

SIDNEY MILLER
Architectural and Archaeological Conservation Consultant

Cell: 082 939 6536.
E-mail: sidneymears@gmail.com.

Postnet Suit 427,
PB X15
Menlopark 0102.

Addendum to the

1st phase H.I.A. of a proposed extension and upgrading at Sishen Mine, also known as phase two of the Sishen Western Expansion Project that is located on portions of Gamagara and Doornvlei, Northern Cape

(Amendment 1 on request from SAHRA APM unit letter dated 27th September 2021)

(Amendment 2 on request from SAHRA APM unit letter dated 1st October 2021)



Report prepared by: -

SIDNEY MILLER.

B.Sc (Engineering) Civil, M. (Architecture) Conservation. Asapa member no 087.

Index.

1.	Past occupation of the Landscape.	03
2.	Geology and vegetation.	03
3.	Mine and Game Farm Security.	04
4.	Mitigation.	04
5.	Track Log.	05
6.	All points visited over total site.	11
7.	All points visited over northern portion of site.	12
8.	All points visited over central portion of site.	13
9.	All points visited over southern portion of site.	14

Owing to concerns raised by SAHRA regarding insufficient track logging for the Sishen Mine Project ANG-SIS-20-02-24, this issue was revisited by the present author. There are several concerns, challenges, and realities in play.

1. Past occupation of the Landscape.

It is well known, as discussed in the 1st phase assessment, that owing to the geology, yearly precipitation and vegetative matters men and women very seldom settled permanently in this region away from permanent water sources such as drainage lines and pans. The landscape away from open bodies of water were mainly utilised for hunting and the gathering of a variety of fruits, berries, and plants for medicinal use.

This is also extensively discussed in the HIA compiled by AGES in September 2012¹, and underscored by the fact that that survey only uncovered a few later Stone Age flakes, blades, and scrapers.

Specifically referring to Iron Age settlement, there is just not suitable soils available in the direct area surrounding the site under investigation, for agricultural practices that formed a large part of their diet.

The hypothesis from the above is then that any investigation archaeologist will know that the chance of uncovering heritage remains of significance is low. Or in other words it is not a high-risk area.

The above realities must then also be seen in conjunction with challenges faced in the field.

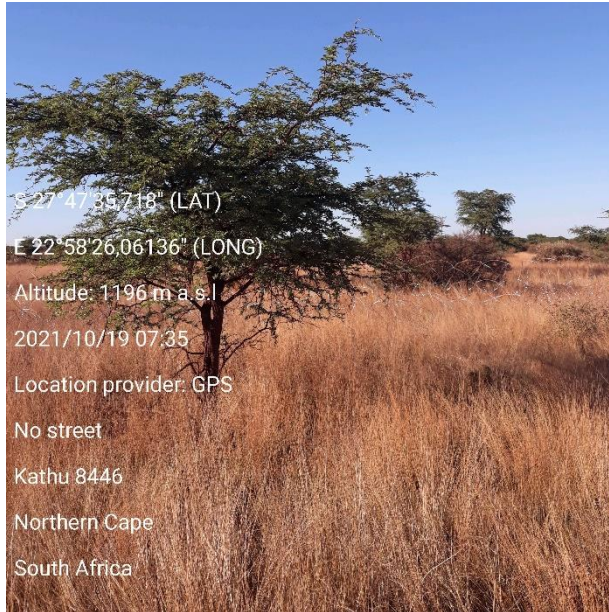
2. Geology and vegetation.



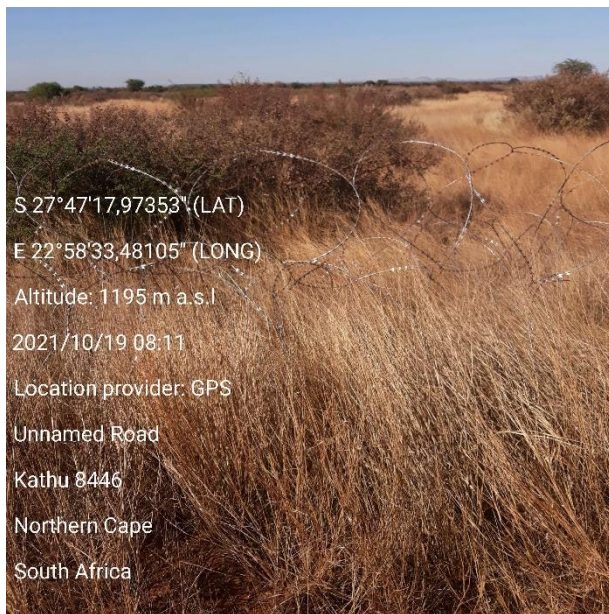
The inherited landscape consists of an undulating calcite derived from dolomitic origin. This material is very hard and does not weather easily into any form of fertile topsoil. This substructure supports mainly two indigenous tree species of, namely *Tarchonanthus camphoratus* (camphor bush) and *Senegalia mellifera* (black thorn or swarthaak), and one vigorous invader Mesquites.

On large portions of the site under investigation it is physical impossible to do an on-foot survey. The only means of access is by motor vehicle on tracks bulldozed for exploration drilling.

¹ Author N Kruger.



The undulations though have over time been filled in with drifting Kalahari sands that supports stands of grass, especially *Aristida* spp. This forms an open nearly savanna type of landscape, that is more readily accessible on foot. Owing to the character of these grasses is impossible to see anything on the surface



3. Mine and Game Farm Security.

The final and one of the most inhibiting factors to consider doing HIA work on mining property is rules, regulations and restriction to certain areas on site, as well as the razor wire seen in the image adjacent that was placed in the past as “temporary” fencing but is not really generally known to exist.

4. Mitigation.

With all the above in mind, and to address the concerns of SAHRA, the present investigator acquired a system of GPS track logging that also allows the user to take digital photographs that are four dimensionally recorded and labelled.

The present author then revisited the site on the 18th and 19th of October 2021 with Mr Hannes Hagar² that is well conversant with the site and the challenges surrounding access and recording on site. A total of 336 points were logged and photographed, covering as much as humanely possible of the proposed development area.

The photographs are not included in this document but is presented in a separate file for the perusal of interested parties.

²Previously with farm management and rehabilitation but now in the environmental office

5. Track Log. (See google earth images on pages 11, 12, 13 and 14.)

No	Latitude	Longitude	Time		Photo number and Comment
			Day	Time	
					The digital photos have a typical 13 digit identification number. For the purpose of avoiding confusion only the last four were used for ID in this track log.
1	27°47'1.66"S	22°58'13.93"E	10/18	08:15	3591
2	27°47'2.54"S	22°58'13.53"E	10/18	08:16	7922
3	27°47'2.20"S	22°58'12.13"E	10/18	08:18	2973
4	27°47'1.94"S	22°58'10.46"E	10/18	08:19	6947
5	27°47'10.06"S	22°58'05.45"E	10/18	08:21	1539
6	27°47'13.90"S	22°58'0.25"E	10/18	08:22	3629
7	27°47'12.94"S	22°58'9.30"E	10/18	08:28	5851
8	27°47'15.34"S	22°58'8.35"E	10/18	08:31	0391
9	27°47'16.87"S	22°58'7.45"E	10/18	08:33	4269
10	27°47'22.30"S	22°58'4.29"E	10/18	08:37	6147
11	27°47'33.01"S	22°57'57.56"E	10/18	08:40	4581
12	27°47'33.05"S	22°57'57.35"E	10/18	08:40	5876
13	27°47'33.2"S	22°57'57.56"E	10/18	08:41	5944
14	27°47'34.16"S	22°57'56.82"E	10/18	08:45	0542
15	27°47'37.61"S	22°57'54.92"E	10/18	08:46	9756
16	27°47'34.15"S	22°57'56.88"E	10/18	08:46	3624
17	27°47'45.50"S	22°57'50.21"E	10/18	08:49	0114
18	27°47'45.36"S	22°57'50.33"E	10/18	08:50	7024
19	27°47'45.83"S	22°57'50.07"E	10/18	08:51	3958
20	27°47'45.38"S	22°57'49.83"E	10/18	08:52	1557
21	27°47'45.34"S	22°57'42.93"E	10/18	08:56	8621
22	27°47'45.34"S	22°57'43.7"E	10/18	08:56	5987
23	27°47'45.14"S	22°57'43.14"E	10/18	08:57	9733
24	27°47'45.23"S	22°57'42.64"E	10/18	08:58	4491
25	27°47'44.78"S	22°57'42.62"E	10/18	08:58	7199
26	27°47'45.8"S	22°57'41.58"E	10/18	09:01	3006
27	27°47'44.99"S	22°57'41.43"E	10/18	09:02	7162
28	27°47'44.53"S	22°57'37.74"E	10/18	09:02	5296
29	27°47'44.48"S	22°57'37.67"E	10/18	09:03	1600
30	27°47'40.4"S	22°57'30.26"E	10/18	09:08	4445
31	27°47'39.64"S	22°57'30.31"E	10/18	09:09	7590
32	27°47'39.34"S	22°57'31.24"E	10/18	09:10	0196
33	27°47'40.12"S	22°57'30.73"E	10/18	09:12	5917 Author on site
34	27°47'40.54"S	22°57'29.43"E	10/18	09:17	6689
35	27°47'40.51"S	22°57'29.40"E	10/18	09:18	6789
36	27°47'40.32"S	22°57'29.30"E	10/18	09:19	2499
37	27°47'42.88"S	22°57'13.21"E	10/18	09:20	1601
38	27°47'42.14"S	22°56'58.97"E	10/18	09:25	8312
39	27°47'42.07"S	22°56'59.23"E	10/18	09:25	0913
40	27°47'41.63"S	22°56'57.25"E	10/18	09:28	1559
41	27°47'41.66"S	22°56'57.25"E	10/18	09:28	2217
42	27°47'40.46"S	22°56'52.11"E	10/18	09:29	9946
43	27°47'29.28"S	22°56'53.28"E	10/18	09:33	9244
44	27°47'18.87"S	22°56'54.07"E	10/18	09:36	7952
45	27°47'18.84"S	22°56'54.07"E	10/18	09:36	3960
46	27°47'18.89"S	22°56'54.21"E	10/18	09:37	1230
47	27°47'18.51"S	22°56'54.16"E	10/18	09:38	3601
48	27°47'8.25"S	22°56'56.61"E	10/18	09:41	0303
49	27°47'8.30"S	22°56'59.30"E	10/18	09:42	0721
50	27°47'8.36"S	22°57'5.95"E	10/18	09:44	1135
51	27°47'8.29"S	22°57'15.10"E	10/18	09:47	3238
52	27°47'8.27"S	22°57'15.01"E	10/18	09:47	5231
53	27°47'8.52"S	22°57'14.30"E	10/18	09:47	1850
54	27°47'8.08"S	22°57'22.44"E	10/18	09:50	6333
55	27°47'8.08"S	22°57'22.53"E	10/18	09:51	8381
56	27°47'8.76"S	22°57'25.15"E	10/18	09:52	1668
57	27°47'17.84"S	22°57'30.79"E	10/18	09:56	2769
58	27°47'18.38"S	22°57'30.58"E	10/18	09:57	7242
59	27°47'19.81"S	22°57'30.52"E	10/18	10:00	7035
60	27°47'24.11"S	22°57'30.26"E	10/18	10:01	6802

61	27°47'25.11"S	22°57'30.62"E	10/18	10:04	5104
62	27°47'33.01"S	22°57'30.52"E	10/18	10:04	6309
63	27°47'39.71"S	22°57'30.56"E	10/18	10:07	9820
64	27°47'39.90"S	22°57'30.35"E	10/18	10:07	8376
65	27°47'9.83"S	22°57'30.64"E	10/18	10:16	2866
66	27°47'9.80"S	22°57'30.76"E	10/18	10:17	2279
67	27°47'8.02"S	22°57'30.62"E	10/18	10:20	0028
68	27°47'7.90"S	22°57'30.59"E	10/18	10:20	6980
69	27°46'57.37"S	22°57'30.66"E	10/18	10:22	8484
70	27°46'55.75"S	22°57'2.22"E	10/18	10:27	9882
71	27°46'55.52"S	22°57'3.89"E	10/18	10:30	0312
72	27°46'55.40"S	22°57'8.75"E	10/18	10:31	1749
73	27°46'55.42"S	22°57'6.62"E	10/18	10:33	5196
74	27°46'55.30"S	22°57'15.98"E	10/18	10:33	5957
75	27°46'55.24"S	22°57'23.72"E	10/18	10:35	6359
76	27°46'55.58"S	22°57'23.83"E	10/18	10:36	1154
77	27°46'55.47"S	22°57'25.46"E	10/18	10:39	0041
78	27°46'55.59"S	22°57'30.67"E	10/18	10:39	7715
79	27°46'55.63"S	22°57'25.55"E	10/18	10:40	7946
80	27°46'53.87"S	22°57'29.49"E	10/18	10:43	1686 Exploration drill hole
81	27°46'53.92"S	22°57'28.42"E	10/18	10:44	7306
82	27°46'45.21"S	22°57'30.54"E	10/18	10:48	6631
83	27°46'45.49"S	22°57'30.17"E	10/18	10:49	5531
84	27°46'43.92"S	22°57'30.01"E	10/18	10:52	3926
85	27°46'38.61"S	22°57'29.06"E	10/18	10:53	6221
86	27°46'16.84"S	22°57'42.82"E	10/18	10:57	0042
87	27°46'16.48"S	22°57'44.60"E	10/18	11:00	1606
88	27°46'14.81"S	22°57'45.53"E	10/18	11:05	2344
89	27°46'14.56"S	22°57'46.84"E	10/18	11:06	8061
90	27°46'9.83"S	22°57'48.06"E	10/18	11:09	2327
91	27°46'8.69"S	22°57'51.58"E	10/18	11:09	7675 Dumping on approved footprint
92	27°46'9.54"S	22°57'57.90"E	10/18	11:13	1147
93	27°46'11.97"S	22°58'1.56"E	10/18	11:17	6531
94	27°46'11.53"S	22°58'1.41"E	10/18	11:18	6137
95	27°46'11.72"S	22°58'1.27"E	10/18	11:19	7824
96	27°46'10.68"S	22°58'1.45"E	10/18	11:21	6003
97	27°46'7.54"S	22°58'1.54"E	10/18	11:21	0633
98	27°46'7.54"S	22°58'1.53"E	10/18	11:32	5025
99	27°46'11.16"S	22°58'0.53"E	10/18	11:25	5679
100	27°46'11.03"S	22°58'0.53"E	10/18	11:26	2089
101	27°46'7.43"S	22°57'46.21"E	10/18	11:29	7519
102	27°46'7.57"S	22°57'46.29"E	10/18	11:30	5216
103	27°46'5.70"S	22°57'46.84"E	10/18	11:35	0421
104	27°46'3.92"S	22°57'47.49"E	10/18	11:36	5250
105	27°46'4.44"S	22°57'44.85"E	10/18	11:38	8971
106	27°46'3.62"S	22°57'44.77"E	10/18	11:39	3491
107	27°46'3.29"S	22°57'40.98"E	10/18	11:40	4509 Exploration drill hole
108	27°46'3.44"S	22°57'39.26"E	10/18	11:49	5102
109	27°46'3.61"S	22°57'34.64"E	10/18	11:43	4835
110	27°46'3.47"S	22°57'34.95"E	10/18	11:44	1381
111	27°46'3.20"S	22°57'33.75"E	10/18	11:45	4611 Dense stunted Senegalia Mellifera
112	27°46'3.11"S	22°57'32.71"E	10/18	11:46	5920 Dense stunted Senegalia Mellifera
113	27°46'57.82"S	22°57'30.61"E	10/18	11:48	9563
114	27°45'57.58"S	22°57'30.80"E	10/18	11:49	8530
115	27°45'56.23"S	22°57'30.92"E	10/18	11:52	7725
116	27°45'51.72"S	22°57'31.55"E	10/18	11:52	1851
117	27°45'51.80"S	22°57'32.93"E	10/18	11:55	9539 Trig Beacon CA667
118	27°45'51.64"S	22°57'33.05"E	10/18	11:55	0630
119	27°45'51.64"S	22°57'34.46"E	10/18	11:56	0575 Dense stunted Senegalia Mellifera
120	27°45'51.63"S	22°57'36.46"E	10/18	11:58	9945
121	27°45'51.74"S	22°57'38.92"E	10/18	11:58	0288
122	27°45'51.73"S	22°57'36.03"E	10/18	12:00	5332 Exploration drill hole
123	27°45'50.83"S	22°57'33.56"E	10/18	12:02	1433
124	27°45'48.28"S	22°57'30.59"E	10/18	12:03	4234
125	27°45'50.02"S	22°57'33.57"E	10/18	12:04	1751 Geology
126	27°45'45.27"S	22°57'31.39"E	10/18	12:05	2607 Disturbance/road
127	27°45'50.79"S	22°57'32.30"E	10/18	12:07	6816
128	27°45'44.57"S	22°57'37.80"E	10/18	12:07	9028

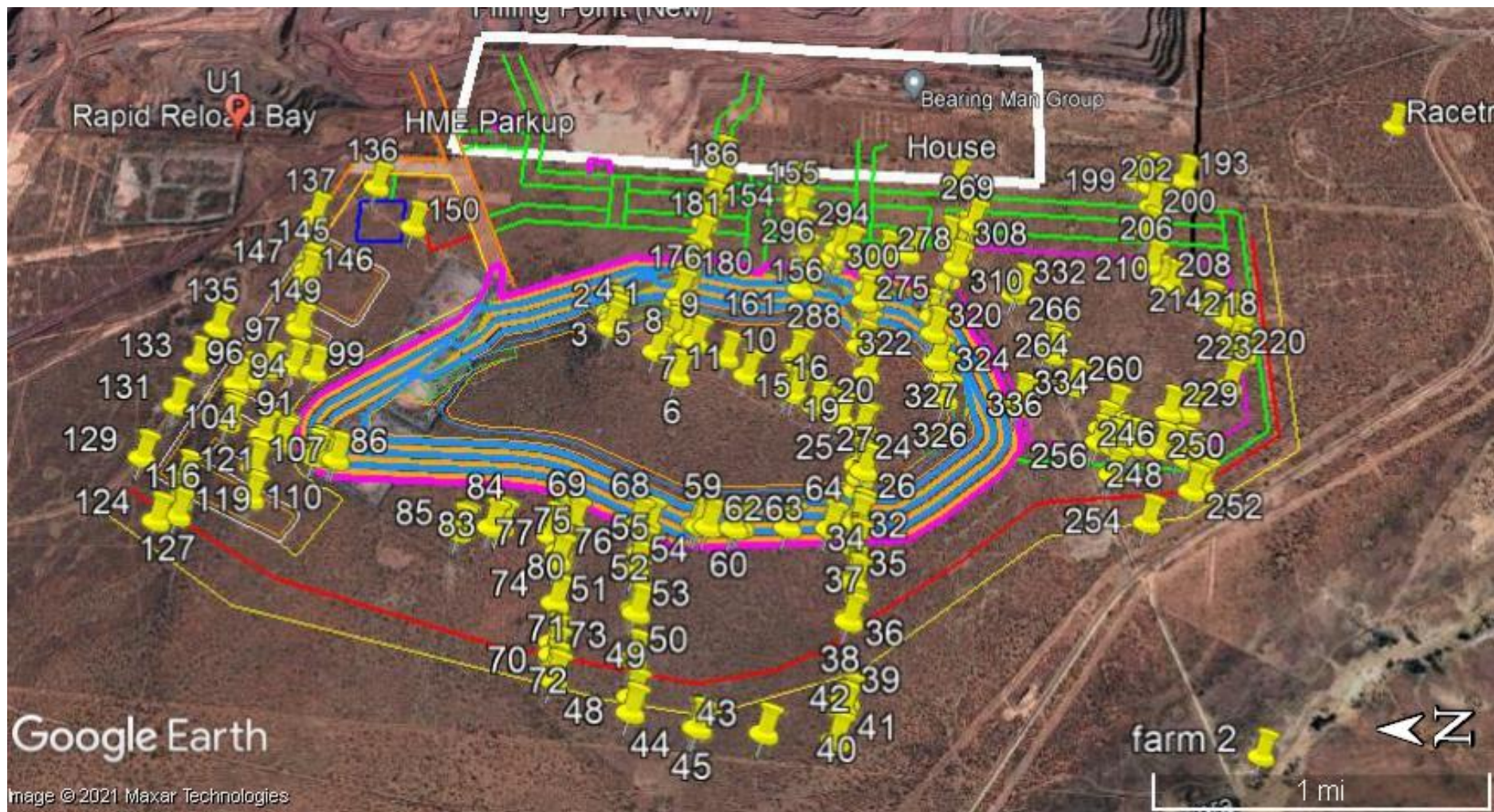
129	27°45'44.18"S	22°57'42.80"E	10/18	12:09	1722
130	27°45'43.91"S	22°57'42.80"E	10/18	12:09	2657
131	27°45'44.27"S	22°57'44.43"E	10/18	12:12	2582
132	27°45'45.57"S	22°57'50.71"E	10/18	12:14	0417
133	27°45'50.62"S	22°58'2.11"E	10/18	12:15	7036
134	27°45'53.33"S	22°58'9.53"E	10/18	12:17	8842
135	27°45'53.21"S	22°58'9.54"E	10/18	12:18	7743
136	27°46'18.05"S	22°58'41.25"E	10/18	12:24	0575 Topsoil stockpile
137	27°46'7.59"S	22°58'34.16"E	10/18	12:28	6845
138	27°46'7.52"S	22°57'37.80"E	10/18	12:24	3978
139	27°46'7.51"S	22°58'29.55"E	10/18	12:30	7016
140	27°46'7.52"S	22°58'32.86"E	10/18	12:30	2817
141	27°46'7.69"S	22°58'28.38"E	10/18	12:32	8486 Geology, Surface Calcite
142	27°46'7.53"S	22°58'28.30"E	10/18	12:33	5092
143	27°46'7.58"S	22°58'28.25"E	10/18	12:34	5055
144	27°46'7.83"S	22°58'24.28"E	10/18	12:34	2534
145	27°46'7.62"S	22°58'22.80"E	10/18	12:36	5676
146	27°46'7.52"S	22°58'20.79"E	10/18	12:37	0653
147	27°46'7.53"S	22°58'22.52"E	10/18	12:39	2216
148	27°46'7.49"S	22°58'11.46"E	10/18	12:43	2802
149	27°46'7.53"S	22°58'9.62"E	10/18	12:45	4783
150	27°46'25.59"S	22°58'32.08"E	10/18	12:54	7244
151	27°47'34.54"S	22°58'39.06"E	10/19	07:27	4367 Security/fencing, limitations
152	27°47'34.47"S	22°58'38.99"E	10/19	07:28	7371
153	27°47'34.71"S	22°58'37.59"E	10/19	07:30	9535
154	27°47'34.84"S	22°58'36.08"E	10/19	07:30	4978
155	27°47'34.73"S	22°58'36.89"E	10/19	07:33	0808
156	27°47'35.39"S	22°58'30.77"E	10/19	07:33	0904 Dense <i>Aristida spp</i> inhibiting visuals
157	27°47'35.72"S	22°58'26.06"E	10/19	07:35	9757
158	27°47'35.57"S	22°58'25.69"E	10/19	07:36	4255
159	27°47'35.36"S	22°58'24.51"E	10/19	07:37	9729
160	27°47'35.31"S	22°58'24.32"E	10/19	07:38	1832
161	27°47'35.25"S	22°58'19.10"E	10/19	07:41	4402
162	27°47'35.38"S	22°58'15.52"E	10/19	07:42	2662
163	27°47'35.05"S	22°58'10.34"E	10/19	07:47	7927
164	27°47'34.82"S	22°58'10.31"E	10/19	07:48	3009
165	27°47'34.83"S	22°58'8.40"E	10/19	07:49	8395
166	27°47'34.56"S	22°58'6.49"E	10/19	07:50	1311
167	27°47'34.66"S	22°58'8.39"E	10/19	07:50	2698
168	27°47'34.57"S	22°58'5.25"E	10/19	07:51	2882
169	27°47'34.32"S	22°58'4.87"E	10/19	07:52	3841
170	27°47'34.14"S	22°58'4.51"E	10/19	07:54	0027
171	27°47'32.97"S	22°57'58.58"E	10/19	07:54	1579
172	27°47'13.04"S	22°58'10.50"E	10/19	07:59	6396
173	27°47'35.25"S	22°58'19.10"E	10/19	08:01	9259
174	27°47'13.39"S	22°58'15.93"E	10/19	08:01	4339
175	27°47'13.74"S	22°58'17.10"E	10/19	08:03	8303
176	27°47'13.94"S	22°58'17.70"E	10/19	08:03	5953
177	27°47'14.46"S	22°58'19.40"E	10/19	08:03	5228
178	27°47'15.03"S	22°58'22.27"E	10/19	08:05	5034
179	27°47'15.25"S	22°58'23.66"E	10/19	08:08	5805
180	27°47'14.88"S	22°58'20.82"E	10/19	08:01	9284
181	27°47'17.28"S	22°58'29.68"E	10/19	08:09	4344
182	27°47'17.97"S	22°58'33.48"E	10/19	08:10	5159
183	27°47'17.97"S	22°58'33.48"E	10/19	08:11	5068
184	27°47'18.88"S	22°58'37.24"E	10/19	08:12	2431
185	27°47'18.75"S	22°58'37.10"E	10/19	08:13	5175
186	27°47'20.15"S	22°58'41.02"E	10/19	08:15	3037
187	27°47'20.05"S	22°58'40.71"E	10/19	08:15	5048
188	27°47'20.04"S	22°58'42.93"E	10/19	08:17	4025
189	27°47'20.51"S	22°58'44.82"E	10/19	08:17	2669
190	27°47'20.33"S	22°58'46.38"E	10/19	08:18	8287
191	27°47'20.63"S	22°58'47.92"E	10/19	08:19	9856
192	27°48'45.06"S	22°58'44.44"E	10/19	09:04	6640 Dense <i>Tarconanthus camphoratus</i>
193	27°48'45.31"S	22°58'44.44"E	10/19	09:05	0149
194	27°48'40.65"S	22°58'44.69"E	10/19	09:06	9769
195	27°48'40.65"S	22°58'44.69"E	10/19	09:07	7173
196	27°48'39.28"S	22°58'44.78"E	10/19	09:10	6889

197	27°48'35.12"S	22°58'45.02"E	10/19	09:10	5891
198	27°48'35.22"S	22°58'45.20"E	10/19	09:11	6989 Author on site.
199	27°48'37.03"S	22°58'43.99"E	10/19	09:14	2074
200	27°48'39.05"S	22°58'42.77"E	10/19	09:15	4267
201	27°48'39.22"S	22°58'38.56"E	10/19	09:16	6818
202	27°48'38.96"S	22°58'38.41"E	10/19	09:17	7767
203	27°48'38.57"S	22°58'36.64"E	10/19	09:18	2787
204	27°48'37.76"S	22°58'32.34"E	10/19	09:19	1018
205	27°48'37.83"S	22°58'32.12"E	10/19	09:20	9940
206	27°48'37.72"S	22°58'25.00"E	10/19	09:23	8401
207	27°48'39.66"S	22°58'21.34"E	10/19	09:25	4540
208	27°48'39.65"S	22°58'21.39"E	10/19	09:25	4623
209	27°48'41.05"S	22°58'20.67"E	10/19	09:28	8201
210	27°48'41.02"S	22°58'20.57"E	10/19	09:28	8177 Camelthorn
211	27°48'43.31"S	22°58'19.31"E	10/19	09:31	8719 Geology, Calcite on surface
212	27°48'46.64"S	22°58'16.02"E	10/19	09:32	8427
213	27°48'48.77"S	22°58'14.70"E	10/19	09:33	8468
214	27°48'50.02"S	22°58'13.83"E	10/19	09:34	3298
215	27°48'51.25"S	22°58'9.95"E	10/19	09:35	7590
216	27°48'51.17"S	22°58'9.29"E	10/19	09:37	9504
217	27°48'52.14"S	22°58'6.15"E	10/19	09:39	7650
218	27°48'50.95"S	22°58'8.74"E	10/19	09:40	6726
219	27°48'50.81"S	22°58'4.94"E	10/19	09:41	3045
220	27°48'50.84"S	22°58'4.88"E	10/19	09:42	9173
221	27°48'48.76"S	22°57'59.69"E	10/19	09:44	9910
222	27°48'47.74"S	22°57'58.10"E	10/19	09:44	1614
223	27°48'48.87"S	22°57'59.45"E	10/19	09:46	9278
224	27°48'48.78"S	22°57'59.58"E	10/19	09:48	4018
225	27°48'48.35"S	22°57'59.58"E	10/19	09:42	1214
226	27°48'41.33"S	22°57'53.88"E	10/19	09:51	4391
227	27°48'39.70"S	22°57'53.93"E	10/19	09:53	9029
228	27°48'38.03"S	22°57'53.93"E	10/19	09:53	5960
229	27°48'37.98"S	22°57'53.84"E	10/19	09:54	7180
230	27°48'38.05"S	22°57'53.94"E	10/19	09:54	1977
231	27°48'35.32"S	22°57'54.25"E	10/19	09:56	1187
232	27°48'36.95"S	22°57'54.04"E	10/19	07:57	9594
233	27°48'28.60"S	22°57'53.92"E	10/19	09:59	8739
234	27°48'28.95"S	22°57'53.98"E	10/19	10:00	6195
235	27°48'28.72"S	22°57'53.93"E	10/19	10:01	8925
236	27°48'26.13"S	22°57'55.06"E	10/19	10:03	0681
237	27°48'24.75"S	22°57'54.16"E	10/19	10:04	2294
238	27°48'26.39"S	22°57'50.54"E	10/19	10:08	2895
239	27°48'27.99"S	22°57'46.85"E	10/19	10:09	4524
240	27°48'29.97"S	22°57'47.60"E	10/19	10:11	7669
241	27°48'31.36"S	22°57'46.96"E	10/19	10:12	1970
242	27°48'31.58"S	22°57'47.03"E	10/19	10:12	3746
243	27°48'34.98"S	22°57'46.98"E	10/19	10:14	1827
244	27°48'36.02"S	22°57'46.40"E	10/19	10:17	6390
245	27°48'38.93"S	22°57'45.90"E	10/19	10:18	9993
246	27°48'39.20"S	22°57'45.81"E	10/19	10:18	3278
247	27°48'41.44"S	22°57'43.43"E	10/19	10:20	3573
248	27°48'40.36"S	22°57'44.40"E	10/19	10:21	0574 Survey beacon
249	27°48'42.17"S	22°57'39.44"E	10/19	10:24	6328
250	27°48'42.26"S	22°57'39.48"E	10/19	10:24	5737
251	27°48'42.26"S	22°57'39.48"E	10/19	10:24	8201
252	27°48'40.53"S	22°57'38.26"E	10/19	10:28	3596
253	27°48'37.51"S	22°57'35.78"E	10/19	10:29	6286
254	27°48'32.53"S	22°57'32.09"E	10/19	10:30	6149
255	27°48'31.12"S	22°57'30.82"E	10/19	10:31	3783
256	27°48'27.44"S	22°57'41.35"E	10/19	10:45	2762
257	27°48'26.61"S	22°57'44.94"E	10/19	10:46	8807
258	27°48'25.64"S	22°57'47.77"E	10/19	10:46	9713
259	27°48'23.21"S	22°57'55.83"E	10/19	10:48	1693
260	27°48'22.17"S	22°57'58.96"E	10/19	10:49	2644
261	27°48'20.45"S	22°58'2.52"E	10/19	10:50	4527
262	27°48'18.99"S	22°58'5.58"E	10/19	10:52	1709
263	27°48'18.18"S	22°58'6.85"E	10/19	10:54	3117

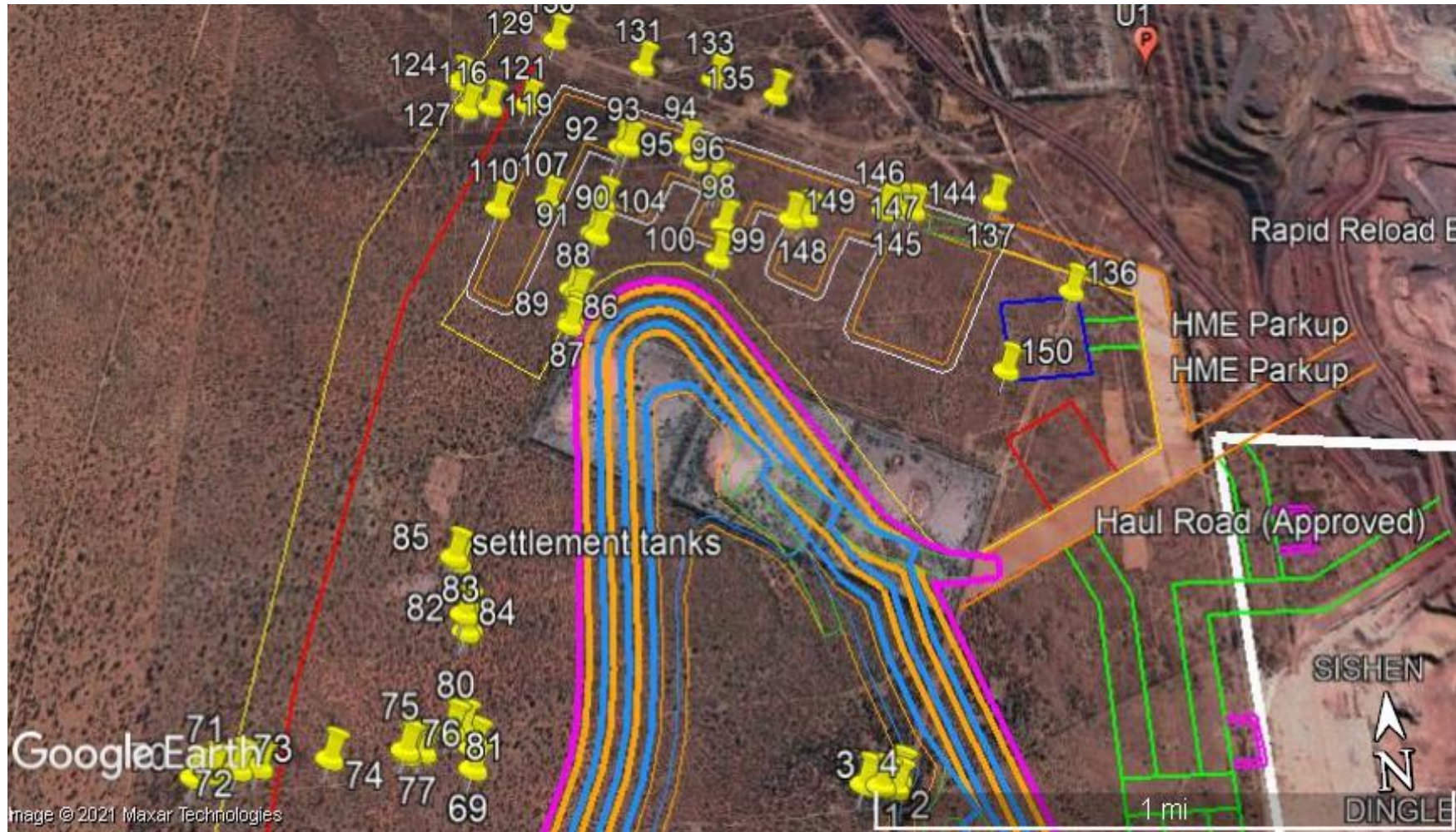
264	27°48'18.12"S	22°58'7.16"E	10/19	10:56	8567
265	27°48'14.66"S	22°58'15.13"E	10/19	10:57	4113
266	27°48'12.98"S	22°58'18.40"E	10/19	10:58	1856
267	27°48'10.71"S	22°58'23.06"E	10/19	10:59	6833
268	27°48'8.21"S	22°58'28.59"E	10/19	11:00	5167
269	27°48'6.24"S	22°58'33.84"E	10/19	11:01	7010
270	27°48'6.38"S	22°58'33.84"E	10/19	11:02	1026
271	27°48'6.24"S	22°58'33.84"E	10/19	11:01	7283
272	27°48'1.33"S	22°58'29.83"E	10/19	11:09	4871
273	27°47'57.64"S	22°58'28.20"E	10/19	11:10	5546
274	27°47'54.23"S	22°58'27.20"E	10/19	11:11	5952
275	27°47'54.34"S	22°58'27.13"E	10/19	11:12	6626
276	27°47'55.92"S	22°58'27.83"E	10/19	11:13	0198
277	27°47'55.83"S	22°58'27.90"E	10/19	11:14	0438
278	27°47'50.19"S	22°58'26.49"E	10/19	11:15	2492
279	27°47'48.24"S	22°58'24.72"E	10/19	11:15	5702
280	27°47'47.99"S	22°58'22.89"E	10/19	11:17	3143
281	27°47'47.43"S	22°58'21.29"E	10/19	11:18	9055 Good example of Croton
282	27°47'47.13"S	22°58'19.82"E	10/19	11:20	3020
283	27°47'47.14"S	22°58'19.78"E	10/19	11:21	4822
284	27°47'47.09"S	22°58'19.70"E	10/19	11:22	6691
285	27°47'46.29"S	22°58'14.20"E	10/19	11:23	7872
286	27°47'46.62"S	22°58'16.25"E	10/19	11:25	2987
287	27°47'46.62"S	22°58'16.19"E	10/19	11:25	5786
288	27°47'46.53"S	22°58'16.56"E	10/19	11:27	2392
289	27°47'46.19"S	22°58'12.93"E	10/19	11:28	8531
290	27°47'45.45"S	22°58'7.04"E	10/19	11:29	6699
291	27°47'46.11"S	22°58'12.76"E	10/19	11:30	9535
292	27°47'46.33"S	22°58'9.41"E	10/19	11:32	4672
293	27°47'46.56"S	22°58'1.22"E	10/19	11:33	9459
294	27°47'43.85"S	22°58'27.68"E	10/19	11:39	3764
295	27°47'43.69"S	22°58'27.47"E	10/19	11:40	7270
296	27°47'41.88"S	22°58'28.16"E	10/19	11:41	2312
297	27°47'40.31"S	22°58'27.95"E	10/19	11:42	0638
298	27°47'42.90"S	22°58'26.84"E	10/19	11:44	7314
299	27°47'40.67"S	22°58'25.97"E	10/19	11:44	1312
300	27°47'40.37"S	22°58'25.78"E	10/19	11:46	7438
301	27°47'39.33"S	22°58'20.17"E	10/19	11:46	8056
302	27°47'40.66"S	22°58'24.74"E	10/19	11:20	1901
303	27°47'40.96"S	22°58'16.48"E	10/19	11:49	3408
304	27°48'4.13"S	22°58'30.83"E	10/19	11:54	6927
305	27°48'4.01"S	22°58'30.69"E	10/19	11:55	5787
306	27°48'4.16"S	22°58'30.85"E	10/19	11:56	8531
307	27°48'5.58"S	22°58'29.62"E	10/19	11:59	4277
308	27°48'3.87"S	22°58'27.78"E	10/19	12:01	3886 Stunted Blackthorn
309	27°48'3.76"S	22°58'26.11"E	10/19	12:01	6700
310	27°48'2.97"S	22°58'24.32"E	10/19	12:03	3091
311	27°48'2.85"S	22°58'24.23"E	10/19	12:04	6003
312	27°48'1.30"S	22°58'21.61"E	10/19	12:05	3653 Grass
313	27°48'0.35"S	22°58'19.40"E	10/19	12:06	9757
314	27°47'59.13"S	22°58'15.39"E	10/19	12:07	3868
315	27°47'59.01"S	22°58'15.38"E	10/19	12:08	7701
316	27°47'58.38"S	22°58'13.56"E	10/19	12:09	2764
317	27°47'57.41"S	22°58'11.62"E	10/19	12:10	4443
318	27°47'58.14"S	22°58'9.70"E	10/19	12:01	8428
319	27°47'58.34"S	22°58'9.88"E	10/19	12:12	3884
320	27°47'58.51"S	22°58'9.91"E	10/19	12:14	5405
321	27°47'58.73"S	22°58'4.09"E	10/19	12:14	4615
322	27°47'58.73"S	22°58'4.05"E	10/19	12:15	8183
323	27°47'58.90"S	22°58'6.09"E	10/19	12:19	2762
324	27°47'59.50"S	22°58'0.60"E	10/19	12:14	8142
325	27°47'59.54"S	22°57'57.09"E	10/19	12:21	7929
326	27°47'59.88"S	22°57'56.00"E	10/19	12:22	9042
327	27°47'58.73"S	22°58'4.09"E	10/19	12:24	4825
328	27°47'58.73"S	22°58'4.09"E	10/19	12:26	9109
329	27°47'59.66"S	22°57'51.37"E	10/19	12:26	8737
330	27°48'0.37"S	22°57'41.61"E	10/19	12:29	9265
331	27°48'13.93"S	22°58'1.97"E	10/19	12:41	4489

332	27°48'13.94"S	22°58'1.85"E	10/19	12:41	8693
333	27°48'0.35"S	22°58'19.40"E	10/19	12:06	9610
334	27°48'12.76"S	22°57'55.98"E	10/19	12:44	9246
335	27°48'13.08"S	22°57'54.96"E	10/19	12:47	9760
336	27°48'12.68"S	22°57'54.90"E	10/19	12:48	7316

6. All points visited over total site



7. All points visited over northern portion of site



7. All points visited over central portion of site



7. All points visited over southern portion of site

