1029	660680.840	219430.530	893.290	-0.233	0.054289	MOWED GRASS
1030	660681.000	219427.270	893.150	-0.197	0.038809	MOWED GRASS
1031	660683.810	219427.780	893.120	-0.207	0.042849	MOWED GRASS
1032	660683.520	219431.250	893.230	-0.226	0.051076	MOWED GRASS
1033	660683.300	219434.420	893.210	-0.156	0.024336	MOWED GRASS
1034	660682.780	219437.240	893.370	-0.235	0.055225	MOWED GRASS
1035	660682.430	219440.610	893.450	-0.213	0.045369	MOWED GRASS
1036	660686.310	219440.930	893.420	-0.359	0.128881	MOWED GRASS
1037	660686.330	219437.400	893.290	-0.338	0.114244	MOWED GRASS
1038	660686.860	219434.730	893.150	-0.169	0.028561	MOWED GRASS
1039	660686.870	219431.810	893.170	-0.180	0.032400	MOWED GRASS
1040	660687.160	219428.790	893.100	-0.154	0.023716	MOWED GRASS
1041	660690.190	219429.140	893.080	-0.131	0.017161	MOWED GRASS
1042	660689.940	219432.090	893.130	-0.153	0.023409	MOWED GRASS
1043	660689.670	219434.990	893.170	-0.205	0.042025	MOWED GRASS
1044	660689.290	219437.710	893.250	-0.356	0.126736	MOWED GRASS
1045	660688.860	219440.370	893.330	-0.356	0.126736	MOWED GRASS
1046	660692.150	219440.750	893.430	-0.373	0.139129	MOWED GRASS
1047	660692.470	219437.220	893.330	-0.296	0.087616	MOWED GRASS
1048	660692.830	219434.450	893.290	-0.277	0.076729	MOWED GRASS
1049	660692.990	219431.680	893.210	-0.221	0.048841	MOWED GRASS
1050	660693.360	219428.850	893.170	-0.229	0.052441	MOWED GRASS
1051	657677.250	216982.610	882.370	-0.202	0.040804	TALL GRASS
1052	657677.160	216986.760	882.200	0.006	0.000036	TALL GRASS
1053	657677.140	216989.650	882.160	-0.030	0.000900	TALL GRASS
1054	657676.810	216993.010	882.190	-0.140	0.019600	TALL GRASS
1055	657677.040	216996.090	882.130	-0.045	0.002025	TALL GRASS
1056	657673.460	216995.500	882.110	-0.064	0.004096	TALL GRASS
1057	657673.740	216991.780	882.210	-0.209	0.043681	TALL GRASS
1058	657672.510	216989.080	882.180	-0.024	0.000576	TALL GRASS
1059	657672.120	216985.050	882.250	-0.089	0.007921	TALL GRASS
1060	657671.060	216981.910	882.360	-0.087	0.007569	TALL GRASS
1061	657667.510	216982.770	882.270	-0.082	0.006724	TALL GRASS
1062	657669.400	216987.220	882.180	-0.006	0.000036	TALL GRASS

1063	657669.940	216991.100	882.080	-0.091	0.008281 TALL GRASS
1064	657670.080	216994.780	882.100	-0.073	0.005329 TALL GRASS
1065	657670.310	216997.840	882.120	-0.072	0.005184 TALL GRASS
1066	657666.830	216997.360	882.060	0.042	0.001764 TALL GRASS
1067	657667.490	216994.020	882.120	-0.024	0.000576 TALL GRASS
1068	657667.060	216990.980	882.160	-0.117	0.013689 TALL GRASS
1069	657666.870	216987.770	882.160	-0.061	0.003721 TALL GRASS
1070	657665.950	216983.150	882.300	-0.018	0.000324 TALL GRASS
1071	657662.310	216982.980	882.420	0.023	0.000529 TALL GRASS
1072	657663.060	216986.090	882.360	-0.070	0.004900 TALL GRASS
1073	657663.620	216989.660	882.280	-0.111	0.012321 TALL GRASS
1074	657663.930	216993.540	882.260	-0.154	0.023716 TALL GRASS
1075	657664.230	216997.480	882.200	-0.112	0.012544 TALL GRASS
1076	654503.480	212983.950	841.850	-0.540	0.291600 ASPH
1077	654500.360	212982.870	841.860	-0.476	0.226576 ASPH
1078	654497.910	212982.170	841.860	-0.528	0.278784 ASPH
1079	654495.120	212981.060	841.890	-0.448	0.200704 ASPH
1080	654492.550	212980.390	841.880	-0.383	0.146689 ASPH
1081	654493.380	212977.100	841.960	-0.605	0.366025 ASPH
1082	654497.330	212978.710	841.970	-0.626	0.391876 ASPH
1083	654499.810	212979.670	841.980	-0.666	0.443556 ASPH
1084	654502.350	212980.800	841.980	-0.589	0.346921 ASPH
1085	654505.110	212981.840	841.980	-0.517	0.267289 ASPH
1086	654506.170	212978.180	841.990	-0.492	0.242064 ASPH
1087	654502.860	212977.120	842.000	-0.590	0.348100 ASPH
1088	654500.230	212976.180	842.010	-0.486	0.236196 ASPH
1089	654497.490	212975.230	841.990	-0.455	0.207025 ASPH
1090	654494.980	212974.250	841.990	-0.664	0.440896 ASPH
1091	654496.750	212970.450	841.880	-0.501	0.251001 ASPH
1092	654499.700	212971.760	841.920	-0.576	0.331776 ASPH
1093	654502.610	212972.700	841.890	-0.512	0.262144 ASPH
1094	654505.210	212973.920	841.920	-0.477	0.227529 ASPH
1095	654508.030	212975.060	841.900	-0.484	0.234256 ASPH
1096	654509.660	212971.250	841.770	-0.477	0.227529 ASPH
1097	654506.410	212970.160	841.770	-0.396	0.156816 ASPH
1098	654503.560	212969.390	841.740	-0.544	0.295936 ASPH
1099	654500.270	212967.770	841.810	-0.470	0.220900 ASPH
1100	654497.400	212966.470	841.920	-0.592	0.350464 ASPH
1101	649261.110	217727.650	855.200	-0.432	0.186624 CONC
1102	649261.170	217724.740	855.260	-0.456	0.207936 CONC
1103	649261.140	217722.080	855.300	-0.419	0.175561 CONC
1104	649261.310	217719.240	855.330	-0.415	0.172225 CONC
1105	649261.070	217716.450	855.370	-0.489	0.239121 CONC
1106	649264.850	217716.760	855.380	-0.497	0.247009 CONC
1107	649264.670	217720.150	855.330	-0.500	0.250000 CONC
1108	649264.710	217723.780	855.300	-0.388	0.150544 CONC
1109	649264.720	217726.320	855.230	-0.408	0.166464 CONC
1110	649264.850	217728.900	855.150	-0.328	0.107584 CONC
1111	649268.980	217727.640	855.200	-0.451	0.203401 CONC
1112	649269.080	217724.470	855.270	-0.381	0.145161 CONC
1113	649269.240	217721.380	855.320	-0.461	0.212521 CONC
1114	649269.100	217718.700	855.350	-0.505	0.255025 CONC
1115	649269.140	217715.710	855.420	-0.521	0.271441 CONC
1116	649272.480	217714.760	855.440	-0.547	0.299209 CONC
1117	649272.400	217717.810	855.380	-0.443	0.196249 CONC
1118	649272.370	217721.250	855.340	-0.475	0.225625 CONC
1119	649272.290	217724.340	855.290	-0.507	0.257049 CONC
1120	649272.030	217727.670	855.210	-0.536	0.287296 CONC
1121	649276.130	217727.870	855.170	-0.517	0.267289 CONC
1122	649276.140	217724.440	855.240	-0.520	0.270400 CONC
1123	649276.110	217721.360	855.330	-0.512	0.262144 CONC
1124	649276.030	217718.460	855.380	-0.522	0.272484 CONC
1125	649275.820	217715.650	855.440	-0.555	0.308025 CONC

1126	649280.490	217768.580	854.770	-0.423	0.178929 GRASSV
1127	649280.730	217771.560	854.890	-0.423	0.178929 GRASSV
1128	649280.740	217775.400	854.990	-0.413	0.170569 GRASSV
1129	649280.780	217778.970	855.080	-0.382	0.145924 GRASSV
1130	649280.590	217782.730	855.210	-0.483	0.233289 GRASSV
1131	649283.890	217783.340	855.340	-0.571	0.326041 GRASSV
1132	649284.250	217779.640	855.180	-0.491	0.241081 GRASSV
1133	649284.900	217776.280	855.020	-0.416	0.173056 GRASSV
1134	649284.830	217772.960	854.970	-0.520	0.270400 GRASSV
1135	649284.960	217769.530	854.830	-0.414	0.171396 GRASSV
1136	649287.900	217769.670	854.850	-0.481	0.231361 GRASSV
1137	649288.020	217772.530	854.910	-0.515	0.265225 GRASSV
1138	649287.630	217775.820	855.010	-0.449	0.201601 GRASSV
1139	649287.540	217779.090	855.170	-0.508	0.258064 GRASSV
1140	649287.720	217782.170	855.290	-0.523	0.273529 GRASSV
1141	649291.440	217782.080	855.320	-0.525	0.275625 GRASSV
1142	649291.370	217778.510	855.180	-0.484	0.234256 GRASSV
1143	649291.560	217775.430	855.020	-0.464	0.215296 GRASSV
1144	649291.700	217772.590	854.900	-0.371	0.137641 GRASSV
1145	649291.690	217769.460	854.820	-0.374	0.139876 GRASSV
1146	649291.680	217784.790	855.320	-0.451	0.203401 GRASSV
1147	649287.920	217785.140	855.360	-0.460	0.211600 GRASSV
1148	649284.320	217785.150	855.380	-0.519	0.269361 GRASSV
1149	649281.350	217784.990	855.080	-0.271	0.073441 GRASSV
1150	649278.700	217784.820	855.340	-0.452	0.204304 GRASSV
1201	684360.800	147615.070	791.640	0.657	0.431649 BRUSH/LOW
1202	684357.950	147614.270	791.720	0.508	0.258064 BRUSH/LOW
1203	684354.910	147612.820	791.540	0.877	0.769129 BRUSH/LOW
1204	684351.530	147611.290	791.580	0.647	0.418609 BRUSH/LOW
1205	684348.560	147609.780	791.620	0.419	0.175561 BRUSH/LOW
1206	684349.930	147607.330	791.710	0.361	0.130321 BRUSH/LOW
1207	684352.830	147608.480	791.620	0.695	0.483025 BRUSH/LOW
1208	684356.270	147609.670	791.690	0.615	0.378225 BRUSH/LOW
1209	684359.990	147611.090	791.700	0.552	0.304704 BRUSH/LOW
1210	684362.810	147612.220	791.700	0.665	0.442225 BRUSH/LOW
1211	684364.620	147609.630	791.770	0.622	0.386884 BRUSH/LOW
1212	684361.150	147609.530	791.730	0.562	0.315844 BRUSH/LOW
1213	684357.250	147608.720	791.810	0.412	0.169744 BRUSH/LOW
1214	684352.620	147607.190	791.680	0.540	0.291600 BRUSH/LOW
1215	684349.380	147606.670	791.660	0.413	0.170569 BRUSH/LOW
1216	684348.980	147603.420	791.750	0.378	0.142884 BRUSH/LOW
1217	684351.940	147604.000	791.570	0.578	0.334084 BRUSH/LOW
1218	684355.670	147604.600	791.710	0.461	0.212521 BRUSH/LOW
1219	684359.420	147605.030	791.690	0.510	0.260100 BRUSH/LOW
1220	684364.320	147605.900	791.810	0.508	0.258064 BRUSH/LOW
1221	684365.640	147603.050	791.890	0.472	0.222784 BRUSH/LOW
1222	684363.020	147601.870	791.790	0.423	0.178929 BRUSH/LOW
1223	684360.250	147601.190	791.680	0.504	0.254016 BRUSH/LOW
1224	684356.280	147600.280	791.700	0.506	0.256036 BRUSH/LOW
1225	684352.830	147598.700	791.530	0.603	0.363609 BRUSH/LOW
1226	684324.800	147408.060	792.000	0.496	0.246016 TALL GRASS
1227	684324.130	147404.490	791.990	0.792	0.627264 TALL GRASS
1228	684323.740	147401.580	792.020	0.653	0.426409 TALL GRASS
1229	684323.490	147398.620	792.070	0.564	0.318096 TALL GRASS
1230	684323.170	147395.210	792.090	0.594	0.352836 TALL GRASS
1231	684326.500	147395.450	792.230	0.468	0.219024 TALL GRASS
1232	684326.330	147398.860	792.170	0.533	0.284089 TALL GRASS
1233	684327.120	147401.660	792.120	0.556	0.309136 TALL GRASS
1234	684326.700	147404.470	792.080	0.594	0.352836 TALL GRASS
1235	684327.140	147407.760	792.050	0.616	0.379456 TALL GRASS
1236	684330.630	147407.410	792.060	0.571	0.326041 TALL GRASS
1237	684329.960	147404.120	792.100	0.469	0.219961 TALL GRASS
1238	684329.710	147401.260	792.070	0.549	0.301401 TALL GRASS

1239	684329.480	147398.580	792.180	0.435	0.189225 TALL GRASS
1240	684329.480	147395.910	792.180	0.403	0.162409 TALL GRASS
1241	684332.830	147395.800	792.210	0.289	0.083521 TALL GRASS
1242	684332.940	147399.000	792.160	0.387	0.149769 TALL GRASS
1243	684332.900	147401.760	792.150	0.368	0.135424 TALL GRASS
1244	684333.350	147405.010	792.040	0.480	0.230400 TALL GRASS
1245	684333.750	147408.230	792.070	0.604	0.364816 TALL GRASS
1246	684337.460	147408.350	792.040	0.470	0.220900 TALL GRASS
1247	684336.590	147404.920	792.110	0.399	0.159201 TALL GRASS
1248	684336.370	147401.740	792.140	0.430	0.184900 TALL GRASS
1249	684336.500	147398.850	792.200	0.531	0.281961 TALL GRASS
1250	684336.950	147396.000	792.220	0.502	0.252004 TALL GRASS
1251	684372.510	147787.520	791.630	0.271	0.073441 MOWED GRASS
1252	684372.250	147790.680	791.650	0.274	0.075076 MOWED GRASS
1253	684372.100	147793.580	791.640	0.237	0.056169 MOWED GRASS
1254	684371.770	147796.570	791.610	0.248	0.061504 MOWED GRASS
1255	684371.650	147799.030	791.560	0.273	0.074529 MOWED GRASS
1256	684375.000	147799.450	791.520	0.325	0.105625 MOWED GRASS
1257	684374.860	147795.450	791.540	0.275	0.075625 MOWED GRASS
1258	684374.900	147792.940	791.550	0.270	0.072900 MOWED GRASS
1259	684375.140	147790.540	791.620	0.224	0.050176 MOWED GRASS
1260	684375.220	147787.820	791.600	0.276	0.076176 MOWED GRASS
1261	684378.300	147788.010	791.550	0.353	0.124609 MOWED GRASS
1262	684377.840	147790.970	791.570	0.290	0.084100 MOWED GRASS
1263	684377.610	147793.440	791.540	0.210	0.044100 MOWED GRASS
1264	684377.500	147796.210	791.530	0.284	0.080656 MOWED GRASS
1265	684377.270	147798.690	791.540	0.340	0.115600 MOWED GRASS
1266	684380.630	147798.970	791.490	0.357	0.127449 MOWED GRASS
1267	684380.380	147795.550	791.480	0.211	0.044521 MOWED GRASS
1268	684380.290	147792.720	791.480	0.248	0.061504 MOWED GRASS
1269	684380.630	147790.090	791.480	0.483	0.233289 MOWED GRASS
1270	684380.660	147787.470	791.510	0.369	0.136161 MOWED GRASS
1271	684383.820	147786.970	791.460	0.385	0.148225 MOWED GRASS
1272	684383.480	147790.280	791.490	0.527	0.277729 MOWED GRASS
1273	684383.600	147792.930	791.500	0.351	0.123201 MOWED GRASS
1274	684383.620	147795.370	791.470	0.366	0.133956 MOWED GRASS
1275	684383.620	147797.590	791.500	0.371	0.137641 MOWED GRASS
1276	682261.120	146421.590	795.390	0.915	0.837225 ASPH
1277	682264.260	146421.520	795.450	0.667	0.444889 ASPH
1278	682266.920	146421.410	795.480	0.617	0.380689 ASPH
1279	682269.420	146421.590	795.480	0.585	0.342225 ASPH
1280	682271.890	146421.660	795.530	0.554	0.306916 ASPH
1281	682272.030	146418.760	795.530	0.561	0.314721 ASPH
1282	682269.270	146418.950	795.560	0.618	0.381924 ASPH
1283	682266.520	146419.070	795.520	0.727	0.528529 ASPH
1284	682264.140	146418.980	795.560	0.644	0.414736 ASPH
1285	682261.220	146418.990	795.490	0.554	0.306916 ASPH
1286	682261.840	146415.930	795.410	0.835	0.697225 ASPH
1287	682264.910	146416.260	795.430	0.706	0.498436 ASPH
1288	682267.190	146416.420	795.420	0.727	0.528529 ASPH
1289	682269.910	146416.350	795.450	0.765	0.585225 ASPH
1290	682272.320	146416.330	795.540	0.567	0.321489 ASPH
1291	682272.370	146413.170	795.460	0.730	0.532900 ASPH
1292	682269.080	146413.440	795.430	0.537	0.288369 ASPH
1293	682266.240	146413.470	795.380	0.550	0.302500 ASPH
1294	682263.800	146413.200	795.370	0.722	0.521284 ASPH
1295	682261.520	146413.250	795.350	0.901	0.811801 ASPH
1296	682261.940	146410.260	795.260	0.741	0.549081 ASPH
1297	682264.960	146410.370	795.300	0.643	0.413449 ASPH
1298	682267.580	146410.570	795.320	0.540	0.291600 ASPH
1299	682269.910	146410.430	795.380	0.710	0.504100 ASPH
1300	682273.260	146410.790	795.350	0.949	0.900601 ASPH
1301	682314.520	146267.640	794.700	0.268	0.071824 CONC

1302	682314.460	146263.960	794.730	0.383	0.146689 CONC
1303	682314.150	146259.350	794.810	0.359	0.128881 CONC
1304	682314.240	146255.470	794.800	0.326	0.106276 CONC
1305	682314.240	146252.960	794.730	0.324	0.104976 CONC
1306	682318.240	146253.560	794.710	0.411	0.168921 CONC
1307	682317.870	146256.820	794.730	0.406	0.164836 CONC
1308	682317.840	146259.250	794.740	0.362	0.131044 CONC
1309	682317.970	146262.230	794.730	0.412	0.169744 CONC
1310	682317.980	146265.470	794.660	0.453	0.205209 CONC
1311	682321.330	146265.420	794.630	0.452	0.204304 CONC
1312	682320.920	146261.580	794.720	0.299	0.089401 CONC
1313	682320.650	146259.080	794.720	0.375	0.140625 CONC
1314	682320.700	146255.810	794.740	0.399	0.159201 CONC
1315	682321.060	146252.720	794.690	0.398	0.158404 CONC
1316	682324.230	146253.270	794.680	0.281	0.078961 CONC
1317	682323.880	146256.420	794.700	0.331	0.109561 CONC
1318	682324.070	146258.830	794.700	0.402	0.161604 CONC
1319	682324.000	146261.730	794.680	0.419	0.175561 CONC
1320	682324.060	146265.080	794.640	0.421	0.177241 CONC
1321	682327.440	146264.870	794.650	0.430	0.184900 CONC
1322	682327.360	146261.450	794.660	0.464	0.215296 CONC
1323	682327.400	146258.800	794.670	0.395	0.156025 CONC
1324	682327.840	146255.630	794.700	0.267	0.071289 CONC
1325	682327.780	146252.300	794.730	0.206	0.042436 CONC
1351	605606.270	137016.770	991.560	0.201	0.040401 BRUSH/LOW
1352	605609.490	137017.320	991.470	0.287	0.082369 BRUSH/LOW
1353	605612.590	137017.700	991.610	0.332	0.110224 BRUSH/LOW
1354	605616.560	137017.780	991.840	0.327	0.106929 BRUSH/LOW
1355	605619.890	137018.040	991.860	0.411	0.168921 BRUSH/LOW
1356	605619.180	137014.990	992.120	0.247	0.061009 BRUSH/LOW
1357	605616.160	137014.300	991.900	0.373	0.139129 BRUSH/LOW
1358	605612.000	137013.630	991.760	0.357	0.127449 BRUSH/LOW
1359	605608.710	137013.140	991.650	0.257	0.066049 BRUSH/LOW
1360	605605.720	137013.150	991.410	0.236	0.055696 BRUSH/LOW
1361	605605.360	137009.850	991.410	0.247	0.061009 BRUSH/LOW
1362	605610.220	137009.260	991.530	0.559	0.312481 BRUSH/LOW
1363	605614.200	137009.790	992.050	0.138	0.019044 BRUSH/LOW
1364	605618.080	137010.130	992.140	0.234	0.054756 BRUSH/LOW
1365	605621.200	137012.600	992.130	0.333	0.110889 BRUSH/LOW
1366	605620.450	137016.140	991.970	0.307	0.094249 BRUSH/LOW
1367	605620.400	137018.800	991.880	0.363	0.131769 BRUSH/LOW
1368	605603.130	137018.140	991.680	0.287	0.082369 BRUSH/LOW
1369	605603.340	137013.860	991.550	0.283	0.080089 BRUSH/LOW
1370	605603.690	137009.970	991.320	0.345	0.119025 BRUSH/LOW
1371	605599.860	137010.300	991.580	0.179	0.032041 BRUSH/LOW
1372	605599.620	137013.490	991.610	0.276	0.076176 BRUSH/LOW
1373	605598.840	137016.790	991.790	0.223	0.049729 BRUSH/LOW
1374	605599.260	137020.770	991.870	0.222	0.049284 BRUSH/LOW
1375	605596.610	137015.110	991.750	0.240	0.057600 BRUSH/LOW
1376	605582.180	137038.550	992.310	0.302	0.091204 TALL GRASS
1377	605578.320	137038.270	992.270	0.421	0.177241 TALL GRASS
1378	605575.370	137038.460	992.310	0.431	0.185761 TALL GRASS
1379	605571.940	137037.810	992.250	0.468	0.219024 TALL GRASS
1380	605568.450	137037.190	992.330	0.364	0.132496 TALL GRASS
1381	605568.480	137039.960	992.410	0.401	0.160801 TALL GRASS
1382	605572.340	137040.230	992.290	0.405	0.164025 TALL GRASS
1383	605575.640	137040.470	992.270	0.369	0.136161 TALL GRASS
1384	605579.070	137041.210	992.380	0.342	0.116964 TALL GRASS
1385	605581.760	137041.520	992.390	0.311	0.096721 TALL GRASS
1386	605582.120	137045.060	992.430	0.311	0.096721 TALL GRASS
1387	605578.700	137044.560	992.420	0.400	0.160000 TALL GRASS
1388	605574.920	137043.920	992.500	0.246	0.060516 TALL GRASS
1389	605571.560	137043.960	992.320	0.440	0.193600 TALL GRASS

1390	605568.040	137043.730	992.270	0.579	0.335241	TALL GRASS
1391	605568.460	137047.890	992.530	0.400	0.160000	TALL GRASS
1392	605571.630	137048.060	992.510	0.341	0.116281	TALL GRASS
1393	605575.060	137048.400	992.400	0.468	0.219024	TALL GRASS
1394	605578.770	137048.580	992.550	0.211	0.044521	TALL GRASS
1395	605583.170	137048.360	992.240	0.419	0.175561	TALL GRASS
1396	605582.740	137052.410	992.420	0.413	0.170569	TALL GRASS
1397	605578.110	137035.110	992.250	0.347	0.120409	TALL GRASS
1398	605574.100	137034.580	992.410	0.199	0.039601	TALL GRASS
1399	605569.970	137035.320	992.280	0.326	0.106276	TALL GRASS
1400	605565.970	137035.710	992.400	0.402	0.161604	TALL GRASS
1425	569943.290	129664.020	784.380	0.039	0.001521	MOWED GRASS
1426	569945.330	129661.730	784.390	0.025	0.000625	MOWED GRASS
1427	569947.260	129659.620	784.360	0.052	0.002704	MOWED GRASS
1428	569949.400	129657.580	784.350	0.143	0.020449	MOWED GRASS
1429	569951.180	129655.200	784.310	0.207	0.042849	MOWED GRASS
1430	569953.140	129657.460	784.310	0.110	0.012100	MOWED GRASS
1431	569951.560	129659.540	784.290	0.161	0.025921	MOWED GRASS
1432	569949.990	129661.890	784.270	0.136	0.018496	MOWED GRASS
1433	569948.540	129664.270	784.350	0.136	0.018496	MOWED GRASS
1434	569946.820	129666.810	784.370	0.172	0.029584	MOWED GRASS
1435	569949.560	129668.670	784.410	0.076	0.005776	MOWED GRASS
1436	569951.070	129665.910	784.380	0.146	0.021316	MOWED GRASS
1437	569951.970	129663.170	784.320	0.089	0.007921	MOWED GRASS
1438	569953.370	129660.660	784.380	0.017	0.000289	MOWED GRASS
1439	569954.860	129658.380	784.360	0.053	0.002809	MOWED GRASS
1440	569957.150	129660.220	784.350	0.124	0.015376	MOWED GRASS
1441	569955.260	129662.840	784.260	0.103	0.010609	MOWED GRASS
1442	569953.660	129664.980	784.250	0.180	0.032400	MOWED GRASS
1443	569952.320	129667.350	784.310	0.197	0.038809	MOWED GRASS
1444	569950.710	129669.390	784.290	0.154	0.023716	MOWED GRASS
1445	569953.190	129671.520	784.400	-0.025	0.000625	MOWED GRASS
1446	569955.160	129668.550	784.250	0.199	0.039601	MOWED GRASS
1447	569956.270	129666.240	784.240	0.187	0.034969	MOWED GRASS
1448	569957.490	129663.740	784.220	0.103	0.010609	MOWED GRASS
1449	569958.690	129661.320	784.250	0.157	0.024649	MOWED GRASS
1450	569956.260	129661.640	784.190	0.232	0.053824	MOWED GRASS
1451	569783.420	129566.620	781.010	0.609	0.370881	TALL GRASS
1452	569781.380	129569.260	781.170	0.471	0.221841	TALL GRASS
1453	569779.510	129571.340	781.180	0.587	0.344569	TALL GRASS
1454	569777.290	129573.300	781.170	0.464	0.215296	TALL GRASS
1455	569775.200	129575.150	781.290	0.339	0.114921	TALL GRASS
1456	569773.040	129572.580	781.160	0.389	0.151321	TALL GRASS
1457	569775.910	129570.180	781.110	0.645	0.416025	TALL GRASS
1458	569778.440	129568.290	780.960	0.778	0.605284	TALL GRASS
1459	569780.150	129566.160	781.160	0.382	0.145924	TALL GRASS
1460	569782.610	129563.590	780.960	0.578	0.334084	TALL GRASS
1461	569779.500	129561.000	780.960	0.576	0.331776	TALL GRASS
1462	569777.320	129563.580	780.940	0.698	0.487204	TALL GRASS
1463	569775.270	129565.490	780.990	0.666	0.443556	TALL GRASS
1464	569773.060	129567.690	781.160	0.443	0.196249	TALL GRASS
1465	569770.000	129570.220	781.210	0.288	0.082944	TALL GRASS
1466	569767.990	129567.460	780.890	0.547	0.299209	TALL GRASS
1467	569771.050	129565.330	780.840	0.663	0.439569	TALL GRASS
1468	569773.580	129563.150	780.950	0.671	0.450241	TALL GRASS
1469	569776.280	129561.130	780.870	0.746	0.556516	TALL GRASS
1470	569778.670	129558.640	780.780	0.688	0.473344	TALL GRASS
1471	569793.150	129569.320	781.200	0.351	0.123201	TALL GRASS
1472	569790.770	129572.250	781.400	0.327	0.106929	TALL GRASS
1473	569788.240	129575.020	781.410	0.394	0.155236	TALL GRASS
1474	569785.510	129578.210	781.670	0.312	0.097344	TALL GRASS
1475	569783.220	129580.670	781.540	0.316	0.099856	TALL GRASS
1476	569753.880	129338.430	781.630	0.505	0.255025	BRUSH/LOW

1477	569749.810	129337.530	781.710	0.415	0.172225	BRUSH/LOW
1478	569747.130	129336.820	781.760	0.344	0.118336	BRUSH/LOW
1479	569744.360	129336.020	781.760	0.385	0.148225	BRUSH/LOW
1480	569741.160	129334.920	781.870	0.289	0.083521	BRUSH/LOW
1481	569742.280	129331.170	781.950	0.458	0.209764	BRUSH/LOW
1482	569745.730	129332.390	782.090	0.342	0.116964	BRUSH/LOW
1483	569749.970	129333.640	781.890	0.423	0.178929	BRUSH/LOW
1484	569753.000	129334.090	781.890	0.408	0.166464	BRUSH/LOW
1485	569755.650	129334.690	781.950	0.400	0.160000	BRUSH/LOW
1486	569758.840	129335.420	782.020	0.241	0.058081	BRUSH/LOW
1487	569756.960	129339.040	781.800	0.371	0.137641	BRUSH/LOW
1488	569760.640	129333.090	782.080	0.442	0.195364	BRUSH/LOW
1489	569756.500	129332.090	782.210	0.470	0.220900	BRUSH/LOW
1490	569752.440	129331.510	782.300	0.317	0.100489	BRUSH/LOW
1491	569749.540	129330.790	782.190	0.368	0.135424	BRUSH/LOW
1492	569746.970	129330.480	782.230	0.383	0.146689	BRUSH/LOW
1493	569743.770	129329.630	782.180	0.391	0.152881	BRUSH/LOW
1494	569744.260	129326.440	782.510	0.361	0.130321	BRUSH/LOW
1495	569747.300	129327.300	782.370	0.524	0.274576	BRUSH/LOW
1496	569750.790	129327.790	782.570	0.283	0.080089	BRUSH/LOW
1497	569754.140	129328.580	782.730	0.198	0.039204	BRUSH/LOW
1498	569757.950	129329.080	782.480	0.386	0.148996	BRUSH/LOW
1499	569762.240	129329.530	782.390	0.406	0.164836	BRUSH/LOW
1500	569765.080	129330.740	782.320	0.495	0.245025	BRUSH/LOW
1501	570143.920	128923.440	800.680	0.101	0.010201	ASPH
1502	570143.250	128919.740	800.790	0.205	0.042025	ASPH
1503	570143.110	128916.350	800.790	0.394	0.155236	ASPH
1504	570144.300	128913.220	800.910	0.245	0.060025	ASPH
1505	570144.110	128909.470	801.130	0.071	0.005041	ASPH
1506	570138.510	128913.590	800.930	0.214	0.045796	ASPH
1507	570138.920	128916.770	800.780	0.409	0.167281	ASPH
1508	570139.310	128920.170	800.720	0.239	0.057121	ASPH
1509	570139.740	128923.090	800.640	0.131	0.017161	ASPH
1510	570136.180	128923.490	800.540	0.134	0.017956	ASPH
1511	570135.190	128920.520	800.620	0.076	0.005776	ASPH
1512	570134.510	128917.510	800.680	0.221	0.048841	ASPH
1513	570133.660	128914.100	800.850	0.153	0.023409	ASPH
1514	570132.820	128911.040	800.950	0.221	0.048841	ASPH
1515	570128.660	128911.830	800.930	0.164	0.026896	ASPH
1516	570128.680	128915.020	800.780	0.127	0.016129	ASPH
1517	570128.990	128917.940	800.630	0.225	0.050625	ASPH
1518	570129.060	128921.430	800.490	0.100	0.010000	ASPH
1519	570129.430	128924.490	800.360	0.159	0.025281	ASPH
1520	570125.390	128924.830	800.350	0.073	0.005329	ASPH
1521	570124.840	128921.650	800.420	0.176	0.030976	ASPH
1522	570124.730	128918.270	800.590	0.247	0.061009	ASPH
1523	570124.580	128914.890	800.740	0.188	0.035344	ASPH
1524	570123.940	128911.600	800.880	0.101	0.010201	ASPH
1525	570126.100	128913.250	800.810	0.118	0.013924	ASPH
1526	569274.270	128947.900	789.870	0.163	0.026569	CONC
1527	569271.100	128947.930	789.860	0.151	0.022801	CONC
1528	569268.440	128948.230	789.870	0.120	0.014400	CONC
1529	569265.920	128948.160	789.880	0.148	0.021904	CONC
1530	569263.260	128948.020	789.870	0.190	0.036100	CONC
1531	569263.840	128951.180	789.900	0.230	0.052900	CONC
1532	569267.250	128951.120	789.900	0.137	0.018769	CONC
1533	569269.930	128950.490	789.880	0.133	0.017689	CONC
1534	569272.810	128950.690	789.880	0.136	0.018496	CONC
1535	569275.570	128950.450	789.880	0.130	0.016900	CONC
1536	569275.350	128953.270	789.840	0.145	0.021025	CONC
1537	569272.460	128953.510	789.860	0.141	0.019881	CONC
1538	569269.780	128953.680	789.850	0.201	0.040401	CONC
1539	569266.840	128953.700	789.870	0.189	0.035721	CONC

1540	569264.130	128954.030	789.860	0.135	0.018225 CONC
1541	569264.030	128957.660	789.840	0.259	0.067081 CONC
1542	569267.610	128957.600	789.810	0.238	0.056644 CONC
1543	569270.370	128957.570	789.840	0.221	0.048841 CONC
1544	569272.610	128957.600	789.830	0.219	0.047961 CONC
1545	569275.740	128957.520	789.830	0.180	0.032400 CONC
1546	569275.940	128960.270	789.860	0.197	0.038809 CONC
1547	569272.800	128960.560	789.810	0.292	0.085264 CONC
1548	569270.360	128960.730	789.790	0.293	0.085849 CONC
1549	569267.650	128961.110	789.810	0.220	0.048400 CONC
1550	569264.960	128961.290	789.790	0.197	0.038809 CONC
5001	654559.120	212609.370	837.250	-0.292	0.085264 TREE COVE
5002	654559.260	212613.720	837.300	-0.219	0.047961 TREE COVE
5005	654559.930	212622.830	837.570	-0.358	0.128164 TREE COVE
5006	654562.860	212622.660	837.550	-0.374	0.139876 TREE COVE
5007	654563.490	212619.100	837.630	-0.470	0.220900 TREE COVE
5008	654563.310	212616.270	837.360	-0.248	0.061504 TREE COVE
5009	654562.940	212613.740	837.350	-0.214	0.045796 TREE COVE
5010	654562.640	212610.610	837.430	-0.316	0.099856 TREE COVE
5011	654566.220	212610.450	837.400	-0.366	0.133956 TREE COVE
5012	654566.710	212613.480	837.420	-0.237	0.056169 TREE COVE
5013	654567.610	212617.260	837.450	-0.291	0.084681 TREE COVE
5014	654567.680	212620.600	837.590	-0.270	0.072900 TREE COVE
5015	654568.120	212623.290	837.710	-0.388	0.150544 TREE COVE
5016	654570.670	212622.740	837.650	-0.073	0.005329 TREE COVE
5017	654571.050	212618.720	837.520	0.079	0.006241 TREE COVE
5018	654570.730	212616.280	837.440	-0.030	0.000900 TREE COVE
5019	654570.670	212613.470	837.520	-0.171	0.029241 TREE COVE
5020	654570.490	212610.100	837.410	-0.327	0.106929 TREE COVE
5021	654574.210	212610.020	837.290	-0.213	0.045369 TREE COVE
5022	654574.620	212613.690	837.390	-0.155	0.024025 TREE COVE
5023	654575.050	212617.230	837.510	-0.312	0.097344 TREE COVE
5024	654574.310	212620.970	837.500	0.048	0.002304 TREE COVE
5025	654575.070	212624.400	837.610	-0.080	0.006400 TREE COVE
5101	610880.430	141194.430	1036.740	0.326	0.106276 MOWED GRASS
5102	610884.090	141194.210	1036.780	0.333	0.110889 MOWED GRASS
5103	610886.880	141194.130	1036.850	0.285	0.081225 MOWED GRASS
5104	610890.430	141194.170	1036.840	0.388	0.150544 MOWED GRASS
5105	610893.280	141194.030	1036.900	0.407	0.165649 MOWED GRASS
5106	610896.530	141193.930	1036.950	0.264	0.069696 MOWED GRASS
5107	610899.440	141193.820	1036.970	0.245	0.060025 MOWED GRASS
5108	610897.150	141197.830	1036.900	0.257	0.066049 MOWED GRASS
5109	610894.070	141197.970	1036.910	0.249	0.062001 MOWED GRASS
5110	610891.500	141198.100	1036.860	0.278	0.077284 MOWED GRASS
5111	610888.910	141198.160	1036.840	0.313	0.097969 MOWED GRASS
5112	610886.000	141198.240	1036.770	0.280	0.078400 MOWED GRASS
5113	610886.200	141201.380	1036.700	0.311	0.096721 MOWED GRASS
5114	610889.060	141201.570	1036.720	0.330	0.108900 MOWED GRASS
5115	610891.700	141201.680	1036.740	0.257	0.066049 MOWED GRASS
5116	610894.590	141201.610	1036.820	0.192	0.036864 MOWED GRASS
5117	610897.470	141201.730	1036.850	0.248	0.061504 MOWED GRASS
5118	610897.380	141205.030	1036.780	0.253	0.064009 MOWED GRASS
5119	610894.030	141204.730	1036.750	0.234	0.054756 MOWED GRASS
5120	610891.470	141204.830	1036.690	0.299	0.089401 MOWED GRASS
5121	610888.870	141204.920	1036.670	0.299	0.089401 MOWED GRASS
5122	610885.940	141204.940	1036.660	0.286	0.081796 MOWED GRASS
5123	610889.710	141208.940	1036.640	0.235	0.055225 MOWED GRASS
5124	610893.180	141208.800	1036.650	0.258	0.066564 MOWED GRASS
5125	610896.100	141208.500	1036.720	0.249	0.062001 MOWED GRASS
5126	610755.930	140910.230	1037.710	0.243	0.059049 CONC
5127	610752.700	140909.870	1037.690	0.182	0.033124 CONC
5128	610750.040	140909.830	1037.640	0.231	0.053361 CONC
5129	610747.180	140909.700	1037.680	0.154	0.023716 CONC

5130	610744.580	140909.590	1037.620	0.139	0.019321	CONC
5131	610744.190	140911.720	1037.640	0.179	0.032041	CONC
5132	610747.900	140912.470	1037.690	0.192	0.036864	CONC
5133	610750.490	140912.250	1037.630	0.252	0.063504	CONC
5134	610752.910	140912.070	1037.680	0.197	0.038809	CONC
5135	610755.460	140912.050	1037.710	0.208	0.043264	CONC
5136	610755.180	140915.110	1037.670	0.192	0.036864	CONC
5137	610752.190	140914.740	1037.710	0.161	0.025921	CONC
5138	610749.690	140914.900	1037.630	0.251	0.063001	CONC
5139	610747.090	140914.620	1037.590	0.304	0.092416	CONC
5140	610744.700	140914.520	1037.610	0.289	0.083521	CONC
5141	610744.910	140917.870	1037.570	0.134	0.017956	CONC
5142	610747.700	140917.550	1037.580	0.277	0.076729	CONC
5143	610750.450	140917.530	1037.550	0.295	0.087025	CONC
5144	610752.490	140917.170	1037.630	0.209	0.043681	CONC
5145	610755.800	140917.640	1037.560	0.261	0.068121	CONC
5146	610755.320	140920.950	1037.510	0.208	0.043264	CONC
5147	610752.080	140920.240	1037.580	0.155	0.024025	CONC
5148	610749.700	140920.400	1037.540	0.226	0.051076	CONC
5149	610747.040	140920.180	1037.540	0.226	0.051076	CONC
5150	610744.740	140920.290	1037.590	0.131	0.017161	CONC
5151	610856.000	141004.010	1037.650	0.442	0.195364	ASPH
5152	610856.320	141007.550	1037.610	0.356	0.126736	ASPH
5153	610856.450	141010.380	1037.590	0.394	0.155236	ASPH
5154	610856.670	141013.030	1037.510	0.382	0.145924	ASPH
5155	610856.420	141015.680	1037.490	0.317	0.100489	ASPH
5156	610860.180	141015.420	1037.560	0.421	0.177241	ASPH
5157	610859.860	141011.820	1037.590	0.406	0.164836	ASPH
5158	610859.820	141009.220	1037.670	0.418	0.174724	ASPH
5159	610859.280	141006.290	1037.660	0.498	0.248004	ASPH
5160	610859.450	141003.370	1037.700	0.425	0.180625	ASPH
5161	610862.820	141003.800	1037.680	0.383	0.146689	ASPH
5162	610862.710	141007.070	1037.660	0.328	0.107584	ASPH
5163	610862.740	141009.580	1037.610	0.329	0.108241	ASPH
5164	610862.720	141012.150	1037.580	0.291	0.084681	ASPH
5165	610863.000	141014.840	1037.580	0.326	0.106276	ASPH
5166	610866.280	141015.020	1037.630	0.129	0.016641	ASPH
5167	610865.660	141011.720	1037.640	0.252	0.063504	ASPH
5168	610865.680	141009.060	1037.650	0.263	0.069169	ASPH
5169	610865.610	141006.410	1037.680	0.269	0.072361	ASPH
5170	610865.500	141003.620	1037.720	0.376	0.141376	ASPH
5171	610868.980	141003.940	1037.740	0.386	0.148996	ASPH
5172	610868.880	141007.120	1037.700	0.208	0.043264	ASPH
5173	610869.060	141010.370	1037.680	0.154	0.023716	ASPH
5174	610869.320	141012.680	1037.650	0.252	0.063504	ASPH
5175	610869.550	141015.200	1037.600	0.257	0.066049	ASPH
5176	611198.380	141231.450	1050.160	0.482	0.232324	TREE COVE
5177	611195.760	141230.200	1050.110	0.349	0.121801	TREE COVE
5178	611193.430	141229.030	1050.060	0.286	0.081796	TREE COVE
5179	611190.710	141227.700	1050.040	0.348	0.121104	TREE COVE
5180	611188.300	141226.610	1049.980	0.590	0.348100	TREE COVE
5181	611189.850	141223.160	1049.970	0.692	0.478864	TREE COVE
5182	611192.060	141224.500	1050.000	0.519	0.269361	TREE COVE
5183	611194.710	141225.600	1050.050	0.312	0.097344	TREE COVE
5184	611196.940	141226.740	1050.050	0.423	0.178929	TREE COVE
5185	611199.540	141227.990	1050.150	0.440	0.193600	TREE COVE
5186	611202.320	141229.390	1050.230	0.424	0.179776	TREE COVE
5187	611198.320	141222.900	1050.030	0.389	0.151321	TREE COVE
5188	611195.010	141221.600	1049.980	0.415	0.172225	TREE COVE
5189	611192.620	141220.480	1049.990	0.524	0.274576	TREE COVE
5190	611189.040	141218.990	1049.960	0.722	0.521284	TREE COVE
5191	611187.050	141214.520	1049.890	0.755	0.570025	TREE COVE
5192	611190.300	141215.090	1049.910	0.671	0.450241	TREE COVE

5193	611192.860	141215.980	1049.930	0.539	0.290521	TREE COVE
5194	611195.670	141217.200	1049.960	0.394	0.155236	TREE COVE
5195	611198.980	141218.490	1050.010	0.397	0.157609	TREE COVE
5196	611200.030	141215.160	1050.030	0.220	0.048400	TREE COVE
5197	611196.760	141214.360	1049.940	0.347	0.120409	TREE COVE
5198	611194.030	141213.900	1049.890	0.503	0.253009	TREE COVE
5199	611191.600	141212.850	1049.910	0.559	0.312481	TREE COVE
5200	611188.610	141212.200	1049.880	0.651	0.423801	TREE COVE
5226	570358.700	129252.420	778.370	0.320	0.102400	TREE COVE
5227	570356.290	129254.770	778.320	0.499	0.249001	TREE COVE
5228	570353.790	129256.540	778.400	0.329	0.108241	TREE COVE
5229	570351.590	129258.360	778.250	0.337	0.113569	TREE COVE
5230	570349.850	129260.810	778.580	-0.140	0.019600	TREE COVE
5231	570347.230	129258.160	778.440	0.215	0.046225	TREE COVE
5232	570349.280	129255.910	778.390	0.276	0.076176	TREE COVE
5233	570351.020	129253.280	778.420	0.307	0.094249	TREE COVE
5234	570353.150	129251.360	778.420	0.216	0.046656	TREE COVE
5235	570355.280	129249.110	778.540	0.200	0.040000	TREE COVE
5236	570357.740	129247.150	778.570	0.152	0.023104	TREE COVE
5237	570359.580	129248.630	778.360	0.304	0.092416	TREE COVE
5238	570353.160	129244.890	778.630	0.462	0.213444	TREE COVE
5239	570351.170	129247.010	778.620	0.372	0.138384	TREE COVE
5240	570350.710	129251.810	778.340	0.333	0.110889	TREE COVE
5241	570348.080	129254.270	778.410	0.269	0.072361	TREE COVE
5242	570346.110	129256.570	778.450	0.281	0.078961	TREE COVE
5243	570342.720	129253.340	778.470	0.674	0.454276	TREE COVE
5244	570344.470	129250.610	778.530	0.439	0.192721	TREE COVE
5245	570346.960	129248.610	778.580	0.514	0.264196	TREE COVE
5246	570348.760	129246.030	778.650	0.474	0.224676	TREE COVE
5247	570351.070	129243.680	778.740	0.586	0.343396	TREE COVE
5248	570347.740	129260.390	778.390	0.194	0.037636	TREE COVE
5249	570345.020	129258.420	778.520	0.282	0.079524	TREE COVE
5250	570341.620	129254.600	778.600	0.663	0.439569	TREE COVE
2826	575410.430	204556.070	1115.140	-0.403	0.162409	TALL GRASS
2827	575407.850	204557.080	1115.180	-0.474	0.224676	TALL GRASS
2828	575405.310	204557.810	1115.180	-0.460	0.211600	TALL GRASS
2829	575402.410	204558.050	1115.090	-0.396	0.156816	TALL GRASS
2830	575399.170	204558.860	1115.030	-0.415	0.172225	TALL GRASS
2831	575398.470	204555.910	1115.010	-0.445	0.198025	TALL GRASS
2832	575402.210	204555.690	1114.990	-0.380	0.144400	TALL GRASS
2833	575406.110	204555.200	1115.070	-0.429	0.184041	TALL GRASS
2834	575409.280	204554.350	1115.130	-0.465	0.216225	TALL GRASS
2835	575412.990	204553.340	1115.110	-0.439	0.192721	TALL GRASS
2836	575414.700	204559.000	1115.240	-0.403	0.162409	TALL GRASS
2837	575411.720	204559.360	1115.300	-0.437	0.190969	TALL GRASS
2838	575409.000	204559.350	1115.250	-0.451	0.203401	TALL GRASS
2839	575406.330	204559.790	1115.240	-0.450	0.202500	TALL GRASS
2840	575402.870	204559.690	1115.120	-0.375	0.140625	TALL GRASS
2841	575403.030	204562.860	1115.090	-0.298	0.088804	TALL GRASS
2842	575406.250	204562.160	1115.220	-0.373	0.139129	TALL GRASS
2843	575409.570	204562.350	1115.320	-0.419	0.175561	TALL GRASS
2844	575412.550	204561.940	1115.370	-0.396	0.156816	TALL GRASS
2845	575415.980	204560.810	1115.320	-0.438	0.191844	TALL GRASS
2846	575416.540	204563.780	1115.330	-0.387	0.149769	TALL GRASS
2847	575413.240	204564.370	1115.400	-0.481	0.231361	TALL GRASS
2848	575409.910	204564.510	1115.350	-0.494	0.244036	TALL GRASS
2849	575406.950	204564.670	1115.250	-0.439	0.192721	TALL GRASS
2850	575403.750	204564.650	1115.130	-0.344	0.118336	TALL GRASS
2851	575709.370	204720.170	1114.710	-0.451	0.203401	MOWED GRASS
2852	575711.200	204718.110	1114.790	-0.516	0.266256	MOWED GRASS
2853	575713.400	204716.800	1114.830	-0.465	0.216225	MOWED GRASS
2854	575715.660	204715.040	1114.850	-0.431	0.185761	MOWED GRASS
2855	575718.000	204713.210	1114.810	-0.428	0.183184	MOWED GRASS

2856	575716.300	204711.200	1114.900	-0.486	0.236196 MOWED GRASS
2857	575714.420	204713.150	1114.880	-0.425	0.180625 MOWED GRASS
2858	575712.180	204715.320	1114.980	-0.561	0.314721 MOWED GRASS
2859	575710.240	204717.250	1114.770	-0.489	0.239121 MOWED GRASS
2860	575708.070	204718.970	1114.750	-0.460	0.211600 MOWED GRASS
2861	575705.950	204716.510	1114.800	-0.392	0.153664 MOWED GRASS
2862	575707.740	204714.520	1114.880	-0.445	0.198025 MOWED GRASS
2863	575709.640	204712.530	1114.880	-0.310	0.096100 MOWED GRASS
2864	575711.670	204710.510	1114.870	-0.382	0.145924 MOWED GRASS
2865	575714.080	204708.650	1114.910	-0.468	0.219024 MOWED GRASS
2866	575712.060	204706.310	1114.900	-0.402	0.161604 MOWED GRASS
2867	575709.880	204708.260	1114.890	-0.393	0.154449 MOWED GRASS
2868	575707.810	204710.030	1114.890	-0.408	0.166464 MOWED GRASS
2869	575705.760	204711.820	1114.940	-0.533	0.284089 MOWED GRASS
2870	575703.760	204713.590	1114.920	-0.453	0.205209 MOWED GRASS
2871	575701.500	204711.220	1114.940	-0.421	0.177241 MOWED GRASS
2872	575703.510	204708.940	1114.930	-0.452	0.204304 MOWED GRASS
2873	575705.280	204706.870	1115.030	-0.590	0.348100 MOWED GRASS
2874	575707.030	204705.010	1114.930	-0.387	0.149769 MOWED GRASS
2875	575708.950	204703.050	1115.020	-0.378	0.142884 MOWED GRASS
2876	577307.120	198387.650	1055.690	-0.152	0.023104 BRUSH/LOW
2877	577306.220	198385.090	1055.510	-0.121	0.014641 BRUSH/LOW
2878	577305.350	198382.720	1055.370	-0.248	0.061504 BRUSH/LOW
2879	577304.070	198379.650	1055.050	-0.279	0.077841 BRUSH/LOW
2880	577303.330	198375.960	1054.640	-0.181	0.032761 BRUSH/LOW
2881	577306.410	198375.020	1054.720	-0.039	0.001521 BRUSH/LOW
2882	577307.100	198377.660	1054.880	0.066	0.004356 BRUSH/LOW
2883	577306.970	198380.300	1055.180	-0.094	0.008836 BRUSH/LOW
2884	577306.370	198384.100	1055.430	-0.116	0.013456 BRUSH/LOW
2885	577308.960	198384.460	1055.550	-0.240	0.057600 BRUSH/LOW
2886	577309.600	198381.270	1055.310	-0.231	0.053361 BRUSH/LOW
2887	577309.480	198377.790	1054.890	0.060	0.003600 BRUSH/LOW
2888	577309.890	198373.880	1054.780	-0.102	0.010404 BRUSH/LOW
2889	577306.840	198367.990	1054.290	0.103	0.010609 BRUSH/LOW
2890	577306.120	198365.230	1054.040	-0.090	0.008100 BRUSH/LOW
2891	577313.010	198370.070	1054.560	-0.012	0.000144 BRUSH/LOW
2892	577312.670	198372.430	1054.660	-0.129	0.016641 BRUSH/LOW
2893	577311.920	198374.970	1054.740	0.003	0.000009 BRUSH/LOW
2894	577312.870	198377.470	1054.950	-0.043	0.001849 BRUSH/LOW
2895	577312.960	198380.740	1055.270	-0.138	0.019044 BRUSH/LOW
2896	577315.980	198377.910	1055.210	-0.172	0.029584 BRUSH/LOW
2897	577316.780	198374.450	1054.950	0.081	0.006561 BRUSH/LOW
2898	577316.210	198370.870	1054.940	-0.054	0.002916 BRUSH/LOW
2899	577316.850	198368.840	1054.880	0.028	0.000784 BRUSH/LOW
2900	577316.300	198366.840	1054.730	-0.008	0.000064 BRUSH/LOW
2901	575671.960	196816.190	1088.850	-0.566	0.320356 ASPH
2902	575668.550	196817.060	1088.800	-0.433	0.187489 ASPH
2903	575665.500	196818.100	1088.810	-0.506	0.256036 ASPH
2904	575661.930	196819.200	1088.930	-0.501	0.251001 ASPH
2905	575657.930	196820.480	1088.890	-0.496	0.246016 ASPH
2906	575658.650	196823.670	1088.770	-0.305	0.093025 ASPH
2907	575661.980	196822.720	1088.700	-0.574	0.329476 ASPH
2908	575665.580	196821.280	1088.850	-0.662	0.438244 ASPH
2909	575669.160	196819.920	1088.760	-0.325	0.105625 ASPH
2910	575672.400	196819.000	1088.740	-0.407	0.165649 ASPH
2911	575676.010	196817.690	1088.650	-0.261	0.068121 ASPH
2912	575677.630	196821.140	1088.620	-0.432	0.186624 ASPH
2913	575674.080	196822.340	1088.610	-0.348	0.121104 ASPH
2914	575670.520	196823.540	1088.600	-0.300	0.090000 ASPH
2915	575667.590	196824.640	1088.650	-0.344	0.118336 ASPH
2916	575667.840	196830.190	1088.510	-0.515	0.265225 ASPH
2917	575670.580	196829.330	1088.410	-0.311	0.096721 ASPH
2918	575673.280	196828.240	1088.490	-0.347	0.120409 ASPH

2919	575676.120	196827.190	1088.350	-0.276	0.076176	ASPH
2920	575679.390	196826.220	1088.280	-0.227	0.051529	ASPH
2921	575680.430	196829.540	1088.260	-0.152	0.023104	ASPH
2922	575677.510	196830.720	1088.320	-0.218	0.047524	ASPH
2923	575673.980	196831.810	1088.340	-0.275	0.075625	ASPH
2924	575670.650	196832.880	1088.290	-0.329	0.108241	ASPH
2925	575667.390	196834.050	1088.250	-0.372	0.138384	ASPH
2926	575193.410	196366.630	1071.670	-0.404	0.163216	GRASSV
2927	575191.180	196363.440	1071.670	-0.411	0.168921	GRASSV
2928	575188.900	196360.140	1071.690	-0.495	0.245025	GRASSV
2929	575186.410	196357.040	1071.580	-0.515	0.265225	GRASSV
2930	575183.990	196354.010	1071.460	-0.463	0.214369	GRASSV
2931	575187.430	196351.660	1071.470	-0.446	0.198916	GRASSV
2932	575189.150	196354.510	1071.530	-0.396	0.156816	GRASSV
2933	575191.030	196356.630	1071.580	-0.432	0.186624	GRASSV
2934	575193.370	196359.630	1071.620	-0.485	0.235225	GRASSV
2935	575195.730	196363.010	1071.590	-0.390	0.152100	GRASSV
2936	575198.600	196361.250	1071.540	-0.374	0.139876	GRASSV
2937	575197.130	196358.820	1071.540	-0.392	0.153664	GRASSV
2938	575195.440	196356.620	1071.600	-0.456	0.207936	GRASSV
2939	575193.250	196354.100	1071.500	-0.305	0.093025	GRASSV
2940	575191.650	196351.780	1071.450	-0.344	0.118336	GRASSV
2941	575189.490	196349.300	1071.420	-0.492	0.242064	GRASSV
2942	575191.720	196345.910	1071.310	-0.486	0.236196	GRASSV
2943	575194.480	196348.470	1071.410	-0.481	0.231361	GRASSV
2944	575196.590	196351.220	1071.460	-0.449	0.201601	GRASSV
2945	575199.110	196354.450	1071.470	-0.432	0.186624	GRASSV
2946	575203.810	196353.380	1071.300	-0.494	0.244036	GRASSV
2947	575202.030	196350.690	1071.340	-0.429	0.184041	GRASSV
2948	575200.170	196347.310	1071.320	-0.402	0.161604	GRASSV
2949	575197.850	196343.930	1071.350	-0.432	0.186624	GRASSV
2950	575195.490	196340.570	1071.240	-0.427	0.182329	GRASSV
5526	575503.340	205172.890	1088.620	-0.462	0.213444	TREE COVE
5527	575500.660	205171.040	1088.710	-0.409	0.167281	TREE COVE
5528	575497.600	205169.800	1088.840	-0.223	0.049729	TREE COVE
5529	575494.800	205169.380	1088.990	-0.477	0.227529	TREE COVE
5530	575491.620	205167.590	1089.150	-0.273	0.074529	TREE COVE
5531	575494.960	205166.350	1089.170	-0.256	0.065536	TREE COVE
5532	575497.370	205167.750	1089.050	-0.002	0.000004	TREE COVE
5533	575500.310	205169.170	1088.990	-0.429	0.184041	TREE COVE
5534	575502.880	205170.550	1088.890	-0.532	0.283024	TREE COVE
5535	575505.100	205171.910	1088.680	-0.413	0.170569	TREE COVE
5536	575506.300	205169.030	1089.010	-0.449	0.201601	TREE COVE
5537	575503.680	205167.820	1089.020	-0.419	0.175561	TREE COVE
5538	575501.030	205166.730	1088.960	-0.060	0.003600	TREE COVE
5539	575498.390	205165.860	1089.370	-0.249	0.062001	TREE COVE
5540	575496.230	205164.410	1089.480	-0.331	0.109561	TREE COVE
5541	575498.540	205162.310	1089.630	-0.405	0.164025	TREE COVE
5542	575500.740	205163.900	1089.450	-0.431	0.185761	TREE COVE
5543	575502.890	205165.140	1089.430	-0.570	0.324900	TREE COVE
5544	575504.630	205168.000	1088.930	-0.297	0.088209	TREE COVE
5545	575506.580	205169.440	1088.900	-0.390	0.152100	TREE COVE
5546	575507.760	205167.280	1089.040	-0.303	0.091809	TREE COVE
5547	575504.970	205165.700	1089.150	-0.413	0.170569	TREE COVE
5548	575503.180	205164.590	1089.230	-0.352	0.123904	TREE COVE
5549	575501.320	205164.110	1089.420	-0.429	0.184041	TREE COVE
5550	575499.430	205162.360	1089.710	-0.530	0.280900	TREE COVE

Sum	112.422773
Average	0.150097
RMSE	0.387424
Accuracyz	0.759351

FIELD NOTES
Project FEMA ground survey notes
Contains point number and descriptions
Includes Control and Check Points left out of statistical analysis

RECYCLABLE

6 32281 31111 9

WROC   Ground-Truthing   2010/2011

2010 {
22-1269.20 Vernon County
22-1332.20 Adams County
22-1336.10 Juneau County
22-1343.10 Monroe County
22-1368.10 Iowa County
22-1370.10 Crawford County Corridor
}

"Rite in the Rain"
ALL-WEATHER
LEVEL
No. 311

2011 {
22-1380.
22-1385.
}

Green County
Lafayette County

426

5-20-2011 Green County Ground-Truthing Jace Vogter

Location #1:
* Base setup @ PID "DG4824" (Belleville GPS)
* Checked into PID "DG4833" (Brooklyn C GPS)
  - Vertical within 0.09'

✓ Brush/Low Trees: 1001-1025
✓ Mowed Grass: 1026-1050
✓ Tall grass/Weeds: 1051-1075
✓ Tree Cover: 5001-5025
✓ ~~Concrete: 1076-1100~~
✓ Asphalt: 1076-1100
✓ Concrete: 1101-1125
✓ Gravel: 1126-1150

5-23-2011
Location #2:
* Base setup at PID "DE9437" (Brodhead GPS)
* Checked into PID "DG4965" (Spring Valley, C GPS)

✓ Brush/Low Trees: 1200-1225
✓ Tall Grass/Weeds: 1226-1250
✓ Mowed Grass: 1251-1275
✓ Asphalt: 1276-1300
✓ Concrete: 1301-1325
✓ Tree Cover: 5051-5075

Location #3:
* Base setup @ PID "DH5003" (Browntown GPS)
* Checked into PID "DH5004" (Cadiz N GPS)
  - Vertical within 0.05' ✓

✓ Brush/Low Trees: 1351-1375
✓ Tall Grass/Weeds: 1376-1400
✓ Tree Cover: ~~5200~~ 5176-5200
✓ Mowed Grass: 5101-5125
✓ Concrete: 5126-5150
✓ Asphalt: 5151-5175

5-24-2011
Location #4:
✓ Tall Grass/Weeds: ~~2000-2024~~ 1451-1475
✓ Mowed Grass: ~~2026-2050~~ 1425-1450
✓ Brush/Low Trees: ~~2051-2075~~ 1476-1500
✓ Asphalt: ~~2076-2100~~ 1901-1525
✓ Concrete: ~~2101-2125~~ 1526-1550
✓ Conc Tree Cover: ~~5226-5250~~ 5226-5250

* ~~Checked into~~ ~~Base setup at~~ PID "DH5004" (Cadiz N GPS)
* Base setup at PID "DH4976" (South Wayne GB)
  - Vertical within 0.05' ✓

5-28-2011   Green Co. Ground-Truthing

Location 5:
      * Base setup ⓐ
      * Checked into
         - Vertical within 0.05'

✓ Tree Cover: ~~5476-5500~~ 5526-5550
✓ Tall Grass/Weeds: 2826-2850
✓ Mowed Grass = 2851-2875
✓ Brush/Low Trees: 2876-2900
✓ Asphalt: 2901-2925
✓ Gravel: 2926-2950