



Government of Guyana



Guyana Energy Agency

**Preparation of Detailed site investigation report Leguan Island
Solar Photovoltaic Farm project site**

**Surveying Report - Topographic Surveys at Plantation Oakum -Leguan
Solar Farm**

COMPONENT 1: A SITE FEATURE AND TOPOGRAPHIC SURVEY REPORT



23rd December, 2022

Sworn Land Surveyor

A handwritten signature in blue ink, appearing to read 'S. Bailey', with a dotted line underneath.

Sherlock Bailey



INNOVATIVE ENGINEERING CONSULTANCY SERVICES

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1.0 Executive Summary

1.1 Background

Guyana is 96 percent dependent on imported fossil fuel for its electricity generation needs. The cost and reliability of electricity are recognized by the Government of the Cooperative Republic of Guyana as a major factor for profitability and efficiency in business operations, especially in energy-intensive industries such as manufacturing. Component 1 - Renewable energy solutions for the Hinterland under the Energy Matrix Diversification and Institutional Strengthening of the Department of Energy (EMISDE) Programme - is one of three components which will address the energy diversification policy goals of the Government of Guyana. It will finance the investment of solar technology in three townships and the Island of Leguan, by means of the installation of solar PV-tied mini-grid systems in Bartica (1.5 MW), Lethem (1.0 MW), Mahdia (0.65 MW) and Leguan (0.6 MW) totaling 3.75 MW, and the implementation of a storage capacity to manage intermittence of these sources. Overall, this Component will provide a reliable electricity source to the expanding needs of power supply in these communities, now relying on fossil fuel.

In accordance with the Inter - American Bank's Policy OP-703, this operation is classified as Category "B" and it is anticipated that the project will generate moderate impacts that could be easily moderated by the implementation of the required mitigation measures. The main impacts for Component 1 will be associated with land clearing (pre-construction) and erosion during both construction and operations. To meet the requirements of the IDB's Environmental and Social Safeguard Policies, the Government of Guyana will comply, to the satisfaction of the Bank, with the contractual terms and conditions set forth.

Energy Agency (GEA) awarded IECS Consulting Firm to offer consultancy services, in accordance with these Terms of Reference to complete detailed site investigation as it relates to the ground conditions of the proposed Leguan project site. This allows risks and liabilities to be minimized, while maximizing the potential for an economic and safe design to increase the likelihood of the

project being completed on time and within budget. The proposed site investigations for the Leguan Solar Photovoltaic Project site will consist of three (3) components as follows:

Component 1: A Site (Land) Feature and Topographic Survey Report

Component 2: A Geotechnical Engineering Report

Component 3: A Flood Risk Report

Component 1: A Site (Land) Feature and Topographic Survey Report has been undertaken in this report. The details briefly according to deliverables is to carry out a detailed site investigation and design for a Solar Farm at Leguan, Region number two. The objective of the survey was to obtain elevations of the overall site, along with other information pertaining all manmade and natural features within and around the proposed site.

1.2 Survey Location

Location of the Project

The site is located at Plantation OAKUM situated on the Leguan island, Essequibo River.

The Coordinates are as follows:

Plantation OAKUM = 6°55'49.79"N, 58°22'10.35"W

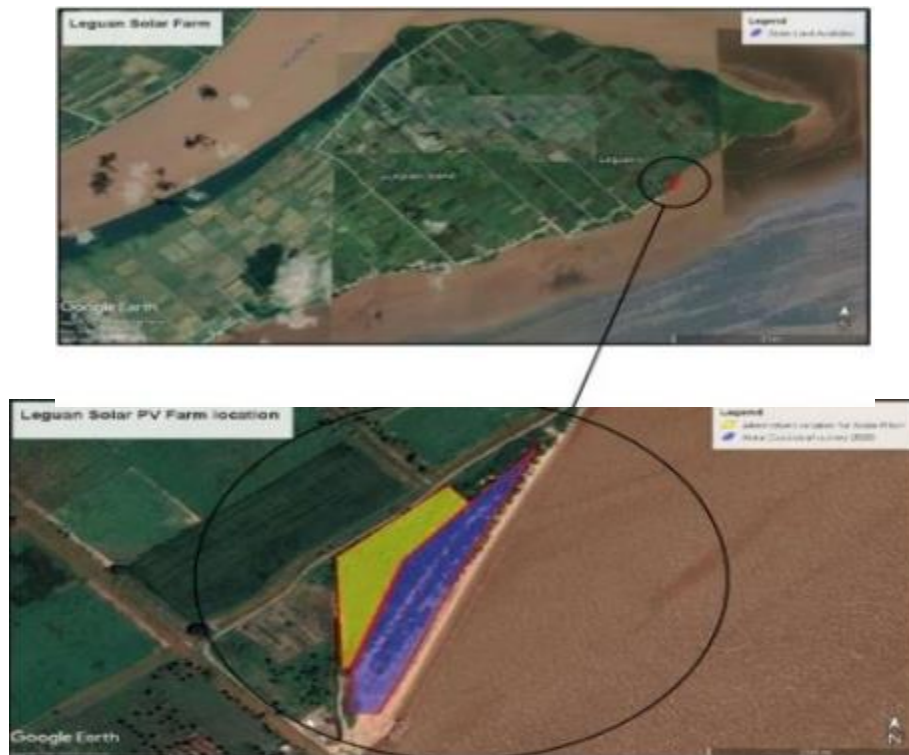


Figure 1: Vicinity Map

2.0 Scope of Works

2.1 General

The scope of work, includes the provision of detail topographical information (levels, distances, all the natural and man-made features), within the vicinity of Solar Farm.

The survey works includes the following;

- To establish/determine horizontal and vertical control points by utilizing ordinary surveying methods (traversing and leveling).
- To carry out detailed topographical survey by collecting (X, Y and Z) of topo features and spot heights.
- To measure changes in elevation or terrain between different points on the site.
- To produce topographical maps/plans and cross sections of the project area using collected data;

In addition to the above, a control marker had to be established on the site with the appropriate coordinates (X-Y-Z).

3.0 Commencement of Survey

The topographic survey commenced on the 02nd December, 2022 and concluded on the 10th December, 2022.

4.0 HSE Management System

The Surveyor took responsibility for all HSE related issues during the survey. Prior to the daily commencement of work, the Surveyor would carry out safety briefings with the survey crew. The survey operations were performed in day-light hours and regular safety “tool-box” meetings were conducted to ensure that works were performed safely. No one was injured during the works.

5.0 Weather

The weather was generally unfavorable throughout the period of works. Rainfall was intermittent resulting in small windows to carry out the works. A total of six rain days were recorded during the period.

6.0 Instrument and Accessories used

The Instruments used are as follow:

- 1) D GPS (RTK) and Accessories
- 2) Total Station (1 x Topcon GTS 605)
- 3) Automatic Level (Topcon)
- 4) GPS hand held (Garmin)
- 5) Hand Held Radios
- 6) Tripods
- 7) Tape/Chains
- 8) Wooden pegs/steel pipes/(Survey Stations)
- 9) Umbrellas
- 10) Nails
- 11) Hammers
- 12) Cutlasses
- 13) Survey ribbons

7.0 Horizontal Control and Methodology

The works were completed based on the objectives and scope of works set out in the tender document. Works consists of office, field data collection and map production. The reconnaissance (field visit) was carried out prior to commencement of the survey. The reconnaissance survey provided the best or most appropriate locations for primary control points. In addition, the number of (BM) bench marks required to complete the topographical survey were also decided upon during the visit. The GPS crew would then establish the primary control points based on (WGS84), Universal Transversal Mercator (UTM) projection. The topographic survey crew collected all necessary data points and encodes them into the project data base. The coded points were later imported into AutoCAD for plotting, contouring, profile

generation and topographical map production. The data processing and map preparation /production team carried out daily communication and follow –ups to ensure good workflow and quality control and quality assurance of work in progress.

7.10 Methodological Workflow

The methodology focuses primarily on field data collection and management of this data, inclusive of editing, map production and quality assurance and control.

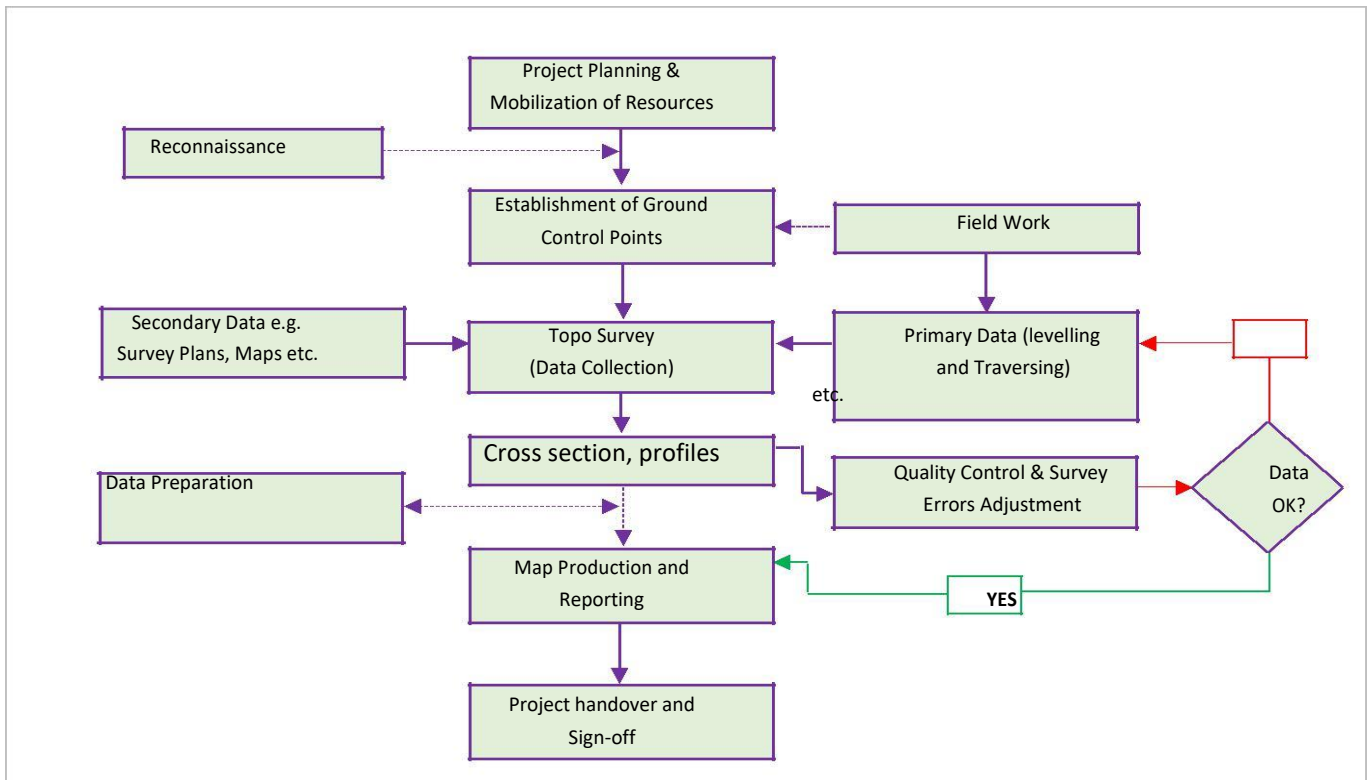


Figure 1: General Methodological Workflow

8.0 Vertical Control

All levels/elevation were referenced to Georgetown Datum (GD).

9.0 Coordinates

The map datum adopted for this survey was World Geodetic System 1984 (WGS84). All station coordinates were based on this system.

10.0 Results and Discussion

10.10 Boundary Markers Controls

Table :2 Details of Permanent Controls

Control Number	EASTING	NORTHINGS	ELEVATION	DESCRIPTION
1	348605.179	766304.609	16.920	Wood In Concrete
2	348708.345	766388.937	16.650	Wood In Concrete
3	348796.755	766451.310	18.040	Wood In Concrete
4	348628.999	766028.215	17.540	Wood In Concrete

10.30 Site Condition

The overall area is covered with medium to heavy bush with the exception of small section on the foreshore. The topography of the area is fairly flat.

11.0 Maps and Drawings

The survey maps and drawings are prepared using AutoCAD 2017. All roads along with ground levels at various points, drains and other descriptive features are incorporated on the map.

12.0 Codes used in Electronic Total Station

CO = Concrete

PGL = Point Ground Level

BB = Bottom of Bank

TB = Top of Bank

ST = Station

TBM= Temporary Bench Mark

F = Fence

13.0 Conclusion

The Topographic survey was concluded successfully. A Microsoft excel file is completed and attached to this report, and contains the coordinates (Eastings, Northings and the Elevation) of each point taken at the site. Attached also is the plan of site along with the cross sections.

14.0 Appendix 1 -Pictures

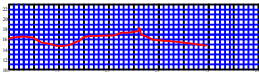


Figures 1-4: illustrating Surveying exercise in process

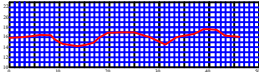
15.0 Appendix 2 - Drawings

Appendix 2 - Contents	
Drawing #1	Contours
Drawing #2	Topographic Survey
Drawing #3	QGIS Model

CONTROL POINTS				
STATION	NORTHINGS	EASTINGS	ELEVATION	REFERENCE SYSTEM
1	766304.609	348605.179	16.92	WGS 84
2	766388.937	348708.345	16.65	WGS 85
3	766451.31	348796.755	18.04	WGS 86
4	766028.215	348628.999	17.54	WGS 87



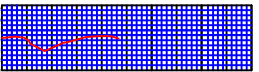
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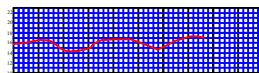
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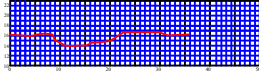
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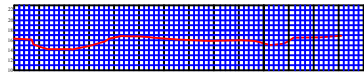
SECTION "E"



SECTION "C"



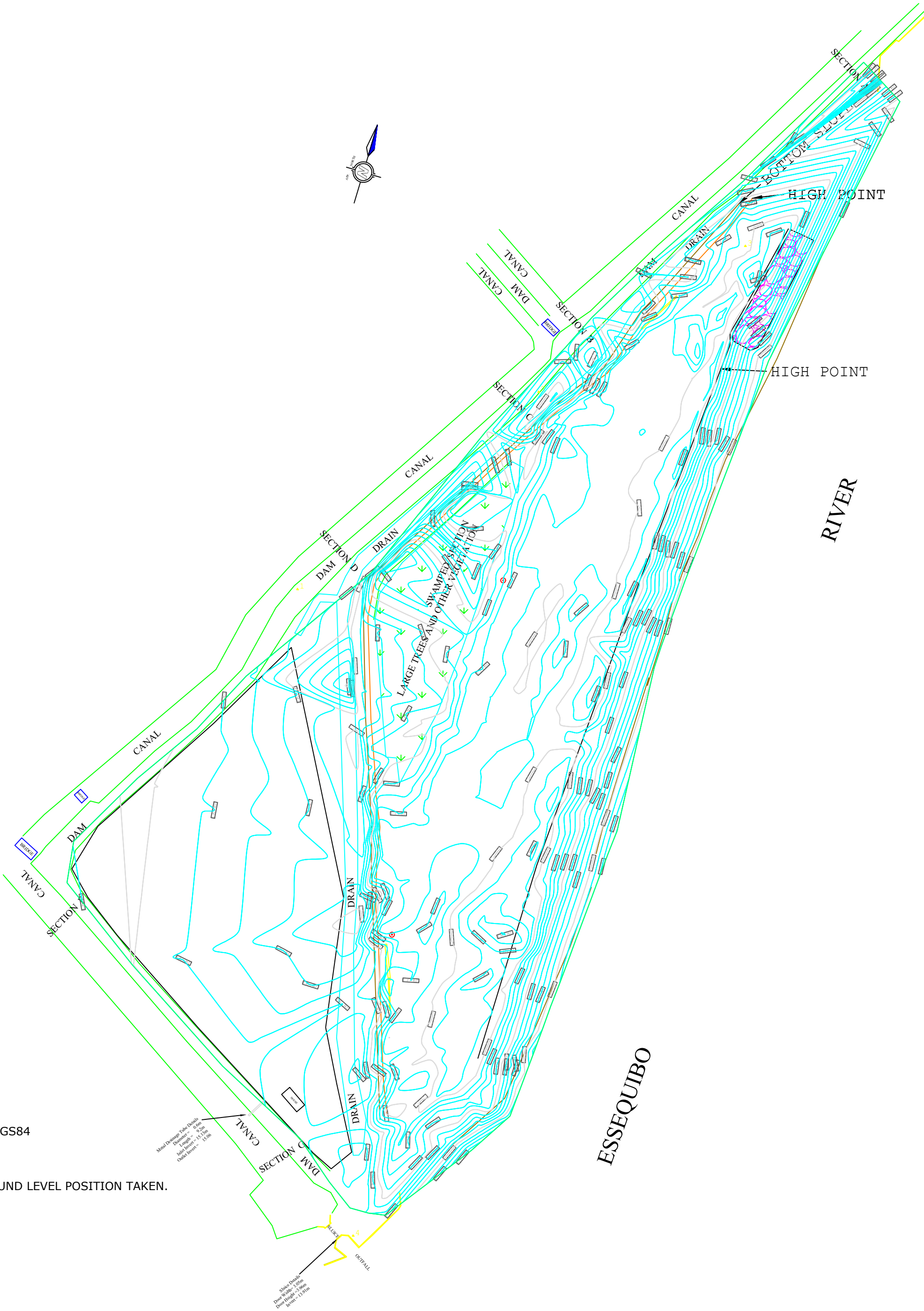
SECTION "F"



SECTION "E"

NOTES

1. ALL DIMENSIONS ARE IN METERS.
2. ALL ELEVATIONS REFERENCE TO AN GEORGETOWN DATUM.
3. COORDINATES USED TO CARRY OUT THE SURVEY WERE REFERENCE WGS84
4. CROSS SECTIONS WERE TAKEN AT SELECTED INTERVALS .
5. THE PLUS SIGN LOCATED AT EACH SPOT LEVEL REPRESENTS THE GROUND LEVEL POSITION TAKEN.
6. LEVELS WERE TAKEN AT 10M INTERVALS
7. Scale 1:1



SCALE 1: 1

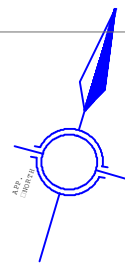
LEGEND

- BIDGE
- DRAIN
- CONCRETE STRUCTURE
- CONTROL POINT
- DRAIN INFLECT
- BOUNDARY PALL POINT
- BOULDER

PROJECT:	CLIENT:	SURVEYED BY:	S. BAILEY	INNOVATIVE ENGINEERING AND CONSULTANCY	
TOPOGRAPHIC SURVEY AT PLANTATION OAKUM LEGUAN SOLAR FARM REGION #2- LEGUAN ISLAND GUYANA	GUYANA ENERGY AGENCY (GEA) 295 QUAMINA STREET SOUTH CUMMINSBURG GEORGETOWN GUYANA	DRAWN BY:	S. BAILEY		
		DATE: 2022-12-19	Signature:		SERVICES GUYANA
		SHEET 1 OF 1			SCALE : 1:1



Leguan Solar Farm



RIVER

SWAMPED SECTION
LARGE TREES AND OTHER VEGETATION

Text

Coordinate System: WGS 1984 UTM Zone 21N
Projection: Transverse Mercator
Datum: WGS 1984
False Easting: 500,000.0000
False Northing: 0.0000
Central Meridian: -57.0000
Scale Factor: 0.9996
Latitude Of Origin: 0.0000
Units: Meter

Metrol Developer P&ID Details
Distance = 9.2m
Length = 12m
Offset = 15.5m

Legend

LSF_Terrain
Elevation, mGD

- 14.5 - 14.6
- 14.7 - 14.8
- 14.9 - 15
- 15.1 - 15.2
- 15.3 - 15.4
- 15.5 - 15.6
- 15.7 - 15.8
- 15.9 - 16
- 16.1 - 16.2
- 16.3 - 16.4
- 16.5 - 16.6
- 16.7 - 16.8
- 16.9 - 17
- 17.1 - 17.2
- 17.3 - 17.4
- 17.5 - 17.6
- 17.7 - 17.8
- 17.9 - 18
- 18.1 - 18.2
- 18.3 - 18.4
- 18.5 - 18.6
- 18.7 - 18.8
- 18.9 - 19



16.0 Appendix 3 – Images taken with Drone

Please see drone images below taken at Leguan Island, Region No. 2





























17.0 Appendix 4 – Surveying Points File

Please see points file below taken at Leguan Island, Region No. 2

1	348726.24	766426.384	14.652	PIL
2	348628.791	766021.224	13.87	PIL
3	348617.259	766033.473	13.936	PIL
4	348510.457	766214.748	13.831	PIL
5	348513.951	766218.269	14.419	PIL
6	348707.974	766381.035	14.501	PIL
7	348726.092	766426.955	14.57	PIL
8	348629.879	766064.781	15.009	PIL
9	348626.482	766263.244	14.967	PIL
10	348628.099	766308.16	14.754	PIL
11	348623.159	766026.673	13.91	PIL
12	348709.708	766431.38	14.741	PIL
13	348698.186	766423.503	14.53	PIL
14	348591.162	766086.129	15.131	PIL
15	348584.582	766079.847	15.063	PIL
16	348634.939	766171.833	16.258	PGL
17	348642.755	766135.774	17.883	PGL
18	348640.001	766137.11	16.961	PGL
19	348646.539	766090	17.824	PGL
20	348638.554	766066.723	16.735	PGL
21	348626.692	766051.737	16.355	PGL
22	348627.613	766040.113	16.544	PGL
23	348619.952	766030.249	16.637	PGL
24	348652.68	766076.71	17.914	PGL
25	348643.466	766080.895	18.078	PGL
26	348642.038	766103.32	17.723	PGL
27	348681.404	766096.862	18.02	PGL
28	348690.424	766092.931	17.146	PGL
29	348697.982	766094.486	16.213	PGL
30	348702.979	766097.818	15.938	PGL
31	348710.143	766116.89	15.818	PGL
32	348640.574	766158.593	17.846	PGL

33	348656.589	766173.667	17.925	PGL
34	348666.16	766169.572	17.54	PGL
35	348675.161	766165.674	18.257	PGL
36	348683.782	766161.526	18.655	PGL
37	348693.319	766157.267	18.818	PGL
38	348702.323	766153.249	18.56	PGL
39	348690.381	766186.454	18.049	PGL
40	348685.6	766193.329	17.862	PGL
41	348639.634	766214.099	17.485	PGL
42	348637.406	766236.485	16.858	PGL
43	348630.437	766239.275	15.934	PGL
44	348672.679	766187.86	17.603	PGL
45	348691.365	766179.838	18.219	PGL
46	348700.546	766175.712	18.32	PGL
47	348709.257	766171.758	18.038	PGL
48	348707.058	766194.388	18.439	PGL
49	348689.016	766202.538	17.881	PGL
50	348674.462	766220.423	17.977	PGL
51	348675.609	766252.453	17.677	PGL
52	348672.048	766243.059	17.556	PGL
53	348662.147	766246.671	17.127	PGL
54	348684.608	766248.406	17.793	PGL
55	348686.92	766225.663	17.74	PGL
56	348695.853	766221.438	17.766	PGL
57	348741.885	766201.296	15.39	PGL
58	348694.915	766276.295	17.845	PGL
59	348651.634	766131.78	17.628	PGL
60	348660.991	766127.548	17.937	PGL
61	348649.362	766154.589	17.704	PGL
62	348653.121	766164.395	17.903	PGL
63	348662.141	766160.143	17.533	PGL
64	348671.439	766155.605	18.016	PGL

65	348680.517	766151.697	18.166	PGL
66	348686.571	766138.617	18.487	PGL
67	348666.612	766114.37	18.346	PGL
68	348675.67	766110.102	18.369	PGL
69	348697.123	766111.572	17	PGL
70	348688.578	766115.275	18.023	PGL
71	348664.324	766137.074	17.842	PGL
72	348705.206	766217.262	18.072	PGL
73	348714.092	766213.287	18.492	PGL
74	348723.59	766209.318	17.241	PGL
75	348732.675	766205.178	16.331	PGL
76	348708.778	766226.876	18.094	PGL
77	348700.881	766263.378	18.066	PGL
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79	348720.509	766287.104	17.678	PGL
80	348724.072	766296.517	17.481	PGL
81	348726.427	766273.676	17.99	PGL
82	348732.035	766260.216	18.505	PGL
83	348719.367	766254.94	18.075	PGL
84	348730.944	766228.129	17.24	PGL
85	348721.527	766232.112	18.227	PGL
86	348736.455	766301.999	17.755	PGL
87	348728.157	766305.841	17.672	PGL
88	348715.243	766300.435	18.128	PGL
89	348717.301	766277.857	17.489	PGL
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92	348740.453	766311.271	17.935	PGL
93	348734.678	766324.637	17.857	PGL
94	348707.399	766336.855	17.867	PGL
95	348710.843	766346.338	17.79	PGL
96	348717.978	766364.901	17.867	PGL

97	348708.763	766369.111	16.914	PGL
98	348705.085	766359.897	16.849	PGL
99	348678.927	766350.74	16.111	PGL
100	348678.832	766344.894	17.525	PGL
101	348698.251	766362.832	17.389	PGL
102	348721.497	766374.275	17.786	PGL
103	348739.704	766366.261	17.936	PGL
104	348745.332	766374.725	17.902	PGL
105	348737.652	766389.067	17.888	PGL
106	348746.586	766385.106	17.889	PGL
107	348764.937	766376.877	17.911	PGL
108	348768.418	766386.346	17.965	PGL
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110	348749.648	766307.019	18.403	PGL
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112	348760.231	766335.181	18.337	PGL
113	348751.096	766339.236	17.993	PGL
114	348770.766	766363.491	18.448	PGL
115	348783.028	766357.958	16.246	PGL
116	348774.247	766394.697	18.002	PGL
117	348782.067	766391.218	18.211	PGL
118	348784.046	766401.283	18.262	PGL
119	348779.197	766403.44	17.828	PGL
120	348776.755	766404.526	17.312	PGL
121	348775.796	766415.897	17.504	PGL
122	348768.868	766408.034	17.73	PGL
123	348765.952	766420.165	17.826	PGL
124	348752.129	766426.424	16.491	PGL
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128	348778.997	766425.418	18.007	PGL

129	348779.798	766414.117	17.769	PGL
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135	348792.615	766430.306	17.758	PGL
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138	348786.729	766421.979	17.517	PGL
139	348793.159	766441.009	18.184	PGL
140	348799.344	766438.257	18.666	PGL
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142	348807.936	766445.381	18.556	PGL
143	348806.447	766446.043	18.597	PGL
144	348804.155	766447.062	18.305	PGL
145	348797.501	766450.022	17.926	PGL
146	348795.32	766461.936	17.89	PGL
147	348800.841	766459.481	18.009	PGL
148	348809.107	766455.804	18.497	PGL
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151	348793.59	766397.038	16.731	PGL
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153	348795.67	766478.84	16.467	PGL
154	348719.808	766407.988	16.674	PGL
155	348685.795	766372.108	16.982	PGL
156	348562.167	766244.928	16.955	PGL
157	348583.284	766267.436	16.671	PGL
158	348536.706	766223.743	17.072	PGL
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160	348506.604	766179.143	16.738	PGL

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164	348618.712	766051.298	16.528	PGL
165	348643.746	766046.939	17.159	PGL
166	348633.311	766062.927	16.238	PGL
167	348661.603	766072.473	17.034	PGL
168	348655.896	766085.967	17.96	PGL
169	348709.666	766313.946	17.835	PGL
170	348721.92	766319.279	17.901	PGL
171	348745.315	766352.685	17.942	PGL
172	348750.724	766394.216	17.89	PGL
173	348762.015	766400.138	17.908	PGL
174	348758.809	766390.62	17.92	PGL
175	348755.165	766403.185	17.911	PGL
176	348519.755	766203.269	16.287	PGL
177	348518.921	766204.298	16.737	PGL
178	348517.567	766205.971	16.848	PGL
179	348515.654	766208.332	16.609	PGL
180	348513.295	766211.32	15.561	PGL
181	348512.76	766211.905	15.457	PGL
182	348508.597	766216.964	15.306	PGL
183	348508.422	766217.26	15.903	PGL
184	348507.812	766218.013	16.539	PGL
185	348506.695	766219.393	16.686	PGL
186	348505.037	766221.439	16.427	PGL
187	348734.479	766417.07	16.238	PGL
188	348733.307	766418.368	16.592	PGL
189	348731.155	766420.753	16.759	PGL
190	348729.714	766423.288	16.661	PGL
191	348727.972	766424.281	16.032	PGL
192	348727.412	766424.901	15.284	PGL

193	348724.312	766428.336	15.392	PGL
194	348724.046	766428.631	15.779	PGL
195	348722.668	766429.96	16.629	PGL
196	348721.154	766431.836	16.84	PGL
197	348719.547	766433.617	16.826	PGL
198	348637.744	766094.497	16.652	PGL
199	348631.282	766096.949	16.359	PGL
200	348630.572	766118.926	16.489	PGL
201	348635.327	766116.986	16.725	PGL
202	348629.958	766130.165	16.782	PGL
203	348638.392	766126.768	16.756	PGL
204	348637.08	766149.261	16.684	PGL
205	348631.348	766162.678	15.869	PGL
206	348629.714	766141.735	16.421	PGL
207	348631.121	766174.027	16.144	PGL
208	348632.531	766184.279	16.28	PGL
209	348630.74	766218.034	16.053	PGL
210	348634.007	766227.589	16.239	PGL
211	348630.561	766250.42	16.08	PGL
212	348630.289	766261.416	16.12	PGL
213	348630.406	766273.073	16.15	PGL
214	348632.25	766288.147	16.204	PGL
215	348627.659	766288.019	15.966	PGL
216	348632.157	766306.397	15.97	PGL
217	348636.663	766311.606	16.337	PGL
218	348651.366	766319.454	17.743	PGL
219	348660.559	766333.656	16.062	PGL
220	348671.368	766338.369	17.502	PGL
221	348678.876	766350.973	16.035	PGL
222	348703.482	766373.291	15.933	PGL
223	348715.826	766387.845	15.765	PGL
224	348740.838	766398.613	17.99	PGL

225	348747.935	766406.4	17.865	PGL
226	348741.93	766343.489	17.927	PGL
227	348723.682	766351.491	17.719	PGL
228	348719.97	766342.158	17.726	PGL
229	348716.492	766332.756	17.789	PGL
230	348703.994	766327.442	17.853	PGL
231	348700.535	766318.283	17.921	PGL
232	348686.15	766313.393	16.927	PGL
233	348696.385	766308.782	17.587	PGL
234	348677.088	766284.816	17.221	PGL
235	348673.643	766275.271	17.331	PGL
236	348680.018	766272.245	17.513	PGL
237	348679.021	766261.936	17.74	PGL
238	348669.965	766265.864	17.036	PGL
239	348668.693	766233.708	17.803	PGL
240	348665.224	766224.388	17.896	PGL
241	348661.665	766214.881	17.842	PGL
242	348652.589	766219.059	17.316	PGL
243	348646.236	766145.181	17.508	PGL
244	348658.83	766150.32	17.622	PGL
245	348655.066	766141.207	17.581	PGL
246	348669.917	766123.506	18.21	PGL
247	348679.204	766119.676	18.376	PGL
248	348682.507	766128.801	18.259	PGL
249	348673.828	766133.114	18.392	PGL
250	348677	766142.409	18.114	PGL
251	348689.654	766147.609	18.279	PGL
252	348691.829	766125.227	18.135	PGL
253	348684.992	766106.341	18.035	PGL
254	348687.027	766083.143	17.271	PGL
255	348677.86	766087.068	17.624	PGL
256	348662.375	766085.46	18.09	PGL

257	348659.145	766095.322	17.672	PGL
258	348639.845	766071.329	16.8	PGL
259	348637.888	766067.074	16.67	PGL
260	348634.746	766049.777	16.544	PGL
261	348635.693	766037.845	16.612	PGL
262	348642.851	766036.995	16.497	PGL
263	348786.919	766454.739	17.557	PGL
264	348781.533	766446.801	17.337	PGL
265	348772.319	766438.013	16.797	PGL
266	348806.724	766402.249	15.612	PGL
267	348748.38	766417.259	16.806	PGL
268	348803.245	766392.919	15.709	PGL
269	348799.568	766383.227	15.756	PGL
270	348792.418	766364.657	15.801	PGL
271	348795.872	766373.941	15.772	PGL
272	348790.449	766387.548	16.729	PGL
273	348731.816	766402.591	15.97	PGL
274	348787.02	766378.102	16.755	PGL
275	348783.177	766368.83	16.958	PGL
276	348774.002	766372.872	18.222	PGL
277	348756.003	766380.969	17.877	PGL
278	348758.157	766358.115	18.067	PGL
279	348724.859	766383.821	17.515	PGL
280	348777.234	766382.498	18.195	PGL
281	348728.335	766393.335	16.677	PGL
282	348788.685	766355.574	15.833	PGL
283	348779.664	766359.585	16.825	PGL
284	348752.43	766371.483	17.785	PGL
285	348734.152	766379.751	17.715	PGL
286	348761.492	766367.694	17.962	PGL
287	348748.751	766362.166	17.919	PGL
288	348785.378	766346.3	15.838	PGL

289	348767.278	766353.973	18.442	PGL
290	348712.706	766378.292	16.88	PGL
291	348730.481	766370.42	17.878	PGL
292	348772.761	766340.693	16.852	PGL
293	348781.833	766336.724	15.86	PGL
294	348763.548	766344.945	18.286	PGL
295	348754.334	766348.914	18.111	PGL
296	348778.301	766327.354	15.907	PGL
297	348727.107	766361.009	17.776	PGL
298	348732.888	766347.57	17.832	PGL
299	348736.065	766357.095	17.891	PGL
300	348774.791	766318.01	15.877	PGL
301	348765.579	766322.164	16.914	PGL
302	348756.26	766326.211	18.342	PGL
303	348747.33	766330.267	17.984	PGL
304	348738.116	766334.52	17.872	PGL
305	348728.903	766338.418	17.829	PGL
306	348714.391	766355.726	17.714	PGL
307	348769.059	766331.435	16.91	PGL
308	348725.586	766328.935	17.893	PGL
309	348743.729	766320.932	17.889	PGL
310	348761.976	766312.932	16.977	PGL
311	348771.097	766308.566	15.882	PGL
312	348731.122	766315.444	17.804	PGL
313	348767.763	766299.224	15.893	PGL
314	348691.289	766322.271	16.89	PGL
315	348718.798	766309.951	17.939	PGL
316	348745.621	766297.851	18.434	PGL
317	348754.975	766294.017	17.224	PGL
318	348764.166	766290.006	15.994	PGL
319	348760.845	766280.34	16.058	PGL
320	348751.664	766284.52	17.1	PGL

321	348742.453	766288.552	18.354	PGL
322	348733.232	766292.58	17.986	PGL
323	348705.795	766304.854	17.759	PGL
324	348702.239	766295.644	17.784	PGL
325	348693.003	766299.795	17.608	PGL
326	348684.495	766303.427	16.879	PGL
327	348729.737	766283.503	18.021	PGL
328	348747.896	766275.617	17.175	PGL
329	348757.754	766270.948	16.047	PGL
330	348753.463	766261.876	16.15	PGL
331	348744.442	766265.806	17.221	PGL
332	348735.554	766269.659	18.362	PGL
333	348680.648	766294.237	16.859	PGL
334	348689.641	766290.171	17.653	PGL
335	348698.866	766286.137	17.836	PGL
336	348686.036	766280.786	17.615	PGL
337	348704.388	766272.748	18.016	PGL
338	348714.056	766268.605	17.637	PGL
339	348722.87	766264.289	17.993	PGL
340	348750.132	766252.207	16.166	PGL
341	348741.12	766256.37	17.299	PGL
342	348710.02	766259.159	17.75	PGL
343	348728.349	766251.051	18.355	PGL
344	348737.53	766246.915	17.341	PGL
345	348746.63	766242.897	16.185	PGL
346	348743.199	766233.535	16.2	PGL
347	348733.974	766237.602	17.389	PGL
348	348724.915	766241.669	18.18	PGL
349	348715.673	766245.815	17.935	PGL
350	348706.439	766249.97	17.796	PGL
351	348697.805	766253.643	17.877	PGL
352	348703.352	766240.259	17.8	PGL

353	348694.132	766244.429	17.843	PGL
354	348712.303	766236.26	17.967	PGL
355	348739.673	766224.056	16.258	PGL
356	348736.127	766214.732	16.323	PGL
357	348727.339	766218.63	17.442	PGL
358	348717.92	766222.852	18.362	PGL
359	348699.464	766231.035	17.616	PGL
360	348690.673	766234.913	17.799	PGL
361	348681.137	766239.173	17.845	PGL
362	348691.626	766267.504	17.743	PGL
363	348682.44	766271.537	17.561	PGL
364	348688.14	766258.246	17.804	PGL
365	348667.036	766256.424	16.802	PGL
366	348658.246	766238.542	16.897	PGL
367	348656.303	766228.425	17.128	PGL
368	348683.364	766216.476	17.788	PGL
369	348692.619	766212.318	17.786	PGL
370	348701.696	766208.172	18.004	PGL
371	348711.304	766203.961	18.263	PGL
372	348720.303	766199.861	17.552	PGL
373	348729.569	766195.814	16.361	PGL
374	348738.219	766191.964	15.482	PGL
375	348734.688	766182.669	15.591	PGL
376	348725.992	766186.504	16.444	PGL
377	348716.734	766190.538	17.571	PGL
378	348694.597	766189.408	18.146	PGL
379	348703.792	766185.38	18.378	PGL
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381	348722.043	766177.22	16.539	PGL
382	348731.191	766173.295	15.639	PGL
383	348727.635	766163.748	15.665	PGL
384	348718.521	766167.907	16.572	PGL

385	348681.869	766184.167	17.835	PGL
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387	348646.465	766232.683	16.926	PGL
388	348643.014	766223.26	17.121	PGL
389	348670.703	766211.204	17.866	PGL
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391	348698.007	766198.946	18.008	PGL
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393	348648.776	766209.874	17.561	PGL
394	348657.884	766205.756	17.776	PGL
395	348676.706	766197.479	17.84	PGL
396	348654.262	766196.467	17.885	PGL
397	348641.835	766190.919	17.828	PGL
398	348651.071	766186.922	17.883	PGL
399	348659.863	766183.212	17.838	PGL
400	348669.052	766178.525	17.63	PGL
401	348678.165	766174.996	17.929	PGL
402	348687.443	766171.13	18.504	PGL
403	348696.728	766166.49	18.301	PGL
404	348705.835	766162.462	18.233	PGL
405	348724.183	766154.499	15.631	PGL
406	348714.986	766158.613	16.643	PGL
407	348711.428	766149.068	16.68	PGL
408	348720.702	766145.031	15.675	PGL
409	348707.9	766139.939	16.751	PGL
410	348698.721	766143.897	18.015	PGL
411	348717.138	766135.684	15.807	PGL
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413	348695.299	766134.493	17.927	PGL
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415	348667.953	766146.467	17.88	PGL
416	348633.361	766140.02	16.635	PGL

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420	348693.941	766102.215	16.873	PGL
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422	348696.061	766079.333	15.651	PGL
423	348650.209	766099.655	17.966	PGL
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426	348674.008	766077.812	17.092	PGL
427	348683.27	766074.173	16.028	PGL
428	348679.688	766064.782	15.043	PGL
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430	348648.75	766067.763	17.828	PGL
431	348657.978	766063.437	17.323	PGL
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433	348647.999	766122.902	17.671	PGL
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438	348644.399	766112.887	18.003	PGL
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440	348647.343	766177.734	17.768	PGL
441	348638.47	766181.411	17.67	PGL
442	348640.677	766202.399	17.942	PGL
443	348645.556	766200.348	17.874	PGL
444	348636.373	766204.336	16.429	PGL
445	348633.136	766195.069	16.134	PGL
446	348634.425	766084.869	16.626	PGL
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452	348626.829	766327.935	15.064	PGL
453	348627.436	766327.271	15.912	PGL
454	348628.642	766325.953	16.934	PGL
455	348629.362	766325.167	16.958	PGL
456	348630.26	766324.185	16.994	PGL
457	348631.2	766323.158	16.967	PGL
458	348632.22	766322.043	16.951	PGL
459	348633.866	766320.245	16.228	PGL
460	348634.238	766319.839	16.107	PGL
461	348636.458	766317.413	14.53	PGL
462	348637.893	766315.844	15.947	PGL
463	348638.314	766315.384	16.154	PGL
464	348639.825	766313.733	16.497	PGL
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470	348644.48	766308.647	16.304	PGL
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472	348699.269	766342.389	17.163	PGL
473	348682.185	766313.723	16.39	PGL
474	348680.447	766314.325	16.243	PGL
475	348639.385	766089.644	16.904	PGL
476	348635.76	766087.473	16.6	PGL
477	348631.214	766084.751	16.507	PGL
478	348630.254	766084.176	15.769	PGL
479	348629.462	766083.702	15.269	PGL
480	348627.259	766082.383	15.048	PGL

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482	348625.347	766081.238	15.617	PGL
483	348624.429	766080.688	15.87	PGL
484	348622.155	766079.327	16.016	PGL
485	348616.584	766075.99	15.882	PGL
486	348611.327	766072.843	16.147	PGL
487	348607.138	766070.334	16.494	PGL
488	348606.256	766069.806	16.663	PGL
489	348604.6	766068.814	16.756	PGL
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491	348601.603	766067.02	16.823	PGL
492	348599.526	766065.776	16.332	PGL
493	348598.739	766065.305	15.744	PGL
494	348596.04	766063.688	14.871	PGL
495	348593.939	766062.43	14.33	PGL
496	348592.963	766061.846	14.231	PGL
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502	348495.788	766160.31	16.421	PGL
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508	348501.673	766166.198	14.065	PGL
509	348502.377	766166.903	14.551	PGL
510	348503.666	766168.192	14.72	PGL
511	348505.026	766169.553	14.993	PGL
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515	348509.742	766174.272	16.727	PGL
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518	348513.211	766177.743	16.086	PGL
519	348513.956	766178.487	16.096	PGL
520	348516.125	766180.658	16.266	PGL
521	348487.722	766198.875	15.063	PGL
522	348488.504	766197.351	14.542	PGL
523	348490.462	766195.748	14.035	PGL
524	348492.141	766194.451	14.237	PGL
525	348494.289	766192.754	15.73	PGL
526	348495.225	766191.7	16.628	PGL
527	348626.776	766327.993	14.948	PGL
528	348625.67	766329.201	14.493	PGL
529	348624.533	766330.443	14.233	PGL
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535	348694.703	766396.186	15.659	PGL
536	348695.256	766395.624	14.931	PGL
537	348696.044	766394.823	14.401	PGL
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539	348697.936	766392.899	14.455	PGL
540	348699.516	766391.293	14.978	PGL
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543	348701.632	766389.142	16.639	PGL
544	348702.854	766387.9	16.71	PGL

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547	348706.574	766384.117	16.01	PGL
548	348707.141	766383.541	15.715	PGL
549	348708.107	766382.559	15.212	PGL
550	348708.998	766381.653	14.712	PGL
551	348710.25	766380.38	15.527	PGL
552	348711.411	766379.2	16.387	PGL
553	348713.525	766377.05	17.352	PGL
554	348714.529	766376.03	17.358	PGL
555	348715.542	766375	17.088	PGL
556	348719.749	766370.723	17.775	PGL
557	348852.279	766524.558	17.332	PGL
558	348850.511	766526.471	16.885	PGL
559	348849.06	766528.043	16.768	PGL
560	348848.076	766529.107	16.757	PGL
561	348847.369	766529.873	16.701	PGL
562	348846.315	766531.013	16.562	PGL
563	348845.685	766531.696	15.784	PGL
564	348844.931	766532.365	15.247	PGL
565	348844.559	766532.914	15.053	PGL
566	348843.925	766533.6	14.796	PGL
567	348842.916	766534.693	14.675	PGL
568	348842.363	766535.292	14.792	PGL
569	348841.733	766535.974	15.147	PGL
570	348840.531	766537.275	15.403	PGL
571	348840.231	766537.599	15.634	PGL
572	348839.341	766538.563	16.383	PGL
573	348838.101	766539.905	16.571	PGL
574	348836.603	766541.527	16.378	PGL
575	348836.131	766542.038	16.13	PGL
576	348850.154	766526.858	16.803	PGL

577	348851.344	766525.569	17.348	PGL
578	348853.658	766523.065	17.721	PGL
579	348853.675	766523.047	18.246	PGL
580	348853.843	766522.865	18.267	PGL
581	348854.037	766522.934	17.699	PGL
582	348854.055	766522.635	17.063	PGL
583	348855.719	766520.833	15.983	PGL
584	348859.204	766517.062	15.487	PGL
585	348862.877	766513.085	14.829	PGL
586	348624.446	766330.539	14.136	PGL
587	348622.537	766332.624	14.655	PGL
588	348621.686	766333.554	15.386	PGL
589	348621.388	766333.88	15.662	PGL
590	348620.945	766334.364	16.418	PGL
591	348619.47	766335.976	16.488	PGL
592	348618.261	766337.297	16.211	PGL
593	348617.065	766338.604	16.011	PGL
594	348615.372	766340.454	15.887	PGL
595	348586.197	766057.794	16.11	PGL
596	348586.491	766057.97	15.167	PGL
597	348588.042	766058.899	14.52	PGL
598	348588.959	766059.448	14.234	PGL