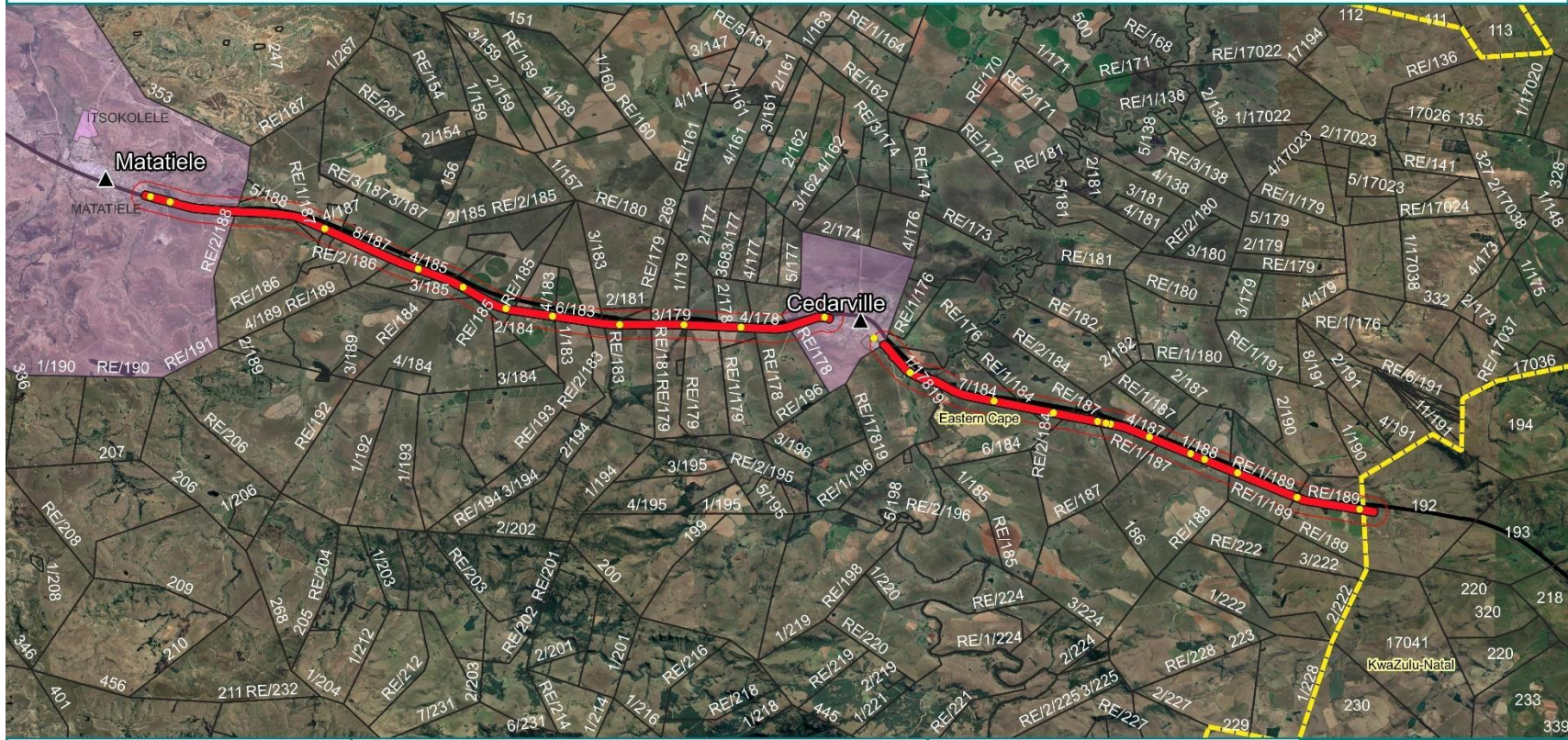


# APPENDIX A – MAPS

**REHABILITATION OF NATIONAL ROUTE R56 SECTION 8 FROM MATATIELE (KM 130, 15) TO KZN BORDER (KM 168,71), EC PROVINCE**

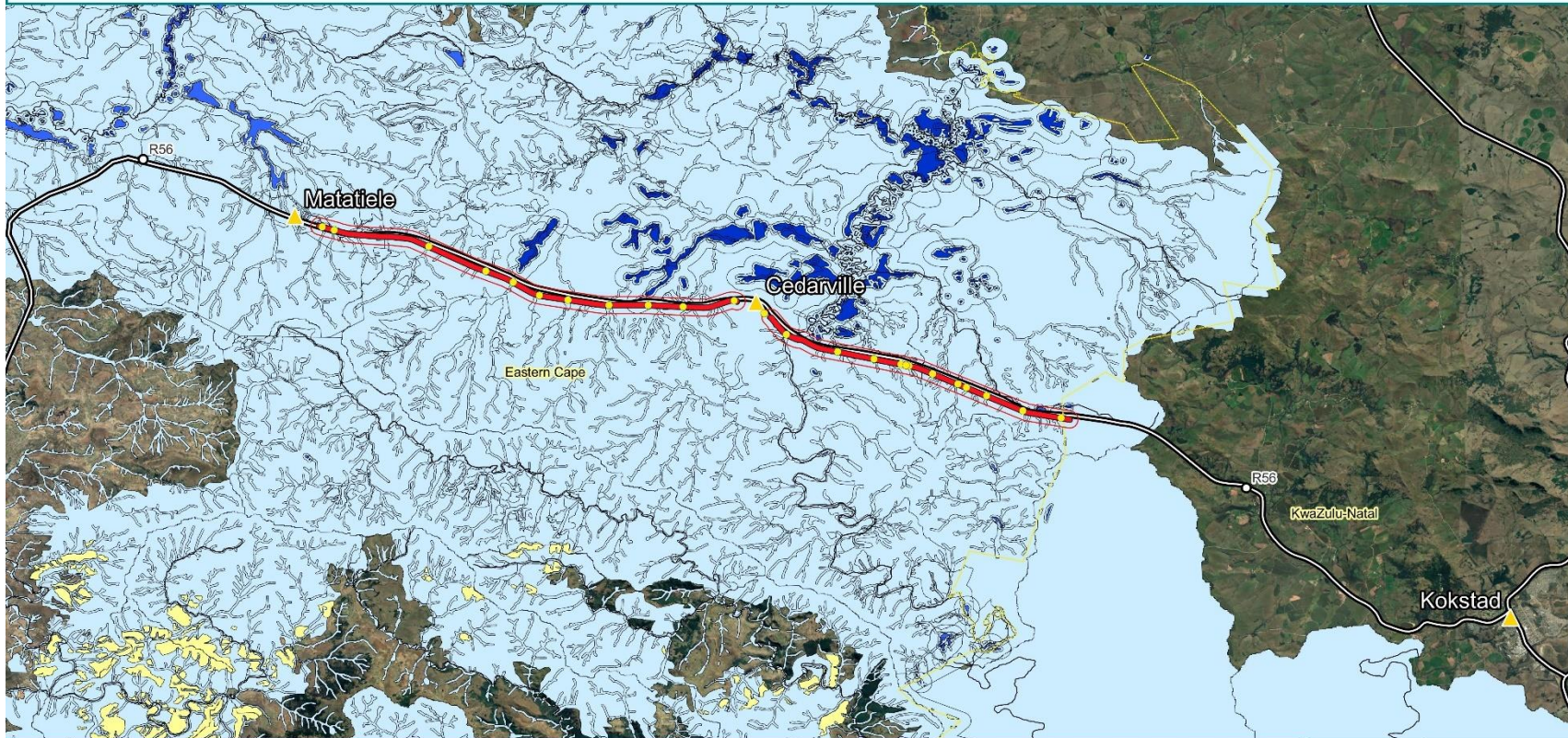
**CADASTRAL MAP**



MAP DETAILS	LEGEND	SITE IN SOUTH AFRICA	PRODUCED BY
<p>Date: November 2022</p> <p>Drawn by: Sage Wansell</p> <p>Datum: WGS 84</p>	<ul style="list-style-type: none"> <li><span style="color: red;">—</span> Proposed SANRAL Road Upgrade: Major culvert and Bridges Road Reserve Design</li> <li><span style="border: 1px dashed yellow; display: inline-block; width: 10px; height: 10px;"></span> Provinces</li> <li><span style="color: black;">▲</span> Towns</li> <li><span style="background-color: pink; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Eastern Cape Allotment areas</li> <li><span style="background-color: lightblue; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> KZN Farm Portions</li> <li><span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> EC Farm Portions</li> <li><span style="color: black;">—</span> R56 national road</li> </ul>		<p><b>CES</b> ENVIRONMENTAL AND SOCIAL ADVISORY SERVICES</p> <p><b>PRODUCED FOR</b></p> <p><b>SANRAL</b></p>
<p><b>SCALE</b></p> <p><b>1:83 365</b></p> <p>0 2,5 5 km</p>			

**REHABILITATION OF NATIONAL ROUTE R56 SECTION 8 FROM MATATIELE (KM 130, 15) TO KZN BORDER (KM 168,71), EC PROVINCE**

**CRITICAL BIODIVERSITY AREAS MAP**



**MAP DETAILS**

Date: November 2022  
 Drawn by: Sage Wansell  
 Datum: WGS 84

**SCALE**

**1:136 860**

0 7,5 15 km

**LEGEND**

**Proposed SANRAL Road Upgrade:** ▲ Towns  
 Major culverts and Bridges

— R56 national road

**CBA: Freshwater**

— ROAD RESERVE DESIGN

○ Roads

□ Provinces

■ CBA 1

■ CBA 2

■ ESA 1

■ ESA 2



**PRODUCED BY**

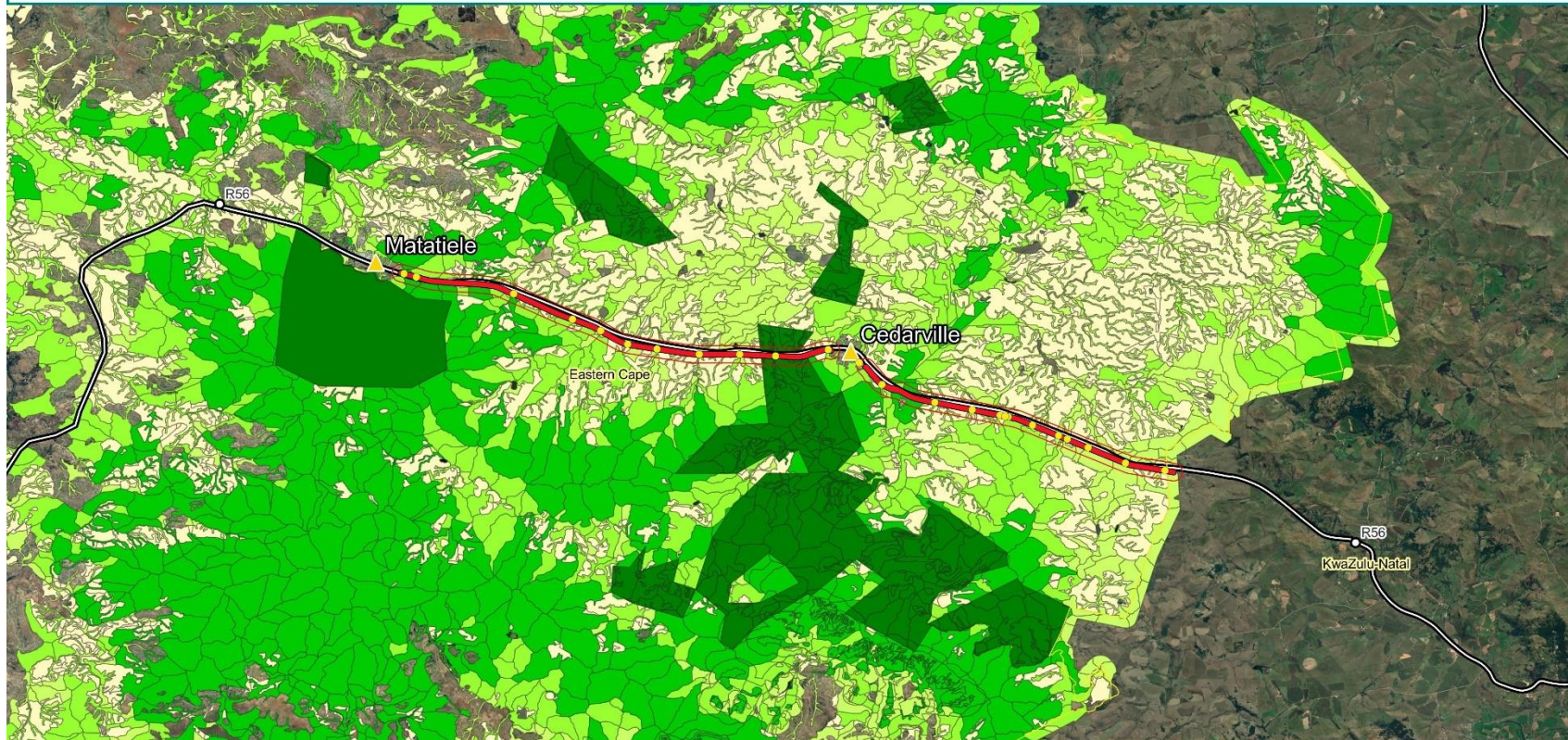
**CES**  
 ENVIRONMENTAL AND SOCIAL ADVISORY SERVICES

**PRODUCED FOR**

**SANRAL**

**REHABILITATION OF NATIONAL ROUTE R56 SECTION 8 FROM MATATIELE (KM 130, 15) TO KZN BORDER (KM 168,71), EC PROVINCE**

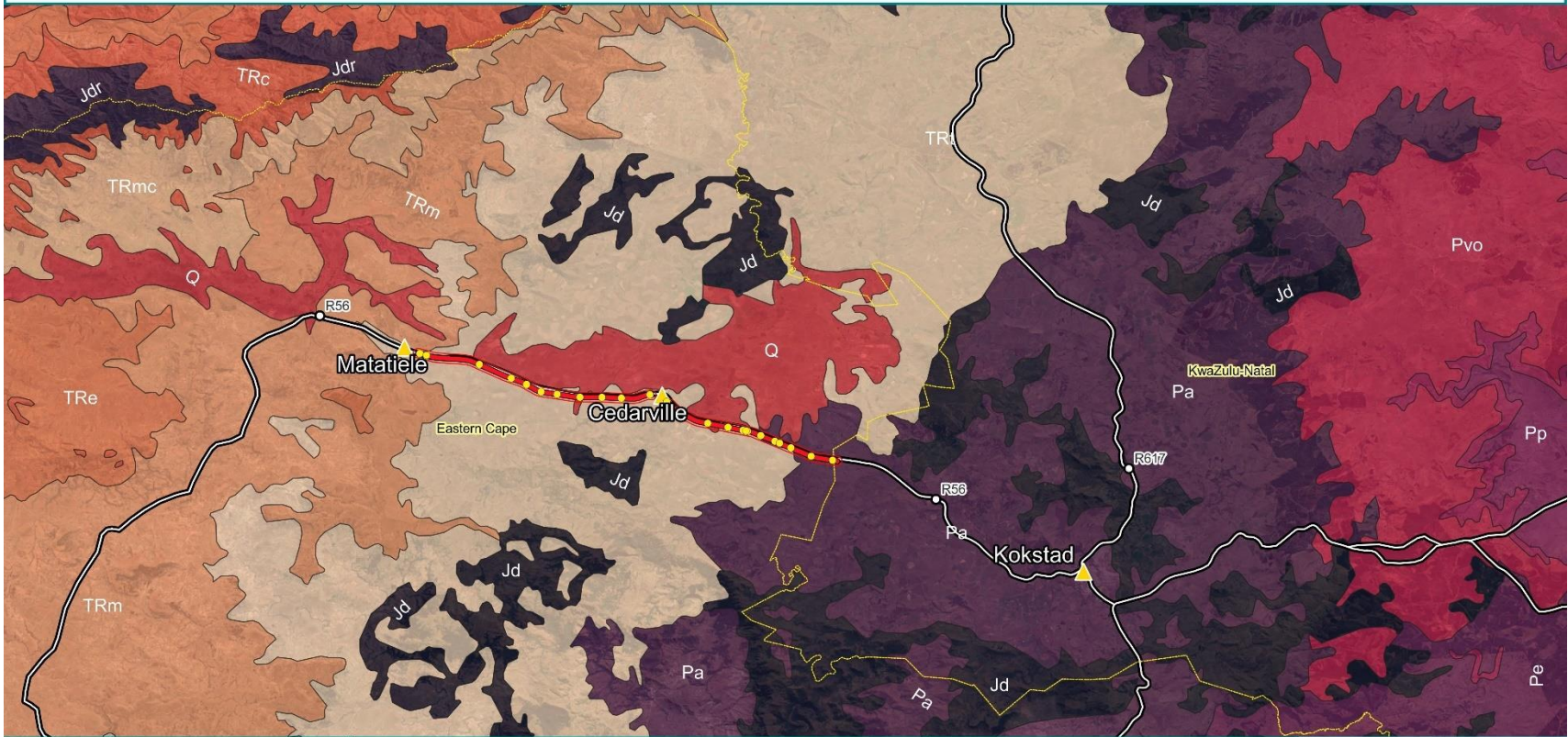
**CRITICAL BIODIVERSITY AREAS MAP**



MAP DETAILS	LEGEND	SITE IN SOUTH AFRICA	PRODUCED BY
<p>Date: November 2022</p> <p>Drawn by: Sage Wansell</p> <p>Datum: WGS 84</p>	<p><b>Proposed SANRAL Road Upgrade:</b></p> <ul style="list-style-type: none"> <li> ROAD RESERVE DESIGN</li> <li> Major culverts and Bridges</li> </ul> <p><b>Provinces</b></p> <p> Towns</p> <p><b>R56 National Road</b></p> <p><b>CBA Terrestrial:</b></p> <ul style="list-style-type: none"> <li> ESSA 2</li> <li> ESSA 1</li> <li> CBA 2</li> <li> CBA 1</li> <li> PA and CA</li> </ul>		<p><b>PRODUCED BY</b></p> <p><b>PRODUCED FOR</b></p>
<p><b>SCALE</b></p>			
<p><b>1:133 590</b></p>			

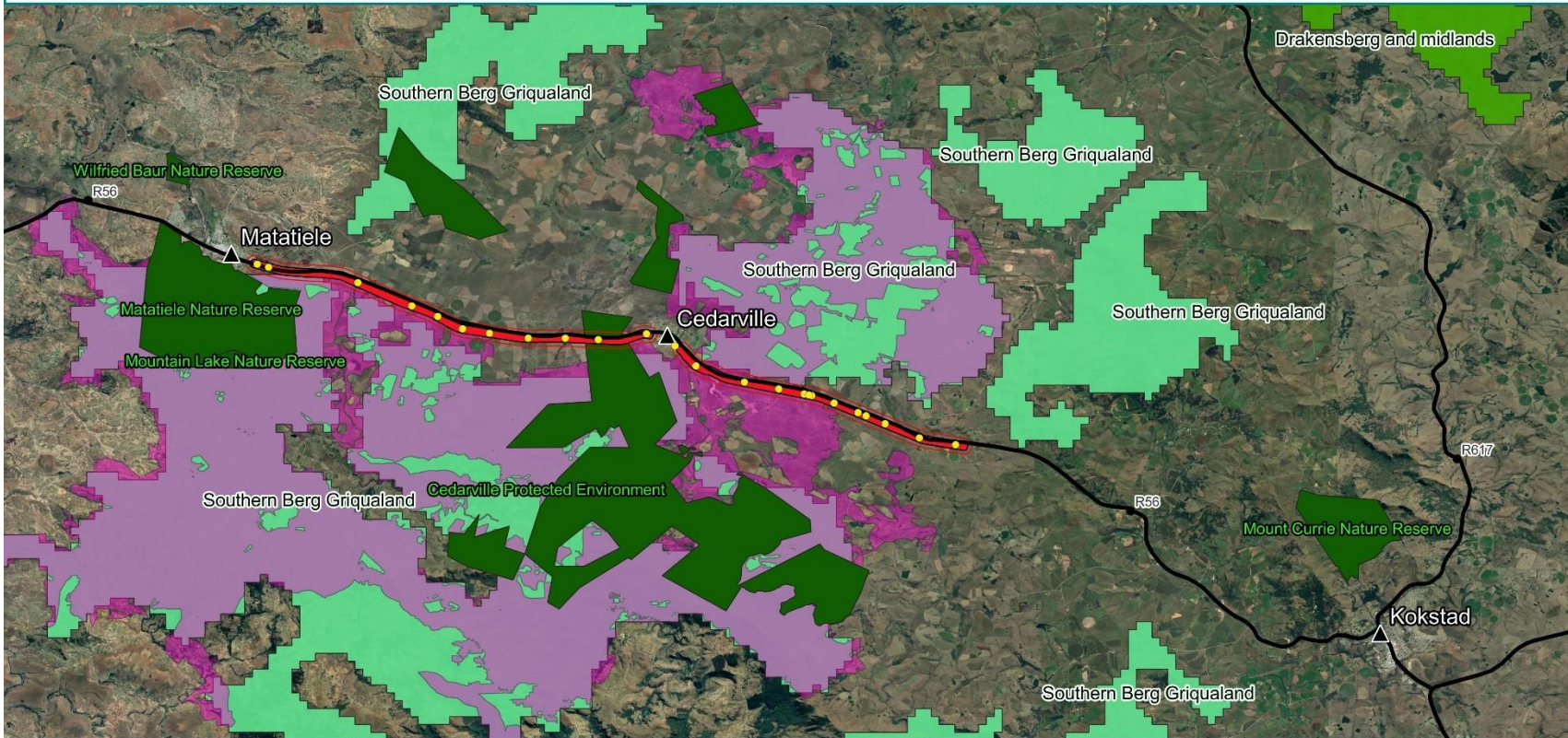
**REHABILITATION OF NATIONAL ROUTE R56 SECTION 8 FROM MATATIELE (KM 130, 15) TO KZN BORDER (KM 168,71), EC PROVINCE**

**GEOLOGY MAP**





MAP DETAILS	LEGEND	SITE IN SOUTH AFRICA	PRODUCED BY
<p>Date: November 2022</p> <p>Drawn by: Sage Wansell</p> <p>Datum: WGS 84</p>	<p><b>Proposed SANRAL Road Upgrade: Major Culverts and Bridges Road Reserve Design</b></p> <ul style="list-style-type: none"> <li><span style="color: red;">—</span> Proposed SANRAL Road Upgrade: Major Culverts and Bridges Road Reserve Design</li> <li><span style="border: 1px solid yellow; display: inline-block; width: 10px; height: 10px;"></span> Provinces</li> <li><span style="color: yellow;">▲</span> Towns</li> <li><span style="border-bottom: 1px solid black; width: 20px; display: inline-block;"></span> R56 national road</li> </ul> <p><b>Geology</b></p> <ul style="list-style-type: none"> <li><span style="background-color: black; width: 10px; height: 10px; display: inline-block;"></span> Jd - Dolerite</li> <li><span style="background-color: purple; width: 10px; height: 10px; display: inline-block;"></span> Pa - Mudstone</li> <li><span style="background-color: red; width: 10px; height: 10px; display: inline-block;"></span> Q - Sedimentary</li> <li><span style="background-color: orange; width: 10px; height: 10px; display: inline-block;"></span> TRm - Arenite</li> <li><span style="background-color: lightorange; width: 10px; height: 10px; display: inline-block;"></span> TRt - Mudstone</li> </ul>		<p><b>PRODUCED BY</b></p> <p><b>PRODUCED FOR</b></p>
<p><b>SCALE</b></p> <p><b>1:244 260</b></p> <p>0 10 20 km</p>			

**REHABILITATION OF NATIONAL ROUTE R56 SECTION 8 FROM MATATIELE (KM 130, 15) TO KZN BORDER (KM 168,71), EC PROVINCE**  
**PROTECTED AREAS MAP**



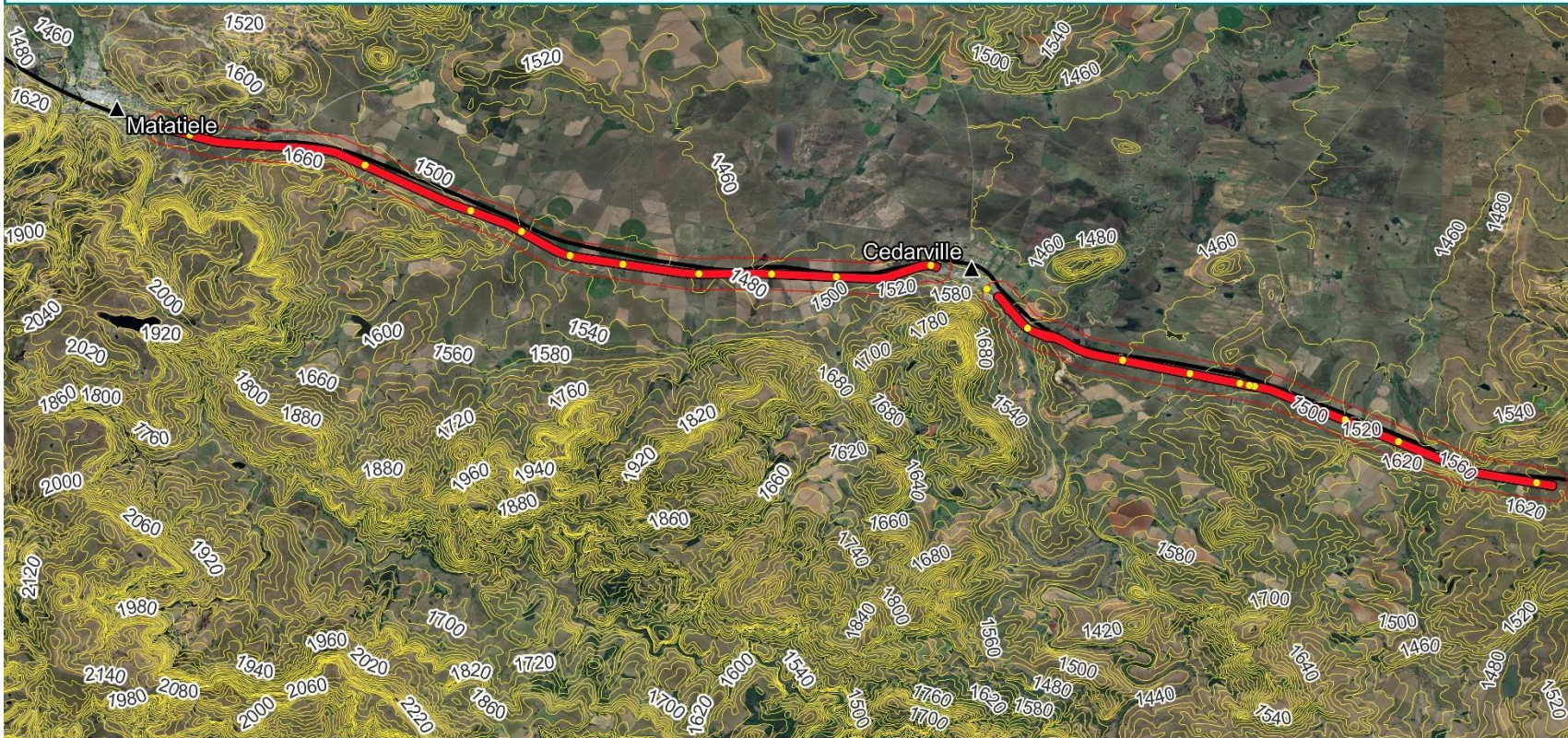
LEGEND
<span style="display: inline-block; width: 15px; height: 10px; background-color: darkgreen; border: 1px solid black;"></span> SAPAD
<span style="display: inline-block; width: 15px; height: 10px; background-color: pink; border: 1px solid black;"></span> ECPAES Priority Areas
<b>NPAES Focus areas:</b>
<span style="display: inline-block; width: 15px; height: 10px; background-color: lightgreen; border: 1px solid black;"></span> Drakensberg and midlands
<span style="display: inline-block; width: 15px; height: 10px; background-color: lightgreen; border: 1px solid black;"></span> Southern Berg Griqualand
<span style="display: inline-block; width: 0; height: 0; border-left: 5px solid transparent; border-right: 5px solid transparent; border-bottom: 8px solid black;"></span> Towns
<span style="display: inline-block; width: 15px; border-bottom: 2px solid black;"></span> National Roads
<span style="display: inline-block; width: 15px; border-bottom: 2px solid red;"></span> Proposed SANRAL Road Upgrade Including Major culverts and Bridges



PRODUCED BY
 ENVIRONMENTAL AND SOCIAL ADVISORY SERVICES
PRODUCED FOR


**REHABILITATION OF NATIONAL ROUTE R56 SECTION 8 FROM MATATIELE (KM 130, 15) TO KZN BORDER (KM 168,71), EC PROVINCE**

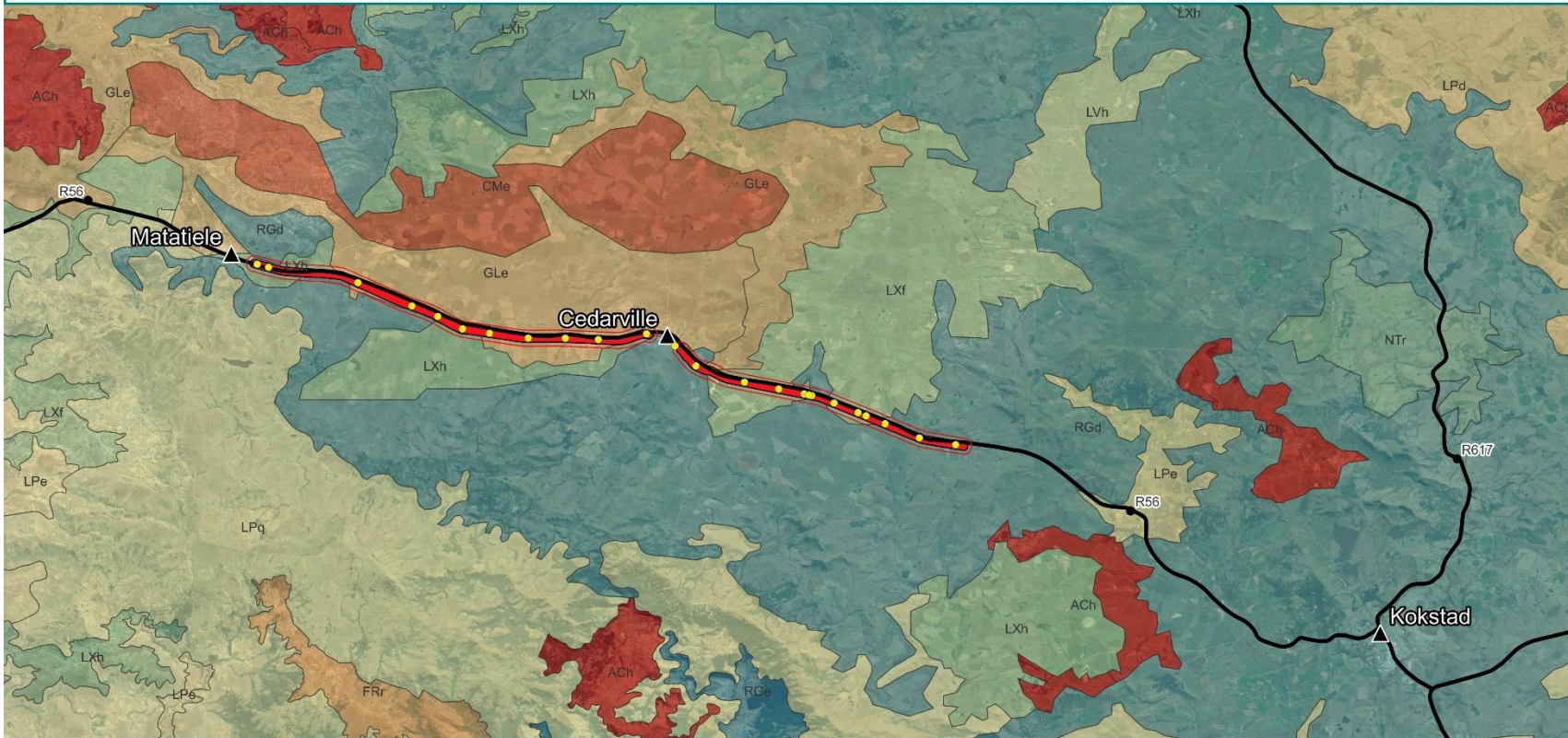
**CONTOUR MAP**



MAP DETAILS	LEGEND	SITE IN SOUTH AFRICA	PRODUCED BY
<p>Date: November 2022                      Drawn by: Sage Wansell                      Datum: WGS 84</p> 	<p><b>Proposed SANRAL Road Upgrade:                      Road Reserve Design                      Major culverts and Bridges</b></p> <p>— R56 national road                      ▲ Towns                      — 20 m Contours</p>		<p><b>PRODUCED BY</b></p>  <p><b>PRODUCED FOR</b></p> 
<p><b>SCALE</b></p>			
<p><b>1:73 885</b></p>			
			

**REHABILITATION OF NATIONAL ROUTE R56 SECTION 8 FROM MATATIELE (KM 130, 15) TO KZN BORDER (KM 168,71), EC PROVINCE**

**SOIL MAP**



**MAP DETAILS**

Date: November 2022  
 Drawn by: Sage Wansell  
 Datum: WGS 84

**SCALE**

**1:144 840**

0 7,5 15 km

**LEGEND**

**Proposed SANRAL Road Upgrade:  
 Major culverts and Bridges  
 Road River Design**

— National Roads (R56 & R617)  
 — ROAD RESERVE DESIGN  
 ▲ Towns

**SOTER Soils:**

- ACh
- CMe
- FRr
- GLe
- LPe
- LPq
- LXf
- LXh
- NTr
- RGd



**PRODUCED BY**

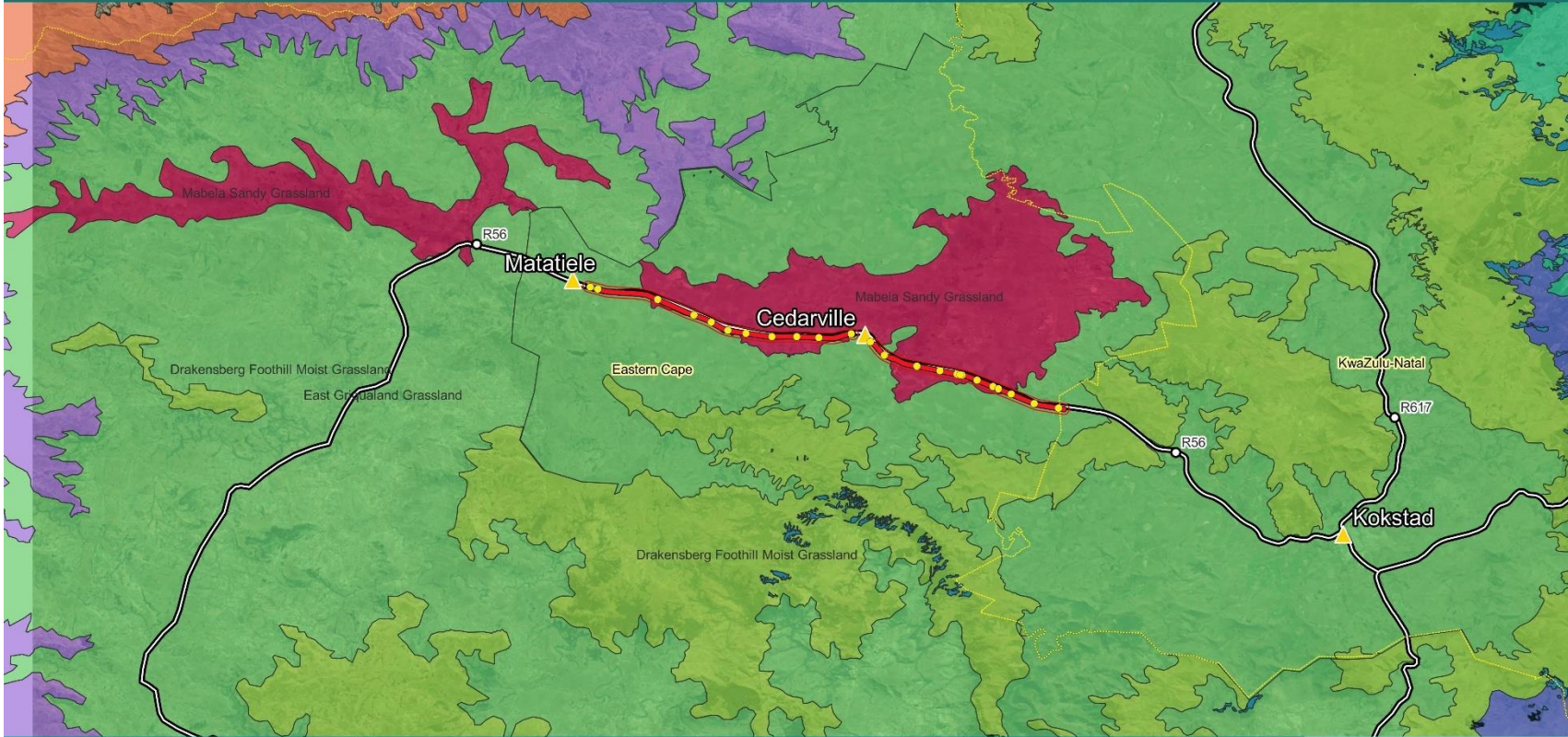
**CES**  
 ENVIRONMENTAL AND SOCIAL ADVISORY SERVICES


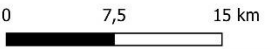
**PRODUCED FOR**

**SANRAL**



**REHABILITATION OF NATIONAL ROUTE R56 SECTION 8 FROM MATATIELE (KM 130, 15) TO KZN BORDER (KM 168,71), EC PROVINCE**  
**VEGETATION MAP**




MAP DETAILS
Date: November 2022
Drawn by: Sage Wansell
Datum: WGS 84

SCALE
<b>1:215 990</b>



LEGEND	
<p><b>Vegetation Map 2018</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #c8e6c9; border: 1px solid black; margin-right: 5px;"></span> Drakensberg Foothill Moist Grassland</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #c8e6c9; border: 1px solid black; margin-right: 5px;"></span> East Griqualand Grassland</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #ffcdd2; border: 1px solid black; margin-right: 5px;"></span> Lesotho Highland Basalt Grassland</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #e91e63; border: 1px solid black; margin-right: 5px;"></span> Mabela Sandy Grassland</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #b39ddb; border: 1px solid black; margin-right: 5px;"></span> Southern Drakensberg Highland Grassland</li> </ul>	<p><b>Proposed SANRAL Road Upgrade: Major culverts and Bridges</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 20px; border-bottom: 2px solid red; margin-right: 5px;"></span> ROAD RESERVE DESIGN</li> <li><span style="display: inline-block; width: 10px; height: 10px; border: 1px solid black; border-radius: 50%; margin-right: 5px;"></span> Roads</li> <li><span style="display: inline-block; width: 15px; border-bottom: 1px dashed yellow; margin-right: 5px;"></span> Provinces</li> <li><span style="display: inline-block; width: 10px; height: 10px; border: 1px solid black; border-radius: 50%; background-color: yellow; margin-right: 5px;"></span> Towns</li> <li><span style="display: inline-block; width: 15px; border-bottom: 2px solid black; margin-right: 5px;"></span> R56 national road</li> </ul>



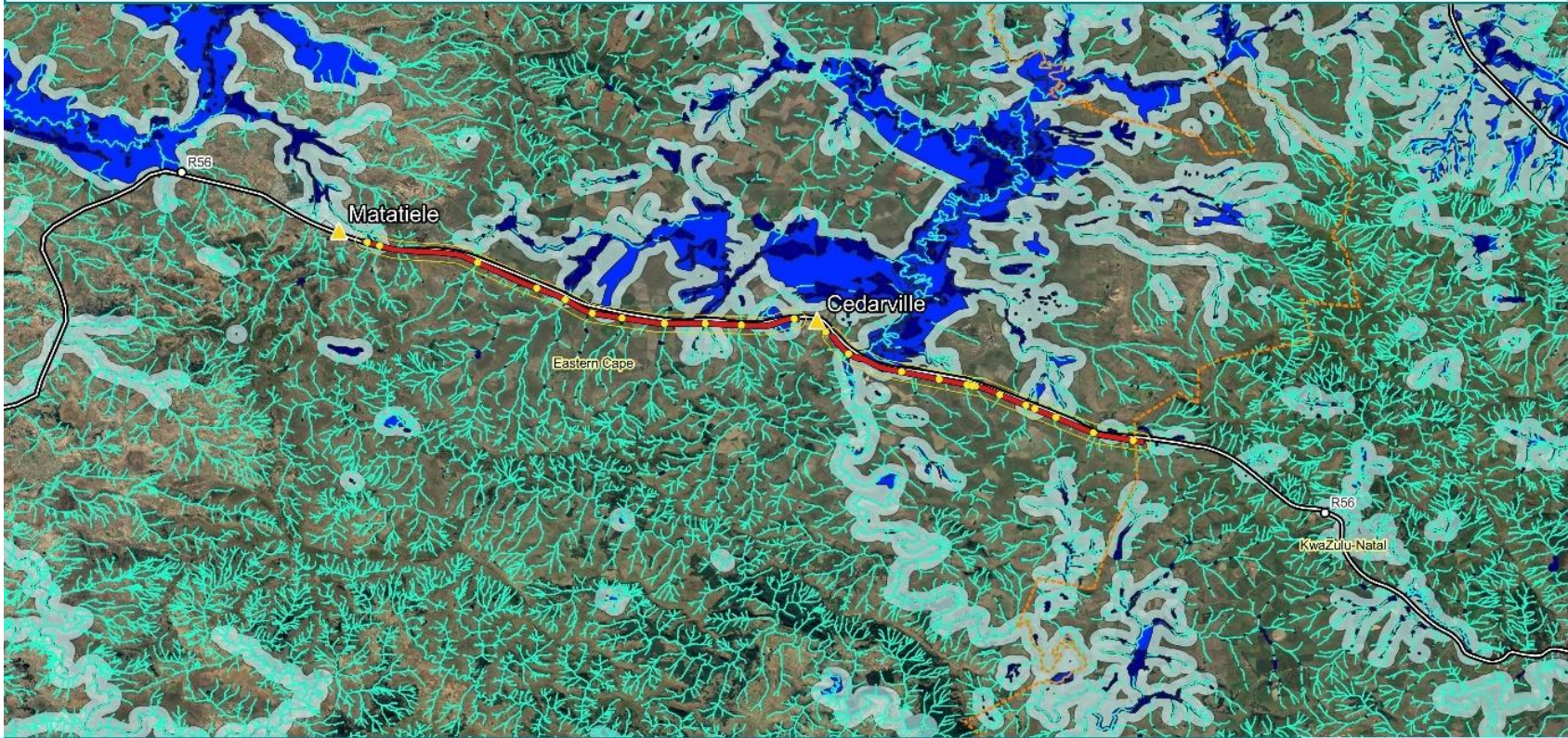
**PRODUCED BY**



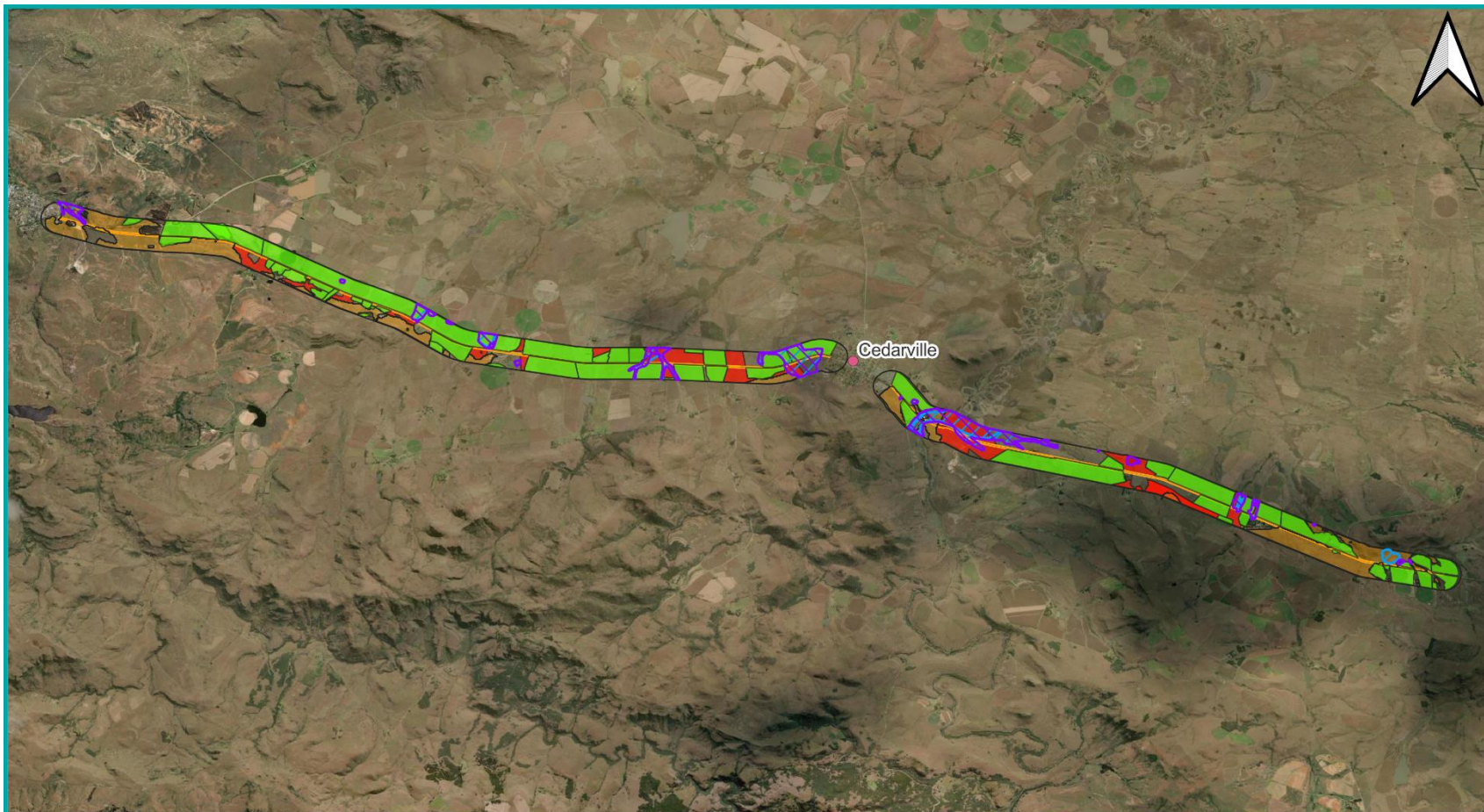
**PRODUCED FOR**










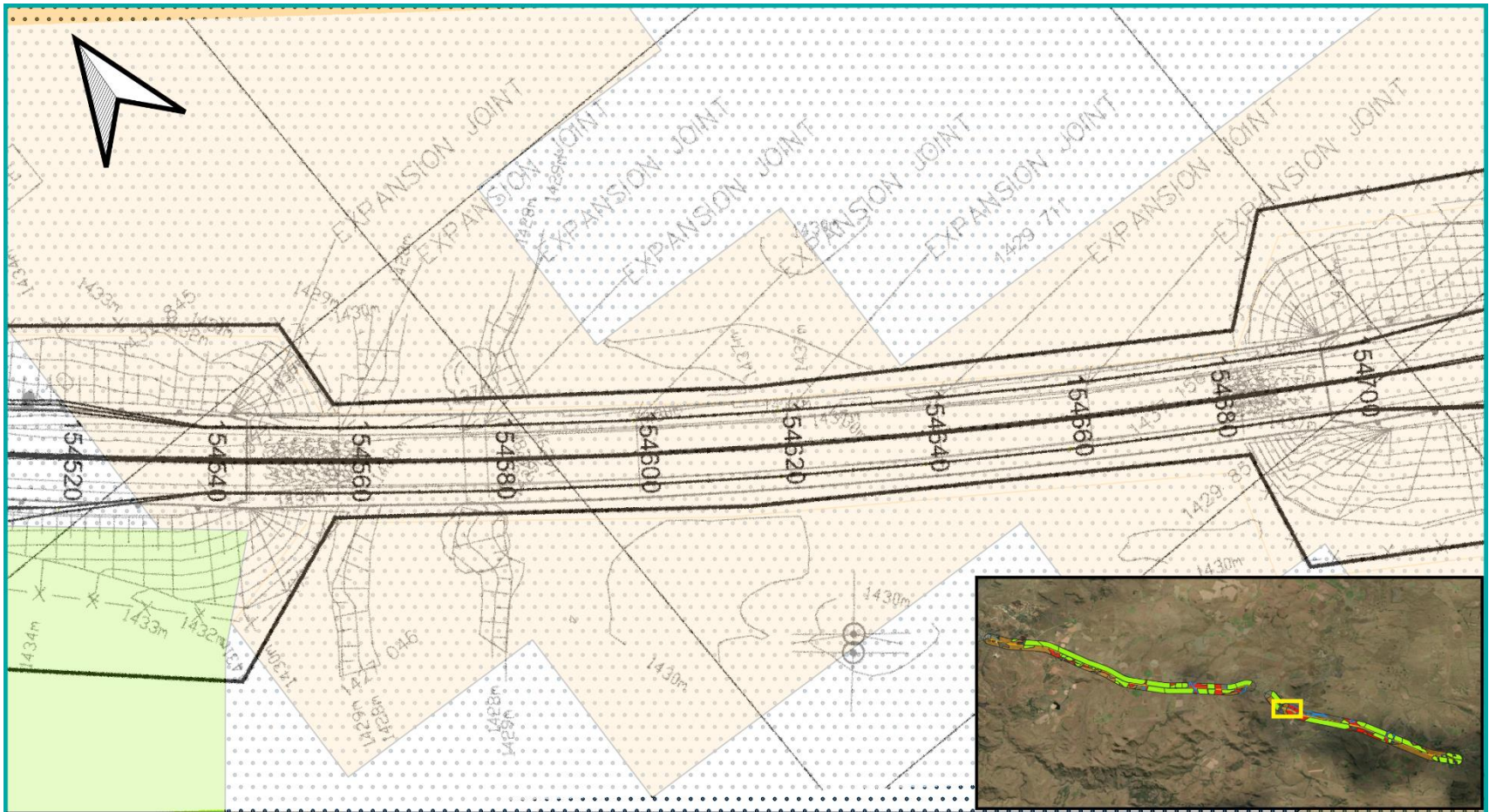
**REHABILITATION OF NATIONAL ROUTE R56 SECTION 8 FROM MATATIELE (KM 130, 15) TO KZN BORDER (KM 168,71), EC PROVINCE**  
**SURFACE WATER MAP**








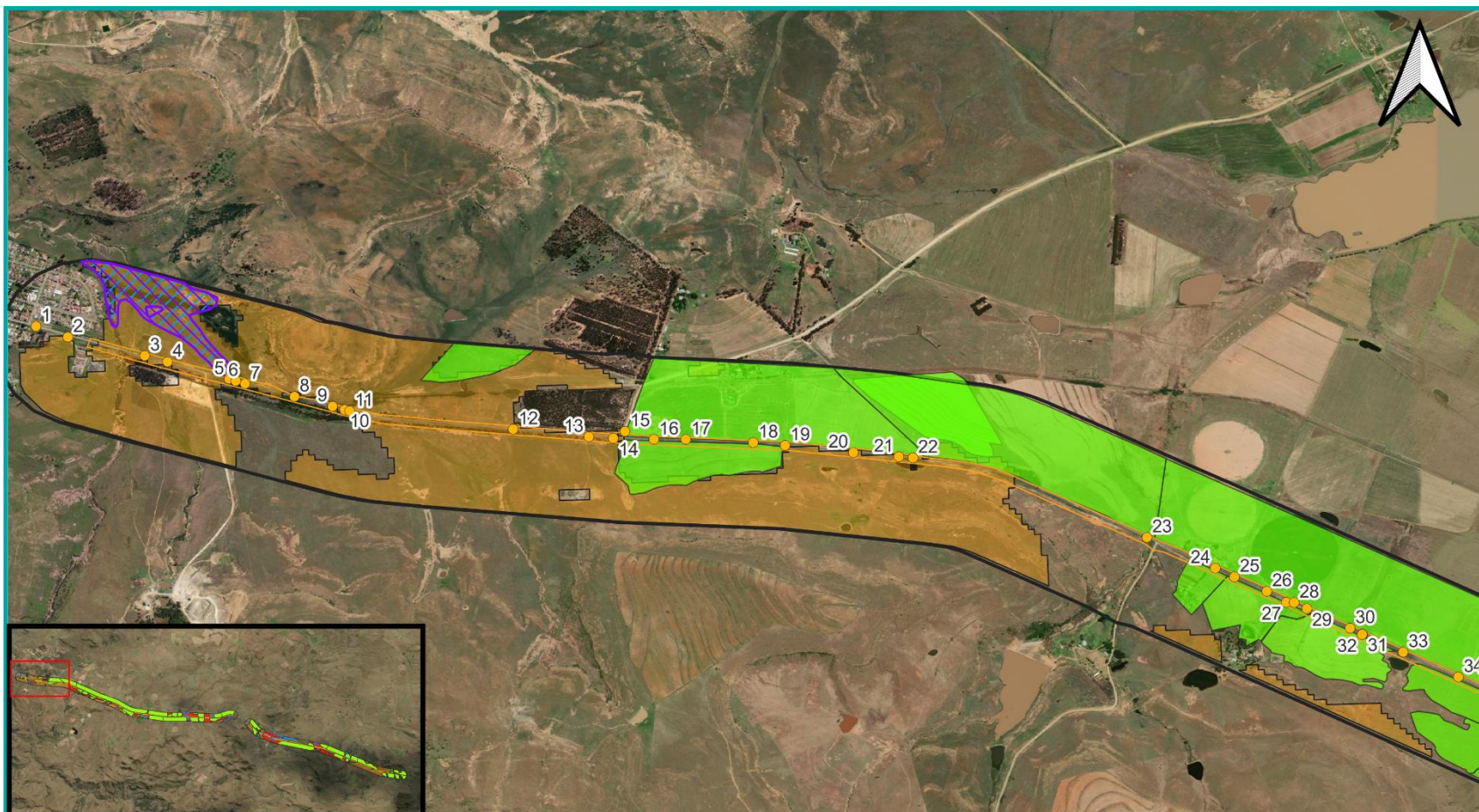
MAP DETAILS	LEGEND	SITE IN SOUTH AFRICA	PRODUCED BY
<p>Date: November 2022</p> <p>Drawn by: Sage Wansell</p> <p>Datum: WGS 84</p> 	<ul style="list-style-type: none"> <li><span style="color: yellow;">●</span> Proposaed SANRAL Road Upgrade: Major culverts and Bridges</li> <li><span style="border-bottom: 2px solid red; width: 20px; display: inline-block;"></span> Road Reserve Design</li> <li><span style="border: 1px solid yellow; width: 20px; height: 10px; display: inline-block;"></span> Road Reserve Buffer</li> <li><span style="border: 1px dashed orange; width: 20px; height: 10px; display: inline-block;"></span> Provinces</li> <li><span style="color: yellow;">▲</span> Towns</li> <li><span style="border: 1px solid black; border-radius: 50%; width: 10px; height: 10px; display: inline-block;"></span> Roads</li> <li><span style="border-bottom: 2px solid black; width: 20px; display: inline-block;"></span> R56 national road</li> <li><span style="background-color: blue; width: 15px; height: 10px; display: inline-block;"></span> Inland Water Areas</li> <li><span style="color: cyan;">—</span> 1 in 50 000 Rivers</li> <li><span style="background-color: blue; width: 15px; height: 10px; display: inline-block;"></span> Wetlands and Dams</li> <li><span style="border: 1px solid lightblue; width: 15px; height: 10px; display: inline-block;"></span> 500 m Dam and Wetland Buffers</li> </ul>		<p>PRODUCED BY</p>  <p>PRODUCED FOR</p> 
<p><b>SCALE</b></p> <p><b>1:131 850</b></p> <p>0 2,5 5 km</p> 			












	PROJECT	<b>LEGEND</b>  NFEPA (2014) Wetlands  NBA (2018) Wetlands  Agricultural Fields  East Griqualand Grassland  Mabela Sandy Grassland	0      2,5      5 km
	Matatiele Cedarville BAR		 Scale
TITLE	MAP DETAILS		1:100 000
Overall Sensitivity Map	Drawn By: Peter Bally Date: April 2023		Datum WSG 84












 ENVIRONMENTAL AND SOCIAL ADVISORY SERVICES	PROJECT	<b>LEGEND</b>  Agricultural Fields  East Griqualand Grassland  NFEPA (2014) & NBA (2018) Wetlands	0 10 20 30 m
	Matatiele Cedarville BAR		 Scale 1:500 Datum WSG 84
TITLE	MAP DETAILS		
Bridge sensitivity map	Drawn By: Peter Bally Date: April 2023		












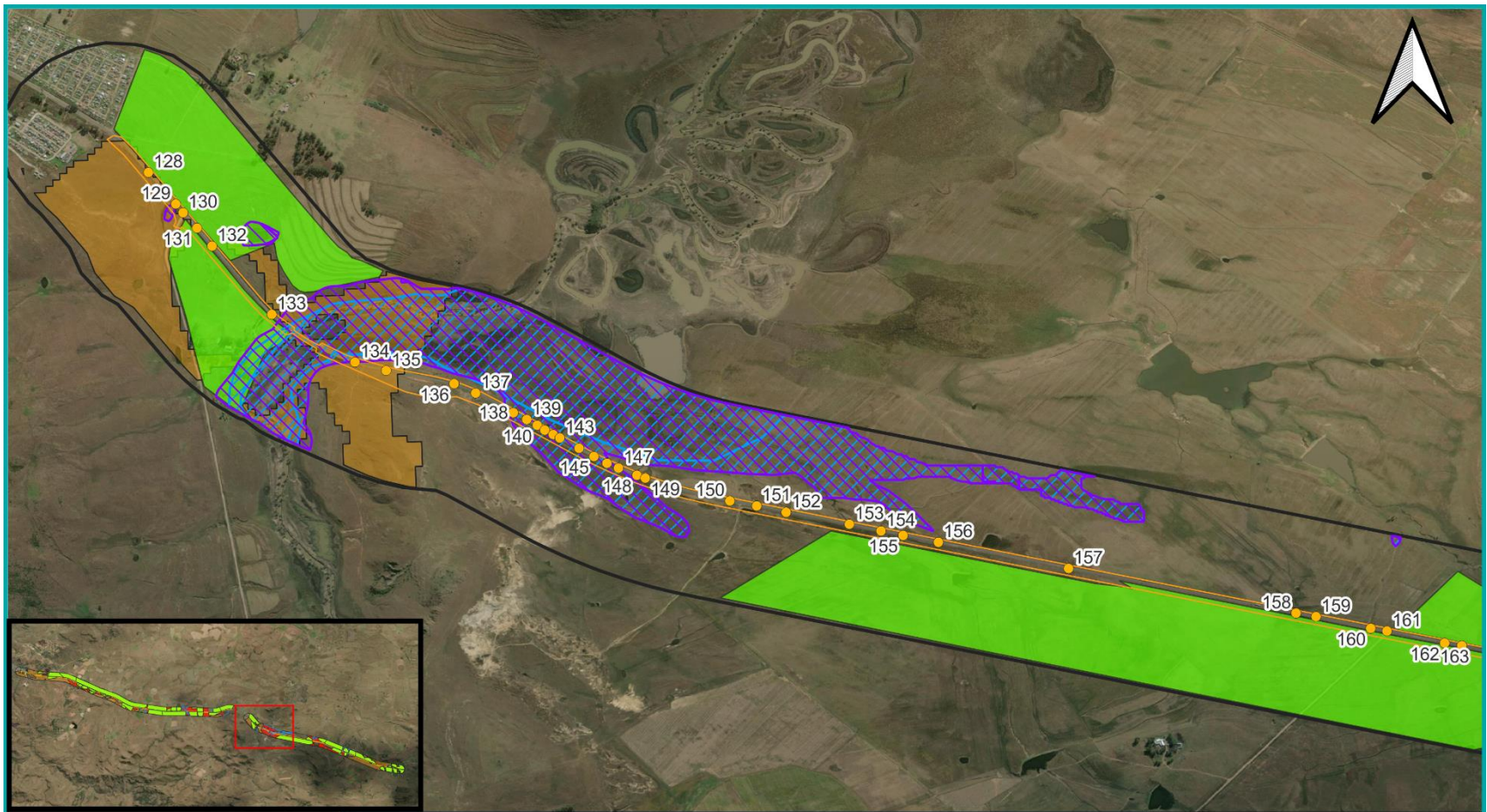
	PROJECT	LEGEND	0 1 km
	Matatiele Cedarville BAR	<ul style="list-style-type: none"> <li> NFEPA (2014) Wetlands</li> <li> NBA (2018) Wetlands</li> <li> R56 road alignment</li> <li> Agricultural Fields</li> <li> East Griqualand Grassland</li> <li> Mabela Sandy Grassland</li> <li> Culverts</li> </ul>	 Scale 1:19 000 Datum WSG 84
TITLE	MAP DETAILS		
Culvert sensitivity map 1	Drawn By: Peter Bally Date: January 2023		












	PROJECT	LEGEND	0 1 km
	Matatiele Cedarville BAR	<ul style="list-style-type: none"> <li> NFEPA (2014) Wetlands</li> <li> NBA (2018) Wetlands</li> <li> R56 road alignment</li> <li> Agricultural Fields</li> <li> East Griqualand Grassland</li> <li> Mabela Sandy Grassland</li> <li> Culverts</li> </ul>	 Scale 1:19 000 Datum WSG 84
TITLE	MAP DETAILS		
Culvert sensitivity map 2	Drawn By: Peter Bally Date: January 2023		












	PROJECT	LEGEND	0 1 km
	Matatiele Cedarville BAR	<ul style="list-style-type: none"> <li> NFEPA (2014) Wetlands</li> <li> NBA (2018) Wetlands</li> <li> R56 road alignment</li> <li> Agricultural Fields</li> <li> East Griqualand Grassland</li> <li> Mabela Sandy Grassland</li> <li> Culverts</li> </ul>	 Scale 1:16 000 Datum WSG 84
TITLE	MAP DETAILS		
Culvert sensitivity map 3	Drawn By: Peter Bally Date: January 2023		












	PROJECT	LEGEND	0 1 km
	Matatiele Cedarville BAR	<ul style="list-style-type: none"> <li> NFEPA (2014) Wetlands</li> <li> NBA (2018) Wetlands</li> <li> R56 road alignment</li> <li> Agricultural Fields</li> <li> East Griqualand Grassland</li> <li> Mabela Sandy Grassland</li> <li> Culverts</li> </ul>	 Scale 1:16 000 Datum WSG 84
TITLE	MAP DETAILS		
Culvert sensitivity map 4	Drawn By: Peter Bally Date: January 2023		





	PROJECT	LEGEND	0 0,5 km
	Matatiele Cedarville BAR	<ul style="list-style-type: none"> <li> NFEPA (2014) Wetlands</li> <li> NBA (2018) Wetlands</li> <li> R56 road alignment</li> <li> Agricultural Fields</li> <li> East Griqualand Grassland</li> <li> Mabela Sandy Grassland</li> <li> Culverts</li> </ul>	 Scale 1:12 000 Datum WSG 84
TITLE	MAP DETAILS		
Culvert sensitivity map 5	Drawn By: Peter Bally Date: January 2023		



	PROJECT	LEGEND	0 0,5 km
	Matatiele Cedarville BAR	<ul style="list-style-type: none"> <li> NFEPA (2014) Wetlands</li> <li> NBA (2018) Wetlands</li> <li> R56 road alignment</li> <li> Agricultural Fields</li> <li> East Griqualand Grassland</li> <li> Mabela Sandy Grassland</li> <li> Culverts</li> </ul>	 Scale 1:11 997,062292 Datum WSG 84
TITLE	MAP DETAILS		
Culvert sensitivity map 6	Drawn By: Peter Bally Date: January 2023		

Culvert Coordinates							
Culvert #	Culvert	y	x	Culvert #	Culvert	y	x
1	2	-30.34752798	28.82318543	111	336	-30.38882764	29.01355495
2	4	-30.34808136	28.82482649	112	340	-30.38887182	29.01465599
3	10	-30.34903903	28.82878904	113	342	-30.38893147	29.01579407
4	16	-30.34935472	28.82996238	114	349	-30.38894501	29.01615573
5	21	-30.35023759	28.83313421	115	350	-30.38899314	29.01867360
6	24	-30.35033942	28.83347772	116	352	-30.38829303	29.02213662
7	27	-30.35048090	28.83395843	117	355	-30.38814615	29.02263650
8	33	-30.35114439	28.83650490	118	357	-30.38796702	29.02329491
9	37	-30.35164727	28.83846349	119	358	-30.38788292	29.02359950
10	42	-30.35182598	28.83908692	120	360	-30.38770954	29.02395473
11	46	-30.35188819	28.83934466	121	362	-30.38751022	29.02455861
12	50	-30.35282471	28.84777212	122	374	-30.38749179	29.02465033
13	52	-30.35321523	28.85166718	123	382	-30.38675955	29.02708740
14	55	-30.35330052	28.85293750	124	384	-30.38580873	29.03010113
15	58	-30.35293742	28.85353180	125	387	-30.38541387	29.03257731
16	60	-30.35334954	28.85502590	126	390	-30.38546842	29.03305041
17	62	-30.35334890	28.85666473	127	400	-30.38582956	29.03439444
18	64	-30.35351640	28.86013827	128	532	-30.39538365	29.05276152
19	66	-30.35365994	28.86178975	129	534	-30.39676048	29.05395497
20	70	-30.35403140	28.86530160	130	537	-30.39713967	29.05427584
21	73	-30.35424066	28.86764336	131	540	-30.39780977	29.05488434
22	75	-30.35430040	28.86837039	132	543	-30.39859568	29.05553545
23	79	-30.35839932	28.88043032	133	550	-30.40157812	29.05814632
24	79	-30.35998457	28.88394935	134	552	-30.40366191	29.06177810
25	81	-30.36043401	28.88493990	135	554	-30.40403020	29.06313820
26	83	-30.36117598	28.88661012	136	556	-30.40460477	29.06610485
27	84	-30.36174479	28.88760794	137	558	-30.40501209	29.06704746
28	87	-30.36175398	28.88801400	138	560	-30.40586901	29.06868980
29	90	-30.36206534	28.88866744	139	562	-30.40616421	29.06927570
30	93	-30.36307474	28.89089966	140	564	-30.40641590	29.06973371
31	96	-30.36336472	28.89153079	141	567	-30.40662727	29.07006214
32	96	-30.36340450	28.89151278	142	570	-30.40682353	29.07043126
33	100	-30.36431042	28.89363113	143	572	-30.40697262	29.07071934
34	102	-30.36558454	28.89647687	144	574	-30.40741929	29.07155940
35	105	-30.36643930	28.89838998	145	576	-30.40778055	29.07220813
36	111	-30.36782138	28.90148967	146	578	-30.40807535	29.07277792
37	116	-30.36872980	28.90321754	147	580	-30.40828628	29.07328209
38	119	-30.36949775	28.90561239	148	582	-30.40859986	29.07408679
39	121	-30.37002176	28.90704524	149	584	-30.40872511	29.07445285
40	123	-30.37040419	28.90809880	150	586	-30.40972041	29.07814407
41	125	-30.37080975	28.90918089	151	588	-30.40993835	29.07931391
42	127	-30.37117743	28.91021088	152	590	-30.41021757	29.08059905
43	129	-30.37139458	28.91089721	153	592	-30.41073673	29.08336047

Culvert Coordinates							
Culvert #	Culvert	y	x	Culvert #	Culvert	y	x
44	131	-30.37170752	28.91170832	154	598	-30.41102994	29.08474266
45	134	-30.37208144	28.91275421	155	599	-30.41122317	29.08570779
46	137	-30.37248531	28.91380394	156	603	-30.41152315	29.08724746
47	139	-30.37299849	28.91531206	157	606	-30.41266874	29.09293046
48	149	-30.37393771	28.91788431	158	608	-30.41461779	29.10286269
49	155	-30.37413858	28.91841464	159	610	-30.41476725	29.10373436
50	161	-30.37585010	28.92182021	160	615	-30.41528179	29.10612328
51	163	-30.37637200	28.92284620	161	617	-30.41539747	29.10683261
52	168	-30.37677320	28.92358572	162	622	-30.41592283	29.10934848
53	171	-30.37733625	28.92447502	163	624	-30.41603689	29.11009887
54	174	-30.37855686	28.92671240	164	626	-30.41633334	29.11144703
55	176	-30.37878940	28.92712478	165	628	-30.41637955	29.11169526
56	178	-30.37926980	28.92803529	166	629	-30.41650656	29.11226143
57	180	-30.37984445	28.92898953	167	635	-30.41682520	29.11392995
58	182	-30.38095511	28.93093520	168	638	-30.41686331	29.11419115
59	184	-30.38193705	28.93284975	169	640	-30.41691303	29.11443858
60	186	-30.38246744	28.93424982	170	642	-30.41720599	29.11593179
61	194	-30.38294426	28.93596909	171	644	-30.41728652	29.11631266
62	198	-30.38297474	28.93613786	172	650	-30.41730490	29.11645636
63	203	-30.38363065	28.93993276	173	654	-30.41737949	29.11677942
64	208	-30.38365416	28.94012353	174	658	-30.41777136	29.11884528
65	210	-30.38377700	28.94101740	175	662	-30.41806214	29.12026502
66	212	-30.38395041	28.94238653	176	666	-30.41867641	29.12323010
67	214	-30.38449387	28.94587751	177	668	-30.42055966	29.12853567
68	216	-30.38477479	28.94714891	178	670	-30.42117676	29.13003911
69	220	-30.38515918	28.95016138	179	674	-30.42201677	29.13212357
70	222	-30.38634804	28.95850128	180	676	-30.42266008	29.13367644
71	224	-30.38694843	28.96237210	181	684	-30.42333204	29.13538545
72	228	-30.38700499	28.96272881	182	686	-30.42466555	29.13872834
73	231	-30.38744944	28.96573972	183	688	-30.42579798	29.14129999
74	232	-30.38760604	28.97014847	184	690	-30.42591900	29.14170959
75	233	-30.38779397	28.97061101	185	692	-30.42652091	29.14308064
76	240	-30.38774630	28.97131722	186	696	-30.42701029	29.14428556
77	241	-30.38773591	28.97192834	187	701	-30.42703998	29.14440119
78	243	-30.38774264	28.97293398	188	704	-30.42749594	29.14552915
79	245	-30.38766998	28.97477264	189	706	-30.42812439	29.14704920
80	245	-30.38770345	28.98379643	190	707	-30.42870970	29.14868779
81	248	-30.38763173	28.98015752	191	710	-30.42885800	29.14885485
82	250	-30.38768627	28.98130128	192	712	-30.42890395	29.14896730
83	252	-30.38768797	28.98195292	193	714	-30.42955768	29.15076454
84	254	-30.38768869	28.98253431	194	716	-30.43020507	29.15216369
85	259	-30.38765023	28.98505131	195	718	-30.43029275	29.15236663
86	261	-30.38765062	28.98521354	196	720	-30.43040197	29.15260299
87	268	-30.38777217	28.99006136	197	722	-30.43133452	29.15491131

Culvert Coordinates							
Culvert #	Culvert	y	x	Culvert #	Culvert	y	x
88	274	-30.38776859	28.99019947	198	724	-30.43178728	29.15603898
89	275	-30.38778381	28.99069626	199	726	-30.43261522	29.15803842
90	277	-30.38779512	28.99091201	200	730	-30.43274469	29.15837486
91	279	-30.38786294	28.99230927	201	732	-30.43370427	29.16068804
92	282	-30.38797502	28.99444790	202	734	-30.43415970	29.16182698
93	284	-30.38804291	28.99615615	203	736	-30.43535555	29.16465098
94	286	-30.38808028	28.99723050	204	740	-30.43538231	29.16476691
95	287	-30.38814276	28.99842252	205	742	-30.43642569	29.16742707
96	290	-30.38819891	28.99928765	206	744	-30.43726449	29.16937046
97	296	-30.38822709	29.00023808	207	746	-30.43826666	29.17177088
98	299	-30.38808789	29.00048410	208	750	-30.43842135	29.17232068
99	301	-30.38822587	29.00062756	209	752	-30.43928136	29.17434308
100	304	-30.38826027	29.00102599	210	754	-30.43972217	29.17542120
101	306	-30.38827425	29.00134437	211	757	-30.44039328	29.17706350
102	308	-30.38829868	29.00191369	212	767	-30.44137659	29.18028887
103	310	-30.38833844	29.00308527	213	772	-30.44197159	29.18380371
104	316	-30.38854467	29.00758791	214	777	-30.44255130	29.18716183
105	320	-30.38854845	29.00781487	215	780	-30.44327254	29.19163021
106	322	-30.38869947	29.01100612	216	783	-30.44343869	29.19265678
107	325	-30.38874520	29.01151754	217	786	-30.44344816	29.19276193
108	328	-30.38873978	29.01167197	218	788	-30.44370049	29.19423966
109	330	-30.38875199	29.01226627	219	789	-30.44399483	29.19599315
110	333	-30.38878819	29.01290529	220	792	-30.44400341	29.19606473

Road Coordinates			
Coord number	Line placement (m)	y	x
1	0	-30.39379	29.05130
2	200	-30.39519	29.05260
3	400	-30.39663	29.05380
4	600	-30.39808	29.05510
5	800	-30.39954	29.05630
6	1000	-30.40099	29.05750
7	1200	-30.40227	29.05900
8	1400	-30.40326	29.06070
9	1600	-30.40392	29.06270
10	1800	-30.40431	29.06470
11	2000	-30.40484	29.06670
12	2200	-30.40576	29.06850
13	2400	-30.40671	29.07020
14	2600	-30.40766	29.07200
15	2800	-30.40851	29.07380
16	3000	-30.40917	29.07580

Road Coordinates			
Coord number	Line placement (m)	y	x
17	3200	-30.40965	29.07780
18	3400	-30.41004	29.07980
19	3600	-30.41045	29.08180
20	3800	-30.41084	29.08390
21	4000	-30.41125	29.08590
22	4200	-30.41165	29.08790
23	4400	-30.41205	29.08990
24	4600	-30.41246	29.09200
25	4800	-30.41286	29.09400
26	5000	-30.41326	29.09600
27	5200	-30.41366	29.09810
28	5400	-30.41407	29.10010
29	5600	-30.41447	29.10210
30	5800	-30.41487	29.10410
31	6000	-30.41527	29.10620
32	6200	-30.41567	29.10820

Road Coordinates			
Coord number	Line placement (m)	y	x
33	6400	-30.41607	29.11020
34	6600	-30.41647	29.11230
35	6800	-30.41688	29.11430
36	7000	-30.41728	29.11630
37	7200	-30.41769	29.11830
38	7400	-30.41809	29.12040
39	7600	-30.41849	29.12240
40	7800	-30.41894	29.12440
41	8000	-30.41967	29.12630
42	8200	-30.42043	29.12820
43	8400	-30.42120	29.13010
44	8600	-30.42197	29.13200
45	8800	-30.42274	29.13390
46	9000	-30.42351	29.13570
47	9200	-30.42428	29.13760
48	9400	-30.42504	29.13950
49	9600	-30.42577	29.14140
50	9800	-30.42651	29.14330
51	10000	-30.42728	29.14520
52	10200	-30.42805	29.14710
53	10400	-30.42882	29.14900
54	10600	-30.42959	29.15080
55	10800	-30.43036	29.15270
56	11000	-30.43114	29.15460
57	11200	-30.43191	29.15650
58	11400	-30.43268	29.15840
59	11600	-30.43344	29.16020
60	11800	-30.43422	29.16210
61	12000	-30.43499	29.16400
62	12200	-30.43575	29.16590
63	12400	-30.43652	29.16780
64	12600	-30.43729	29.16970
65	12800	-30.43806	29.17150
66	13000	-30.43885	29.17340
67	13200	-30.43966	29.17530
68	13400	-30.44045	29.17710
69	13600	-30.44119	29.17900
70	13800	-30.44155	29.18110
71	14000	-30.44190	29.18310
72	14200	-30.44224	29.18520
73	14400	-30.44257	29.18720
74	14600	-30.44291	29.18930
75	14800	-30.44325	29.19130

Road Coordinates			
Coord number	Line placement (m)	y	x
76	15000	-30.44359	29.19330
77	15200	-30.44393	29.19540
78	15400	-30.44427	29.19740
79	15600	-30.44460	29.19950
80	0	-30.34831	28.82590
81	200	-30.34884	28.82790
82	400	-30.34937	28.82990
83	600	-30.34990	28.83190
84	800	-30.35042	28.83390
85	1000	-30.35095	28.83590
86	1200	-30.35149	28.83780
87	1400	-30.35202	28.83980
88	1600	-30.35232	28.84190
89	1800	-30.35249	28.84390
90	2000	-30.35266	28.84600
91	2200	-30.35282	28.84810
92	2400	-30.35299	28.85020
93	2600	-30.35315	28.85220
94	2800	-30.35328	28.85430
95	3000	-30.35335	28.85640
96	3200	-30.35342	28.85850
97	3400	-30.35351	28.86050
98	3600	-30.35370	28.86260
99	3800	-30.35392	28.86470
100	4000	-30.35413	28.86670
101	4200	-30.35435	28.86880
102	4400	-30.35457	28.87090
103	4600	-30.35508	28.87290
104	4800	-30.35585	28.87470
105	5000	-30.35668	28.87660
106	5200	-30.35751	28.87840
107	5400	-30.35834	28.88030
108	5600	-30.35916	28.88210
109	5800	-30.35998	28.88400
110	6000	-30.36081	28.88580
111	6200	-30.36164	28.88770
112	6400	-30.36247	28.88950
113	6600	-30.36330	28.89140
114	6800	-30.36412	28.89320
115	7000	-30.36495	28.89510
116	7200	-30.36577	28.89690
117	7400	-30.36660	28.89880
118	7600	-30.36743	28.90060

Road Coordinates			
Coord number	Line placement (m)	y	x
119	7800	-30.36825	28.90250
120	8000	-30.36903	28.90440
121	8200	-30.36972	28.90630
122	8400	-30.37042	28.90820
123	8600	-30.37112	28.91010
124	8800	-30.37182	28.91200
125	9000	-30.37251	28.91400
126	9200	-30.37320	28.91590
127	9400	-30.37390	28.91780
128	9600	-30.37465	28.91970
129	9800	-30.37558	28.92150
130	10000	-30.37656	28.92320
131	10200	-30.37754	28.92500
132	10400	-30.37852	28.92670
133	10600	-30.37949	28.92850
134	10800	-30.38046	28.93020
135	11000	-30.38143	28.93200
136	11200	-30.38224	28.93380
137	11400	-30.38286	28.93580
138	11600	-30.38326	28.93780
139	11800	-30.38358	28.93990
140	12000	-30.38388	28.94190
141	12200	-30.38417	28.94400
142	12400	-30.38448	28.94600
143	12600	-30.38480	28.94810
144	12800	-30.38510	28.95010
145	13000	-30.38540	28.95220
146	13200	-30.38571	28.95420
147	13400	-30.38602	28.95630
148	13600	-30.38632	28.95830
149	13800	-30.38662	28.96040
150	14000	-30.38693	28.96240
151	14200	-30.38724	28.96450
152	14400	-30.38752	28.96650
153	14600	-30.38769	28.96860
154	14800	-30.38771	28.97070
155	15000	-30.38770	28.97270
156	15200	-30.38769	28.97480

Road Coordinates			
Coord number	Line placement (m)	y	x
157	15400	-30.38768	28.97690
158	15600	-30.38768	28.97900
159	15800	-30.38767	28.98110
160	16000	-30.38766	28.98320
161	16200	-30.38765	28.98520
162	16400	-30.38764	28.98730
163	16600	-30.38770	28.98940
164	16800	-30.38780	28.99150
165	17000	-30.38790	28.99350
166	17200	-30.38799	28.99560
167	17400	-30.38808	28.99770
168	17600	-30.38817	28.99980
169	17800	-30.38827	29.00190
170	18000	-30.38836	29.00390
171	18200	-30.38846	29.00600
172	18400	-30.38855	29.00810
173	18600	-30.38865	29.01020
174	18800	-30.38874	29.01230
175	19000	-30.38884	29.01430
176	19200	-30.38892	29.01640
177	19400	-30.38895	29.01850
178	19600	-30.38869	29.02050
179	19800	-30.38817	29.02250
180	20000	-30.38753	29.02450
181	20200	-30.38690	29.02640
182	20400	-30.38627	29.02840
183	20600	-30.38565	29.03030
184	20800	-30.38541	29.03240
185	21000	-30.38581	29.03440
186	21200	-30.38658	29.03630
187	21400	-30.38739	29.03810
188	21600	-30.38818	29.04000
189	21800	-30.38894	29.04190
190	22000	-30.38976	29.04370
191	22200	-30.39056	29.04560
192	22400	-30.39145	29.04740
193	22600	-30.39246	29.04910
194	22800	-30.39349	29.05090