

ANNEXURE B

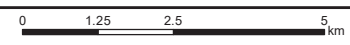
A3 MAPS AND PLANS

Glisa EMP & IWUL Consolidation Project

LEGEND

- Towns
- Rivers and Streams**
 - Non-Perennial
 - Perennial
- Road Network**
 - National Route
 - Main Road
 - Secondary Road
 - Street
 - Railway Line
- Mining Right**
 - Glisa
 - Paardeplaats
 - Eerstelingfontein

NBC - LOCALITY



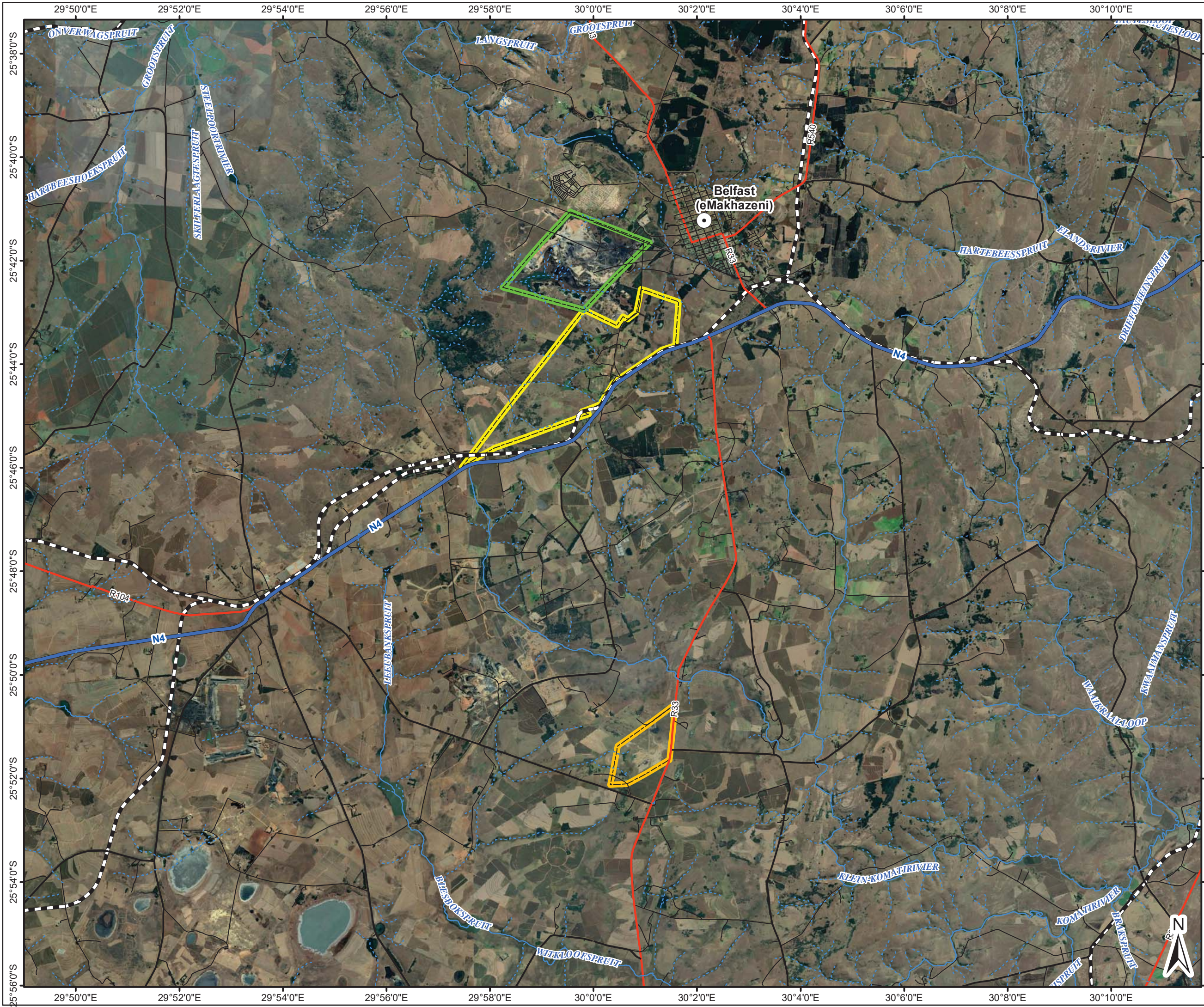
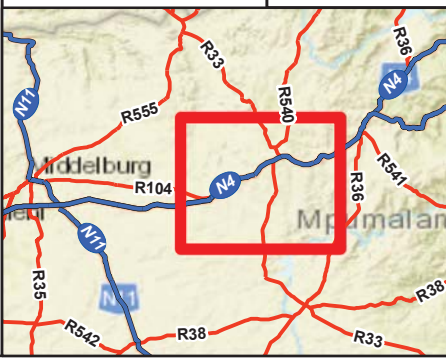
Reviewed: R. Janse Van Rensburg
Environmental Compliance and Assessment Manager

Drawn by: A Brower
GIS Consultant

Coordinate System: GCS WGS 1984
Datum: WGS 1984
Units: Degree

cigroup
DO IT RIGHT

Scale: 1:125 000
CIGroup: 19-0001
Map ID: 126-001-36-v3
Date: 23/06/2020

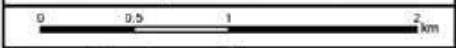


Glisa EMP & IWUL Consolidation Project

LEGEND

- Towns
- Rivers and Streams**
 - Non-Perennial
 - Perennial
- Road Network**
 - National Route
 - Main Road
 - Secondary Road
 - Street
 - Railway Line
 - Parent Farms
 - Farm Portions
- Mining Right**
 - Glisa
 - Paardeplaats
 - Portion 24/380

LOCATION OF THE GLISA, PAARDEPLAATS & PTN 24/380 SECTIONS



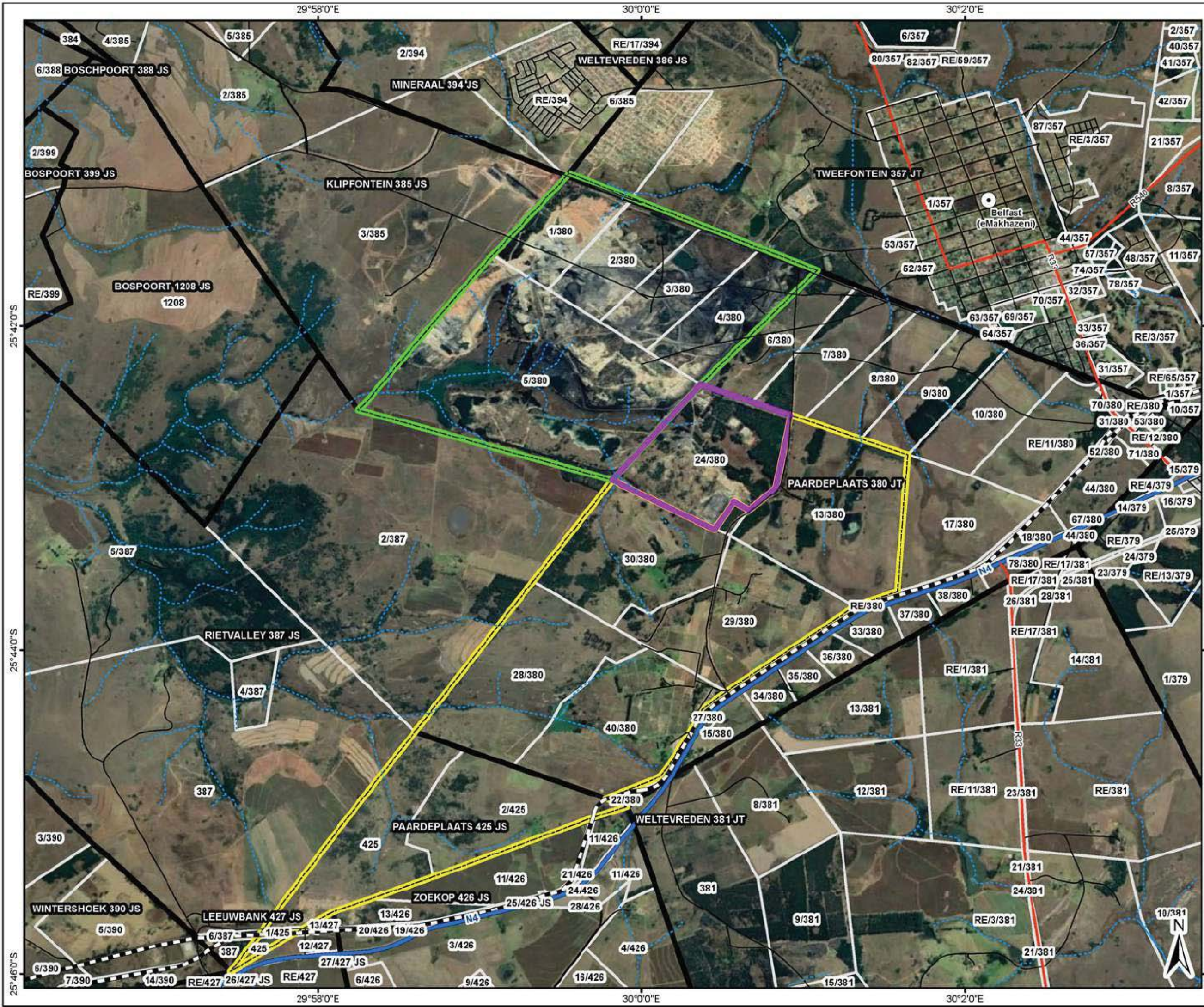
Reviewed by:
R. Janse Van Rensburg
Environmental Compliance and
Assessment Manager

Drawn by:
A Brower
GIS Consultant

Coordinate System: GCS WGS 1984
Datum: WGS 1984
Units: Degree

cigroup
DO IT RIGHT

Scale: 1:40 000
CIGroup: 19-0001
Map ID: 126-001-02-v40
Date: 18/06/2020

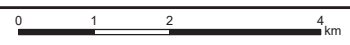


Glisa EMP & IWUL Consolidation Project

LEGEND

- Towns
- Rivers and Streams**
 - Non-Perennial
 - Perennial
- Road Network**
 - National Route
 - Main Road
 - Secondary Road
 - Street
 - Railway Line
 - Consolidated Mining Right

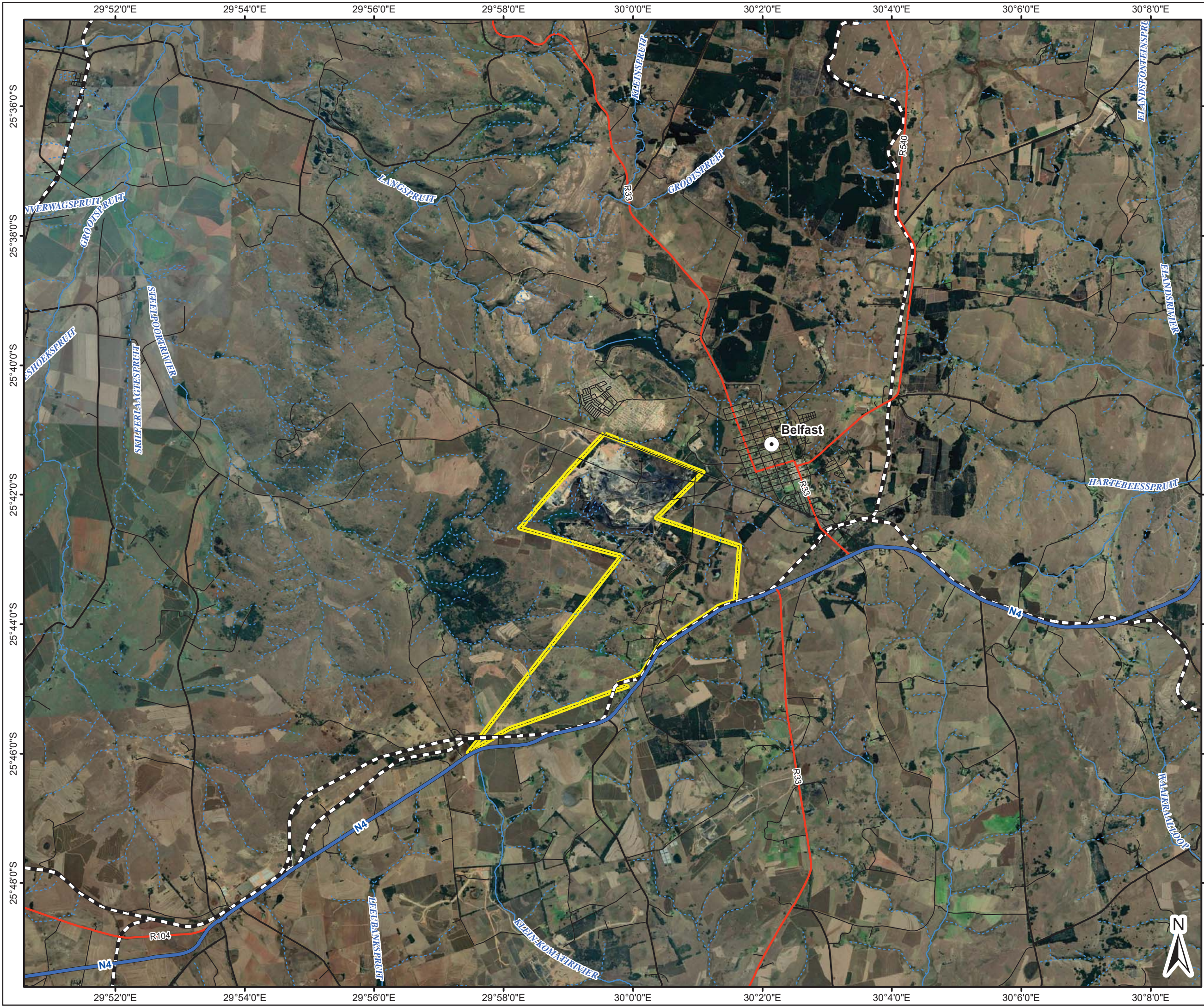
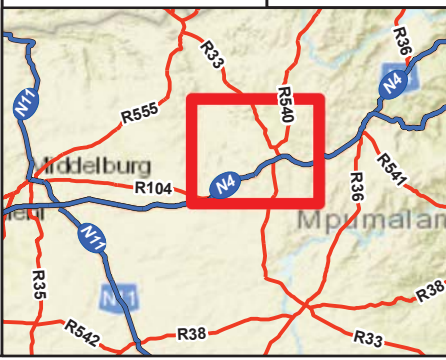
LOCALITY



Reviewed: R. Janse Van Rensburg Environmental Compliance and Assessment Manager	Drawn by: A Brower GIS Consultant
--	---

Coordinate System: GCS WGS 1984
Datum: WGS 1984
Units: Degree

Scale: 1:100 000
 CIGroup: 19-0001
 Map ID: 126-001-01-v4
 Date: 17/06/2020



Glisa EMP & IWUL Consolidation Project

LEGEND

- Towns
- Rivers and Streams
 - Non-Perennial
 - Perennial
- Road Network
 - National Route
 - Main Road
 - Secondary Road
 - Street
 - Railway Line
- Parent Farms
- Farm Portions
- Mining Right
 - Glisa
 - Paardeplaats
 - Portion 24/380

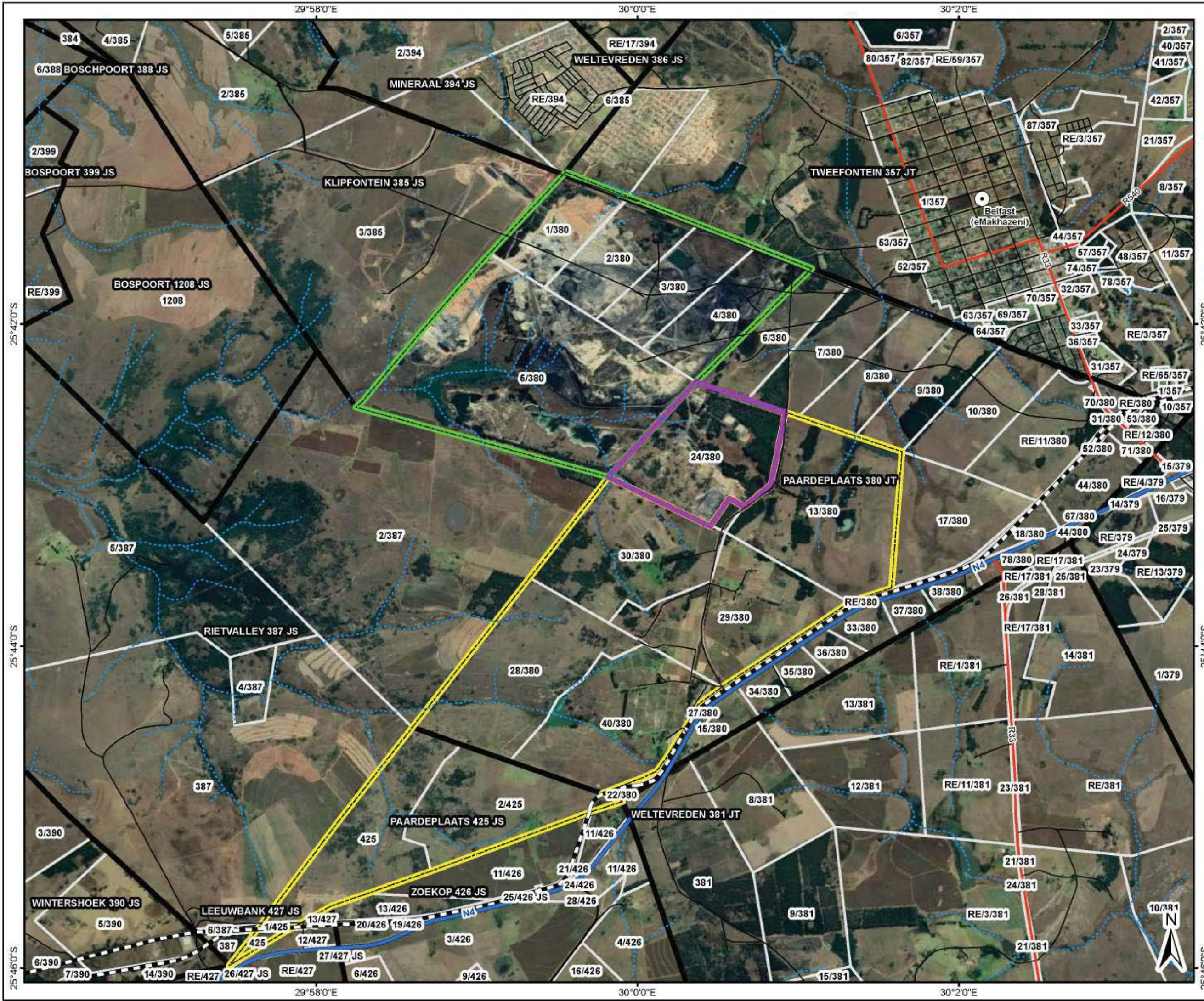
LOCATION OF THE GLISA, PAARDEPLAATS & PTN 24/380 SECTIONS

Reviewed: R. Jansse Van Rensburg
Environmental Compliance and Assessment Manager

Drawn by: A. Brower
GIS Consultant

Coordinate System: GCS WGS 1984
Datum: WGS 1984
Units: Degree

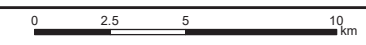
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CIGroup: 19-0001
Map ID: 126-001-02-v4a
Date: 18/06/2020



Glisa EMP & IWUL Consolidation Project

- LEGEND**
- Towns
 - Rivers and Streams**
 - Non-Perennial
 - Perennial
 - Road Network**
 - National Route
 - Main Road
 - Secondary Road
 - Railway Line
 - Consolidated Mining Right
 - Local Municipality**
 - Chief Albert Luthuli Local Municipality
 - Elias Motsoaledi Local Municipality
 - Emakhazeni Local Municipality
 - Steve Tshwete Local Municipality
 - Thaba Chweu Local Municipality
 - District Municipality

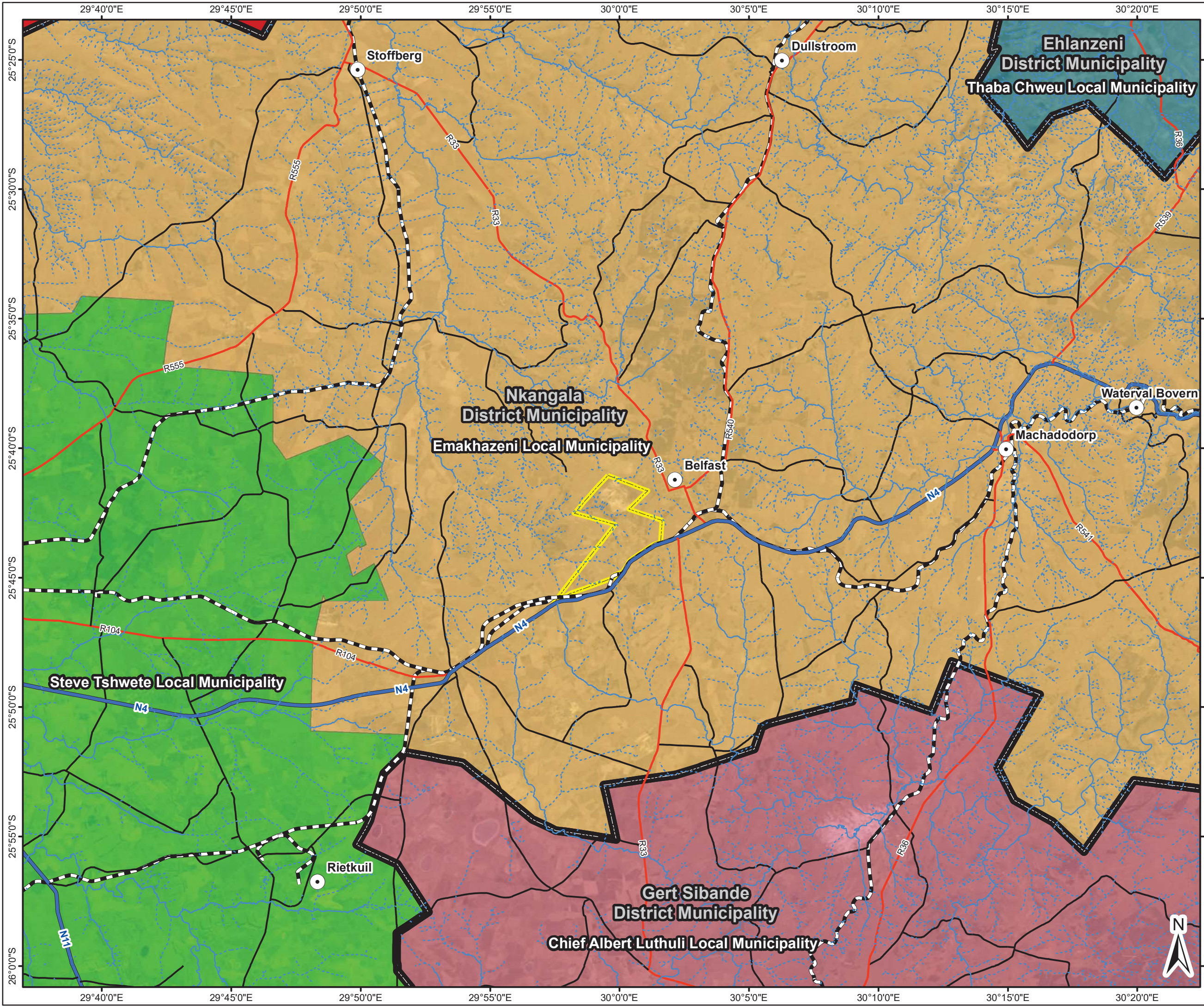
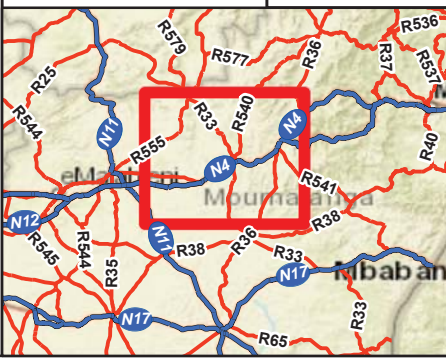
MUNICIPALITIES



Reviewed: R. Janse Van Rensburg Environmental Compliance and Assessment Manager	Drawn by: A Brower GIS Consultant
--	---

Coordinate System: GCS WGS 1984
Datum: WGS 1984
Units: Degree

	Scale: 1:250 000
	CIGroup: 19-0001
	Map ID: 126-001-38-v2
	Date: 19/06/2020



Glisa EMP & IWUL Consolidation Project

LEGEND

- Towns
- Rivers and Streams**
 - Non-Perennial
 - Perennial
- Road Network**
 - National Route
 - Main Road
 - Railway Line
 - Fence
 - Gravel Road
 - Pipeline
 - Powerline
 - Consolidated Mining Right



- Infrastructure
- Diesel Tank
- Explosive Magazine
- Mine Dam; Seasonal Dam
- Old Explosive Magazine
- Pan
- Rapid Reload Area (Dis-Used)
- Water Treatment Plant
- Wetlands

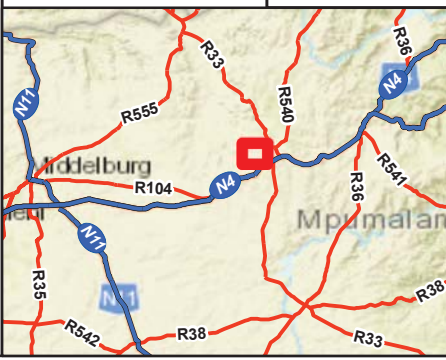
EXISTING SITE LAYOUT: GLISA



Reviewed: R. Janse Van Rensburg Environmental Compliance and Assessment Manager	Drawn by: A Brower GIS Consultant
--	---

Coordinate System: GCS WGS 1984
Datum: WGS 1984
Units: Degree

	Scale: 1:20 000
	CIGroup: 19-0001
	Map ID: 126-001-13-v8
	Date: 02/09/2020



GLISA WATER TREATMENT PLANT CLOSURE COST: PIPELINES



LEGEND

Discharge / Collection Points

- Clean Water (Blue circle)
- Dirty Water (Red circle)

Water Treatment Plant (June 2013)

- Fencing (Green dashed line)
- Parking Area (Yellow hatched area)
- General Infrastructure (Orange hatched area)
- Pump Station (Blue hatched area)
- Roads (Red dashed line)
- Security Building (Yellow rectangle)
- Water Treatment Plant (Green outline)

Pipelines

- Clean Water Pipeline (Blue line)
- Dirty Water Pipeline (Red line)

Rivers and Streams

- Non-Perennial (Blue dashed line)
- Perennial (Blue solid line)
- Mine Boundary (Green dashed line)

Data Sources: Microsoft Bing Maps
 (c) 2010 Microsoft Corporation and its data suppliers
 Layout from Client
 Wetlands from Wetland Specialist

Disclaimer:

FIGURE NO.: -

MAP NUMBER: 10-298-01

DRAWN BY: A. J. MAIN
 GIS SPECIALIST

REVIEWED BY: E. RETIEF
 ENVIRONMENTAL PROJECT MANAGER

DATUM: WGS84
 PROJECTION: GEOGRAPHIC

DATE: 20 JANUARY 2014

CLIENT: EXXARO

PROJECT: GLISA WATER TREATMENT PLANT
 (10-298)

SCALE: 1:20 000

0 0.25 0.5 1 Kilometers

CLOSURE COST LENGTHS	
Pipeline Type	Length (m)
Clean Water	5481.27
Dirty Water	17855.55

GCS
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 Consultants
 63 Wessel Road Woodmead
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 Fax: +27 (0) 11 803 5745
 E-mail: jhb@gcs-sa.biz
 www.gcs-sa.biz

29°58'0"E 29°58'30"E 29°59'0"E 29°59'30"E 30°0'0"E 30°0'30"E 30°1'0"E 30°1'30"E

25°41'0"S 25°41'30"S 25°42'0"S 25°42'30"S 25°43'0"S

GLISA WATER TREATMENT PLANT CLOSURE COST: WATER TREATMENT PLANT

CLOSURE COST AREAS		
Map id	Pipeline Type	Area (m ²)
1	Proposed Sludge Laydown Area	49.40
2	Pump Station	44.40
3	Proposed Product Water Tank	67.24
4	Raw Feed Water Tank	156.46
5	Clarified Watere Tank (Brine 2)	2.53
6	Clairified Water Tank (Brine 1)	5.95
7	Filter Press Feed Tank (TK-1101)	7.03
8	PC 0101	1.44
9	PC1101	1.43
10	Filter Press (FP 1101)	57.79
11	UF2 BW Waste TK-0502	11.90
12	Clarified Water Buffer Tank TKK02	11.91
13	Feed Water Buffer Tank TK-0101	22.32
14	PC 0201	1.44
15	PC 0102	1.44
16	PC 0801	1.44
17	PC 0501	1.44
18	PC 0401	1.44
19	PC 0701	1.44
20	Lime Silo ME-2501	24.99
21	PC 2501	1.44
22	Brine 2 Clarifier	20.80
23	Inlent Clarifier CL 0101	31.20
24	Brine 1 Clarifier	20.80
25	PC 0601	1.44
26	PC 0902	1.44
27	PC 0301	1.44
28	PC 0901	1.44
29	Filtrate Tank (UF2) TK0601	5.95
30	Filtrate Tank (UF1) TK 0301	11.91
31	UF1 BW Waste TK2020	5.11
32	PC 0502	1.44
33	PC 0903	1.44
34	PC 0202	1.44
35	Product Tank 0901	5.95
36	Sulphuric Acid Dosing	12.45
37	SMBS Dosing	12.33
38	PC 2401	1.44
39	Hypo Dosing	1.51
40	Alkali Dosing	1.26
41	AS Dosing	1.26
42	Acid Dosing	1.26
43	UF-0201A	8.61
44	Compressor and Air Receiver	15.84
45	KMnO4	2.09
46	FeCl3	2.09
47	Acid	2.09
48	H2SO4	2.09
49	PeCl3	2.09
50	Alkali	2.09
51	SMBS	2.41
52	AS	2.09
53	Hypo	4.20
54	CIP Station TK 1001	25.74
55	RO 0301 / RO 0601	24.36
56	KMno4 Dosing	7.52
57	Flocculant Dosing	19.33
58	Coagulant Dosing	1.51
59	Reactor 1 RX 0401 / RX0402	28.80
60	Reactor 1 RX 0701 / RX0702	19.20
61	Lime Off-Loading Bay (Stoped)	28.00
62	MCC	24.44
63	Control Room	20.16
64	Ablutions	5.20
65	Ablutions	5.30
66	Maintenace and Stores	35.00
67	Potable Tank	2.52
68	Security Building	44.29
69	Paved Areas	1750.90
70	Roads	2023.15



LEGEND

Water Treatment Plant (June 2013)

- Fencing
- Parking Area
- General Infrastructure
- Pump Station
- Roads
- Security Building
- Water Treatment Plant

Rivers and Streams

- Non-Perennial
- Perennial

Closure Cost Areas

- All Infrastructure
- Paved Areas
- Roads

Data Sources: Microsoft Bing Maps
(c) 2010 Microsoft Corporation and its data suppliers
Layout from Client
Wetlands from Wetland Specialist

Disclaimer:

FIGURE NO.: -

MAP NUMBER: 10-298-02

DRAWN BY: A. J. MAIN
GIS SPECIALIST

REVIEWED BY: E. RETIEF
ENVIRONMENTAL PROJECT MANAGER

DATUM: WGS84
PROJECTION: GEOGRAPHIC

DATE: 20 JANUARY 2014

CLIENT: EXXARO

PROJECT: GLISA WATER TREATMENT PLANT
(10-298)

SCALE: 1:500

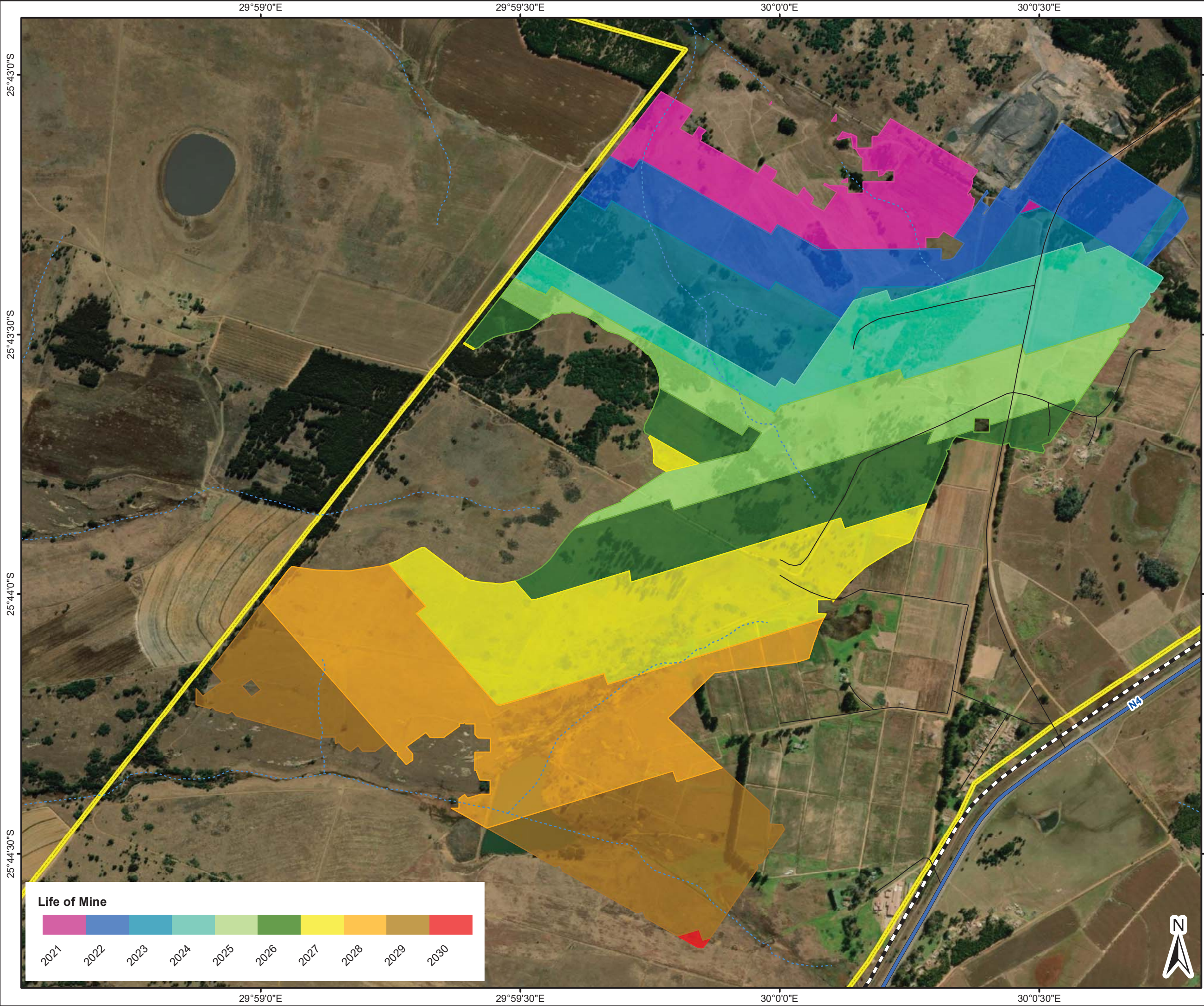
0 5 10 20 Meters

GCS
Water & Environmental
Consultants

63 Wessel Road Woodmead
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Fax: +27 (0) 11 803 5745
E-mail: jhb@gcs-sa.biz
www.gcs-sa.biz

25°42'26"S
25°42'27"S
25°42'28"S
25°42'29"S

30°0'18"E 30°0'19"E 30°0'20"E 30°0'21"E 30°0'22"E 30°0'23"E



29°59'0"E 29°59'30"E 30°0'0"E 30°0'30"E

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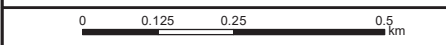
25°44'30"S

Glisa EMP & IWUL Consolidation Project

LEGEND

- Towns
- Rivers and Streams
 - Non-Perennial
 - Perennial
- Road Network
 - National Route
 - Main Road
 - Secondary Road
 - Street
 - Railway Line
 - Consolidated Mining Right

LIFE OF MINE PLAN



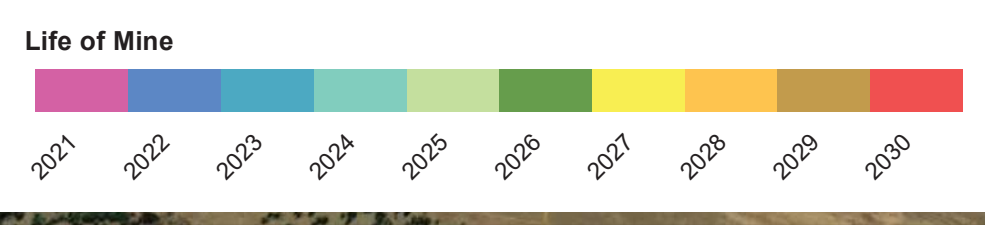
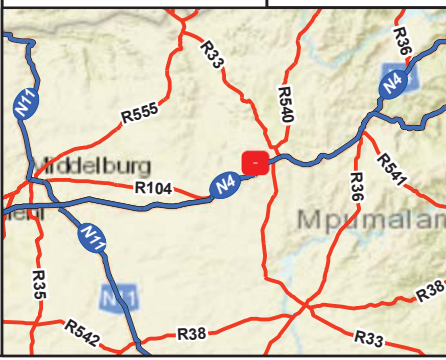
Reviewed: R. Janse Van Rensburg
Environmental Compliance and Assessment Manager

Drawn by: A Brower
GIS Consultant

Coordinate System: GCS WGS 1984
Datum: WGS 1984
Units: Degree

cigroup DO IT RIGHT

Scale: 1:12 500
CIGroup: 19-0001
Map ID: 126-001-62
Date: 30/04/2021

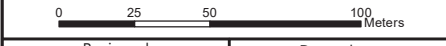


Glisa EMP & IWUL Consolidation Project

- LEGEND**
- Powerline
 - Site Layout**
 - Conveyor
 - Existing Powerlines and Pipelines
 - Existing Layout
 - Consolidated Mining Right

- Washplant Layout**
- Culvert
 - Clean water channel
 - Dirty water Channel
 - Existing Channel
 - PCD and Silt Trap
 - Platforms

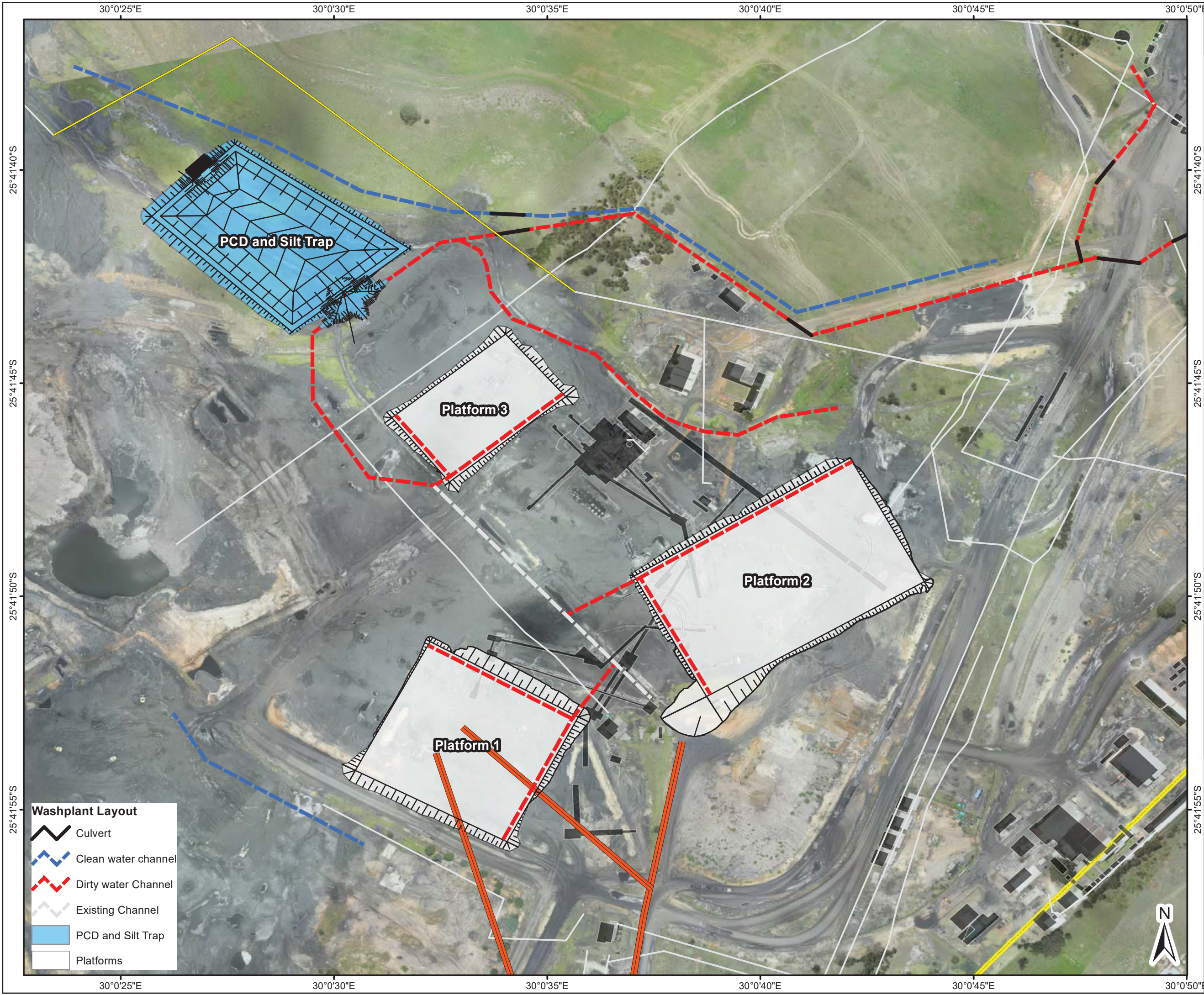
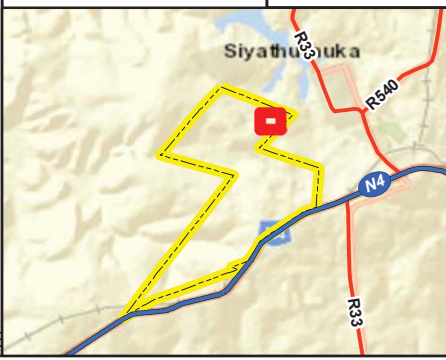
WASHPLANT LAYOUT: GLISA



Reviewed: R. Janse Van Rensburg Environmental Compliance and Assessment Manager	Drawn by: A Brower GIS Consultant
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Coordinate System: GCS WGS 1984
Datum: WGS 1984
Units: Degree

cigroup DO IT RIGHT	Scale: 1:2 500
	CIGroup: 19-0001
	Map ID: 126-001-28-v4
Date: 02/09/2020	



Glisa EMP & IWUL Consolidation Project

- LEGEND**
- Rivers and Streams**
- Non-Perennial
- Site Layout**
- Conveyor
 - Existing Powerlines and Pipelines
 - Gravel Roads
 - Pipeline
 - Powerline
 - Emulsion Silo
 - Mine Dam; Seasonal Dam
 - Wetlands
 - Existing Layout
 - Consolidated Mining Right



- Plant Layout**
- Culverts
 - Dirty water channel
 - ROM Pad & Contractors Camp
 - Plant area
 - PCD & Silt Trap

WASHPLANT LAYOUT: PAARDEPLAATS

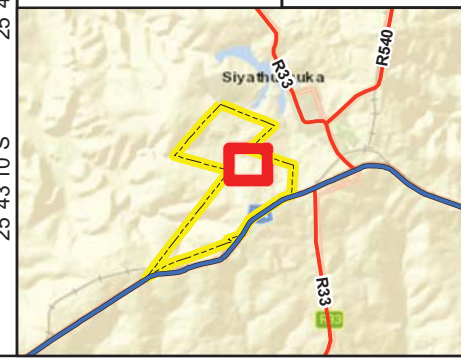
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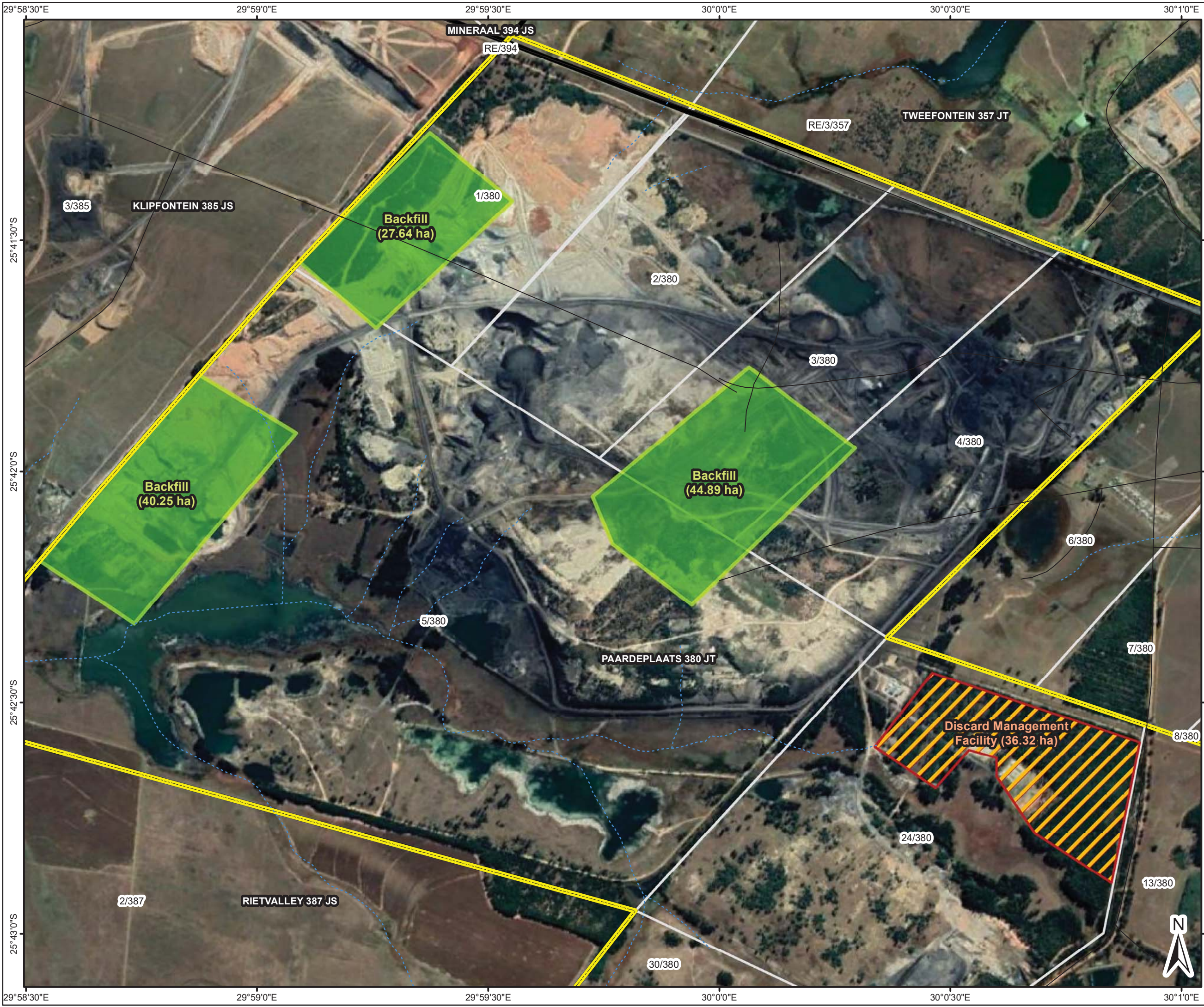
Reviewed: R. Janse Van Rensburg Environmental Compliance and Assessment Manager	Drawn by: A Brower GIS Consultant
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Coordinate System: GCS WGS 1984
Datum: WGS 1984
Units: Degree

cigroup DO IT RIGHT

Scale: 1:6 000
CIGroup: 19-0001
Map ID: 126-001-29-v4
Date: 02/09/2020





Glisa EMP & IWUL Consolidation Project

LEGEND

- Towns
- Rivers and Streams**
 - Non-Perennial
 - Perennial
- Road Network**
 - National Route
 - Main Road
 - Secondary Road
 - Street
 - Railway Line
- Parent Farms
- Consolidated Mining Right
- Farm Portions
- Discard Management Facility
- Backfill

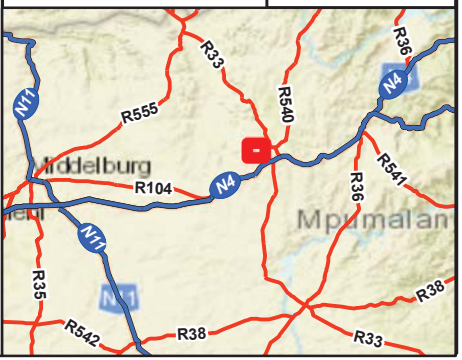
BACKFILLS AND DISCARD MANAGEMENT FACILITY



Reviewed: R. Janse Van Rensburg Environmental Compliance and Assessment Manager	Drawn by: A Brower GIS Consultant
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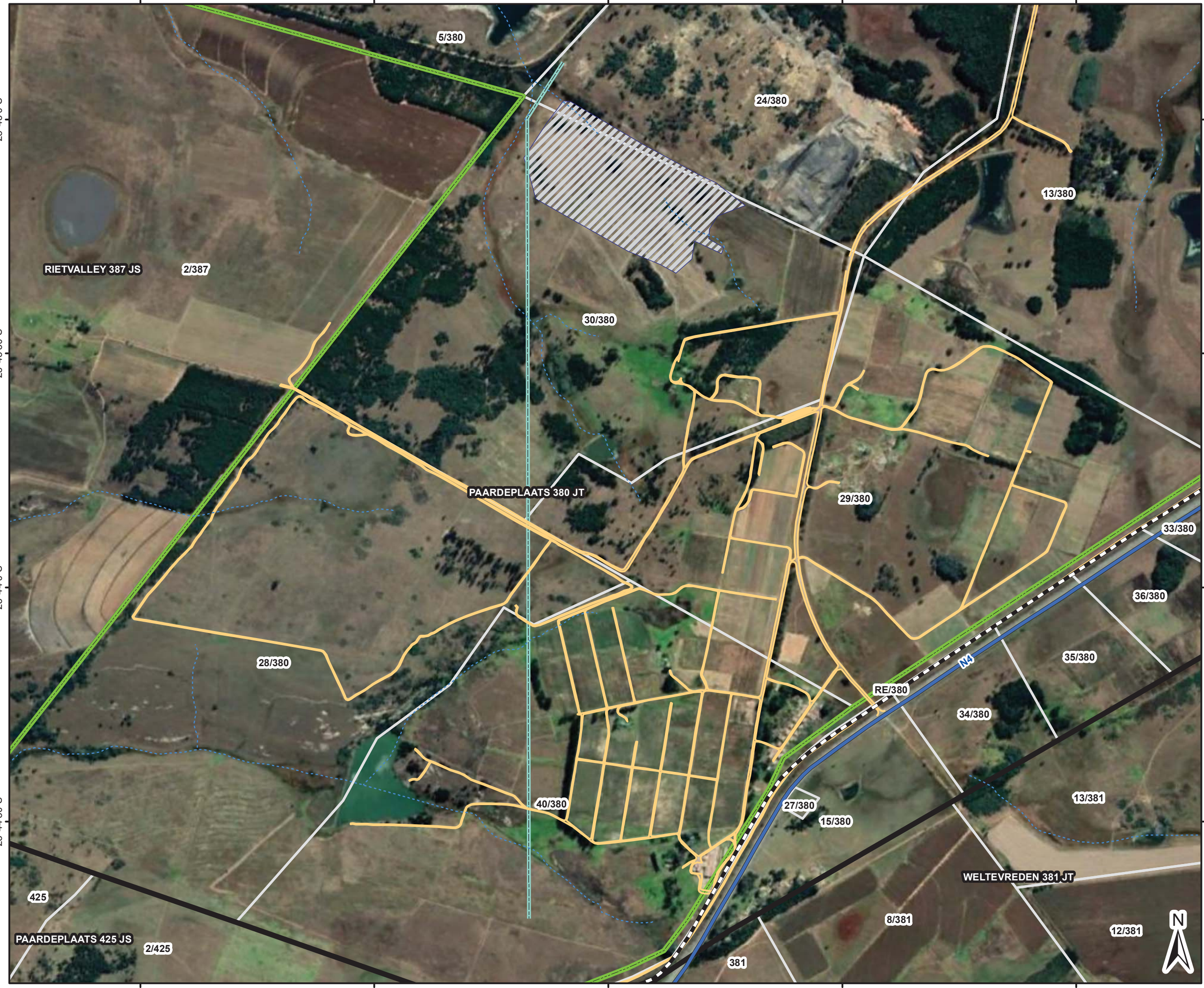
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	Scale: 1:14 000
	CIGroup: 19-0001
	Map ID: 126-001-47-v2
	Date: 15/04/2021



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25°43'30"S
25°44'0"S
25°44'30"S



Glisa EMP & IWUL Consolidation Project

- LEGEND**
- Towns
 - Rivers and Streams**
 - Non-Perennial
 - Perennial
 - Road Network**
 - National Route
 - Main Road
 - Railway Line
 - Gravel Roads
 - Proposed Dewatering Pipeline
 - Current Open Cast Area
 - Consolidated Mining Right
 - Parent Farms
 - Farm Portions

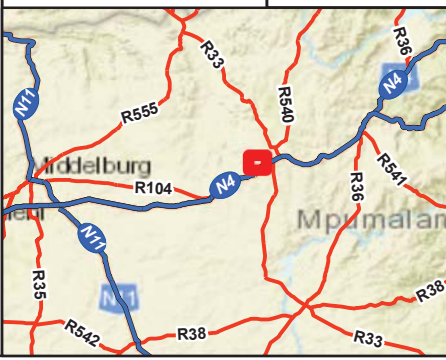
ROAD AND PIPELINES PAARDEPLAATS SECTION



Reviewed: R. Janse Van Rensburg Environmental Compliance and Assessment Manager	Drawn by: A Brower GIS Consultant
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Coordinate System: GCS WGS 1984
Datum: WGS 1984
Units: Degree

	Scale: 1:14 000
	CIGroup: 19-0001
	Map ID: 126-001-70-v2
	Date: 28/06/2021



Glisa EMP & IWUL Consolidation Project

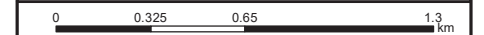
LEGEND

- Towns
- Rivers and Streams**
 - Non-Perennial
 - Perennial
- Road Network**
 - National Route
 - Main Road
 - Railway Line
 - Pipeline
 - Powerline
 - Gravel Roads
 - Existing Layout
 - Consolidated Mining Right
 - Parent Farms
 - Farm Portions

Layout

- Proposed Dewatering Pipeline
- Culvert
- Clean water channel
- Dirty water Channel
- Current Open Cast Area
- PCD and Silt Trap
- New Infrastructure
- Emulsion Silo
- Mine Dam; Seasonal Dam
- Pan
- Wetlands
- Backfill
- Discard Management Facility

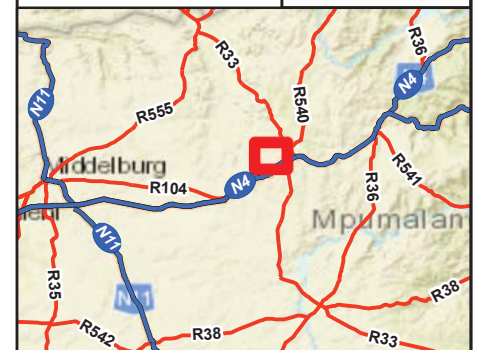
PREFERRED DEVELOPMENT FOOTPRINT

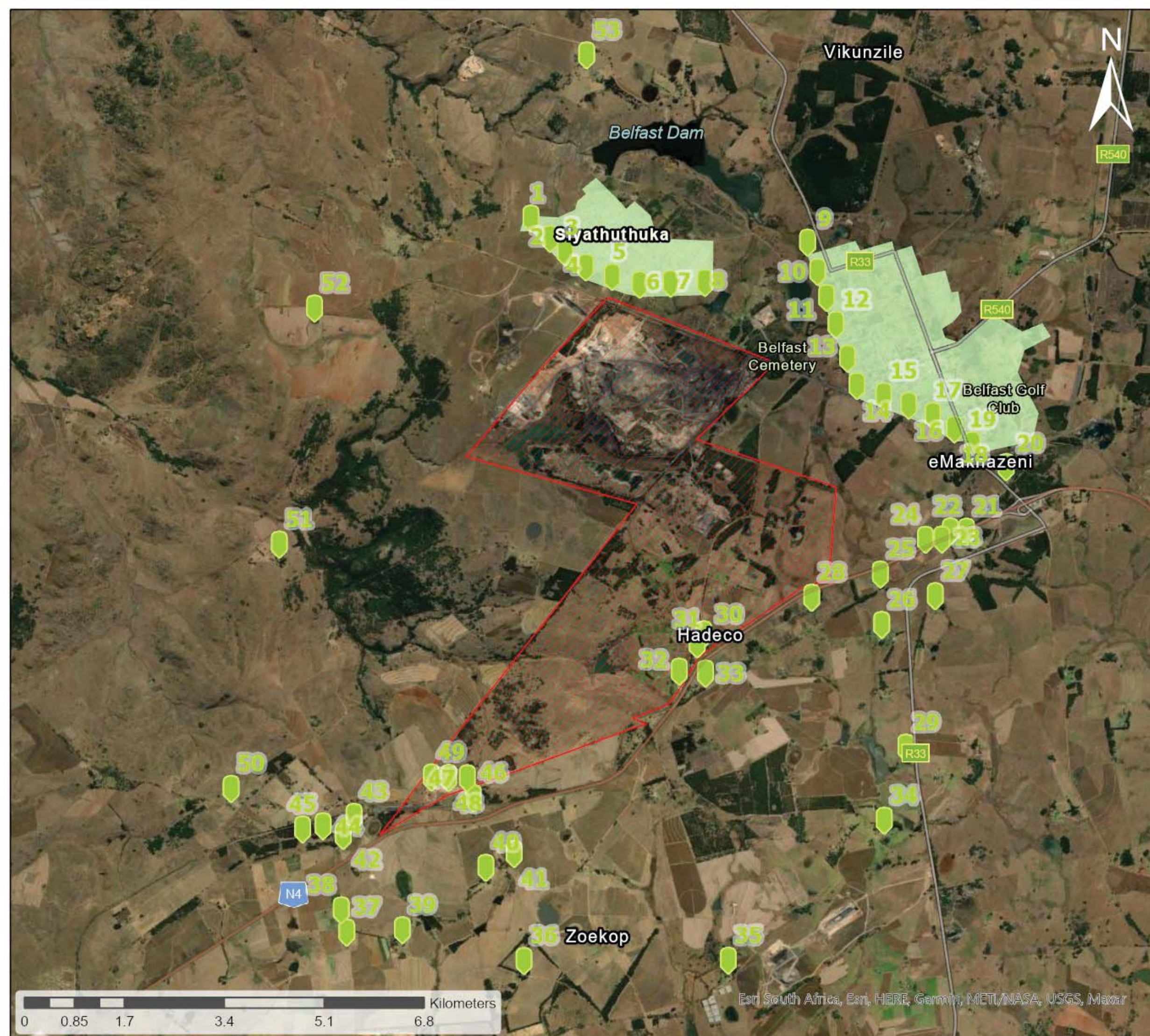


Reviewed: R. Janse Van Rensburg Environmental Compliance and Assessment Manager	Drawn by: A Brower GIS Consultant
--	---

Coordinate System: GCS WGS 1984
Datum: WGS 1984
Units: Degree

	Scale: 1:26 000
	CIGroup: 19-0001
	Map ID: 126-001-67-v2
Date: 28/06/2021	





Legend

-  Site Boundary
-  Sensitive Receptors
-  Sensitive Receptor - Area

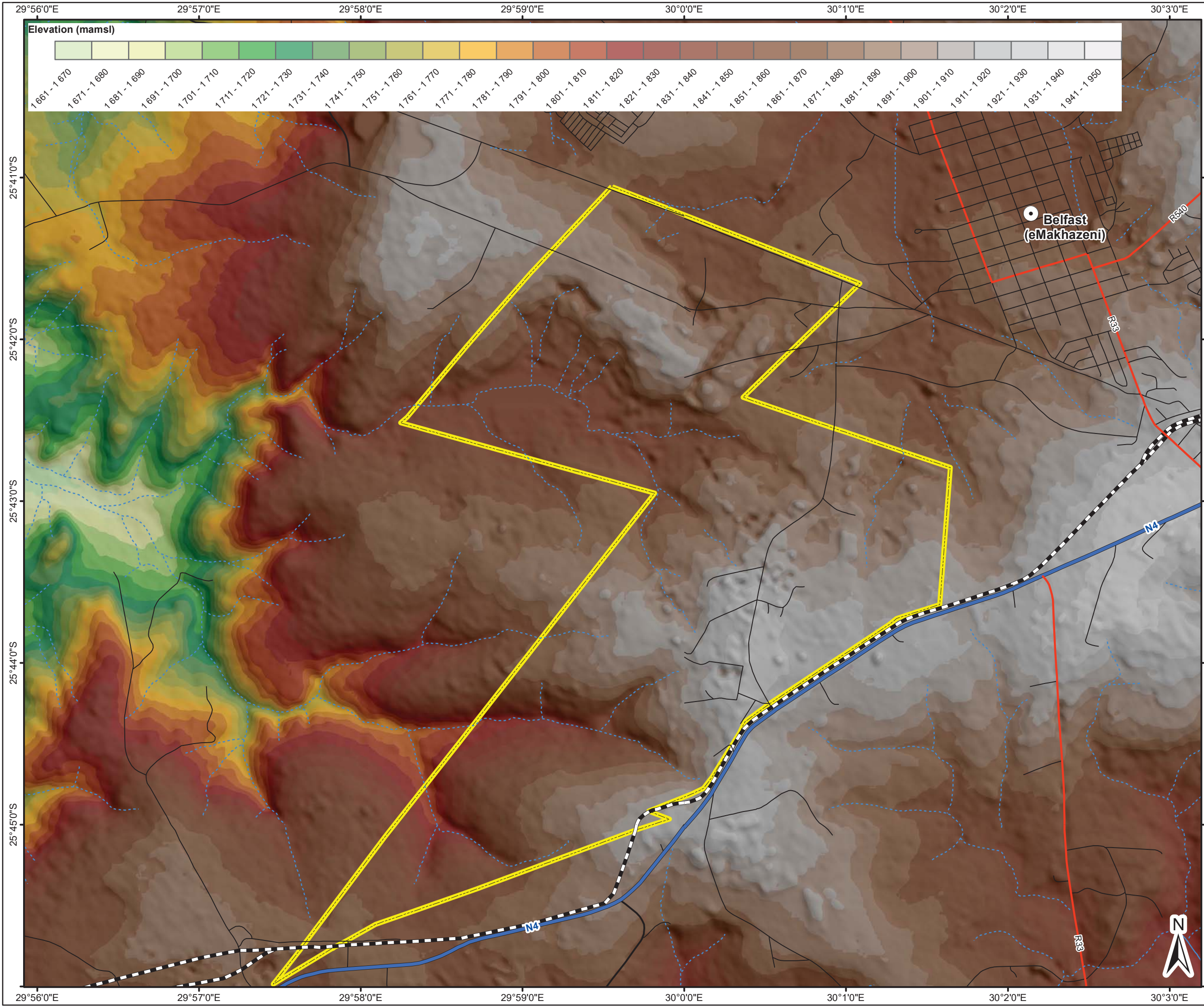
Project Details

ProjectNr	ProjectName	ClientName
21-1381	Paardeplaats	NBC Colliery (Pty) Ltd

Map: Sensitive Receptors
 Date Exported: 2021/05/04 3:17 PM



ENVIRONMENTAL & ENGINEERING



Glisa EMP & IWUL Consolidation Project

- LEGEND**
- Towns
 - Rivers and Streams**
 - Non-Perennial
 - Perennial
 - Road Network**
 - National Route
 - Main Road
 - Secondary Road
 - Street
 - Railway Line
 - Consolidated Mining Right

TOPOGRAPHY GLISA & PAARDEPLAATS



Reviewed: R. Janse Van Rensburg Environmental Compliance and Assessment Manager	Drawn by: A Brower GIS Consultant
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Coordinate System: GCS WGS 1984
Datum: WGS 1984
Units: Degree

	Scale: 1:40 000
	CIGroup: 19-0001
	Map ID: 126-001-18-v3
	Date: 18/06/2020

