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MMAKAU COAL (PTY) LTD

SCHURVEKOP MINE

SCOPING REPORT

REFERENCE NO.: MP30/5/1/2/2/10366MR

DISTRIBUTED FOR REVIEW AND COMMENT

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ACRONYM:	DESCRIPTION:
ABA	Acid-Base-Accounting
AEL	Air Emissions License in terms of NEM:AQA
AIP	Alien and/or Invasive Plants
Al	Aluminium
AMD	Acid Mine Drainage
AQIA	Air Quality Impact Assessment
AQMP	Air Quality Management Plan
BBEE	Broad-Based Black Economic Empowerment
BID	Background Information Documents
Ca	Calcium
CARA	Conservation of Agricultural Resources Act (Act 43 of 1983) as amended
CBA	Critical Biodiversity Areas
Cd	Cadmium
Cl	Chloride
Co	Cobalt
Cu	Copper
DEA	Department of Environmental Affairs
DMRE	Department of Mineral Resources and Energy
DWS	Department of Water Affairs and Sanitation
EA	Environmental Authorisation in terms of NEMA
EAP	Environmental Assessment Practitioner
EAPASA	Environmental Assessment Practitioners Association of South Africa
EC	Electrical Conductivity
EIA	Environmental Impact Assessment (process or report)
EIA Regs.	Environmental Impact Assessment Regulation published under NEMA
EIS	Ecological Importance and Sensitivity
EMF	Environmental Management Framework
EMP	Environmental Management Plan
ESA	Ecological Support Areas
F	Fluoride
Fe	Iron
FEPA	Freshwater Ecosystem Priority Areas

ACRONYM:	DESCRIPTION:
GN	General Notice (issued under an Act, providing notice or instructions in terms of Regulations)
GVA	Gross Value Added
HGM	hydrogeomorphic
HPA	Highveld Priority Area
I&AP	Interested and Affected Parties
IDP	Integrated Development Plan
K	Potassium
LC	Leach Concentration
LoM	Life of Mine
MAR	Mean Annual Runoff
MDEDET	Mpumalanga Department of Economic Development, Environment and Tourism
Mg	Magnesium
MHSA	Mine Health and Safety Act (Act 29 of 1996) as amended
Mn	Manganese
MPRDA	Mineral and Petroleum Resources Development Act (Act 28 of 2002) as amended
MR	Mining Right in terms of the MPRDA
MRA	Mining Right Application in terms of the MPRDA
MTPA	Mpumalanga Tourism and Parks Agency
Na	Sodium
NAAQS	National Ambient Air Quality Standards
NEMAQA	National Environmental Management: Air Quality Act (act 59 of 2008) as amended
NEMBA	National Environmental Management: Biodiversity Act (Act 10 of 2004) as amended
NEMPAA	National Environmental Management: Protected Areas Act (Act 57 of 2003) as amended
NEMWA	National Environmental Management: Waste Act (Act 39 of 2004) as amended
NEMA	National Environmental Management Act (Act 107 of 1998) as amended
NFEPA	National Freshwater Ecology Priority Areas
NHRA	National Heritage Resources Act (Act No. 25 of 1999) as amended
NO_3	Nitrate
NSDF	National Spatial Development Framework
NWA	National Water Act (Act 36 of 1998) as amended
O&AM Area	Operations, Administration and Maintenance Area
Pb	Lead
PCD	Pollution Control Dam

ACRONYM:	DESCRIPTION:
PES	Present Ecological State (usually followed by category A-F)
PGM	Platinum Group Minerals
$PM_{10/5/2.5}$	Particulate Matter up to 10/5/2.5 micrometres
PO_4	Phosphates
PPP	Public Participation Process
S&LP	Social and Labour Plan
SACNASP	South African Council for Natural Scientific Professions
SAHRA	South African Heritage Resource Agency
SANBI	South African National Biodiversity Institute
SANS	South African National Standard (followed by standard number)
SAPAD	South African Protected Areas Database
SASS5	South African Scoring System version 5 (in terms of aquatic invertebrate assessments)
SCC	Species of Conservation Concern
SDF	Spatial Development Framework
SO_4	Sulphates
SPLUMA	Spatial Planning and Land Use Management Act (Act No.16 of 2013)
Stats SA	Statistics South Africa
TC	Total Concentration
TDS	Total Dissolved Solids
WMA	Water Management Area
WML	Waste Management Licence in terms of NEMWA
WRC	Water Research Commission
WUL	Water Use License
Zn	Zinc

1 INTRODUCTION

Mmakau Coal (Pty) Ltd intends to develop the proposed Schurvekop Mine over Portions 6, 8, RE of 15, 16, 17, 18, 19 and 20 of the farm Schurvekop 227 IS, which is near the town of Bethal within the Mpumalanga Province.

An application for a Mining Right (MR) has been submitted and accepted in terms of the Minerals and Petroleum Resources Development Act, Act No. 28 of 2002 (MPRDA) on 26th July 2022. An application for Environmental Authorisation (EA) was submitted simultaneously, as per the requirements of the National Environmental Management Act, Act No. 107 of 1998 (NEMA) and the NEM: Waste Act, Act No. 59 of 2008 (NEMWA); read together with the requirements of the MPRDA.

South African Law requires that the environmental and social impacts associated with mining activities be assessed to identify any potential negative and/or positive consequences as a result thereof. Following which measures must be proposed to avoid or minimise these impacts.

As the application relates to mining activities, a full Scoping and Environmental Impact Report (S&EIR) is required as well as an Environmental Management Plan (EMP) report.

This report constitutes the Scoping Report and is the first phase in the environmental assessment process. The purpose of the Scoping Report is to identify key environmental issues for further investigation during the Environmental Impact Assessment (EIA) phase of the project; and to outline the plan of study / terms of reference for the preparation of the EIA and EMPr.

This report is being made available for public review and comment for a period of thirty (30) days. All comments received will be incorporated into the final document for submission to the Competent Authority, being the Department of Mineral Resources and Energy (DMRE). Once the DMRE approves the Scoping Report and associated plan of study for the EIA (Section 11 of this report), the EIA phase will commence and further studies and public consultation will be undertaken.

1.1 Structure of the Report

The required content of a Scoping Report is prescribed in Appendix 2 of the EIA Regulations, 2014 (as amended). Table 1 presents these requirements and provides cross-references to the various sections of this report where the requirements are addressed.

Table 1: Structure of the Scoping Report

No	Requirement	Section of report
1	A scoping report must contain the information that is necessary for a proper understanding of the process, informing all preferred alternatives, including location alternatives, the scope of the assessment, and the consultation process to be undertaken through the environmental impact assessment process, and must include:	
(a)	details of— (i) the Environmental Assessment Practitioner (EAP) who prepared the report; and (ii) the expertise of the EAP, including a curriculum vitae;	Section 2.2 APPENDIX 1
(b)	the location of the activity, including— (i) the 21-digit Surveyor General code of each cadastral land parcel; (ii) where available, the physical address and farm name;	Section 3.2

No	Requirement	Section of report
	(iii) where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties;	
(c)	a plan which locates the proposed activity or activities applied for at an appropriate scale, or, if it is— (i) a linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or (ii) on land where the property has not been defined, the coordinates within which the activity is to be undertaken;	Plan 2 and Plan 3
(d)	a description of the scope of the proposed activity, including— (i) all listed and specified activities triggered; (ii) a description of the activities to be undertaken, including associated structures and infrastructure;	Section 3 and Section 4
(e)	a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process;	Section 5
(f)	motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location;	Section 0
(g)	a full description of the process followed to reach the proposed preferred activity, site and location of the development footprint within the site, including— (i) details of all the alternatives considered;	Section 7
(g)	(ii) details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs; (iii) a summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them;	Section 8 APPENDIX 3
(g)	(iv) the environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	Section 7
(g)	(v) the impacts and risks which have informed the identification of each alternative, including the nature, significance, consequence, extent, duration and probability of such identified impacts, including the degree to which these impacts— (aa) can be reversed; (bb) may cause irreplaceable loss of resources; and (cc) can be avoided, managed or mitigated;	Section 10.2
(g)	(vi) the methodology used in identifying and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives;	Section 10.1
(g)	(vii) positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	Section 10.2

No	Requirement	Section of report
(g)	(viii) the possible mitigation measures that could be applied and level of residual risk;	Section 10.1
(g)	(ix) the outcome of the site selection matrix;	Section 7
(g)	(x) if no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such; and	N/A, See Section 7
(g)	(xi) a concluding statement indicating the preferred alternatives, including preferred location of the activity;	Section 7
(h)	A plan of study for undertaking the environmental impact assessment process to be undertaken,	Section 11
(i)	An undertaking under oath or affirmation by the EAP in relation to— (i) the correctness of the information provided in the report; (ii) the inclusion of comments and inputs from stakeholders and interested and affected parties; and (iii) any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested or affected parties;	Section 14 and 15
(j)	an undertaking under oath or affirmation by the EAP in relation to the level of agreement between the EAP and interested and affected parties on the plan of study for undertaking the environmental impact assessment;	Section 14 and 15
(k)	where applicable, any specific information required by the competent authority	Section 13.1
(l)	any other matter required in terms of section 24(4)(a) and (b) of the Act.	Table 26

2 CONTACT PERSON AND CORRESPONDENCE ADDRESS

2.1 Details of the Applicant

Mmakau Coal (Pty) Ltd is jointly owned by Mmakau Mining (Pty) Ltd (51%) and Overlooked Colliery (Pty) Ltd (49%). The contact details for the applicant are as follows:

Table 2: Applicant details

Project applicant:	Mmakau Coal (Pty) Ltd		
Registration no (if any):	2000/028613/07		
Trading name (if any):	n/a		
Responsible Person, (e.g. Director, CEO, etc).:	Director		
Contact person:	Rowan Karstel (Director)		
Physical address:	41/43 Glenhove Road, Houghton, Johannesburg		
Postal address:	41/43 Glenhove Road, Houghton, Johannesburg		
Postal code:	2041	Cell:	082 319 1314

Telephone:	011268 6780	Fax:	n/a
E-mail:	rowan@tumelomine.co.za		

2.2 Details & Expertise of the EAP

Cabanga Environmental has been appointed as the Environmental Assessment Practitioner (EAP) responsible for the environmental applications and public participation process. The details of the project team are summarised below.

Table 3: EAP Project Team

Team Member	Role	Years' Experience	Professional Registration
Mrs Jane Barrett	Author	12+	Certificated Natural Scientist Registration Number 130485
Mrs Michelle Venter	Review	10+	Environmental Assessment Practitioners Association of South Africa (EAPASA) Registration Number 2019/456 Certificated Natural Scientist Registration Number 114447
Mr Kenneth Carl van Rooyen	Document Approval	30+	Professional Natural Scientist Registration Number 400121/93

Please refer to APPENDIX 1 for a copy of the project teams Curriculum Vitae, which includes a detailed list of project experience.

3 PROJECT DESCRIPTION

3.1 Regional and Local Setting

The project area is situated within the Mpumalanga Province, 20 kilometres to the north of Bethal and 20 kilometres east of the town of Ga-Nala (Kriel). It falls within the Gert Sibande District Municipality (DC30), specifically Ward 15 of the Govan Mbeki Local Municipality (MP307) (Plan 1).

The Viskuile River enters the MRA from the east and confluences with the Joubertsvleispruit which enters from the South, after which the continued Viskuile River flows northwest converging with the Olifants River approximately 3.5km northwest of the property. Surrounding land uses include agriculture and mining (coal). The proposed Mining Right Area (MRA) is contiguous to Katlego Coal's Forzando South operations and Anglo Coal's Elders Colliery.

The site can be reached via the R35 (Bethal – Middelburg) tarred road located to the west of the MRA, the R38 (Bethal – Hendrina) tarred road to the east and the D622 (Bethal-Halfgewonnen) tarred road which passes along the eastern boundary of the MRA. The Usuthu bulk water supply pipeline runs parallel to the D622 road.

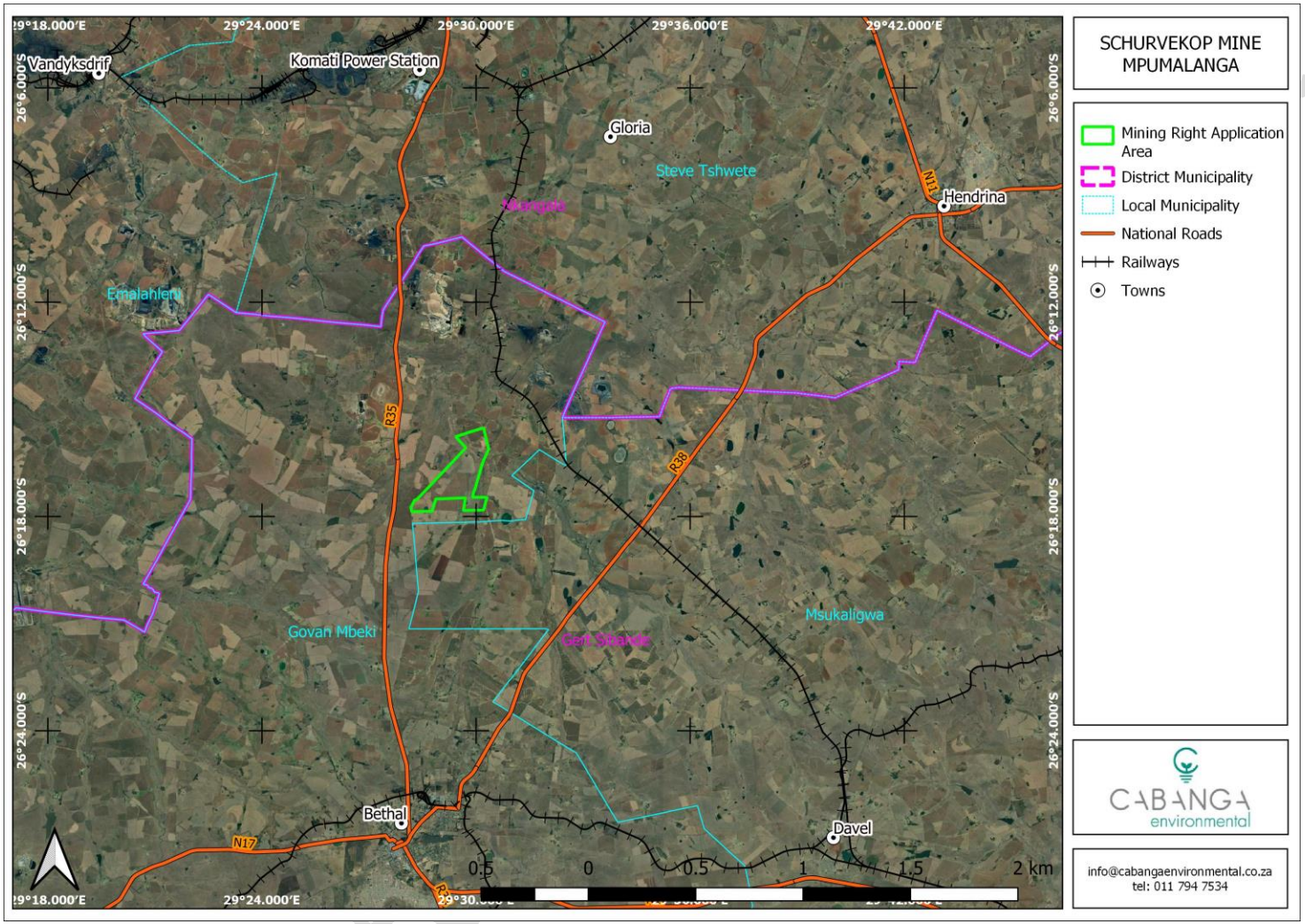
3.2 Property Description

The MRA extends over 697 Ha, encompassing Portions 6, 8, RE of 15, 16, 17, 18, 19 and 20 of the farm Schurvekop 227 IS.

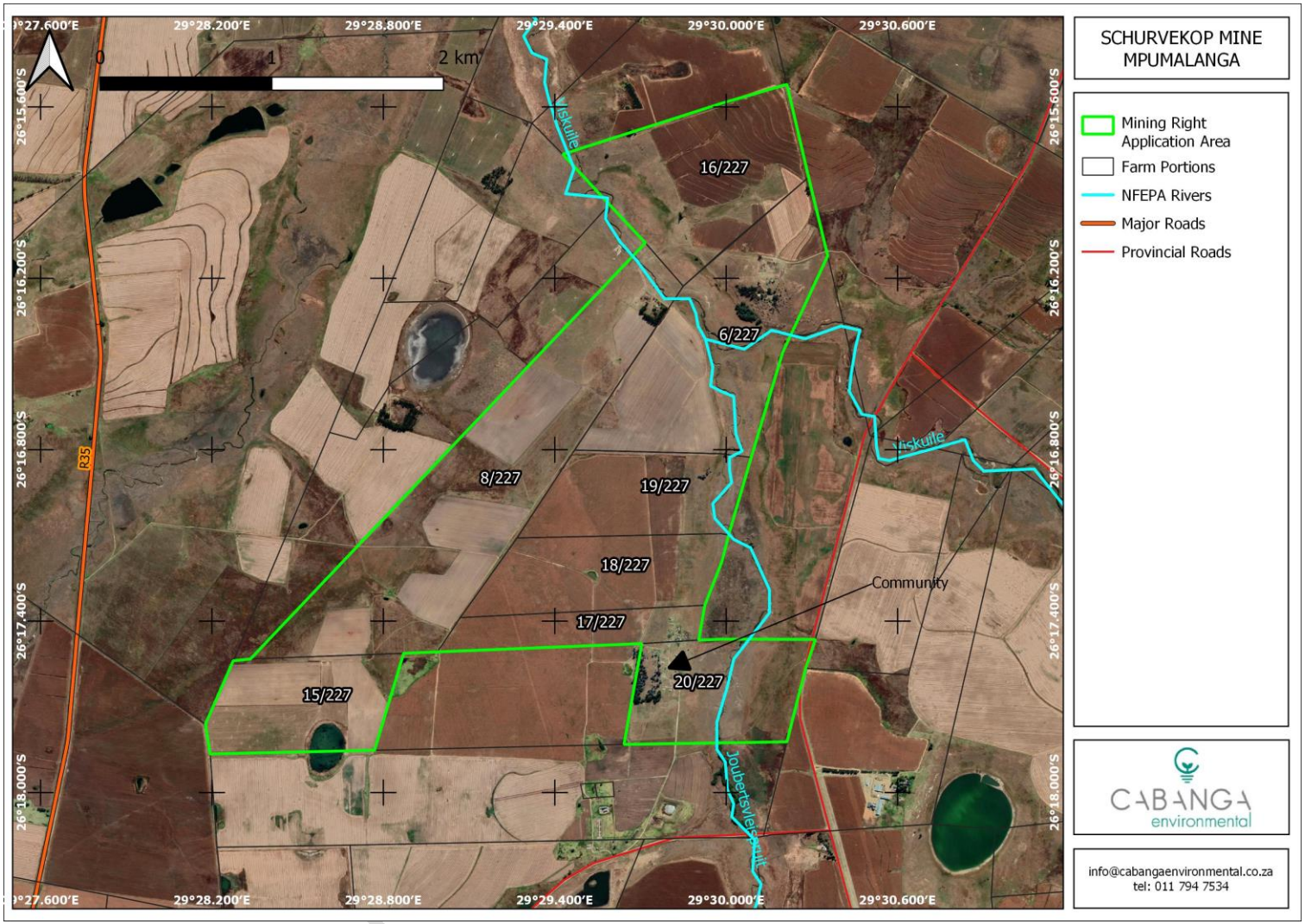
The properties are currently zoned for agricultural use and consist of cultivated fields, natural grasslands and wetlands. A small community resides on Portions 17 and 20 of Schurvekop 227 IS. Farmsteads are associated with Portions 6 and 8.

Table 4: Property details

Farm Name:	Schurvekop 227 IS
Application area (Ha)	696.5716 ha
Magisterial district:	Bethal
Distance and direction from nearest town	The project area is situated in Mpumalanga, 20 kilometres to the north of Bethal and 20 kilometres east of the town of Ga-Nala (Kriel).
21 digit Surveyor General Code for each farm portion	T0IS00000000022700006 T0IS00000000022700008 T0IS00000000022700015 T0IS00000000022700016 T0IS00000000022700017 T0IS00000000022700018 T0IS00000000022700019 T0IS00000000022700020



Plan 1: Regional Setting



Plan 2: Local Setting

3.3 Surface Right Owners

The table below lists the current surface right holders for the MRA. The Regional Land Claims Commission has indicated that a Land Claim has been submitted on Portion 16 of the farm Schurvekop 227 IS.

Table 5: Surface right holders

Property	Portion	Deed of Transfer	Extent - Ha	Registered Owner(s)	Share Owned
Schurvekop 227 IS	6	T1633/2010	123.2178	Anglo Operations (Pty) Ltd	100%
Schurvekop 227 IS	8	T4683/2012	190.7068	Mmakau Coal (Pty) Ltd	100%
Schurvekop 227 IS	RE of 15	T4683/2012	61.6075	Mmakau Coal (Pty) Ltd	100%
Schurvekop 227 IS	16	T1633/2010	95.3548	Anglo Operations (Pty) Ltd	100%
Schurvekop 227 IS	17	T14718/2013	32.2970	Zelpy 1100 (Pty) Ltd	100%
Schurvekop 227 IS	18	T14717/2013	65.8901	Zelpy 1100 (Pty) Ltd	100%
Schurvekop 227 IS	19	T14716/2013	61.6075	Zelpy 1100 (Pty) Ltd	100%
Schurvekop 227 IS	20	T14715/2013	65.8901	Zelpy 1100 (Pty) Ltd	100%
Total Extent of Mining Right Application Area			**696.57 Ha**		

3.4 Mining and Processing

There are two seams that are deemed feasible for mining. The depth of the 4L seam varies from 8.0 m to 70 m below surface and the 2L seam varies from 26.3 m to 99 m below surface within the Schurvekop MRA. Plan 3 indicates the extent of the mining right area in relation to the two seams for underground mining and the surface infrastructure area.

The Schurvekop resource will be mined using a mechanized board and pillar mining method using continuous miners. In mechanized board and pillar mining, extraction is achieved by developing a series of roadways (boards) in the coal seam and connecting them by splits (cut-through) to form pillars. These pillars are left behind as part of a primary roof support system. Main development panels will be designed to a safety factor SF2.0; whilst secondary panels will be designed to a safety factor SF1.6 using the Salamon Formulae and designs by a rock Engineer (Metallurgical Resources Consulting, 2016).

The underground will be accessed via a boxcut adit. The high walls and sidewalls of the box-cut will be terraced where necessary in order to limit the possibility of weathering and sloughing. Entries will generally be limited via two or three portals, allowing for conveying and travelling, as well as return airways and escape routes.

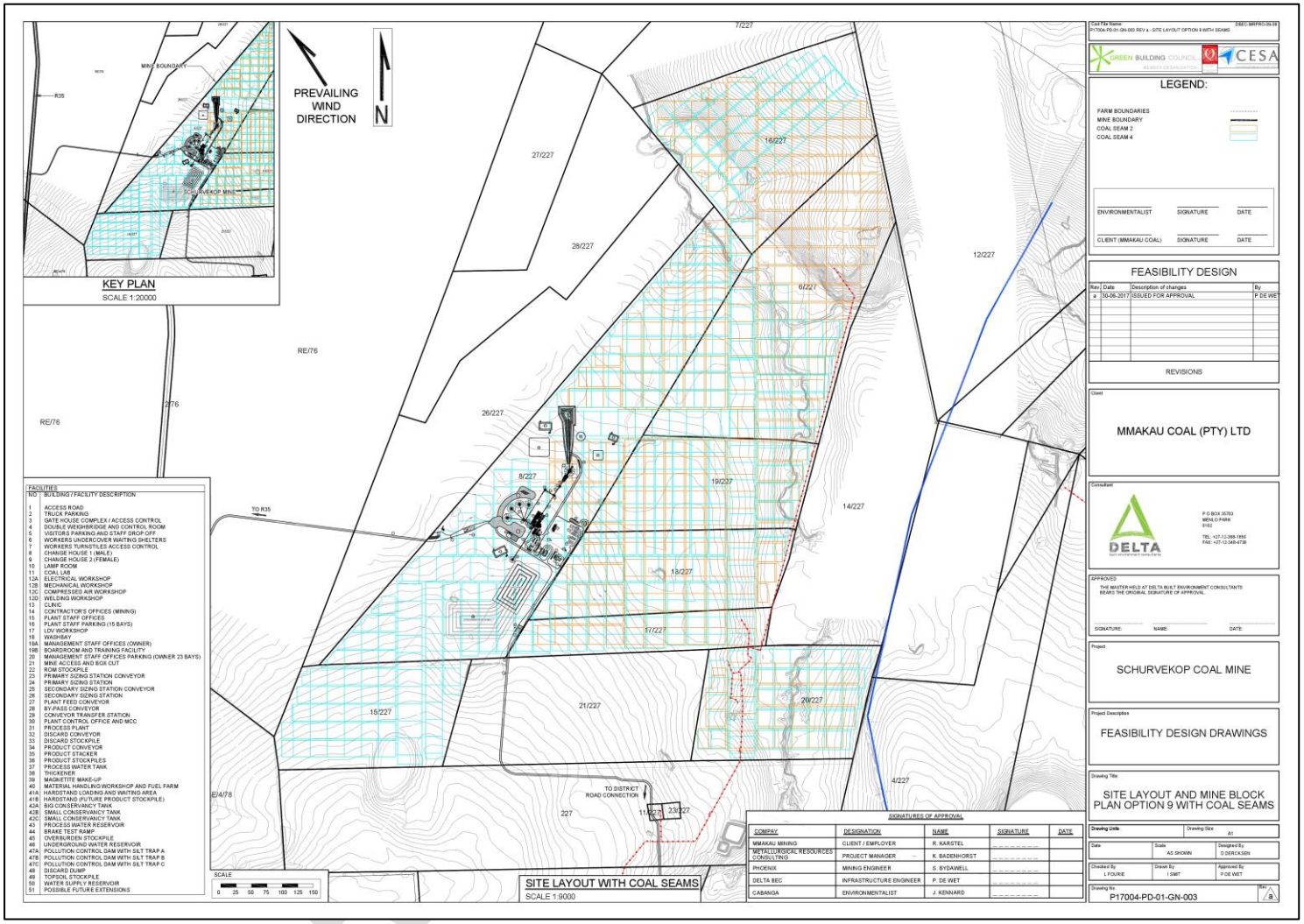
Raw underground coal will be conveyed to a run of mine conical stockpile of 8,125m³ capacity, whereby it will be sent to the plant area for processing including crushing, screening and, if feasible, washing. Product from the plant will be directed onto the product conveyor which will supply product coal to the product stockpile area (capacity of 12,500m³). Product coal will be sized and stockpiled in designated areas for pre-qualification prior to being trucked to market. All the coal stockpile areas will be compacted and made as impermeable as possible; and slightly sloped to drain water into the pollution control dams (PCDs).

Spiral and coarse discards will discharge onto the discards conveyor which in turn will transfer to a discard stockpile (capacity of 3,125m³). Mine residue will then be disposed of onto an integrated discard dump, with a storage capacity of 2,100,000m³ for the life of mine The discard dump will be designed with a side slope of 1:2.25, giving a safety factor of 1.35 and it will be approximately 40m high.

Pertinent project information is summarised in the table below:

Table 6: Project Summary

Mineral:	Coal
Status of Project:	Greenfields
Mining Method:	Underground bord-and-pillar method using continuous miners
Production Rate:	1 600 000 tons/annum
Plant Design Capacity:	250t/h rated capacity
Estimated Life of Mine:	14 years
Depth of Mining:	The 4 seam depth ranges from 30m below surface in the north west and reaches depths of up to 60m at the deepest point on the property. The 2 seam is separated from the 4 seam by sandstone and shale parting ranging in thickness between 15m to 20m



Plan 3: Overview of proposed mine plan and infrastructure layout (Delta, 2017)

3.5 Infrastructure Requirements

The adit and associated infrastructure area will comprise approximately 40 Ha, and include the following infrastructure:

- Box cut and adit;
- Soils and spoils stockpiles;
- Crushing and screening plant;
- Beneficiation plant;
- Product and RoM stockpiles;
- Integrated discard dump;
- 3 x PCDs;
- Potable water reservoir;
- Mine tank;
- Process water reservoir;
- Security, access control and weighbridge;
- Offices, laboratory, clinic and training facilities;
- Change houses, lamp room, laundry and ablution facilities;
- Workshop, wash bay, stores and contractors yard;
- Scrap yard and waste storage area;
- Fuel and oil storage area; and
- Haul/access roads, parking and trucking waiting area.

Plan 4 illustrates the proposed layout.

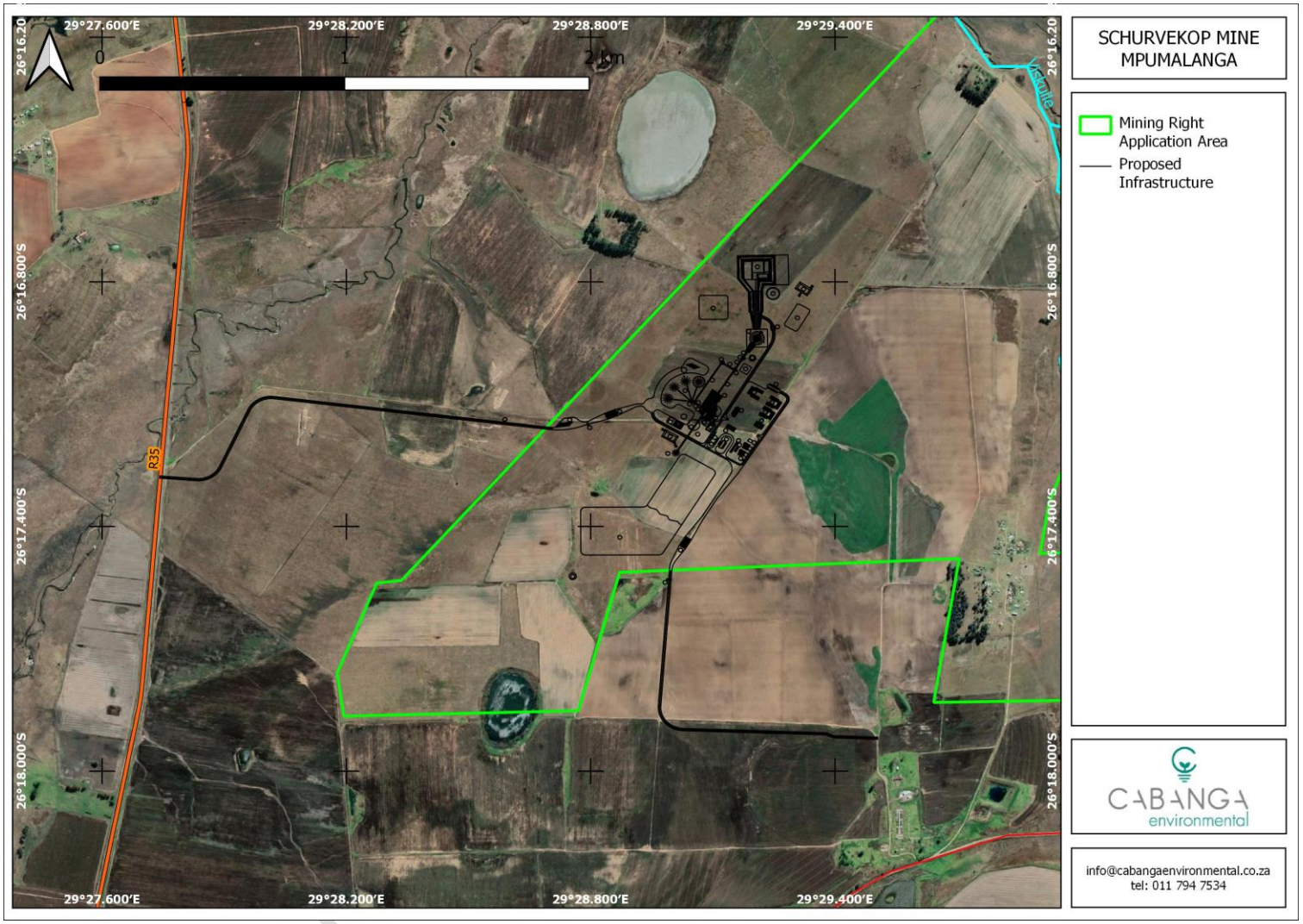
3.6 Water Management, Supply and Reticulation

3.6.1 Water Requirements

Water will be recycled on site as far as possible and dirty water will be prioritized for process needs (use in the process plant, for use underground or for dust suppression). Process water will initially be sourced from rain water and the borehole, however once in steady state production this water will be pumped from the underground workings via a system of tanks, reservoirs and pollution control dams (PCDs). The plant requirement totals 256,740.00 m³/annum.

Water for dust suppression will be sourced from the PCD A where an estimated volume of 5 237.62 m³/annum is required (Delta, 2017). Water sourced from these dams for dust suppression will only be used within the dirty footprint of the mine to prevent contamination of clean areas with dirty water.

Water for domestic use will be sourced from a borehole and stored within a reservoir/tank. The potable water storage was calculated for a 2-day operational use storage period, the volume of the reservoir is approximately 88 m³. The demand is expected to be 13,259.64 m³/annum. It is anticipated that a modular water treatment plant (reverse osmosis) will be installed on site to treat water for human consumption.



Plan 4: Proposed Infrastructure Layout

3.6.2 Stormwater Management

Dirty water runoff from the plant and stockpile area will be diverted via dirty water drains to lined pollution control dams (PCDs). All dirty water management facilities will be designed to cater for a 1:50 year storm event, as required by GN704 of the National Water Act, Act 36 of 1998 (NWA). Table 7 below summarises the dimensions of the proposed water management facilities.

Table 7: PCD Dimensions (Delta, 2017b)

Description	Dimensions	Capacity
Pollution Control Dam A Receives dirty water runoff from the discard dump, water is used for dust suppression on site. Excess water is pumped to the Process Water Reservoir for use within the plant.	(L) 80.8m x (W) 47.8m x (D) 2.8m	7,987.17m^3
Pollution Control Dam B Receives water from the underground workings, as well as grey water from the change house and dirty water runoff from the plant and wash bay area. Water is pumped to the Process and Mine Water Reservoirs for use within the plant and underground mining activities.	(L) 57.7m x (W) 40.8m x (D) 2.8m	4,481.57 m^3
Pollution Control Dam C Receives dirty water runoff from the stockpile area. Water is pumped to the Process Water Reservoir for use within the plant.	(L) 78.7m x (W) 47.8m x (D) 2.8m	7,766.53 m^3
Process Water Reservoir Receives water from PCDs A, B and C for plant feed.	-	12,430 m^3
Mine Water Tank Receives water from PCD B for use underground.	-	4.3 m^3

3.7 Waste Management

General and hazardous waste will be generated on site:

- General waste includes office and domestic waste, construction and building waste, scrap metal, old tyres, old conveyor belts and wood.
- Hazardous waste includes mine residue, used hydrocarbons, contaminated construction and building waste.

No landfill site will be constructed on site. All waste will be separated and stored as per the relevant Norms and Standards where applicable. Waste will be recycled and sold/given to interested parties as far as possible. Waste for disposal will be collected by a reputable contractor for transport to a suitably licensed facility. Waste certificates will be obtained from disposal contractors and waste manifest will be maintained on site.

Mine residue will be disposed of at the integrated discard dump and will be managed according to GNR632 (2015) of NEMWA regarding planning and management of residue stockpiles and deposits.

Sewage will be managed by means of conservancy tanks which will be emptied weekly by a licensed service provider.

Brine waste generated from the water treatment plant will be recycled back to the PCD. Any solid waste / filter cake generated from the water treatment plant will be stored within a sump for disposal off site at a licensed facility.

3.8 Hydrocarbon Storage

Hydrocarbon storage (maximum 80m^3) will be constructed at the workshop area, within a concrete bund.

3.9 Power Supply

The total demand is expected to be 10MVA; this will comprise of 1MVA for the office and administration area, 2MVA for the plant and 7MVA for the underground.

An application will be made to connect to the local power grid. At this stage it is anticipated that a 132KVA substation will be constructed onsite. Additional power lines may be required however, these will remain below 33kV.

3.10 Access Roads and Transport

Two access route alternatives have been identified both are via existing farm roads which will need to be upgraded. The preferred access route is via the farm road off the R35 whilst the secondary option is via the farm road off the gravel D1476. It is assumed that all construction and operational traffic (including trucks and private/personnel vehicles) will make use of the preferred option.

At this stage it is anticipated that product will be trucked to market.

3.11 Estimated Life of Project

The Life of Mine (LoM) is estimated at 14 years.

It is anticipated that construction activities will take approximately 9 months, the life of mine during operations is expected to be 14 years, followed by 3 years for decommissioning and closure activities.

Thus the EA and waste management license (WML) are being sought for a period of 17 years.

3.12 Operating hours

Schurvekop Mine will be operational 24-hours per day, 7 days per week, with scheduled shut-downs taking place for maintenance. The mine will operate in various shifts.

3.13 Employment

At steady status, the mine will have two hundred and seventy-nine (279) permanent employees, of which the majority (96%) will be employed by a core contractor, still to be identified.

4 LISTED ACTIVITIES BEING APPLIED FOR

The Department of Environmental Affairs have published three notices which list activities for which environmental authorisations is required in terms of section 24(2) and 24D of NEMA, prior to commencement.

Furthermore, a list of waste management activities that have, or are likely to have, a detrimental effect on the environment were published in terms of section 19(2) of the NEMWA. No person may commence, undertake or conduct a listed waste management activity unless a WML is issued in respect of that activity.

The Department of Mineral Resources and Energy (DMRE) is the Competent Authority for mining related activities in terms of both NEMA and NEMWA. As such an integrated application has been submitted as per the One Environmental System. Table 8 overleaf summarises the listed activities for which environmental authorisation is being sought.

Table 8: Listed and specified activities

NAME OF ACTIVITY	AERIAL EXTENT Ha or m²	APPLICABLE LISTING NOTICE & LISTED ACTIVITY	WASTE MANAGEMENT AUTHORISATION
Clearance of vegetation	Approximate area of surface disturbance: 46 ha (of which approximately 21 ha is considered indigenous vegetation).	GNR.983 Listing Notice 1: Activity 30 GNR.984 Listing Notice 2: Activity 15 GNR.985 Listing Notice 3: Activity 12.f.i	
Topsoil and subsoil stripping and stockpiling into berms	Approximate area of surface disturbance: 46 ha		
All infrastructure areas, development footprints and associated activities.	Mineral boundary: 696.57 ha Approximate area of surface disturbance: 46 ha	GNR.983 Listing Notice 1: Activity 12(ii)(a), 12(ii)(c) & 19 GNR.985 Listing Notice 3: Activity 14.f.i(dd)	
Box cut excavation	4ha	GNR.984 Listing Notice 2: Activity 17	
Overburden stockpiles (non-carbonaceous)	1.5ha		Category B: Activity 9
Overburden stockpiles (carbonaceous)	1.5ha		Category B: Activity 7, 10, 11
Ventilation shafts (2)	200m² each		
Underground mining	Mineral boundary: 696.57 ha	GNR.984 Listing Notice 2: Activity 17	

NAME OF ACTIVITY	AERIAL EXTENT Ha or m²	APPLICABLE LISTING NOTICE & LISTED ACTIVITY	WASTE MANAGEMENT AUTHORISATION
RoM coal stockpiling	RoM Feed:1.5 ha for 14000 tons	GNR.984 Listing Notice 2: Activity 6	
Coal product stockpile and loading area	Product coal: 1.9ha for approximately 20 000 tons	GNR.984 Listing Notice 2: Activity 6	
Access and hauling along roads	4500m x 10m	GNR.983 Listing Notice 1: Activity 24(ii) & 56(ii) GNR.985 Listing Notice 3: Activity 4.f.i.(cc) &18.f.i.(cc)	
Processing Plant (crushing, screening and washing)	2ha		
Coal testing laboratory	Within Crushing and Screening and Processing Plant area		
Water supply and storage (potable and process)	<1 ha 1 x Process water reservoir with capacity of 12,400m^3 and 1 x mine water tank of 4.3 m^3 capacity. Potable water reservoir: 88m^3 capacity.	GNR.984 Listing Notice 2: Activity 6 GNR.985 Listing Notice 3: Activity 2.f.ii.(bb)	

NAME OF ACTIVITY	AERIAL EXTENT Ha or m²	APPLICABLE LISTING NOTICE & LISTED ACTIVITY	WASTE MANAGEMENT AUTHORISATION
Return Water Dam / Pollution Control Dams x 3	<1.5ha PCD A = 7 987.17m³capacity PCD B = 4 481.57m³ capacity PCD C = 7 766.53m³ capacity	GNR.984 Listing Notice 2: Activity 6	
Integrated discard and slurry dump	12.5 ha Capacity of 2,100,000m³		Category B: Activity 7, 10, 11
Storm water management	Dirty water trenches: 3000m		
Water and slurry pipelines	1000m	GNR.983 Listing Notice 1: Activity 9 & 10	
Lighting	< 1ha cumulative		
Waste generation and storage	0.4 ha		Category C: Activity 1 & 2
Stores, workshops and wash bays	0.6ha		
Ablutions and change house	0.6ha	GNR.984 Listing Notice 2: Activity 6	
Hydrocarbon storage (diesel, greases and oils)	0.2ha	GNR.983 Listing Notice 1: Activity 14	
Hard park	1 ha		
Administration area	5 ha		

NAME OF ACTIVITY	AERIAL EXTENT Ha or m²	APPLICABLE LISTING NOTICE & LISTED ACTIVITY	WASTE MANAGEMENT AUTHORISATION
Substation and power transmission	0.7ha and <1ha cumulative for pylons	GNR.983 Listing Notice 1: Activity 11(ii)	
Rehabilitation, including backfilling of box cut adit	Approximate area of surface disturbance: 46 ha		

5 POLICY AND LEGISLATIVE CONTEXT

Section 24 of the Constitution of the Republic of South Africa states that:

> *Everyone has the right to (a) an environment that is not harmful to their health or well-being; and (b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that –*
>
> - *Prevent pollution and ecological degradation;*
> - *Promote conservation; and*
> - *Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.*

To give effect to Section 24 of the Constitution, several laws have been promulgated towards realisation of these rights. This section describes the key legislation, policies, plans, guidelines and development planning frameworks and tools and their relevance to the proposed Project.

5.1 Minerals and Petroleum Resources Development Act, 2002 (MPRDA)

The MPRDA (Act No. 28 of 2002) and its Regulations (GNR527, 23 April 2004 as amended by: GNR R1288 dated 29 October 2004; GNR1203 dated 30 November 2006; and GNR349 dated 18 April 2011) is the predominant legislation dealing with the acquisition of rights to search for, extract and process mineral resources in South Africa. The MPRDA came into effect on 1 May 2004. The MPRDA holds that mineral resources in South Africa belong to the nation and that the State is the custodian thereof.

Mmakau Coal (Pty) Ltd has submitted an application for a Mining Right in terms of the MPRDA, the application was accepted by the DMRE on the 26th July 2022 (Ref: MP30/5/1/2/2/10366MR).

The MPRDA further states that nobody may mine without environmental authorisation (Section 5A) in terms of the NEMA (see Section 5.4). An application for integrated environmental authorisation was submitted simultaneously with the application for a Mining Right.

This report constitutes the Scoping Report prepared in terms of the application for Environmental Authorisation.

5.2 Mining Charter, 2018

Section 100(2)(a) of the MPRDA empowers the Minister to develop a Broad-Based Black Economic Empowerment Charter for the South African Mining and Minerals Industry ("Mining Charter") as a regulatory instrument.

One of the objectives of the MPRDA and Mining Charter is to ensure the attainment of Government's objectives to redress historical socio-economic inequalities, to ensure broad-based economic empowerment and the meaningful participation of Historically Disadvantaged Persons in the mining and minerals industry.

The first Mining Charter was published in 2004. The Mining Charter was amended in 2010 to streamline and expedite the attainment of its objectives. Further shortcomings of the previous Charter were identified and Government initiated another review process in 2015, culminating in the publication of the latest Mining Charter, 2018.

Mmakau Coal (Pty) Ltd is a Level 1 Broad-Based Black Economic Empowerment (BBBEE) contributor with 100% black ownership.

The Mining Charter also prescribes allocation of benefits to host communities in accordance with an approved host community development programme, in addition to the Social and Labour Plan (S&LP) requirements as per Section 23 of the MPRDA. Further to the direct benefits accruing to historically disadvantaged South Africans by the implementation of elements of the Mining Charter (including ownership, employment equity and Human Resources Development), Mines are also now obligated to meet certain BEE targets in terms of procurement, supplier and enterprise development.

5.3 Other Mining Legislation

Regulation 17(8) of the Mine Health and Safety Act, 1996, (MHSA) Regulations state that "no person may erect, establish or construct any buildings, roads, railways, dams, waste dumps, reserve land, excavations or any other structures whatsoever within a horizontal distance of 100 (one hundred) metres from workings, unless a lesser distance has been determined safe by a professional geotechnical specialist and all restrictions and conditions determined by him or her or by the Chief Inspector of Mines are complied with."

It is anticipated that some of the mine infrastructure may have to be placed within 100m of mine workings and Mmakau Coal (Pty) Ltd will have to obtain the necessary permissions in this regard.

There are several other pieces of legislation which deal with such issues such as royalties (the Mineral and Petroleum Resources Royalty Act, 2008), title registration (the Mining Titles Registration Act, 1967), and MHSA. These issues constitute specialist fields on their own and will not be discussed in further detail.

Sections of the MPRDA have been amended to make the Minister of Mineral Resources the responsible authority for implementing environmental matters in terms of the NEMA as it relates to mining and prospecting operations and incidental activities, and to align the MPRDA with NEMA.

5.4 The NEMA and EIA Regulations, 2014 (as amended)

The National Environmental Management Act, 1998 (Act No 107 of 1998) (NEMA), as amended, was set in place in accordance with Section 24 of the Constitution of the Republic of South Africa. Certain environmental principles under NEMA have to be adhered to, to inform decision making for issues affecting the environment. Section 24 (1)(a) and (b) of NEMA state that the potential impact on the environment and socio-economic conditions of activities that require authorisation or permission by law and which may significantly affect the environment, must be considered, investigated and assessed prior to their implementation and reported to the organ of state charged by law with authorizing, permitting, or otherwise allowing the implementation of an activity.

The EIA Regulations, Government Notice Regulation (GN R) I 982 were published on 04 December 2014 and promulgated on 08 December 2014. Together with the EIA Regulations, the Minister also published GN R 983 (Listing Notice No. 1), GN 984 (Listing Notice No. 2) and GN R 985 (Listing Notice No. 3). The undertaking of Listed Activities in terms of the EIA Regulations requires Environmental Authorisation to be obtained.

There are new Listed Activities associated with the proposed Project, as summarized in Table 8. These Activities are identified in terms of Listing Notice 1, 2 and 3 of the EIA Regulations 2014 (as amended) and Category B and C of the List of Waste Management Activities that have, or are likely to have, a detrimental effect on the environment (as amended).

A comprehensive Scoping and EIA Process is therefore relevant to the application. The application process is in accordance with the EIA Regulations, 2014 (as amended). The EIA Regulations further set out the requirements for reporting, timeframes, public participation and specialist reports.

5.5 National Environmental Management Waste Act,

Regulations to the NEMWA identifies a number of activities which require a WML prior to being undertaken. The establishment of residue deposits and residue stockpiles (including overburden stockpiles) is one such activity that will be associated with the proposed project.

The process to apply for a WML is in this case an integrated process to the application for Environmental Authorisation.

Further to this, the NEMWA provides for national norms and standards for regulating the management of waste, and the licensing and control of waste management activities.

5.6 National Water Act, 1998 (NWA)

The NWA provides for the sustainable and equitable use and protection of water resources. It is founded on the principle that the National Government has overall responsibility for and authority over water resource management, including the equitable allocation and beneficial use of water in the public interest, and that a person can only be entitled to use water if the use is permissible in terms of Section 22 of the NWA.

Mmakau Mine has an approved Water Use License (WUL) (License number: 06/B11B/GJACIB/6810) which authorises the following water uses at the Mine:

- Section 21 (a): Taking water from a water resource;
- Section 21 (c): Impeding or diverting the flow of water in a watercourse;
- Section 21 (i): Altering the bed, banks, course or characteristics of a watercourse;
- Section 21 (g): Disposing of waste in a manner that could detrimentally impacts on a water resource; and
- Section 21 (j): Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people.

Should additional water uses be identified, a new application will be submitted. The competent authority in respect of water use licenses is the Department of Water and Sanitation (DWS).

5.6.1 NWA: Regulations for the use of water for mining and related activities in GNR 704 of 4 June 1999 (GN R 704)

Specific regulations made in terms of Section 26(1) of the NWA pertain to the use of water for mining and related activities. The provisions of GN R704 will be incorporated into the design of the proposed Project, where possible. Where the implementation of provisions of GN R 704 is not possible, the IWULA must include an application for exemption from the relevant provisions, as per Regulation 3 of GN R 704.

Regulation 2 of GN R 704 stipulates this Mine's obligations in terms of notifications to the DWS, if changes take place at the Mine, or if incidents occur. These provisions will be incorporated into the Mine's EMP and associated emergency response plan and communication protocols.

5.7 The Explosives Act ,1956 (as amended)

The Explosives Act relates to the manufacture, storage, sale, transport, import, export and use of explosives.

Construction of the adit will be associated with blasting. A blast and vibration assessment was completed for the proposed operations in 2017 and remains valid.

5.8 National Environmental Management Air Quality Act, 2004 (NEMAQA)

According to the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) (NEMAQA) the Department of Environmental Affairs (DEA), the provincial environmental departments and local authorities (district and local municipalities) are separately and jointly responsible for the implementation and enforcement of various aspects of NEMAQA. A fundamental aspect of the new approach to the air quality regulation, as reflected in the NEMAQA is the establishment of National Ambient Air Quality Standards (NAAQS) (GN R 1210 of 2009). These standards provide the goals for air quality management plans and also provide the benchmark by which the effectiveness of these management plans is measured.

Activities that are identified in GN 983 require an Atmospheric Emissions License (AEL) to be issued in terms of NEMAQA. No such activities are associated with the proposed project and an AEL will not be required.

GN1123 declared the Highveld Priority Area (HPA) in terms of the NEMAQA. The HPA Air Quality Management Plan (AQMP) was published in GN144. The proposed project site falls within the HPA and thus must comply with the AQMP. Specific measures will be included in the EMP, along with specific requirements for prevention and management of dust and emissions potentially arising from the proposed development, and monitoring and reporting requirements. An Air Quality Impact Assessment (AQIA) was complete for the proposed operations in 2017 and remains valid. No additional studies are anticipated at this stage.

GN701 declared greenhouse gases as priority air pollutants. The greenhouse gas reporting regulations (GN275) identifies Mining and Quarrying as one of the industries who must report their Greenhouse Gas Emissions to the competent authority. Mmakau Coal (Pty) Ltd is therefore obligated to determine and report on their emissions, once operational.

The National Atmospheric Emission Reporting Regulations, 2015 identifies all mines as a Group C Emission Source, and requires the Mine to report to the National Atmospheric Emissions Information System (NAEIS) on their dust, PM_{10} and $PM_{2.5}$ emissions on an annual basis. This requirement will be incorporated into the EMP.

5.9 National Environmental Management: Protected Areas Act, 2003 (NEMPAA)

The National Environmental Management: Protected Areas Act, 2003 (Act No 57 of 2003) (NEMPAA) (as amended) provides for the protection and conservation of ecologically viable areas of South Africa's biological diversity, natural landscapes and seascapes. It further provides for the establishment of a register of protected areas (SAPAD), the management of those areas

and for intergovernmental co-operation and public consultation in matters concerning protected areas.

The project site is over 30km from the nearest formally protected area and the NEMPAA is therefore not considered relevant.

5.10 National Environmental Management Biodiversity Act, 2004 (NEMBA)

The NEMBA provides for the management and conservation of South Africa's biodiversity within the framework of the NEMA. The Act relates to the protection of species and ecosystems that warrant national protection, among others.

Certain Fauna and Flora Species of Conservation Concern (SCC) are known to occur in the area, a Terrestrial Biodiversity Assessment was completed in 2017, which study identified three plant species provincially protected in terms of the Mpumalanga Nature Conservation Act, 1998 (No. 10 of 1998) onsite. A follow up survey is proposed for the EIA phase.

5.11 Conservation of Agricultural Resources Act, 1983 (CARA)

CARA provides for control over the utilization of the natural agricultural resources of the Republic to promote the conservation of soil, water sources and vegetation and the combating of weeds and invader plants.

A soils study was undertaken by The Biodiversity Company in March 2017, the site of the proposed MRA comprises different soil types with different agricultural potential including class III land capability (moderate cultivation), Class IV land capability (light cultivation/intensive grazing) and VI land capability (moderate grazing).

Due to extensive mining and other ecological disturbance in the wider region, it is anticipated that alien invasive species are a threat to the biological diversity of surrounding areas. Alien invasive management will be incorporated into the EMP.

5.12 National Heritage Resources Act, 1999 (NHRA)

The NHRA aims to promote good management and preservation of the country's heritage resources.

A Heritage / Archaeological impact assessment was completed for the proposed operations in 2017. A follow up field survey will be undertaken for the EIA process.

Heritage resources have been identified on site. It is anticipated that these can be preserved in-situ as they are not directly affected by the project footprint. The heritage resources on and adjacent to the site must be managed and preserved by the implementation of appropriate buffer zones and access control. Monitoring of the effects of blasting on heritage resources close by to the proposed adit will also be stipulated in the specialist studies which will be appended to the EIA Report.

5.13 Plans, Policies and Guidelines

The proposed Schurvekop Mine is located in the Govan Mbeki Local Municipality (MP307) of the Gert Sibande District Municipality (DC30), Mpumalanga Province.

The National Planning Commission was appointed in 2010, which lead to the preparation and adoption of the National Development Plan (NDP) 2030. Chapter 8 of the NDP deals with "transforming human settlement and the National Space Economy" and calls for a National Spatial Development Framework (NSDF).

The NSDF acknowledges that "currently, our national economy is heavily natural resource-extraction based, with mining and coal-based energy generation [being] key contributors" (NSDF, 2018).

The Mpumalanga Provincial Spatial Development Framework (SDF) also prioritises the region within which the proposed operations is located as an area prioritised for Mining (MPSDF, 2018).

The Gert Sibande District Municipality SDF identifies mining activities as one of the main contributors to the Province's Gross Value Added (GVA) https://www.gsibande.gov.za/index.php?option=com_zoo&task=item&item_id=2915&Itemid=153

It can therefore be concluded that the proposed activities at Schurvekop Mine are well aligned to National, Provincial and Local SDFs.

5.14 Other relevant Legislation

In addition to the Laws and Guidelines discussed above, Table 9 summarises some of the other key legislation and guidelines relevant to this application:

Table 9: Other Relevant Legislation and Guidelines

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	HOW THIS DEVELOPMENT COMPLIES WITH THE LEGISLATION AND GUIDELINES
NEMA: Public Participation Guidelines (GNR807). Department of Environmental Affairs (2017), Public Participation guideline in terms of NEMA EIA Regulations, Department of Environmental Affairs, Pretoria, South Africa.	Guidelines will be followed during the Public Participation Process (PPP).
DEA (2017), Guideline on Need and Desirability, Department of Environmental Affairs (DEA), Pretoria, South Africa	The Guideline was and will continue to be considered in assessing the need and desirability of the Project aspects.
Spatial Land Use and Management Act, 2013 (Act No. 16 of 2013) (SPLUMA)	SPLUMA aims to develop a framework to govern planning permissions and the lawful use of land. In terms of SPLUMA Mmakau Coal will have to apply for a change in land use from agriculture to mining.
Restitution of Land Rights Act, 1994, the Land Reform (Labour Tenants) Act, 1996 and the Extension of Security of Tenure Act, 1997.	The Regional Land Claims Commission has indicated that a Land Claim has been submitted on Portion 16 of the farm Schurvekop 227 IS. A small community resides on Portions 17 and 20 of Schurvekop 227 IS. Farmsteads are associated with Portions 6 and 8.

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	HOW THIS DEVELOPMENT COMPLIES WITH THE LEGISLATION AND GUIDELINES
Local Government Municipal Systems Act, 2000 (Act No. 32 of 2000) as amended	The Act requires local government to compile a Spatial Development Framework (SDF) which must include the provision of basic guidelines for a land use management system for the municipality. The objectives of an SDF are to promote sustainable functional and integrated human settlements, maximise resource efficiency, and enhance regional identity and unique character of a place. In addition, Municipalities are required to develop Integrated Development Plans (IDPs) which is a government co-ordinated approach to planning that seeks to ensure the economic and social enhancement of all within their jurisdiction. It provides a land use framework, considers infrastructure development, and the protection of the environment.
Development Facilitation Act, 1995 (Act No. 67 of 1995)	The Act promotes the integration of the social, economic, institutional and physical aspects of land development and also promotes integrated land development in rural and urban areas in support of each other. The Act encourages the availability of residential and employment opportunities in close proximity to or integrated with each other, while optimising the use of existing resources including such resources relating to agriculture, land, minerals, bulk infrastructure, roads, transportation and social facilities.
NEMA Regulations pertaining to the financial provision for prospecting, exploration, mining or production activities (GNR1147 –20 November 2015) (as amended).	Financial Provision will be calculated and will be provided for by means of a Guarantee. This will be assessed during the EIA Phase.
National Road Traffic Act, Act No. 93 of 1996 and National Land Transport Act, Act No. 5 of 2008	These Acts relate specifically to the planning and development of transport systems and the safe use of roads. A traffic impact assessment has been undertaken to ensure the proposed project does not adversely affect the integrity of the transport system.
Hazardous Substances Act, 1973 (Act No 15 of 1973)	The Hazardous Substances Act provides for the control of hazardous substances (sub-divided into four groups) defined as any substance that by their nature are toxic, corrosive, irritant, flammable, sensitising or pressure generating, which may cause ill-health, injury or death in humans. Minimum requirements for hazardous substances associated with the construction phase and battery storage will be incorporated into the EMP and fully implemented on site.

6 NEED AND DESIRABILITY OF THE PROPOSED ACTIVITIES

The area falls within the Mpumalanga coal fields and as such the economy of the surrounding area is predominantly based on coal mining (and associated services such as coal hauling); agriculture; forestry and timber processing. Coal mining is the third biggest employer in South Africa (Stats S.A).

According to Census 2011 (Stats S.A.), the unemployment rate for the Govan Mbeki Local Municipality is some 26.2%. The proposed mining operation will create employment for 279 permanent staff once the mine ramp up is complete. The project will further create employment through obtaining supplies and services within the area.

South Africa's energy is predominately coal fuelled. According to the Department of Energy about 77% of South Africa's energy needs are provided by coal. The proposed MRA is ideally situated to supply coal to the nearby power stations.

Apart from local markets, South Africa is the fourth largest coal producer in the world. Approximately 28% of South Africa's coal is exported (Stats S.A.). The Richards Bay coal line and a number of sidings exist in the immediate vicinity.

The primary product will be produced for the Eskom market and if export prices improve sufficiently then a dual product for the international export market and for the Eskom market will be produced.

The project will contribute directly and indirectly to the Country's Gross Domestic Product, as well as provide employment to members of the surrounding communities.

As the operations will be mined via underground methods, the mine will not exclude other land uses from occurring on the remainder of the portions not earmarked for infrastructure.

7 ALTERNATIVES ASSESSMENT

7.1 The Property or Location

The properties selected for the overall MRA are limited to those held under the Prospecting Right by Mmakau Coal (Pty) Ltd; and finally the coal resource determination and the economic feasibility of mining the coal resource. No property alternatives are therefore relevant to the mining right area.

The placement of the boxcut adit was selected based on:

- Depth to coal seam;
- Topography;
- Environmentally sensitive areas, such as the Viskuile River, Joubertsvleispruit and associated floodplains were avoided as far as possible;
- Proximity of Communities and Farmstead;
- Negotiations with affected landowners and users;
- Land claims on Portion 16;
- Servitudes; and
- Land owned by Mmakau Coal (Pty) Ltd.

Infrastructure has been placed to avoid graves, water resources and their associated riparian zones as far as possible.

7.2 The Type of Activity to be Undertaken

The current land use is that of agriculture, predominantly maize and soy cultivation with some grazing (unimproved grasslands). A small community resides on Portions 17 and 20 of the Farm Schurvekop 227 IS. Farmsteads are associated with Portions 6 and 8. Servitudes are associated with power lines in the area.

Although mining is expected to have the greatest impact on the environment in terms of the other land uses, it will have the greatest positive contribution to socio-economics in the area. As the operations will be mined via underground methods, the mine will not exclude other land uses from occurring on the remainder of the portions not earmarked for infrastructure; only the land use of Portion 8 will be affected by the mining operation. The land capability or Portion 8 was determined to be Class III and Class IV, good – moderate potential.

The type of mining to be conducted is limited by the depth of the coal resource and will not been assessed further.

The quality of coal excavated from the properties may dictate the need for a full beneficiation plant in order to meet market requirements. The type of processing plant selected will be based on mineable tonnages and various coal types being mined as well as market requirements.

Transport alternatives include road hauling and rail transport. The MRA is ideally situated for access to the Richards Bay rail line.

Remaining supporting infrastructure is needed in terms of the overall design of the mine and no further alternatives are discussed in terms of these. Best practices in the industry and, where applicable, SANS standards and legislative requirements will be followed in design, construction and management of infrastructure and activities on site.

7.3 Design or Layout of Activity

All infrastructure is to be placed on Portion 8 of the farm Schurvekop, so as to minimise the overall footprint.

Access to the underground reserves are planned via a boxcut close to the western boundary of the MRA. The location of the box-cut and associated infrastructure area was based on the depth of the coal and an environmental sensitivity analysis as well as landowner negotiation.

Two seams (2L and 4L) are deemed feasible to be mined (Delta, 2017a).

7.4 Technology to be Used

The following mining methods were assessed for the project: opencast truck-and-shovel; and underground with pillar. Due to the depth of the 2 Seam opencast mining was not deemed to be economically viable.

As such, Schurvekop will be mined via mechanised bord-and-pillar methods, using continuous miners.

Continuous miners will ensure a constant flow of ore from the working face of the mine and are different from conventional or cyclical mining methods which halt the extraction process in order to load ore. This will result in an optimal balance of production rate and cost per ton.

In mechanized bord-and-pillar mining, extraction is achieved by developing a series of roadways (bords) in the coal seam and connecting them by splits (cut-through) to form pillars. These pillars are left behind as part of a primary roof support system. The safety factor and pillar dimensions to support the overburden will be determined for each mining block.

In all other instances, best practices as utilised in the industry have been selected and, where applicable, SANS standards and legislative requirements will be followed in design, construction and management of infrastructure and activities on site. Technological alternatives will therefore not be assessed further.

7.5 The operational aspects of the activity; and

In all instances, common practices as utilised in the industry have been selected. Operational alternatives that are being / have been considered include:

- Integrated disposal versus separate discard and slurry handling:
    - Integrated disposal was opted for, as this would negate the need for separate handling facilities and thus reduce the overall area of disturbance. In addition to the above the fines (slurry) will settle in between the cavities within the discard making the dump more stable; and reducing the potential for spontaneous combustion.
    - The dump can be reclaimed in future as the slurry will increase the overall coal content of the dump.
- Installation of a filter press: The viability of installing a filter press to dewater the slurry is being investigated. This would allow the mine to recover and reuse additional water that would otherwise be lost; furthermore the dried fines can be mixed in with the product for sale

7.6 The option of not implementing the activity

The no-go option will result in the protection of the environment *in situ* and the continued use of the land for agricultural purposes. Not mining the area for coal will result in the sterilisation of the coal resource. This would reduce coal resources for power generation which is currently an issue in South Africa, as no viable base load power generation alternatives exist. The no-go option would also prevent the socio-economic benefits, including the need for job creation, increased socio-economic activity and social upliftment.

If Mmakau Coal (Pty) Ltd does not proceed with the Mining Right application, another company is almost certain to apply for the rights.

8 PUBLIC PARTICIPATION PROCESS

The table below highlights the requirements for public participation as per NEMA and provides a summary of public participation process (PPP undertaken for this project to date). This will be updated as the project progresses.

The PPP aims to involve the authorities and I&APs in the project process, and determines their needs, expectations and perceptions which in turn ensures a complete and comprehensive environmental study. An open and transparent process has and will be followed at all times and will be based on reciprocal dissemination of information.

Table 10: NEMA minimum PPP requirements

Legal and Regulatory Requirement: NEMA Regulation 982, Section 41 – Public participation process	
1	This regulation only applies in instances where adherence to the provisions of this regulation is specifically required
Noted	
2	The person conducting a public participation process must take into account any relevant guidelines applicable to public participation as contemplated in section 24J of the Act and must give notice to all potential interested and affected parties of an application or proposed application which is subjected to public participation b:
NEMA PPP Guidelines have been followed.	
a	fixing a notice board at a place conspicuous to and accessible by the public at the boundary, on the fence or along the corridor of:
i	the site where the activity to which the application or proposed application relates is or is to be undertaken
ii	An alternative site
Notices were compiled in English & Afrikaans and erected (04 August 2022) on the property boundary, at the Bethal Public Library and other publicly visible areas in proximity to the proposed MRA. These posters informed the public of the proposed activities, invited them to register as I&APs for the project and notified them of the Scoping Report's availability for public review and comment. Copies of the Posters and photographic evidence thereof have been included in APPENDIX 3.	
b	giving written notice, in any of the manners provided for in section 47D of the Act, to:
i	the occupiers of the site and, if the proponent or applicant is not the owner or person in control of the site on which the activity is to be undertaken, the owner or person in control of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
ii	owners, persons in control of, and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
iii	the municipal councillor of the ward in which the site or alternative site is situated and any organisation of ratepayers that represent the community in the area;
iv	the municipality which has jurisdiction in the area;
v	any organ of state having jurisdiction in respect of any aspect of the activity; and

Legal and Regulatory Requirement: NEMA Regulation 982, Section 41 – Public participation process	
vi	any other party as required by the Competent Authority.
A comprehensive database / I&AP register was compiled, this included various stakeholders, authorities, land owners, land users and associations within the area. Background Information Documents (BIDs) detailing the project were compiled in English, Afrikaans and Zulu. These were distributed to land owners / users and adjacent land owners / users on the 05 August 2022 via e-mail, fax and post. Persons who did not have access to a computer, fax machine or postal service were notified via hand delivered documents, where possible, and/or SMS. A copy of the I&AP database and BID are attached as APPENDIX 3.	
c	Placing an advertisement in:
i	One local newspaper; or
ii	Any official Gazette that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations.
d	placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or district municipality in which it is or will be undertaken: Provided that this paragraph need not be complied with if an advertisement has been placed in an official Gazette referred to in paragraph (c)(ii)
Advertisements have been booked in one (1) local newspaper in both English and Afrikaans, The Ridge Times, publication date: 12 August 2022.	
e	Using reasonable alternative methods, as agreed to by the competent authority, in those instances where a person is desirous of but unable to participate in the process due to- (i) illiteracy; (ii) disability; or (iii) any other disadvantage.
No issues in information dissemination have been noted to date. Any additional requirements made by the authorities will be applied during the PPP process.	
3	A notice, notice board or advertisement referred to in sub regulation (2) must –
a	Give details of the application which is subject to public participation
b	State -
i	whether basic assessment or S&EIR procedures are being applied to the application
ii	Whether basic assessment or scoping procedures are being applied to the application, in the case of an application for environmental authorisation
iii	The nature and location of the activity to which the application relates
iv	Where further information on the application or activity can be obtained
v	The manner in which and the person to whom representations in respect of the application may be made
These aspects are addressed in the BIDs, Notices and Adverts.	
4	A notice board referred to in sub regulation (2) must -
a	be of a size at least 60cm by 42 cm

Legal and Regulatory Requirement: NEMA Regulation 982, Section 41 – Public participation process	
b	Display the required information in lettering and in a format as may be determined by the Competent Authority
Notices were A2 in size (42 x 60 cm).	
5	Where public participation is conducted in terms of this regulation for an application or proposed application, sub regulation (2)(a), (b), (c) and (d) need not be complied with again during the additional public participation process contemplated in regulations 19(1)(b) or 23(1)(b) or the public participation process contemplated in regulation 21(2)(d), on condition that : -
a	such process has been preceded by a public participation process which included compliance with sub regulation (2)(a), (b), (c) and (d); and
b	written notice is given to registered interested and affected parties regarding where the: -
i	revised basic assessment report or, EMPr or closure plan, as contemplated in regulation 19(1)(b) may be obtained, the manner in which and the person to whom representations on these reports or plans may be made and the date on which such representations are due;
ii	revised environmental impact report or EMPr as contemplated in regulation 23(1)(b) may be obtained, the manner in which and the person to whom representations on these reports or plans may be made and the date on which such representations are due; or
iii	environmental impact report and EMPr as contemplated in regulation 21(2)(d) may be obtained, the manner in which and the person to whom representations on these reports or plans may be made and the date on which such representations are due;
Noted. No deviation required.	
6	When complying with this regulation, the person conducting the public participation process must ensure that:
a	Information containing all the relevant facts in respect of the application is made available to potential interested and affected parties; and
b	Participation by potential interested and affected parties is facilitated in such a manner that all potential interested and affected parties are provided with a reasonable opportunity to comment on the application.
Noted. All environmental reports will be made available for public review for a minimum of 30 days.	
7	Where an environmental authorisation is required in terms of these Regulations and an authorisation, permit or licence is required in terms of a specific environmental management Act, the public participation process contemplated in this Chapter may be combined with any public participation processes prescribed in terms of a specific environmental management Act, on condition that all relevant authorities agree to such combination of processes.
The PPP has been combined for all the authorisations required from the DMRE in terms of the MPRDA, NEMA and NEMWA.	

8.1 Details of the PPP followed to date

Authorities & Stakeholder Consultation:

The lead authority for the applications in terms of the MPRDA, NEMA and NEMWA is the Department of Mineral Resources and Energy (DMRE).

The following commenting authorities and key stakeholders have been identified and notified of the project by means of the Background Information Document (BID):

- DWS;
- Mpumalanga Department of Economic Development, Environment and Tourism (MDEDET);
- Department of Rural Development and Land Reform;
- Govan Mbeki Local Municipality;
- Gert Sibande District Municipality;
- South African Heritage Resource Agency (SAHRA);
- Mpumalanga Tourism and Parks Board (MTPA); and
- Eskom

I&AP Consultation:

The I&APs include a broad database of immediately affected landowners, adjacent landowners/ users, communities, ward councillors and other interest groups.

BIDs were compiled in English, Afrikaans and Zulu and distributed by hand, fax, e-mail and/or post to all identified I&APs on 05 August 2022. In addition, the BID has been uploaded onto the Cabanga website.

The purpose of the BID was to:

- Invite members of the public to register as I&APs;
- Introduce the proposed project, and inform the public on the application/environmental process and their involvement;
- Provide information on the proposed impacts the development may have on the environment which will be investigated further;
- Initiate a process of public consultation to record perceptions and issues; and
- Invite I&APs to review and comment on the Scoping Report.

A copy of the BID is attached as APPENDIX 3.

Notices:

Notices compiled in English and Afrikaans were erected on 04 August 2022 on the site boundary fence, Bethal Local Library and other publicly visible areas in proximity to the proposed MRA. Refer to APPENDIX 3 for copies of the Posters and photographic evidence thereof.

Further to this, advertisements will be published in the Ridge Times on 12 August 2022.

Document Review:

This Scoping Report is being made available for public review and comment for a period of thirty (30) days, from 08 August to 07 September 2022. The report is available at the followings locations:

- Bethal Public Library; and
- Online at www.cabangaenvironmental.co.za under the "Public Participation" tab.

Notification of the reports availability was included in the BID, posters, advertisements and SMS.

8.2 Summary of issues raised by I&APs

Comments and concerns received to date have been included in the table overleaf. This table will be updated as comments are received and included in the final Scoping Report for submission to the DMRE.

Table 11: PPP Issues & Response Table

Interested and Affected Parties	Date Comments Received		Issues raised	Initial Response	Consultation Status (consensus dispute, not finalised, etc.), Reference to Section in Report
AFFECTED PARTY					
Landowner/s	**X**				
Mr.D.Te Water, Zelpy 1100 (Pty) Ltd, Portions 17, 18, 19 & 20 Schurvekop 227 IS	X	20-Jan-22 Micro-consultation	Queried the proposed position of the infrastructure and adit. Stated that he is not interested in selling or leasing his properties. Has no objections to the project at this stage, confirmed that the environmental specialists may access the properties for the EIA process. Requested to please be kept informed of the project going forward.	The adit and all associated infrastructure will be limited to Portion 8 of the Farm Schurvekop 227 IS, owned by Mmakau Coal (Pty) Ltd Cabanga confirms that Mr.Te Water and Zelpy 1100 (Pty) Ltd have been registered as an I&AP and will be kept informed of the project. Access will be pre-arranged for all specialist surveys.	Consensus reached. Landowner consent received 20 February 2022 - APPENDIX 3.
Ms.Leonore van Wyk, Anglo / Thungela, Portions 6 & 16 Schurvekop 227 IS	X	20-Jan-22 E-mail	Requested clarification on the proposed application, understood that this had been rejected. This overlaps with our surface rights, and is directly adjacent to our long existing mining right (Elders Colliery).	The previous application for environmental authorisation received a negative record of decision, this was appealed by the applicant. The appeal was dismissed and Mmakau Coal (Pty) Ltd was advised that they could re-apply with the guidance of DMRE. Mmakau therefore intends to re-apply, as advised by their legal counsel.	Consensus reached. Landowner consent received 08 February 2022 - APPENDIX 3. Changes to Regulation 39(2)(b) subsequently repealed.

Interested and Affected Parties	Date Comments Received	Issues raised	Initial Response	Consultation Status (consensus dispute, not finalised, etc.), Reference to Section in Report
			The surface rights for Portions 6 and 16 are held by Anglo Operations (Pty) Ltd (now Thungela), although no surface infrastructure is proposed for these portions they will be undermined. In terms of the new amendments to the EIA Regulations the application for environmental authorisation must be accompanied by the landowners consent as GN517 of 11 June 2021 deleted Regulation 39(2)(b).	
	06-Feb-22 E-mail	I have received the following requests for our internal disciplines: - Please be so kind to provide a list of specialist studies that will be conducted in the process, also the manner in which it will be conducted (e.g. site visit with auguring), and also all drilling information please. - We are slightly confused in terms of the entity and structures as there are links to Mmakau, Exxaro and Tumelo Mine and it is also our understanding that	A full range of specialist studies were completed in 2016/2017 for the proposed project, at this stage it is anticipated that the specialists will only need to undertake site visits to verify the *status quo* and ensure that the findings of the studies are still relevant. No drilling or auguring is anticipated on the Anglo / Thungela owned properties. In terms of the Applicant entity, the application is in the name of Mmakau Coal (Pty) Ltd which is owned by Mmakau Mining (Pty) 51% and Overlooked Colliery (Pty) Ltd 49%.	Consensus reached. Landowner consent received 08 February 2022 - APPENDIX 3.

Interested and Affected Parties	Date Comments Received		Issues raised	Initial Response	Consultation Status (consensus dispute, not finalised, etc.), Reference to Section in Report
			Exxaro sold all their interests in the area and that Overlooked acquired the said, we stand to be corrected though? Therefore may we please have a company organogram/structure. We are not opposed to providing consent as a landowner, however there are a few considerations. Such as for example, if drilling will take place, we will be required to enter into a formal access agreement.	Organogram e-mailed on 08 February 2022.	
Lawful occupier/s of the land	**X**				
Mr. A.Bosman, Lessee, Portion 8 & 15 Schurvekop 227IS	*X*	04-Aug-22 Telephone Call	Confirmed his contact details are correct. Requested a copy of the BID in English and Afrikaans.	A copy of the BID was sent on 05 August 2022.	*Consultation in progress.*
Communities					
Mr.J.Mtsweni, Community Representative: Portions 17 & 20 Schurvekop 227, and Ward 15 Cllr.	*X*	05-Aug-22 Telephone Call	Confirmed that he is the community representative, as well as the Ward 15 Councillor. Requested a copy of the BID and will then request additional information and/or meeting.	A copy of the BID was sent on 05 August 2022.	*Consultation in progress.*

Interested and Affected Parties	Date Comments Received		Issues raised	Initial Response	Consultation Status (consensus dispute, not finalised, etc.), Reference to Section in Report
		05-Aug-22 SMS	Sent his e-mail address for the BID.	A copy of the BID was sent on 05 August 2022.	
		05-Aug-22 E-mail	Confirmed receipt of e-mail.	*No response required.*	
Landowners or lawful occupiers on adjacent properties	**X**				
No comments received to date.					
Municipal Councillor	**X**				
See comments from Cllr. J.Mtsweni under Communities.					
Dept. of Mineral Resources & Energy					
No comments received to date.					
Organs of state (Responsible for infrastructure that may be affected Roads Department, Eskom, Telkom, DWS etc.	**X**				
No comments received to date					
Dept. Land Affairs	**X**				
No comments received to date					

Interested and Affected Parties	Date Comments Received	Issues raised	Initial Response	Consultation Status (consensus dispute, not finalised, etc.), Reference to Section in Report
Traditional Leaders	**X**			
No comments received to date				
Dept. Environmental Affairs	**X**			
No comments received to date				
Other Competent Authorities affected	**X**			
Mr.F.N.Krige, MTPA/DARDLEA	X	05-Aug-22 E-mail	Please register the MTPA as an IAP and send hardcopy of application to Phumla Nkosi at Head office Mbombela as usual.	Cabanga confirms that the MTPA has been registered as and I&AP. A hard copy of the Scoping Report will be couriered to the Mbombela office for review and comment.	*Consultation in progress.*
OTHER AFFECTED PARTIES	**X**			
No comments received to date				
INTERESTED PARTIES	**X**			
Mr. Mlungisi.F. Mabizela, Lungisa Supply and Maintenance(Pty)Ltd – Harry Kotzen Farm	X	05-Aug-22 Online Form	We are a SMME from Harry Kotzen Farm and would like to participate in the development of Mmakau Mining.	Cabanga confirms that Mr. Mlungisi.F. Mabizela, Lungisa Supply and Maintenance(Pty)Ltd has been registered as an I&AP.	*Consultation in progress.*

9 EXISTING SITE ATTRIBUTES

The Department of Environmental Affairs (DEA) has developed a 'National Screening Tool' to enable an applicant who intends to submit an application for EA under the NEMA to pre-screen the proposed site for environmental sensitivity. The Screening Tool results in the generation of a report indicating the expected sensitivities of a site and identifies potential specialist studies to be completed for the project. The sensitivities as per the screening tool report (APPENDIX 2) has been mentioned below each baseline aspect.

A number of specialist assessments have been completed for the project in the past, these will be reviewed an updated where necessary (as discussed in more detail in Section 11). This section of the report will therefore be expanded as the project progresses with information from the specialist assessments.

Just as a project is associated with certain impacts on the environment where it is undertaken, the existing environment can also influence a proposed development in terms of design, location, technology and layout. It is therefore important to define the environmental baseline conditions (*status quo*) or context of a proposed development project.

This section describes the environmental attributes associated with the affected sites focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects. Information is presented on different scales as relevant to the information that is available:

- Regional scale – the areas, land uses and communities surrounding the site including, in some cases, the larger municipal area;
- Immediate surroundings; and
- Site-specific.

9.1 Geology

This section has been extracted from the Mine Works Programme (Metallurgical Resources Consulting, 2022):

The MRA falls within the north eastern extremity of the Highveld Coal field separated by the pre-Karoo Smithfield ridge from the Witbank Coal field to the north.

Rooiberg felsites as well as the Bushveld – Lebowa granites comprise the basement lithology. These basement rocks can be weathered to great depths indicating the surface exposure that they encountered in the past. Also abundantly encountered in this area is Diabase which has the same chemical composition as dolerite. A northwest – southeast trending palaeo-valley, with steeply dipping contours in the northeast, can be seen traversing Schurvekop on the top of basement plan. A distinct palaeo-ridge can be seen in the northeast. This palaeo-ridge is in the same vicinity as the Koppie. The top of basement elevation ranges from 1480 to 1598 m.a.m.s.l.

Deposited above the basement rocks are sediments of glacial origin which were deposited by the continental ice sheets during Permo-Carboniferous times. Resulting from this erosional and depositional process were elongated low ridges and shallow valleys which influenced the depositional patterns. The sediments mentioned above formed the Dwyka Formation and were composed mainly of tillites and varvites.

The top of Dwyka Formation elevation contours mirror that of the top of basement with elevations ranging from 1584 to 1578m.a.m.s.l.

Deposited above the Dwyka Formation were arenaceous sequences of sandstones and conglomerates with subordinate siltstones, shales and coal seams. This sequence is referred to as the Vryheid Formation. Five major coal seams, named from bottom upwards, were formed in this area. Namely:

- No 1, No 2, No3, No 4 and No 5. Seam splitting occurs of three of the seams due to breaks in the plant formation process;
- No. 2 Seam may be split into the No. 2 Lower Seam and the No. 2 Upper Seam;
- No. 4 Seam into the No. 4 Lower Seam, No. 4 Upper Seam and the No. 4A Seam; and
- No. 5 Seam into the No. 5 Lower Seam and the No. 5 Seam.

The thickest and most consistent coals are contained in the No 2 and 4 Seam zone. The No 1 Seam is restricted to the palaeo-valley. The No 3 is not persistent laterally. The No 5 seam is only present in topographically high areas; elsewhere it has been removed by erosion.

Of the seams mentioned above the No 4 Lower and No 2 Lower seams have been identified as being potentially economically viable.

At the end of the Karoo depositional cycle the Karoo Supergroup and with it the Vryheid Formation were subjected to injection of hot molten magma in the form of dolerite sills and dykes during the late Jurassic times. These intrusions resulted in the displacement of the coal seams and the devolatilisation or burning of extensive areas of coal. The width of devitalization and burning is dependent on the width of the intrusion as well as the temperature of the magma during injection. Whilst the former intrusion type is readily detected during the exploration drilling, detection of the latter is more difficult. This results from the near-vertical nature and limited thickness of dykes as well as the reasonably wide-spaced drilling grid. Therefore geophysical methods have been employed quite successfully to locate these dykes.

From experience gathered during mining at Forzando North and Forzando South it was determined that the sill burning and devitalization zone was normally within one and a half times the width of the sill. In areas where the sill adopted the dyke like behaviour it was associated with numerous fractures and dolerite stringers indicating hazardous mining conditions.

9.2 Physiography and topography

The mining area is characterised by gently undulating topography. Topography dips at gradients of between 1:50 and 1:100 towards the streams that occur in the area. Topographical elevations in the MRA range between 1 630 and 1 580 mamsl, see Plan 5 overleaf.

9.3 Climate and Meteorology

The project area is located in the Mpumalanga Province of South Africa, which is characterised by a mild to warm summer and cool to cold winters. Rainfall primarily occurs from October to March and almost exclusively as showers and thunderstorms. Severe lightening, strong winds and hail often accompany these thunderstorms.

Meteoblue has modelled climate data for the MRA as illustrated in Figure 1. The mean maximum temperatures in summer time is 27°C while the mean minimum temperatures in winter is 2°C (Meteoblue, 2022).

The wind rose presented in Figure 2 shows that average wind speeds in the area rarely exceeds 28km/h and is predominantly from the east-north-east, though stronger winds are sometimes experienced from the west-north-west (Meteoblue, 2022).

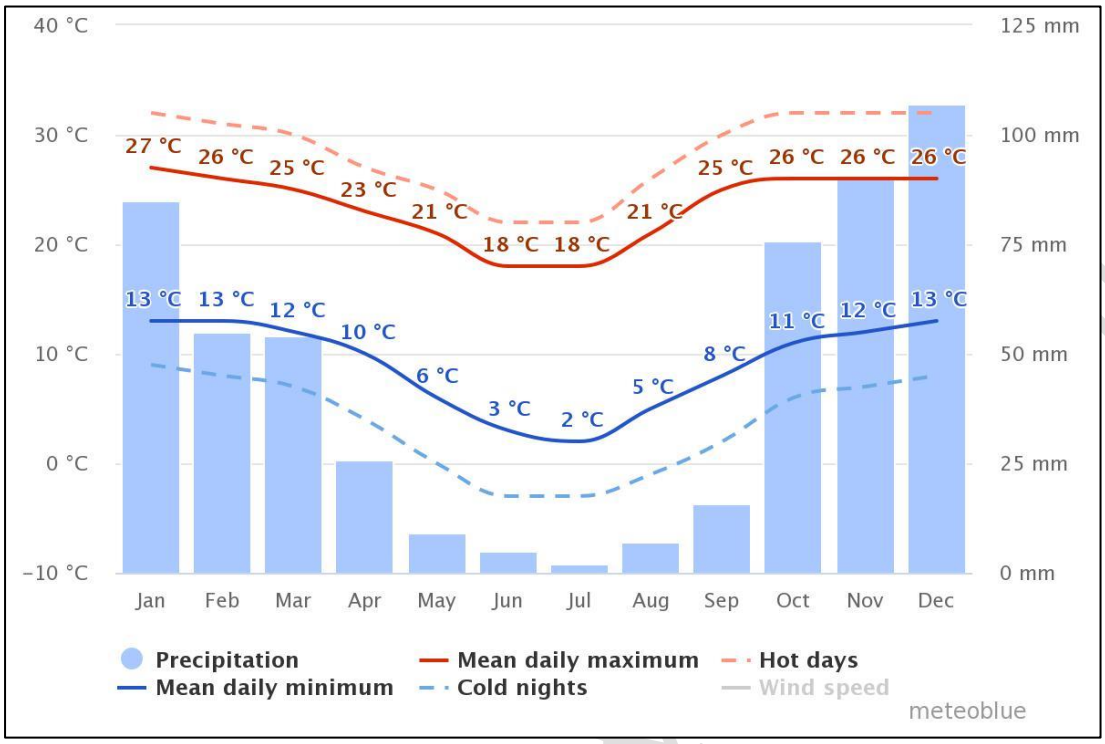


Figure 1: Modelled Climate data for the project area (Meteoblue, 2022)

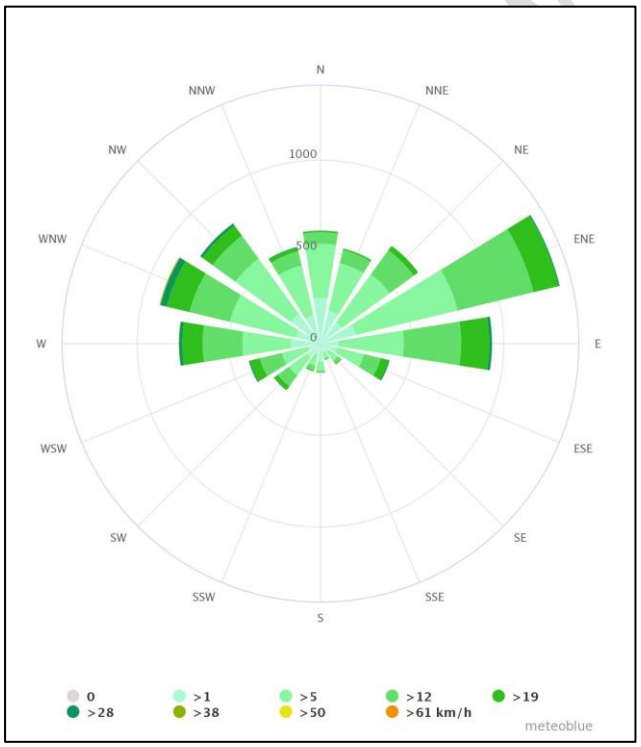
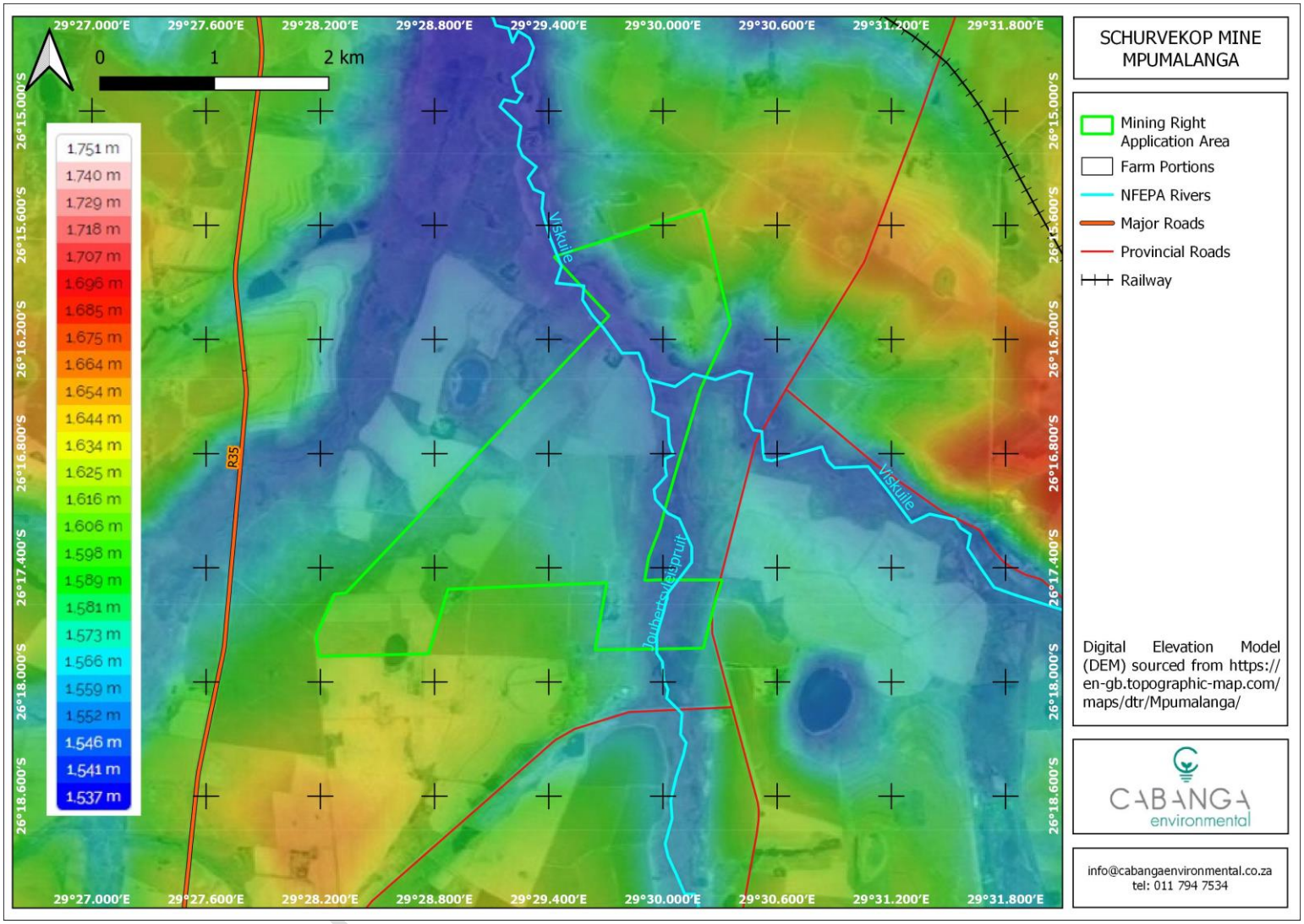


Figure 2: Wind Rose (Meteoblue, 2022)



Plan 5: Topography

9.4 Soils, Land Use and Land Capability

The Screening Tool indicates that the MRA has a "High Sensitivity" in terms of the Agricultural Theme.

The MRA is mainly characterised by the use of the land for cultivation of crops including maize and soya (Figure 3). There are also areas of intact secondary grassland currently used for grazing. Water bodies such as rivers and pans are also present.

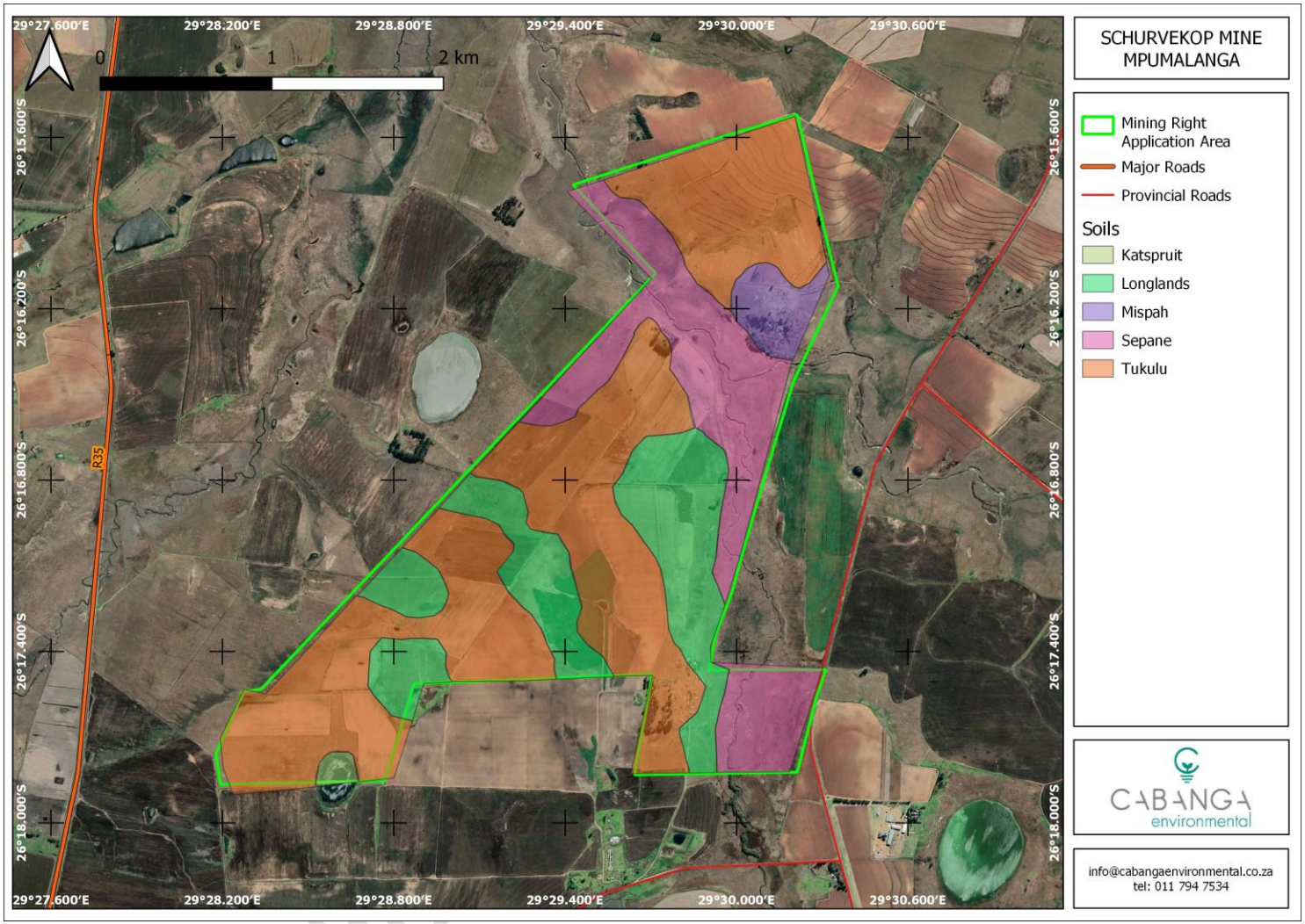
Figure 3: Photos showing the maize crops (left) and grassland (right) that characterise the study area indicating agriculture and grazing of livestock as the main land uses

According to the land type database (Land Type Survey Staff, 1972 - 2006) the MRA falls within the Bb4 land type. It is expected that, the dominant soils in the crest and midslope positions will be soils of the Avalon and Ruston forms. The soils that dominated the footslopes and the valley bottoms are Katspruit, Eskourt, Phoenix and Rensburg soil forms.

A soils study was undertaken by The Biodiversity Company in March 2017 (TBC, 2017). It was found that the midslopes are dominated by Longlands and Tukulu soils, and the foot slopes and valley bottoms were Katspruit and Sepane soils. There is a rocky outcrop situated to the north east of the MRA and this was mainly of the Mispah form. See Plan 6.

The Tukulu and Sepane soils were classified as having a Class III (moderate cultivation) capability with the E-horizon soils (Longlands) in the midslopes having a Class IV (light cultivation/intensive grazing) land capability. The shallow rocky outcrop of the Mining Right Area is classified as Class VI (moderate grazing). The wetlands are classified as Vlei areas (Class V). Vlei areas are classified as soil with a wetness indicator within 20cm of the surface. Many of the other wetland type soils only show wetness at 30cm and beyond and thus are not included in this class.

Furthermore, the class III land capability was determined to have a L3 good potential. Class IV land capability was determined to have a L4 moderate potential, whilst the class VI land capability was determined to be a L5 restricted potential.



Plan 6: Soil Types

9.5 Hydrogeology (Groundwater)

The section below is extracted from the Geohydrological Study completed in 2018 (Future Flow, 2018).

9.5.1 Aquifer Characterisation

Two aquifers occur in the area. These two aquifers are associated with a) the upper weathered material, and b) the underlying competent and fractured rock material. Groundwater levels less than 4.3 m are associated with the weathered material aquifer. Where the depth to groundwater level range from 6.5 m and deeper, was considered to represent the groundwater levels in the fractured rock aquifer.

Aquifer thickness data was available from the monitoring borehole drilling results. The recorded data shows that the upper aquifer range in thickness between <1 and 9 m, with an average thickness of approximately 4.3 m. The maximum value of 9 m is not an absolute value for the entire study area. Deeper weathering can occur in areas where there is faulting or fracturing.

The upper aquifer forms due to the vertical infiltration of recharging rainfall through the weathered material being retarded by the lower permeability of the underlying competent rock material. Groundwater collecting above the weather / unweathered material contact migrates down gradient along the contact to lower lying areas. It is considered that effectively between 1 and 3 % of the mean annual rainfall eventually reaches the groundwater table in the form of recharge to the aquifers (Grobbelaar et al., 2004).

The lower permeability of the unweathered rock material will retard vertical infiltration of groundwater, however a percentage of the water in the upper aquifer will recharge the lower aquifer. Direct recharge from rainfall can occur where the fractured, competent rock outcrops. In areas where the stream bases of the non-perennial rivers are located directly on top of the competent rock the aquifer can be directly recharged from the surface stream.

Typical transmissivity values for the upper aquifer range between 0.1 and 2 m2/day (Future Flow, 2017). The relatively low transmissivities (around 0.1 m^2/day) reflect the general host geology where the relatively higher transmissivities (around 1 to 2 m^3/day) represents different fracture zones. These values are typical of the Karoo geology that occurs in the area.

The borehole yields in this aquifer are seasonally variable due to the strong dependence on rainfall recharge. Generally, it can be said that the yields of this aquifer during the rainy season can be around 1 to 3 L/s while sustainable yields will decrease markedly during the dry season. In some areas this aquifer will be laid completely dry during the dry season.

The groundwater quality in undisturbed areas is good due to the dynamic recharge from rainfall. This aquifer is, however, more likely to be affected by contaminant sources situated on surface. Based on the combined effect of the relatively shallow nature of the weathered zone, where a number of areas have the competent rock outcropping on site, and the dependence on recharge from rainfall, it can be said that this aquifer is expected to show significant seasonal fluctuations.

9.5.2 Hydrocensus

A hydrocensus was undertaken during April 2017 to identify and document groundwater users in the region. In total 16 boreholes were located in the field, including the five monitoring

boreholes drilled for the project. Groundwater levels less than 4.3 m are associated with the weathered material aquifer, where groundwater deeper than 6.5 m and was considered to represent the groundwater levels in the fractured rock aquifer, shown as blue and red respectively in Figure 4.

The weathered material aquifer shows a 99 % correlation between topographical and groundwater level elevations. Similarly, the fractured rock aquifer shows a 95 % correlation between the topographical and groundwater level elevations (Figure 5). These are very high correlations between the groundwater level and topographical elevations, and the correlations are calculated from limited data sets. However, it can be concluded that the groundwater levels in both aquifers mimic topography (Future Flow, 2018).

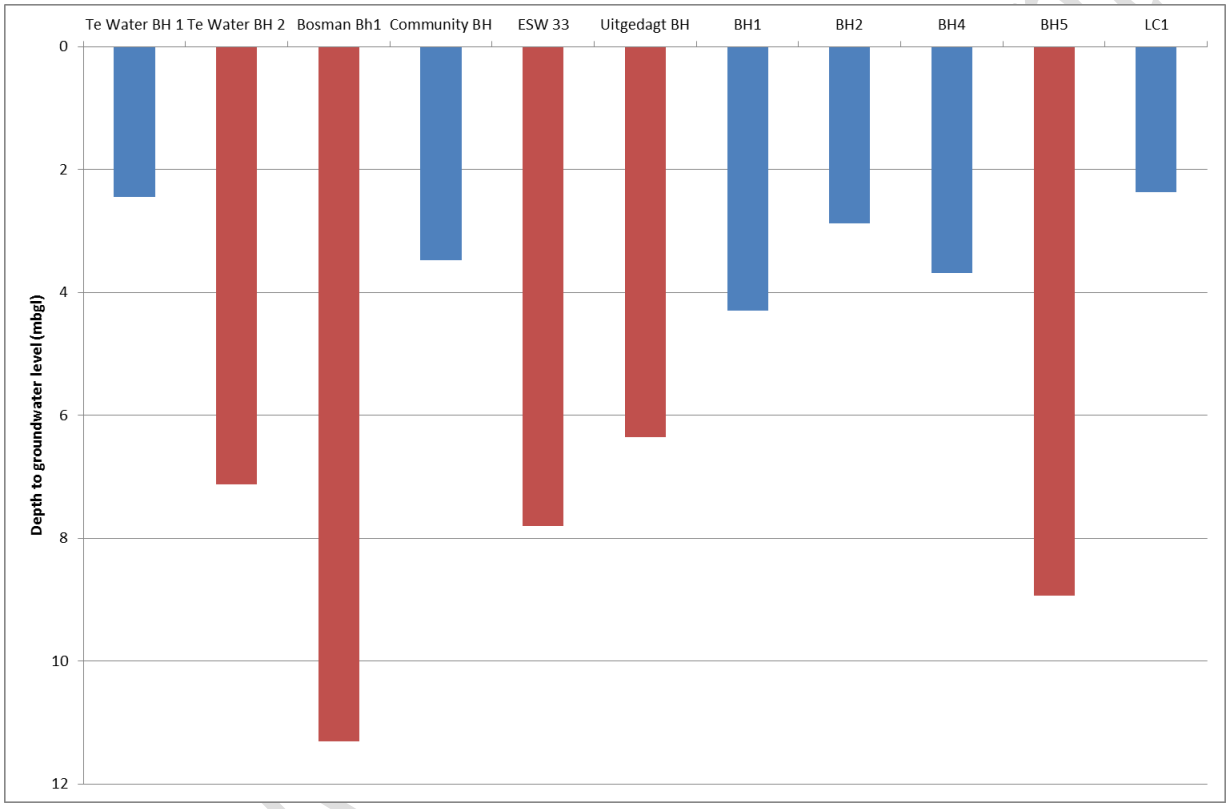


Figure 4: Depth to groundwater level (Future Flow, 2018)

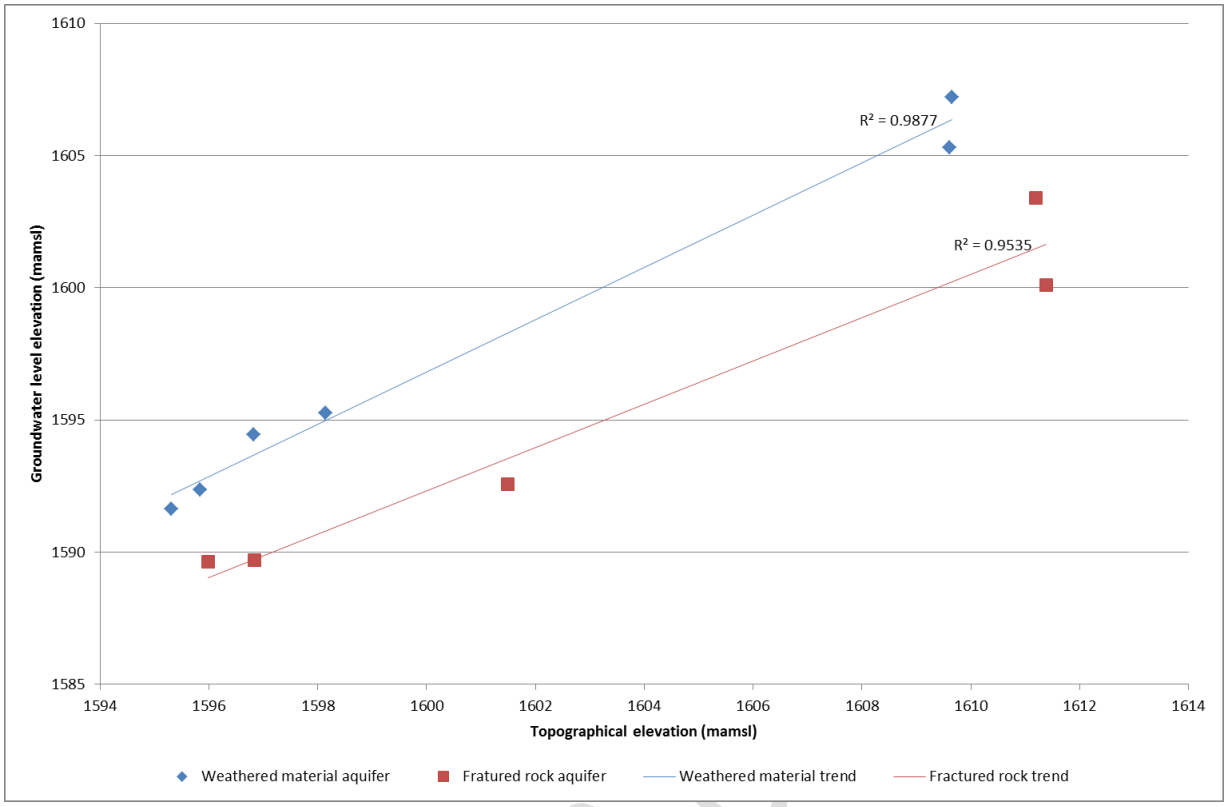
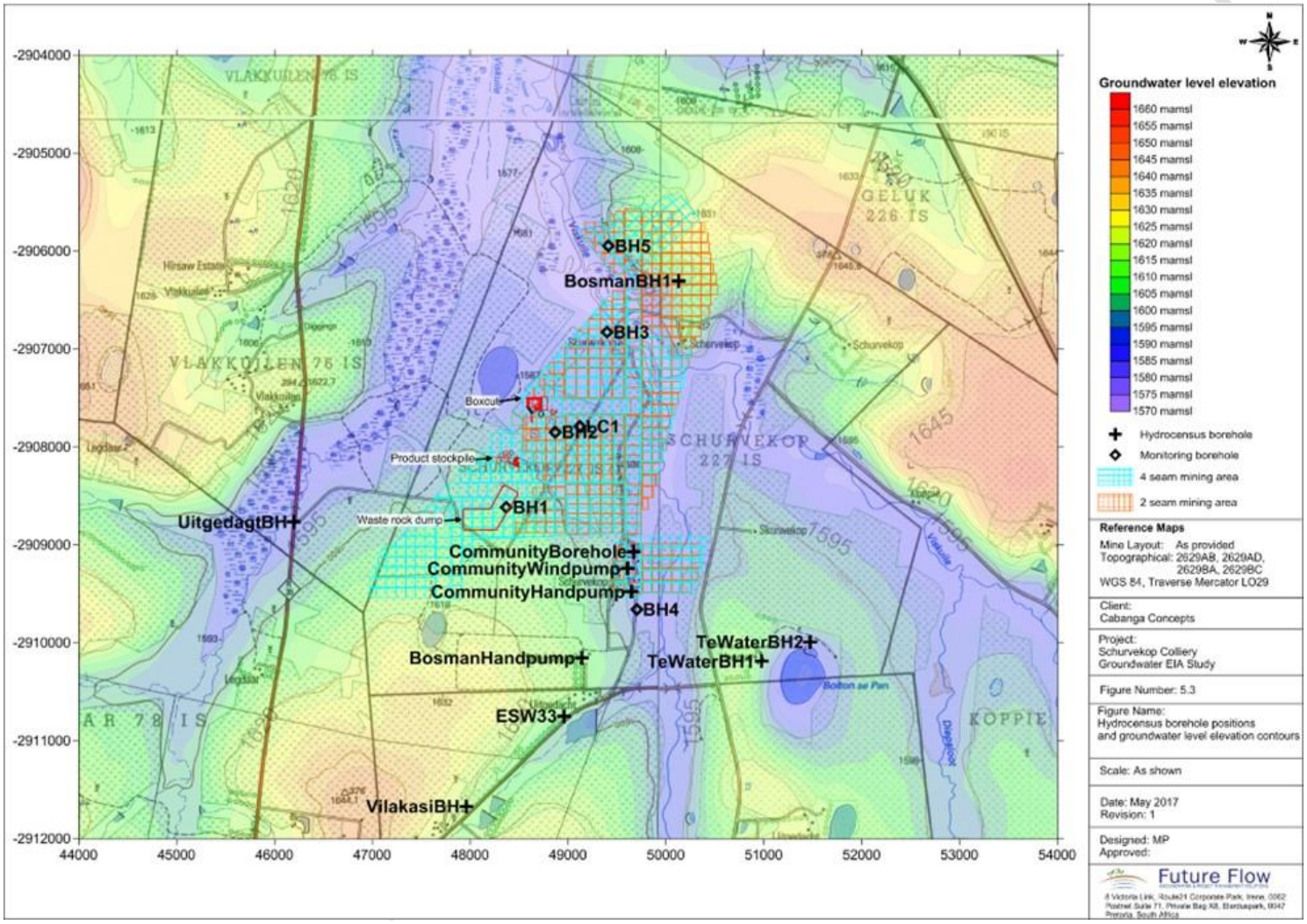


Figure 5: Topographical vs. groundwater elevation plot (Future Flow, 2018)



Plan 7: Hydrocensus & groundwater monitoring borehole locations showing groundwater elevation profile (Future Flow, 2017)

Table 12: Hydrocensus results (Future Flow, 2018)

Borehole	Easting	Northing	Elevation	Groundwater level		Owner	Water use
	WGS84, LO29	WGS84, LO29	mamsl	mbgl	mamsl		
Te Water BH1	50 974	-2 910 188	1609.66	2.45	1607.21	Dewald te Water	Pump broken
Te Water BH2	51 475	-2 909 990	1596.84	7.13	1589.71	Dewald te Water	Pump broken
Bosman BH1	50 127	-2 906 303	1611.39	11.30	1600.09	Adolf Bosman	Domestic
Community Borehole	49 672	-2 909 065	1595.84	3.48	1592.36	Community	Monitoring borehole
Community Windpump	49 605	-2 909 241	1597.99	Not accessible		Community	Domestic
Community Handpump	49 651	-2 909 478	1597.33	Not accessible		Community	Domestic
Bosman Handpump	49 141	-2 910 153	1615.66	Not accessible		Adolf Bosman	Domestic
ESW 33	48 956	-2 910 746	1611.2	7.80	1603.40	Adolf Bosman	Monitoring borehole
Vilakasi BH	47 962	-2 911 669	1621.62	Not accessible		Vilakasi Village	Domestic
Uitgedagt BH	46 200	-2 908 766	1595.99	6.35	1589.64	Uitgedagt	Monitoring borehole
BH1	48 370	-2 908 614	1609.61	4.30	1605.31	Mmakau Coal	Monitoring borehole
BH2	48 869	-2 907 847	1598.15	2.88	1595.27	Mmakau Coal	Monitoring borehole
BH3	49 397	-2 906 826	1585.49	Dry		Mmakau Coal	Monitoring borehole
BH4	49 700	-2 909 659	1595.31	3.69	1591.62	Mmakau Coal	Monitoring borehole
BH5	49 412	-2 905 947	1601.49	8.93	1592.56	Mmakau Coal	Monitoring borehole
LC1	49 117	-2 907 789	1596.82	2.37	1594.45	Mmakau Coal	Exploration borehole

9.5.3 Groundwater Quality

The chemical analysis results of the ten groundwater samples taken from the study area (5 from hydrocensus points and 5 from onsite monitoring boreholes) are summarised in Table 13 and are compared to the SANS 241:2015 drinking water standards. The standard represents a numerical limit of the listed element concentrations that will protect the health of the consumer over a lifetime of consumption. All elements that exceed the guidelines are highlighted in the table.

In general it can be said that the groundwater qualities are quite good and complies with the SANS241:2015 drinking water guidelines. Only some individual element concentrations are slightly elevated in individual samples.

9.5.4 ABA and Leach Testing

ABA and leach testing was undertaken during the drilling of the original monitoring boreholes. Six rock samples were collected from the project area to represent the typical lithologies encountered in the area. Total Concentration (TC) testing, Leach Concentration (LC) testing and Acid-Base-Accounting (ABA) testing was done, the results of which are summarised below:

- **Total Concentration:** Barium and fluoride exceed the TCT0 in all of the samples; and lead, manganese and antimony exceed the TCT0 guidelines in some of the samples. All the samples comply with the TCT1 guidelines.
- **Leach Concentration:** With the exception of sample "LC1 Carbonaceous", all the elements comply with the LCT0 guidelines. Sample "LC1 Carbonaceous" show slightly elevated concentrations of arsenic, lead and fluoride that exceed the LCT0 guideline values.
- **ABA:** In terms of the net neutralisation potential, all the samples fall within the "uncertain" range of between -20 and 20. The neutralisation potential ratio of all the samples except "LC1 coal" is less than 1:1. Sample "LC1 coal" has a NPR of just above 1:1. In general the total sulphur percentage ranges between 0.22 and 1.22 %. Only "LC1 Carbonaceous" shows an anomalously low value of 0.07 %. Comparing the test results to the guidelines, the sulphide percentages are above 0.3 % while the NPR is below 1:1.

It is concluded that both the waste rock and the coal seam material that will be handled on site is likely to be AMD generating. Once the acid conditions have formed it is likely to be sustained for a prolonged period of time due to the high sulphide percentage.

The coal and waste material that will be handled on site is classified as Type 3 Waste following the GN 635 classification system (Future Flow, 2018).

Table 13: Groundwater chemical analysis results (Future Flow, 2017)

Analysis	Units	SANS 241:2015 guideline value	Te Water BH1	Bosman BH1	Community Borehole	Community Windpump	Bosman handpump	BH1	BH2	BH4	BH5	LC1
pH		≥5 - ≤9.7	7.6	8.18	8.05	8.28	8.48	7.97	8.22	8.28	8.1	8.51
Electrical Conductivity (EC)	mS/m	≤170	63.7	49.7	48.1	30.8	54.7	31.9	41.2	40.7	27.1	56.1
Total Dissolved Solids (TDS)	mg/L	≤1 200	361	269	263	175	322	199	250	278	166	348
Total alkalinity	mg/L $CaCO_3$	N/L	99.7	178	170	156	210	159	207	182	104	298
Calcium (Ca)	mg/L	N/L	45.6	27.8	45.1	29	53.5	8.79	16.5	20.8	16.9	16.2
Potassium (K)	mg/L	N/L	18.2	6.46	9.69	4.42	8.4	6.1	2.18	6.76	3.88	3.69
Magnesium (Mg)	mg/L	N/L	24.8	11.3	15.4	15.5	26	5.94	8.61	7.83	12.2	8.31
Sodium (Na)	mg/L	≤200	29.9	61.8	32.7	19.6	31.8	57.3	69.2	65.7	20.8	111
Chloride (Cl)	mg/L	≤300	68.8	46.4	34.4	4.79	16.3	12.7	19.6	9.52	10.3	21.3
Fluoride (F)	mg/L	≤1.5	0.466	0.298	<0.263	0.301	<0.263	0.584	1.38	0.799	0.351	2.97
Nitrate (NO_3)	mg/L	≤11	23	0.224	2.75	0.346	1.56	0.241	0.253	0.305	6.27	0.242
Phosphate (PO_4)	mg/L	N/L	0.023	0.015	0.019	0.014	0.012	<0.005	<0.005	<0.005	<0.005	<0.005
Sulphate (SO_4)	mg/L	≤500 (health)	10.3	4.9	10.3	4.27	50.7	9.23	4.78	54	9.81	<0.141
Aluminium (Al)	mg/L	≤0.3	<0.002	<0.002	<0.002	<0.002	<0.002	0.39	<0.002	<0.002	<0.002	<0.002
Cadmium (Cd)	mg/L	≤0.003	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cobalt (Co)	mg/L	N/L	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003

Analysis	Units	SANS 241:2015 guideline value	Te Water BH1	Bosman BH1	Community Borehole	Community Windpump	Bosman handpump	BH1	BH2	BH4	BH5	LC1
Chromium (Cr)	mg/L	≤0.05	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Copper (Cu)	mg/L	≤2	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Iron (Fe)	mg/L	≤2 (health)	<0.004	<0.004	<0.004	<0.004	<0.004	0.158	0.489	<0.004	<0.004	<0.004
Manganese (Mn)	mg/L	≤0.4 (health)	<0.001	0.047	<0.001	<0.001	<0.001	0.3	0.243	<0.001	<0.001	<0.001
Nickel	mg/L	≤0.07	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Lead (Pb)	mg/L	≤0.01	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Zinc (Zn)	mg/L	≤5	5.26	<0.002	0.224	0.574	0.17	<0.002	<0.002	<0.002	<0.002	<0.002
Total Hardness	mg/L $CaCO_3$	N/L	216	116	176	136	240	46	77	84	92	75

Exceed SANS241:2015 guideline values

N/L = No guideline specified

9.6 Surface Water

9.6.1 Hydrology

The proposed MRA falls within Olifants Water Management Area 2 (WMA2), which includes the following major rivers: Elands, Wilge, Steelpoort, Letaba and Olifants. The Olifants River originates at Trichardt to the east of Johannesburg and initially flows northwards before gently curving in a generally eastward direction through the Kruger National Park and into Mozambique, where it joins the Limpopo River before discharging into the Indian Ocean.

Formal economic activity in the Olifants WMA is highly diverse and is characterised by commercial and subsistence agriculture (both irrigated and rain fed), diverse mining activities, manufacturing, commerce and tourism. Large coal deposits are found in the Emalahleni and Middelburg areas (Upper Olifants) and large platinum group metal (PGM) deposits are found in the Steelpoort, Polokwane and Phalaborwa areas. The WMA is home to several large thermal power stations, which provide energy to large portions of the country. Extensive agriculture can be found in the Loskop Dam area, the lower catchment near the confluence of the Blyde and Olifants Rivers as well as the in the Steelpoort Valley and the upper Selati catchment.

The proposed Schurvekop Mine falls within the quaternary catchment B11A of the Upper Olifants. The Viskuile River enters the MRA from the east and confluences with the Joubertsvleispruit entering from the South, after which they flow northwest converging with the Olifants River approximately 3.5km northwest of the property.

Mean annual runoff (MAR) for the study catchment area was sourced from the Water Research commission (WRC) database (WRC2005) as reported in the Hydrological Impact Assessment (Letsolo, 2016):

- Olifants WMA:
  - 5 590 691 m^3/d
  - 2 042 000 000 m^3/a
- B11A:
  - 97 137 m^3/d
  - 35 479 198 m^3/a

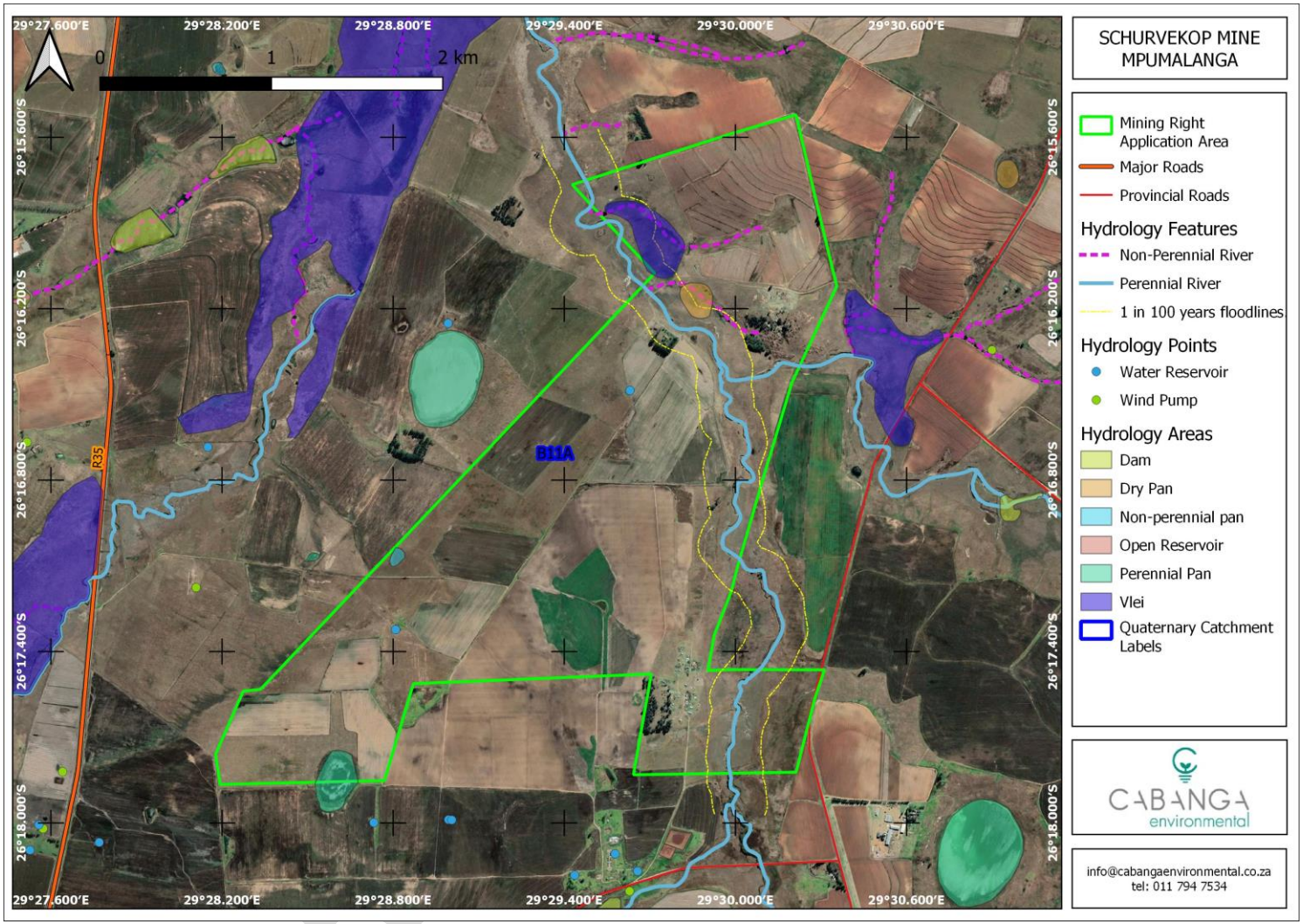
The mining area is characterised by gently undulating topography, which dips at gradients of between 1:50 and 1:100 towards the streams that occur in the area. Topographical elevations in the MRA range between 1 630 and 1 580 mamsl.

The floodlines were calculated by Letsolo Water and Environmental Services (Letsolo, 2016). Due to the flat terrain, the 1:100 year floodline of the Viskuile River is greater than 100m. See Plan 8. No surface disturbance or mine infrastructure will be located within the 1:100 year floodline; however this area has been earmarked for underground mining.

9.7 Surface Water Quality

Three surface water samples were taken by Letsolo in 2016, two were taken within the Olifants River (up and downstream of the Viskuile confluence) and one was taken from the Viskuile River, just to the east of the mining right boundary. The following can be concluded from the monitoring results (Table 14):

- Generally the water quality is good. However there seems to be evidence of some contamination upstream of the study area, in the Olifants River. Elevated EC, TDS, SO_4, Fe, Al, and Mn associated with low pH values are indicators of mine related impacts.
- The pH value of the three samples collected are within the SANS 241- 2015 standard limit, ranging between 6.5 and 9.2 pH value.
- Electrical Conductivity (EC) which is the ability for water to conduct electricity, mostly resulting from the presence of dissolved salts is within the standard limit with the highest 163mS/m recorded at the Olifants (upstream).
- Total Dissolved Solids (TDS) comprise inorganic salts (principally calcium, magnesium, potassium, sodium, bicarbonates, chlorides, and sulphates) and some small amounts of organic matter that are dissolved in water. High TDS was recorded at the Olifants River (upstream) with a value of 1 238mg/L which is exceeding the standard limit of 1,200mg/L.
- Sulphates are a major indicative contaminant of mining related activities. Sulphates are reactive and have a potential to form Acid Mine Drainage (AMD) if not managed properly. The high value was recorded in the Olifants River (upstream) with a value of 621mg/L exceeding the standard limit of 500mg/L for acute health.
- The major ionic constituents such as Na, K, Mg, and Ca indicate good conditions with no high values of concern.
- The analysis of metals indicated that Olifants River (downstream) showed the highest concentrations for metals.
- Aluminum was recorded high at the Olifants River (downstream) with the value of 1.55 mg/L exceeding the standard limit for operational risks at 0.3 mg/L. The Viskuile River also exceeded this limit with a value of 0.361 mg/L.
- Iron (Fe) was recorded high in the Olifants River (downstream) with a value of 1.44 mg/l exceeding standard limit of 0.3 mg/L aesthetic. The Viskuile River also exceeded this limit with a value of 0.351 mg/L.
- Manganese (Mn) exceeded the standard limit of 0.1mg/L aesthetic in the Olifants River ranging from 0.339 to 0.438 mg/L. The downstream point also exceeded the 0.4 mg/L limit associated with risk to chronic health by 0.438mg/L.



Plan 8: Surface water resources

Table 14: Summary results of baseline surface water quality testing (Letsolo, 2016)

Analyses in mg/ℓ (Unless specified otherwise)	SANS 241-1 2015	Sample Identification: Schurvekop Mine		
		Viskuile	Olifants River (Downstream)	Olifants River (Upstream)
pH – Value at 25°C	≥5 to ≤9.7	6.5	9.2	7
Electrical Conductivity in mS/m at 25°C	≤170 mS/m	34.6	47.3	163
Total Dissolved Solids at 180°C *	≤ 1 200 mg/L	242	326	1 238
Suspended Solids at 105°C *		38	181	51
Total Alkalinity as $CaCO_3$		140	92	208
Total Hardness as $CaCO_3$ *		103	143	840
Chloride as Cl	≤300 mg/L	12	19	15
Sulphate as SO_4	≤500 mg/L Acute Health ≤250 mg/L Aesthetic	27	100	621
Fluoride as F	≤1.5 mg/L	0.4	0.9	0.4
Nitrate as N	≤11 mg/L	0.1	0.1	0.1
Ortho Phosphate as P		<0.1	<0.1	<0.1
Oil & Grease *		2	4	1
Free & Saline Ammonia as N	≤1.5 mg/L	0.3	0.1	<0.1
Sodium as Na	≤200 mg/L	31	35	79
Potassium as K		2.8	9	13.8
Calcium as Ca		20	26	142
Magnesium as Mg		13	19	118
Aluminium as Al	≤0.3 mg/L Operational	0.361	1.55	0.187
Iron as Fe	≤2 mg/L Chronic health ≤0.3 mg/L Aesthetic	0.351	1.44	0.182
Manganese as Mn	≤0.4 mg/L Chronic health ≤0.1mg/L Aesthetic	0.073	0.438	0.339

Analyses in mg/ℓ (Unless specified otherwise)	SANS 241-1 2015	Sample Identification: Schurvekop Mine		
		Viskuile	Olifants River (Downstream)	Olifants River (Upstream)
Zinc as Zn	≤5 mg/L	<0.025	<0.025	<0.025

9.8 Resource Class and River Health

The Screening Tool indicates that the MRA has a "Medium Sensitivity" in terms of the Aquatic Biodiversity Theme.

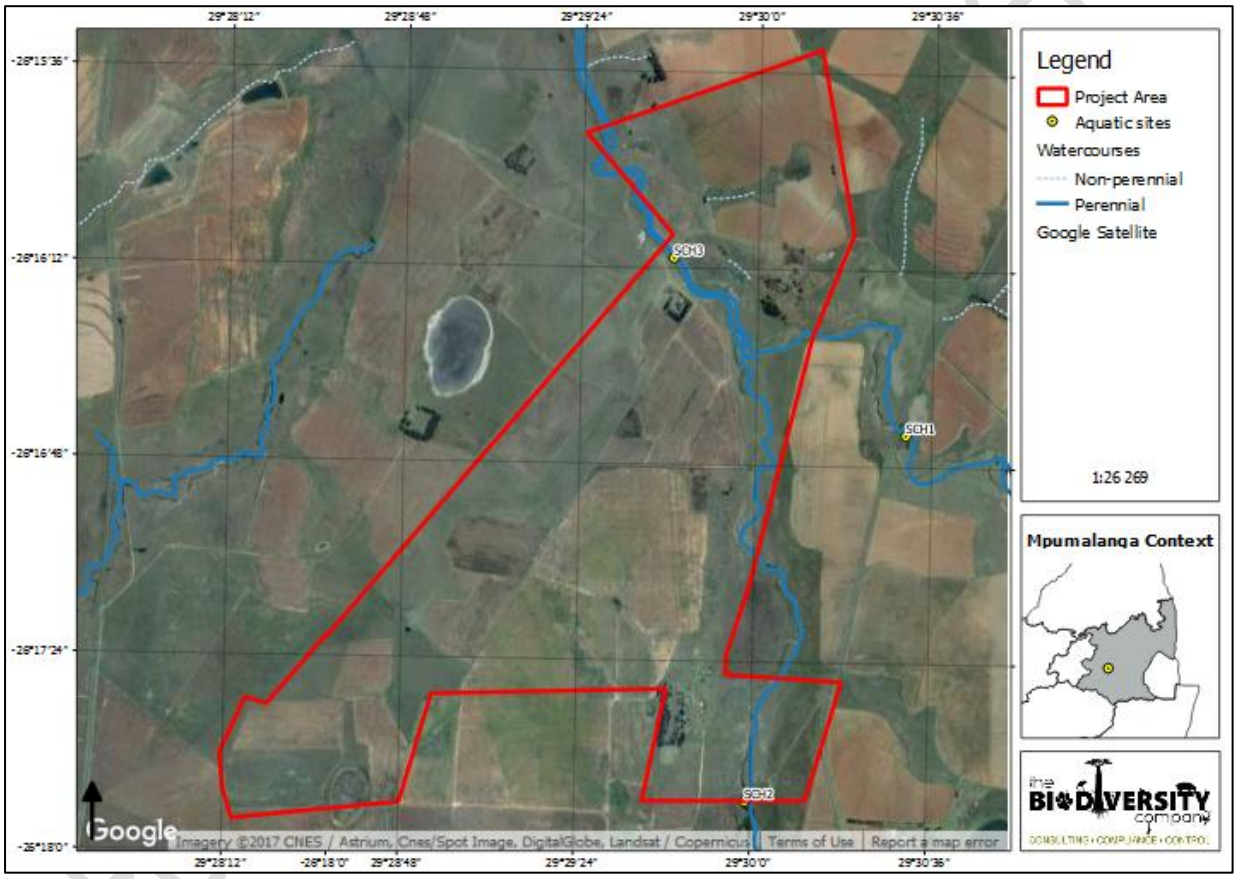
The Viskuile River enters the MRA from the east and confluences with the Joubertsvleispruit entering from the South, after which they flow northwest converging with the Olifants River approximately 3.5km northwest of the property. The 3 SQRs (B11A-1443, B11A-1430 and B11A-1411) have no freshwater priority areas (FEPAs) designated to them. Table 15 summarises their ecological status according to national data (DWS, 2013).

Aquatic baseline data was collected at three sites: one site is situated upstream of the Schurvekop Mining area in the Joubertsvleispruit, a control site is located in the middle reaches of the Viskuile River, and the third site is situated downstream of the confluence with the Viskuile River (Plan 9; Figure 6). Table 16 summarises the biomonitoring findings which conclude that the habitat of these rivers have been significantly altered and this is a potential limiting factor of aquatic macro invertebrate diversity and ecosystem functioning (TBC, 2017, updated in 2018).

Table 15: Present Ecological Status of the three nationally assessed SQR's associated with the study area (TBC, 2017, updated in 2018)

SQR	Present Ecological State	Ecological Importance	Ecological Sensitivity
Joubertsvleispruit SQR B11A-1443 (SCH2)	D (Largely modified)	Moderate	High
Viskuile SQR B11A-1430 (SCH1 Upstream)	C (Moderately modified)	High	High
Viskuile SQR B11A-1411 (SCH3 Downstream)	C (Moderately modified)	Moderate	High

Figure 6: Photos of the sample site for aquatic ecological status being Left: Viskuile upstream; Middle: Joubertsvleispruit; Right: Viskuile Downstream (TBC, 2017, updated in 2018)



Plan 9: Aquatic Ecology Sample Sites for Biomonitoring (TBC, 2017, updated in 2018)

Table 16: Summary of results of the aquatic ecosystems assessments (TBC, 2017, updated in 2018)

Sampling Site	Site Description	Temp (°C)	pH	EC (mS/m)	DO (%)	IHAS	In stream Habitat Integrity Assessment	Riparian Habitat Integrity Assessment	SASS5
SCH1 Viskuile River (Upstream Control site) 26°16'42.03"S 29°30'30.68"E	SCH1 acts as the control site located in the Viskuile River. The site is characterized by slow flowing water over stones and sandy substrate with marginal vegetation limited to grasses. Main impacts from livestock, solid waste, erosion of the riparian area.	25.8	7.7	209.5	91.2	51 - Poor	Moderately Modified, C	Largely Modified, D	Largely Modified, D
SCH2 Joubertsvleispruit (Upstream) 26°17'49.56"S 29°29'58.87"E	SCH2 is located on the Joubertsvleispruit, upstream of the proposed Schurvekop Mining area. The site was characterised by slow flowing waters over stones. Good marginal vegetation is present mainly in the form of grasses. Main impacts from livestock, and solid waste.	22.5	7.7	474.0	66.3	51 - Poor	Largely Modified, D	Largely Modified, D	Moderately Modified, C
SCH3 Viskuile River (Downstream) 26°16'9.98"S 29°29'42.59"E	SCH3 is located on the Viskuile River downstream of the proposed Schurvekop mining area. The site was characterised by homogenous habitat with slow flowing water over a sandy substrate, stones and boulder habitats were present but limited. Marginal vegetation was abundant. The riparian habitat was characterised by grass. Main impacts from livestock.	23.6	7.6	291.0	96.9	48 - Poor	Moderately Modified, C	Largely Modified, D	Moderately Modified, C

9.9 Wetlands

According to the Aquatic and Wetland Impact Assessment Report (TBC, 2017, updated in 2018) the study area is characterised by four hydrogeomorphic (HGM) units, being a Floodplain, Hillslope seeps, a Bench flat and Depressions, where five wetland units were assessed (Table 17); these can be summarised as follows:

- **HGM 1 – Floodplain:** The floodplain wetland is located in the north and along the eastern boundary of the study area. The wetland vegetation was dominated by *Phragmites australis* (Reed) and *Typha capensis* (Bulrush) along the edges of the banks. Floodplain features such as oxbows were present.
- **HGM 2 – Hillslope Seep:** The seepage wetland was found in the northern part of the project area. The wetland was dominated by separated clumps of *Juncus* spp and shorter well grazed grasses. In other areas the dominant grass species was *Pennisetum clandestinum* (Kikuyu grass), which is not regarded as a wetland indicator but the species does invade wetland areas due to grazing and subsequent spread through cattle.
- **HGM 3 – Flat:** The flat wetland was found in the central and south-western regions of the project area. This wetland is generally surrounded by maize fields and even some portions of the wetland had been lost to maize fields. It was characterised by *Agrostis lacnantha*, an obligate wetland indicator, but the dominant plant was *Pennisetum clandestinum* (Kikuyu grass). Due to the extent of agricultural activities across the project area, soils have been tilled and ripped which has impacted on the both the vegetation and soil characteristics of the wetlands.
- **HGM 4 – Depressions:** One depression wetland intersects the southern border of the MRA. The depression was characterised by sections of open water and the presence of *Typha capensis*. The wetland was surrounded by maize fields, however, the wetland remained intact and maintained its functionality (TBC, 2017, updated in 2018).

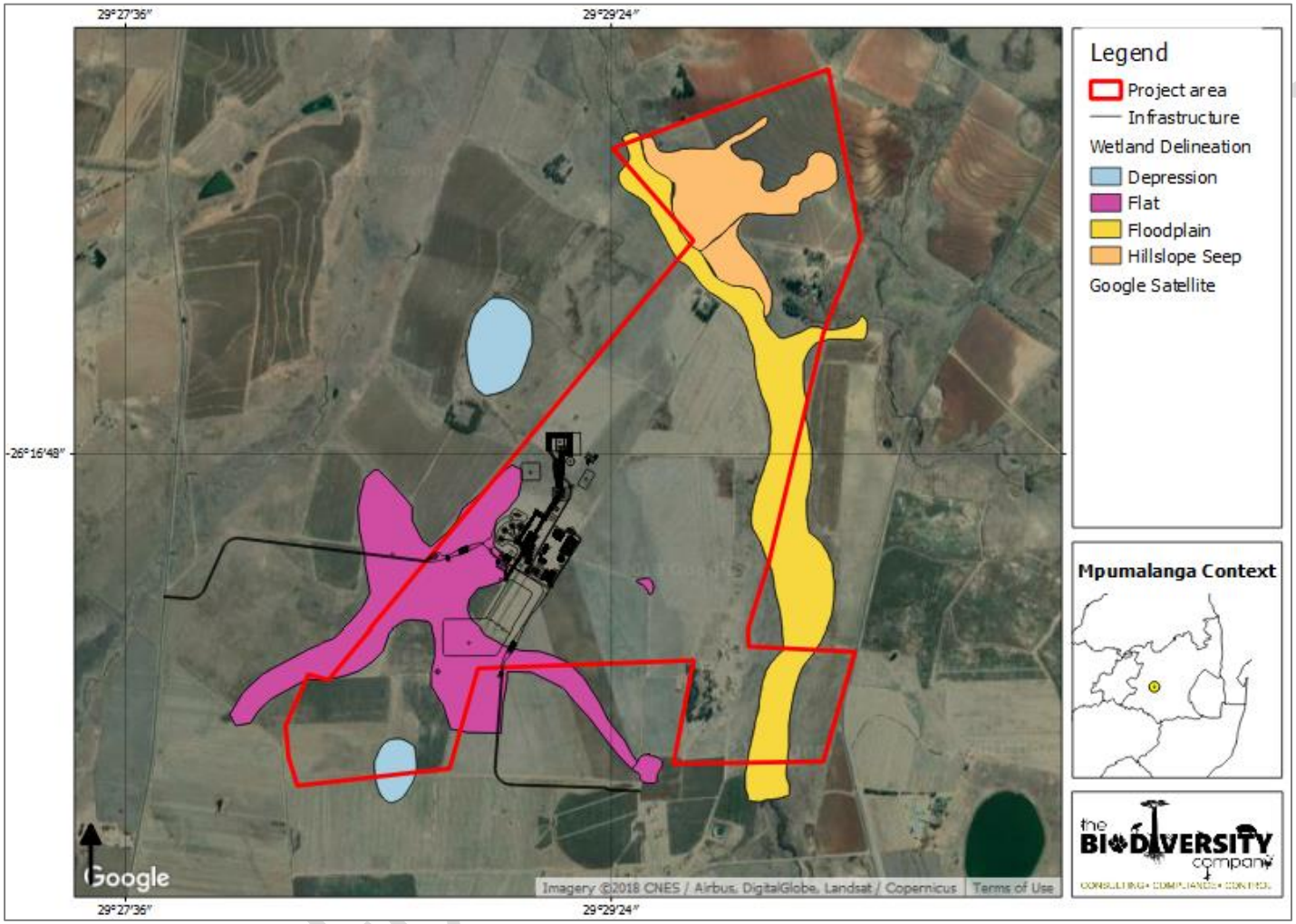
A second pan is found west of the MRA; however, within 500m. The pan is used by grazing animals as a watering hole and the only wetland vegetation that could be identified was *Imperata cylindrica* on the edge of the pan.

The seep, flat and floodplain wetlands were assessed to have a Present Ecological Status (PES) of C, being Moderately Modified, whilst the depressions are a PES of B, Largely Natural (Table 17). The wetlands of the study area have been impacted due to the extensive transformation of the catchment to agriculture. This has led to loss of biodiversity, of decreased water quality and modification of natural flow regimes. Furthermore, the depression wetlands were assessed to the have a High Ecological Importance and sensitivity (EIS) with respect to their biodiversity and hydrological importance. The floodplain wetland was assessed to have High EIS mainly due to its hydrological importance. The Hillslope seeps and Flat were determined to have a Moderate EIS due to its hydrological importance.

Table 17: The Ecological characteristics for the Schurvekop Wetlands (TBC, 2017, updated in 2018)

Wetland	HGM	PES	Ecological Importance and Sensitivity (EIS)			Key Ecosystem Services
			Biodiversity	Hydrological	Direct Human	
HGM 1	Floodplain	C: Moderately Modified	Moderate	Moderate	Low	Flood attenuation; Erosion control
HGM 2	Seepage	C: Moderately Modified	Moderate	Moderate	Low	Nitrate and Toxicant assimilation; Erosion control
HGM 3	Flat	C: Moderately Modified	Moderate	Moderate	Low	Phosphate/Nitrate/Toxicant assimilation; Erosion control
HGM 4	Depression	B: Largely Natural	Moderate	Moderate	Low	Water quality, Biodiversity maintenance

A comprehensive application of the buffer tool was undertaken considering the in-field findings of the wetland areas (TBC, 2017, updated in 2018). According to the buffer guideline (Macfarlane, et al., 2015) a high risk activity would require a buffer that is 95% effective to reduce the risk of the impact to a low level threat. The recommended buffer zone was determined to be 22 m during the construction phase and 70 m during the operational phase. The largest buffer zone of 70 m is applied for all the phases to ensure wetland protection. However, this is not possible as surface infrastructure will encroach on the flat bench wetland – see Plan 10.



Plan 10: Delineated Wetlands (TBC, 2017, updated in 2018)

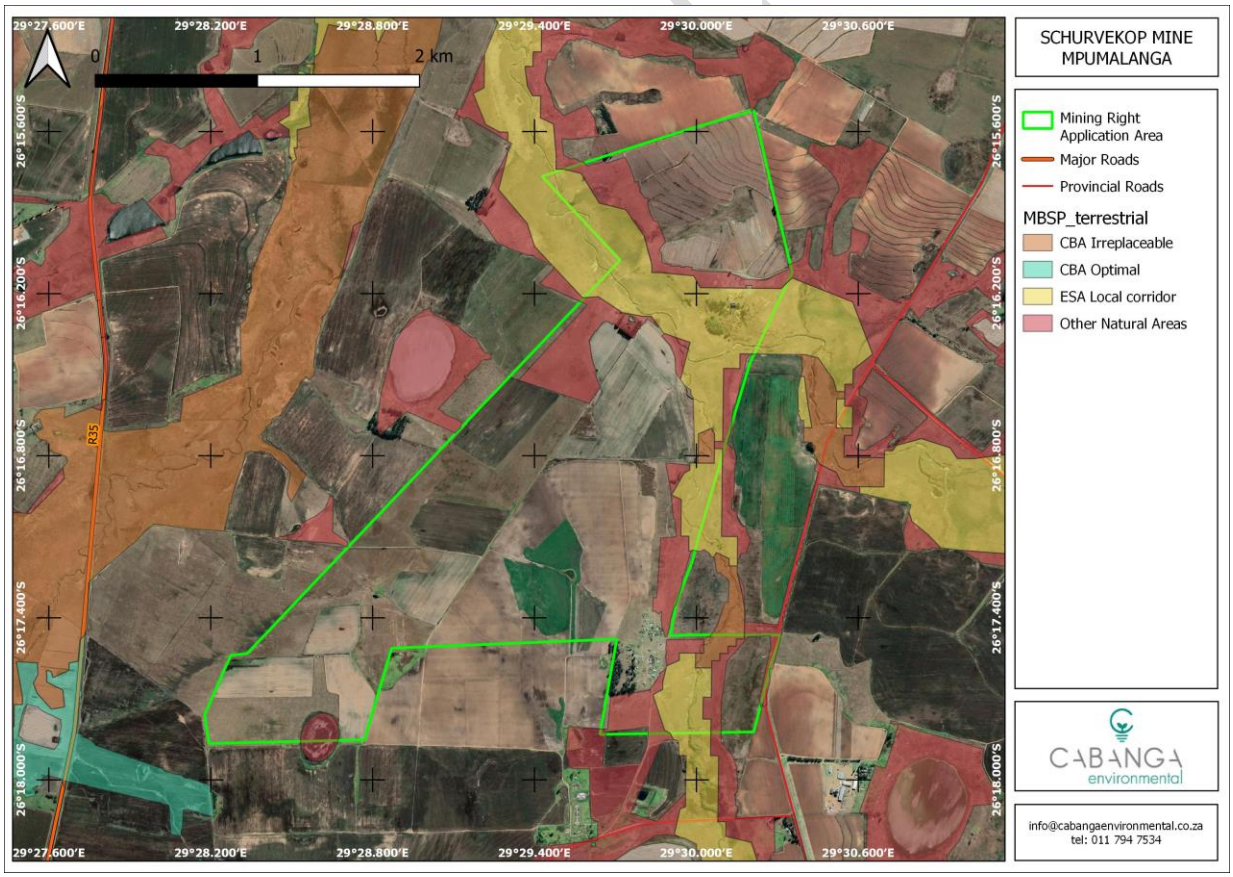
9.10 Terrestrial Biodiversity

According to the National Screening Tool Report, the project area has a "Medium Sensitivity" in terms of biodiversity, animal and plant species theme.

The proposed MRA is located within the Eastern Highveld Grassland national vegetation type (Mucina & Rutherford, 2012) of the Mesic Highveld Grassland Bioregion. The Eastern Highveld Grassland is listed as **Vulnerable** on the National list of threatened ecosystems for South Africa and is characterised by slight to moderately undulating plains consisting of low hills and pan depressions with scattered rocky outcrops.

According to the terrestrial MBSP (MTPA, 2014) The MRA largely consists of modified areas due to cultivation; however some area of ecological significance are present (TBC, 2017a). Local Ecological Support Areas (ESA's) total approximately 14% of the site and which are associated with the river and floodplain wetlands. Similarly, parts of this habitat are mapped as a Critical Biodiversity Area (CBA) with Irreplaceable status, where this constitutes only 1% of the proposed MRA (Plan 11). No formally protected areas occur on site. No surface infrastructure is proposed in any ESA or CBA area.

According to the Mining and Biodiversity Guideline (SANBI, 2012), the proposed MRA is characterised by area of Moderate and Highest Biodiversity Importance, which are mostly associated with the wetlands, rocky habitats and areas of less agriculture disturbance.



Plan 11: The Schurvekop MRA and provincial biodiversity areas of importance

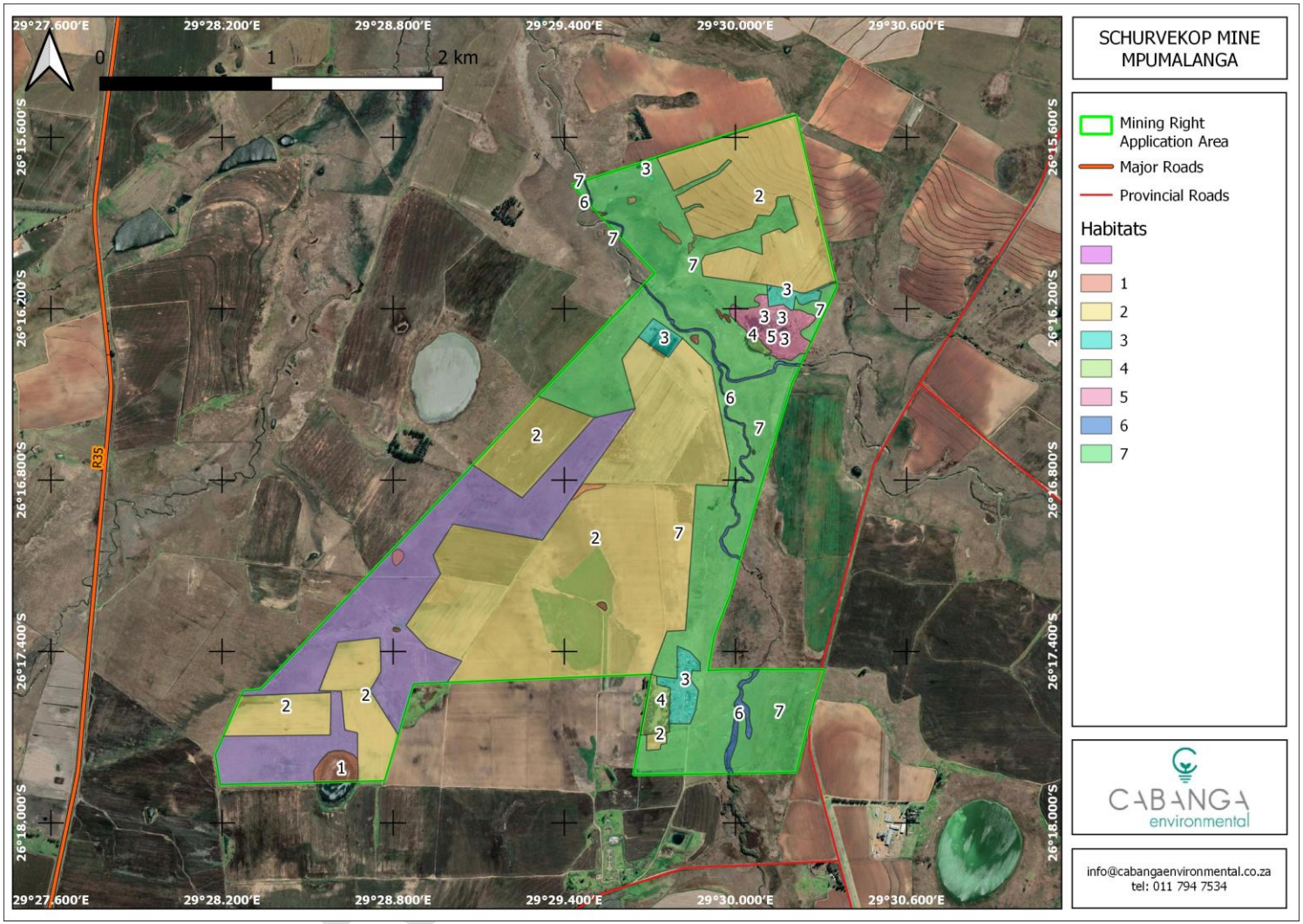
On-site Vegetation:

Eight different habitat types were delineated within the project area as summarised in Table 18 below. Emphasis was placed within the natural habitats and therefore habitats with a higher potential of hosting species of conservation concern (SCC); including the Rocky outcrops and Mesic grassland as well as the river and wetland habitat. The remaining habitats were surveyed briefly and time was mostly spent looking for obvious variation and/or areas of interest within these habitats (TBC, 2017, updated 2018).

A total of 190 plant species were recorded during the dual season surveys, the bulk of which were recorded during the wet season. The list of plant species recorded to date is therefore not comprehensive and repeated surveys during different phenological periods will likely yield up to 30% additional flora species for the study area. However, floristic analysis conducted to date is regarded as a sound representation of the local flora for the project area (TBC, 2017, updated 2018).

The current impacts observed include:

- Commercial crop production;
- Fences;
- Overgrazing and trampling of veld by livestock;
- Farm roads;
- Artificial impoundments and berms;
- Artificial sub-surface drainage in agricultural fields;
- Farmsteads and houses;
- Riparian degradation due to overgrazing and bank trampling;
- Alien and/or Invasive Plants (AIP);
- Water contamination;
- Vegetation removal;
- Refuse dumping; and
- Erosion.



Plan 12: Habitat Map for the Schurvekop MRA

Table 18: Brief description of the eight habitat types within the MRA (TBC, 2017, updated 2018)

Habitat type & area (ha)	Summary Description	Sensitivity
Rocky outcrop 11.1 ha	Consists of large boulders interspersed with grassy and rocky slopes which are: largely limited to a single large area on the north-eastern section of the study area; natural with some disturbance due to grazing; 51% of the medicinal plants recorded on the Schurvekop Mine study area are associated with the Rocky outcrops of which 23% were recorded exclusively within this habitat. No SCC were recorded; however some are expected to occur.	Very High
River 7.5 ha	Two rivers transect the Schurvekop Mine study area, namely the Viskuile River and the Joubertsvleispruit. Typical flora species recorded on the banks of these rivers include *Imperata cylindrica*, species of the genus *Paspalum*, Milkweed (*Euphorbia striata)*, Shrubby milkweed (*Gomphocarpus fruticosus),* River milkweed (*Gomphocarpus rivularis*), and the alien plants namely Spotted knotweed (*Persicaria lapathifolia*) and Weeping willow (*Salix babylonica)*.	Very High
Wetland 305.6 ha	Wetlands are extensive within the study area. Typical flora species recorded within this habitat type include Reed Mace (*Typha capensis)*, *Phragmites australis*, Sedge-leaved broom grass (*Miscanthus junceus*), Finger sedge (*Eleocharis dregeana*), Coarse Oxygen Weed (*Lagarosiphon major)*, *Limosella maior* and Buttercups (*Ranunculus* sp.).	Very high
Mesic grassland 85.3 ha	Habitat varies considerably in condition largely due to grazing pressure. This habitat is continuous and inclusive of the wetland habitat. 65% of the medicinal plants recorded are associated with the Mesic grasslands of which 20% were exclusively found within this habitat.	High
Agricultural field, 224.8 ha	Contains the commercial crop fields mostly maize and soybeans.	Very Low
Old lands 43.6 ha	This habitat consists of planted grassland pastures on old agricultural lands. These areas range from monoculture grass stands of Weeping love grass (*Eragrostis curvula*) to areas of recovering primary to early secondary grassland that resemble plant associations found within the *Mesic grassland* habitat.	Low
Transformed 13.6 ha	This habitat type represents all of the farm infrastructure and includes houses, barns, feedlots, camps etc. Most of the alien and/or invasive species recorded on the Schurvekop Mine study area were limited to this habitat type and includes Bluegums (*Eucalyptus* spp.), Pines (*Pinus* spp.), Acorn Tree (*Quercus robur)*, False Acacia (*Robinia pseudoacacia)*, Four-o'clocks (*Mirabilis jalapa*), Agaves (*Agave* spp.), *Datura* spp. and Prickly Pear (*Opuntia ficus-indica)*.	Very Low
Woodland 5.8 ha	This habitat type is limited to two small sections on the Schurvekop Mine study area and consist of semi-closed tall alien trees of the genus' *Populus*, *Eucalyptus* and *Quercus*.	Very Low

At least three nationally recognised Red Data plant species are expected within and/or surrounding the Schurvekop MRA, and there is a moderate likelihood that various others may be present. These species, their habitat requirements and national conservation status are given in Table 19 below.

In addition, three plant species provincially protected in terms of the Mpumalanga Nature Conservation Act, 1998 (No. 10 of 1998) were recorded and includes:

- *Eucomis* sp. (recorded along the *River* habitat),
- *Gladiolus sericeovillosus* subsp. *calvatus* (single specimen recorded within the *River* habitat) and
- *Haemanthus humilis* subsp. *hirsitus* (numerous specimens recorded throughout the *Rocky outcrops* habitat).

Table 19: Expected flora SCC for the Schurvekop MRA (TBC, 2017, updated 2018)

Family	Species	Status	Habitat
ASPARAGACEAE	*Asparagus fractiflexus*	Endangered	High-altitude, open grasslands on rocky outcrops or among boulders
FABACEAE	*Argyrolobium campicola*	Near Threatened	Highveld grassland
AIZOACEAE	*Khadia carolinensis*	Vulnerable	Well-drained, sandy loam soils among rocky outcrops, or at the edge of sandstone sheets, Highveld grassland, 170 m

Mammals:

In total, 29 mammal species were recorded during the two survey period, which represent strong evidence of significant, reasonably diverse and functional mammal assemblage in the study area. Furthermore, seven mammal SCC were recorded with another three species considered highly likely to occur (Table 20).

The natural vegetation areas are of high sensitivity but are highly fragmented by agriculture and the road network development. The *Rocky outcrops*, *Mesic grassland*, *Pans/wetlands* and *Rivers* habitats have not been ploughed/transformed and are therefore considered to be less disturbed and in a better ecological condition. The connected nature of the corridor areas (for migration of mammals between their home ranges) promote gene flow and maintenance of population integrity.

One of the major threats affecting the assemblages and the movement of mammals is the continued effects of haul roads and vehicle traffic and appropriate mitigations should be applied in order to maintain and preserve the existing sensitive habitats for mammals which form a portion of the greater natural system in the region (TBC, 2017, updated 2018).

Table 20: Expected mammal SCC for the Schurvekop Mine study area (TBC, 2017, updated 2018)

Family	Genus	Species	Common name	Status
BOVIDAE	*Ourebia*	*ourebi*	Oribi	EN[1]
BOVIDAE	*Redunca*	*andinum*	Southern Reedbuck	Tops Protected
ERINACEIDAE	*Atelerix*	*frontalis*	Southern African Hedgehog	NT
NESOMYIDAE	*Mystromys*	*Albicaudatus*	White-tailed Rat	EN
FELIDAE	*Leptailurus*	*serval*	Serval	NT
HYAENIDAE	*Parahyaena*	*brunnea*	Brown Hyena	NT
MUSTELIDAE	*Mellivora*	*capensis*	Honey Badger	TOPS Protected
MUSTELIDAE	*Ictonyx*	striatus	African Weasel	NT
MUSTELIDAE	*Aonyx*	*capensis*	African Clawless Otter	NT
CHRYSOCHLORIDAE	*Amblysomus s*	*septentrionale*	Highveld Golden Mole	NT
CANIDAE	*Vulpes*	*chama*	Cape Fox	TOPS protected

Avifauna:

The regional avifaunal assemblage of the study area is relatively well known with between 106 and 140 bird species observed in the region (SABAP 2, Harrison et al, 1997). The variable habitat types (pans, outcrops, impoundments, rivers, grasslands) are expected to attract migrants and a rich diversity of bird species to the study area, including large flocks of water birds. Since much of the surrounding grasslands have been transformed to agricultural land or coal mining activities, it elevates the importance of proper avifaunal management and mitigation. Despite the abundance of wetland systems and large numbers of waterfowl in the region, the area does not qualify as an Important Bird Area (Barnes, 1998) although The *Amersfoort-Bethal-Carolina Important Bird Area* (IBA) is situated approximately 6 km east of the Schurvekop MRA.

Within the study area a total of 139 bird species were recorded during the two survey periods (TBC, 2017, updated 2018). The Wetland and Mesic Grassland had the greatest species richness of all sites, accounting for 78% (104) of all observed species, mostly due to the large number of water-associated bird species present as well as the more intense sampling intensity.

Two avifaunal SCC were recorded with another six species considered highly likely to occur. It must be noted that not all of the avifaunal SCC predicted to occur are expected to be found across all habitats within the study area. Therefore, a likelihood of occurrence for SCC found per habitat is shown (Table 21).

[1] Due to lack of suitable habitat the Oribi has been excluded from the discussion despite occurring in the region

Table 21: Probability of occurrence for the predicted avifauna SCC per habitat (TBC, 2017, updated 2018)

Species	Rocky Outcrops	Mesic Grassland	Old Lands	Cultivated lands	Wetlands/ dams	Rivers	Woodlands
Alcedo semitorquata (Half-collared Kingfisher)	Low	Low	Low	Low	Low	High	Low
Anthropoides paradiseus (Blue Crane)	Low	High	High	High	Low	Low	Low
Balearica regulorum (Grey Crowned Crane)	Low	Moderate	Moderate	Low	Low	Low	Low
Bugeranus carunculatus (Wattled Crane)	Low	Low	Low	Low	Low	Low	Low
Ciconia abdimii (Abdim's Stork)	Low	Moderate	Moderate	Low	Low	Low	Low
Ciconia nigra (Black Stork)	Low	Moderate	Moderate	Moderate	Low	Low	Low
Circus ranivorus (African Marsh Harrier)	Low	Moderate	Low	Low	Confirmed	Low	Low
Eupodotis caerulescens (Blue Korhaan)	High	High	High	High	Low	Low	Low
Eupodotis senegalensis (White-bellied Korhaan)	Low	Moderate	Moderate	Low	Low	Low	Low
Falco biarmicus (Lanner Falcon)	Moderate	Moderate	Moderate	Moderate	Moderate	Low	Low

Species	Rocky Outcrops	Mesic Grassland	Old Lands	Cultivated lands	Wetlands/ dams	Rivers	Woodlands
Glareola nordmanni (Black-winged Pratincole)	Low	Low	Low	Low	Moderate	Low	Low
Geronticus calvus (Southern Bald Ibis)	High	High	High	Low	High	Low	Low
Lioptilus nigricapillus (Bush Blackcap)	Low	Low	Low	Low	Low	Low	Moderate
Oxyura maccoa (Maccoa Duck)	Low	Low	Low	Low	Confirmed	Low	Low
Polemaetus bellicosus (Martial Eagle)	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Sagittarius serpentarius (Secretarybird)	Low	High	High	Moderate	Low	Low	Low
Tyto capensis (African Grass-owl)	Low	Moderate	Low	Low	High	Low	Low
Total (High & Confirmed)	2	4	4	2	4	1	0

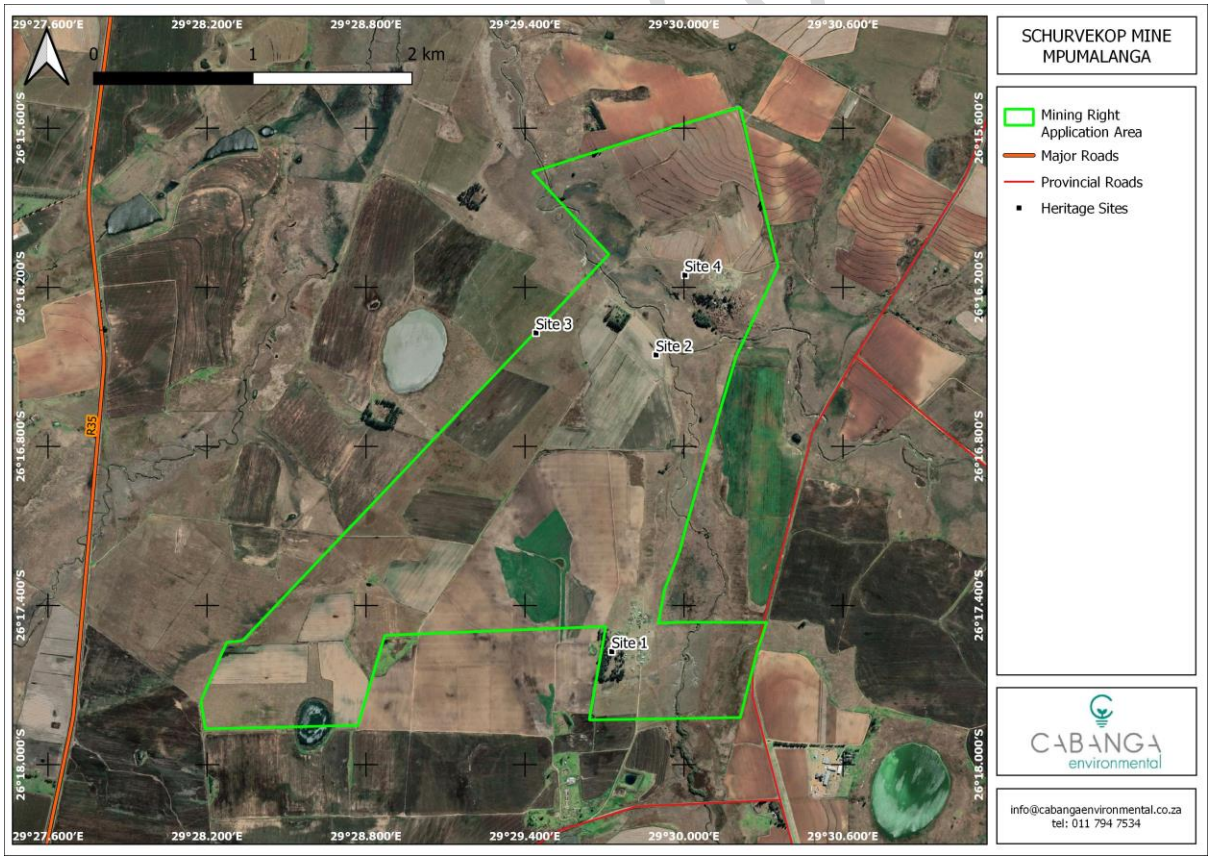
Herpetofauna:

A total of nine amphibian species were observed within the study area, none of which are SCC and all of which are considered to be common. Similarly, 11 reptile species (9 snakes, 2 lizards) were observed within the study area and none are considered to be SCC. The Transvaal Gecko (*Pachydactylus affinis*) and Aurora House Snake (*Lamprophis aurora*) observed are endemic to South Africa (TBC, 2017, updated 2018).

9.11 Heritage and Archaeology

According to the National Screening Tool the MRA has a "Low" and "High Sensitivity" with regards to the archaeological and cultural theme. A Heritage Impact Assessment (HIA) study was completed by Archaetnos Culture and Cultural Consultants in 2017 . Four grave sites of cultural significance were identified within the MRA (Plan 13) as summarised in Table 22 overleaf (Archaetnos Culture & Cultural, 2017). All the sites are of high cultural significance but vary in condition, thus all sites are rated as Local Grade IIIB, where impacts may be mitigated and the site should be included in the heritage register. The location of these grave sites correspond with the areas of "High Sensitivity" as indicated by the Screening Tool Report.

No graves or heritage sites are located within the area earmarked for surface disturbance, and thus it is expected that these will be managed *in situ*.



Plan 13: Identified Heritage Sites

Table 22: Summary findings of the Heritage resources (Archaetnos, 2017)

ID	Description	Photo
Site 1	This is a large grave yard found in close proximity to the homesteads of farm workers and a blue gum plantation consisting of at least 78 graves. Most graves have stone dressings and headstones without any information, whilst some don't have headstone. Some recent graves are only indicated by a heap of soil. The few graves with dates seem to range between 1959 and 1998. Some of the surnames identified include Mtimunye, Mtsweni, Skosana and Malekobane. **Cultural Significance rating:** High **Integrity Rating:** 4 – Reasonable state of preservation and includes contextual information **In-field rating:** Local Grade IIIB, where it may be mitigated and should be included in the heritage register.	
Site 2	This is a grave yard consisting of at least 3 graves located in the middle of a soya bean field. The graves are not in a very good condition thus it is very likely that there may be more graves here. No headstones could be identified and the graves are covered with what is left of stone dressing where no information of the date of death nor names is known. The land owner, Mr. F van der Spuy, has indicated that sometimes people still visit these graves. **Cultural Significance rating:** High **Integrity Rating:** 1 – Bad state of preservation; no contextual information. **In-field rating:** Local Grade IIIB, where it may be mitigated and should be included in the heritage register.	

ID	Description	Photo
Site 3	This site is a grave yard consisting of at least 9 graves, all of which have stone dressing and none have headstones. Therefore they all have an unknown date of death. **Cultural Significance rating:** High **Integrity Rating:** 3 – Reasonable state of preservation, but no contextual information. **In-field rating:** Local Grade IIIB, where it may be mitigated and should be included in the heritage register.	
Site 4	This grave yard consists of at least 26 graves where there are two kinds of dressings and headstones being either stone or cement. None however have legible information and therefore they all have an unknown date of death. **Cultural Significance rating:** High **Integrity Rating:** 4 – Reasonable state of preservation and includes contextual information. **In-field rating:** Local Grade IIIB, where it may be mitigated and should be included in the heritage register.	

9.12 Palaeontology

A desktop assessment was completed by Prof. Marion Bamford at the University of the Witwatersrand.

The coal deposit is in the Vryheid Formation, Ecca Group and there are fossil plants of the Glossopteris flora associated with the shales between the coal seams but not in the coal itself. Based on the geology of the area and the palaeontological record as we know it, it can be assumed that the formation and layout of the basement rocks, dolomites, sandstones, shales, coals, quartzites, basalts and volcanic rocks are typical for the country and do not contain any fossil material. It is possible that some fossil plants will be destroyed in the mining process but they have not been reported from this area before and would be very sparsely distributed if present (Bamford, 2017).

9.13 Air Quality

Permanent ambient air quality monitoring stations and dust-fall networks operated near the project site are often used to evaluate the existing air quality situation, however, there was no air quality monitoring data from the South African Air Quality Information System (SAAQIS) (that could be determined) to present background concentrations for SO_2, NO_2, CO, PM_{10} and $PM_{2.5}$ concentrations at the project site. There is also no ambient air quality monitoring undertaken at the site.

Background dust-fallout monitoring data from surrounding mining operations is available, and generally indicates compliance with the Dust Fallout Standards for non-residential areas. It is anticipated that background Particulate Matter (PM) concentrations in the area could be high due to existing mining activity in the surrounding areas.

9.14 Visual Setting

The MRA, and in particular the area to be impacted by the surface infrastructure, is characterised by an agricultural landscape setting, including cultivation of mielies and soy as well as grazing by cattle, sheep and goats.

The MRA also includes a floodplain associated with the Viskuile River and some rocky outcrops to the north, which gives some diversity to the landscape.

9.15 Socio-Economic

The information below is largely abstracted from the Govan Mbeki Spatial Development Framework 2014 – 2034 and summarises the relevant demographics of the Govan Mbeki Local Municipality:

- The population grew at a rate of 2.84% per annum over the period 2001 - 2011. This is higher than the district growth of 1.48% per annum and the province of 1.82 % p.a. This is likely as a result of migration of people from other provinces due to mining activities.
- The existing population within the developed areas of the GMLM (urban and rural) totals some 294 538 people approximately 28.2% of the district population.
  Within Govan Mbeki, the population is mostly concentrated within:
  - Embalenhle (40.4%);
  - Bethal/ Emzinoni (20.6%);

- Secunda (14.5%);
- Leandra (Leslie, Lebohang, Eendracht) (14.8%).

Only 4.5% of the population is associated with the mining villages and farms within the area.

- Number of households within the local municipality is 83 874 (average of 3.3 people per household).
- Approximately 66% of the population is black, 27.3 % is white and 6.7% coloured, Indian, Asian or other.
- The gender ratio over the period 2001 – 2011 indicates more males than females in the area indicating the presence of migrant workers.
- The Govan Mbeki unemployment rate (25.2%) is higher than the provincial rate of 24.5%, but lower than the district rate of 30.0%.
- The economic active population percentage of Govan Mbeki (43.3%) is higher than that of the country, province, district and Emalahleni, Steve Tshwete, Msukaligwa, Dipaleseng and Lesedi in the area. It has the same economic active population as Lekwa and lower than that of Victor Khanye (48.5%).

GMLM has a major influence on the Mpumalanga and GSDM economies. It contributes 19.8% to the Mpumalanga and 63.3% to the district economy. Within the subregion consisting of Govan Mbeki, Emalahleni, Steve Tshwete, Msukaligwa, Victor Khanye, Dipaleseng and Lekwa, the contribution of Govan Mbeki is 33.1%.

Mining and Manufacturing are the dominant sectors within GMLM due to the strong petrochemical industry provided by Sasol and gold mining activities in the area. The expansion of these sectors as well as agricultural, tourism and finance within GMLM has been identified as future leading sectors to support economic and socio-economic development in the area.

The Schurvekop community reside on Portions 17 and 20 of Schurvekop 227 IS.

10 IMPACT IDENTIFICATION, ASSESSMENT METHODOLOGY AND MANAGEMENT STRATEGY

The purpose of the impact assessment is to determine the significance of potential impacts, so that those activities that are expected to result in high impacts can be altered, or management measures imposed to lessen the impact significance.

A detailed impact assessment will be undertaken as part of the EIA phase. This section of the report serves to identify preliminary anticipated impacts and their anticipated significance.

10.1 Impact Assessment Methodology

Impact assessment methods were developed to: (1) identify the potential impacts of a proposed development on the social and natural environment; (2) predict the probability of these impacts and (3) evaluate the significance of the potential impacts. The methodology used by Cabanga is as follows:

Table 23: Impact Assessment methodology

The status of the impact		
Status		Description
Positive:		a benefit to the holistic environment
Negative:		a cost to the holistic environment
Neutral:		no cost or benefit
The duration of the impact		
Score	Duration	Description
1	Short term	Less than 2 years
2	Short to medium term	2 – 5 years
3	Medium term	6 – 25 years
4	Long term	26 – 45 years
5	Permanent	46 years or more
The extent of the impact		
Score	Extent	Description
1	Site specific	Within the site boundary
2	Local	Affects immediate surrounding areas
3	Regional	Extends substantially beyond the site boundary
4	Provincial	Extends to almost entire province or larger region
5	National	Affects country or possibly world
The reversibility of the impact		
Score	Reversibility	Description
1	Completely reversible	Reverses with minimal rehabilitation & negligible residual affects
3	Reversible	Requires mitigation and rehabilitation to ensure reversibility
5	Irreversible	Cannot be rehabilitated completely/rehabilitation not viable
The magnitude (severe or beneficial) of the impact		
Score	Severe/beneficial effect	Description
1	Slight	Little effect – negligible disturbance/benefit
2	Slight to moderate	Effects observable – environmental impacts reversible with time
3	Moderate	Effects observable – impacts reversible with rehabilitation
4	Moderate to high	Extensive effects – irreversible alteration to the environment
5	High	Extensive permanent effects with irreversible alteration
The probability of the impact		
Score	Rating	Description
1	Unlikely	Less than 15% sure of an impact occurring
2	Possible	Between 15% and 40% sure of an impact occurring
3	Probable	Between 40% and 60% sure that the impact will occur
4	Highly Probable	Between 60% and 85% sure that the impact will occur

5	Definite	Over 85% sure that the impact will occur
The Consequence		= Magnitude + Spatial Scale + Duration + Reversibility.
The Significance		= Consequence x Probability.

The rating is described as follows:

Score out of 100	Significance
1 to 20	Low
21 to 40	Moderate to Low
41 to 60	Moderate
61 to 80	Moderate to high
81 to 100	High

Will mitigation be possible? Yes or no?

Finally the negative impacts are rated according to the degree of loss of a resource due to the particular impact. This is only assessed from the pre-mitigation perspective of the impact. The degree of loss of a resource is evaluated in terms of:

- Low degree of loss: where the resource will recover on its own with no/limited rehabilitation over an observable period of time;
- Moderate degree of loss: where the resource will recover over extended period or with rehabilitation or remedial measures to assist recovery of resource; and
- High degree of loss: Where the resource cannot be recovered, or the resource will recover over extended time periods.

10.2 List of impacts identified

The proposed project is anticipated to impact on a range of biophysical and socio-economic aspects of the environment. Potential impacts identified for the project are summarised in the table below.

These impacts will be investigated further during the EIA phase of the project, and will be updated based on the findings of the various specialist studies and input from I&APs.

Table 24: Impact Assessment and Mitigation

Activity	Impact	Aspect	Applicable Mine Phase	SIGNIFICANCE (pre-mitigation)	Mitigation measures	SIGNIFICANCE (post-mitigation)
All infrastructure areas, development footprints and associated activities	Loss of agricultural land and / or loss of agricultural potential	Soil	Construction	Moderate to High	**REMEDY** Rehabilitate all disturbed areas as soon as they are no longer required and cordon off areas until vegetation has established. Revegetate all bare soils, including all berms and soil stockpiles. Incorporate herbaceous vegetation into soil stockpiles. Ameliorate soils as needed to establish stable vegetation communities on rehabilitated areas. **CONTROL** Demarcate designated activity area and keep as small as possible. Strip topsoil from all activity areas and stockpile as berms as per mine infrastructure plan. Excess soil will be stored in designated topsoil stockpile. Subsoil may also be used for berms if additional material is required, or soil will be stored in designated subsoil stockpile. All soil stockpiles will have top and toe perimeter berms with no more than 1:3 side slopes. Construct drainage and erosion controls where needed, such as gabion baskets, levees. Do not hinder, harm, or trap animals. Maintenance of wetlands and other natural vegetation will provide ecological corridors and refuges for animals. Animals under threat from the development will be relocated from site by specialists. Road and other kills must be reported.	Moderate to Low
	Loss of habitat	Flora & Fauna	Construction	Moderate to High		Moderate
	Direct mortality of fauna	Flora & Fauna	Construction	Moderate		Moderate to Low
	Reduced dispersal/migration of fauna	Flora & Fauna	Construction	Moderate		Moderate to Low
	Disruption/alteration of ecological life cycles (breeding, migration, feeding) due to noise, dust and light	Flora & Fauna	Construction	Moderate	**CONTROL** Procure equipment with low noise emissions where possible; Conduct blasting outside of known breeding/migration seasons; Lighting must be designed to reduce impact on fauna; Employ recommended dust control measures.	Moderate to Low
	Loss of wetlands	Wetlands & Aquatics	Construction, Operation, Decommissioning, Rehabilitation	High	**REMEDY** There is no mitigation for the loss of intact wetlands however the impact must be remedied / rehabilitated as soon as possible.	High
	Altered hydrological regime	Wetlands & Aquatics, Hydrology	Construction	Moderate	**STOP** No infrastructure is within the 1:100 year flood lines.	Moderate to Low
	Deterioration of water quality of wetlands and rivers due to activities and runoff of contaminants into the environment.	Wetlands & Aquatics, Hydrology	Construction, Operation, Decommissioning	Moderate	**CONTROL** Establish storm water control measures before any other activities commence to ensure clean and dirty water separation and dirty water containment. This will include upslope berms to divert clean water around the site of activity into natural drainage lines and internal channels to drain dirty water from the active footprint to lined PCD. PCDs and dirty water trenches will be appropriately lined to prevent seepage. Establish approved erosion control measures to reduce the risk of transported soils. Road surfaces must be compacted in order to increase stability. Sheet runoff from hard surfaces and roads curtailed through proper drainage control.	Moderate to Low
	Runoff, erosion and sedimentation of water resources	Wetlands & Aquatics, Hydrology	Construction, Operation, Decommissioning	Moderate		Moderate to Low

Activity	Impact	Aspect	Applicable Mine Phase	SIGNIFICANCE (pre-mitigation)	Mitigation measures	SIGNIFICANCE (post-mitigation)
					Install flow dissipaters where rapid flow of diverted clean storm water runoff occurs. Install silt traps to trap silt in highly silt-laden runoff. **REMEDY** Rehabilitate all disturbed areas as soon as they are no longer required. Revegetate all bare soils.	
	Spread and/or establishment of alien and/or invasive plants and resultant impacts on surrounding natural vegetation	Flora & Fauna	Construction, Operation, Decommissioning & Post-closure	Moderate	**CONTROL** An alien and/or invasive plant (AIP) monitoring program should be in place which incorporates control and eradication measures;	Low
	Establishment of alien vegetation in catchment and impacts to wetland ecosystem functionality	Wetlands & Aquatics	Construction, Operation, Decommissioning & Post-closure	Moderate		Moderate to Low
	Deterioration in visual aesthetics and sense of place.	Visual Aesthetic & Socio-economic	Construction, Operation, Decommissioning	Moderate to High	**REMEDY** Visual screens (vegetated berms, trees or wind breaks) will be considered where necessary. All berms and soil stockpiles will be vegetated. Apply dust control measures and other environmental measures to ensure impact area is contained. Apply good housekeeping practices.	Moderate to Low
Boxcut excavation and blasting	Direct mortality of fauna	Flora & Fauna	Construction	Moderate	**CONTROL** Procure equipment with low noise emissions where possible; Conduct blasting outside of known breeding/migration seasons; All staff must undergo relevant environmental induction and training regarding sensitive habitats, dangerous fauna, restrictive measures needing compliance etc.	Moderate to Low
	Impaired water quality through sedimentation and chemical contamination	Wetlands & Aquatics	Construction	Moderate	**CONTROL** Establish storm water control measures before any other activities commence to ensure clean and dirty water separation and dirty water containment.	Moderate to Low
Underground mining of coal including dewatering	Impacts on groundwater volumes due to active dewatering of the underground mining area	Groundwater	Construction, Operation, Decommissioning	Moderate	**CONTROL** Avoid mining in areas where subsidence is likely to occur. Sealing off of individual, high yielding structures .	Moderate
	Altered hydrological regime and flow of rivers due to active dewatering of the underground mining area	Groundwater, Wetlands & Aquatics, Hydrology	Operation	Moderate	**REMEDY** Ensure registered affected water users are compensated with water of pre-mining quality and quantity.	Moderate to Low
	Impacts on groundwater quality due to poor quality seepage from the mining area during active mining.	Groundwater	Operation	Moderate to High	**CONTROL** Monitor groundwater and surface water qualities throughout operational life. Manage underground mining area to lessen pollution seepage. **REMEDY** Ensure registered affected water users are compensated with water of pre-mining quality and quantity.	Moderate to High

Activity	Impact	Aspect	Applicable Mine Phase	SIGNIFICANCE (pre-mitigation)	Mitigation measures	SIGNIFICANCE (post-mitigation)
	Alteration of topography and hydrological and geohydrological characteristics through potential subsidence of surface layers; leading to wetland loss.	Topography, Groundwater, Wetlands & Aquatics, Hydrology	Operation, Decommissioning, Closure, Post Closure	High	**CONTROL** Avoid mining in areas where subsidence is likely to occur. Apply responsible mining techniques with appropriate safety factors with greater safety factors under watercourses, wetlands and their 100m buffer. **REMEDY** Post-closure monitoring of undermined areas for any sign of subsidence and rehabilitation of these areas as soon as any evidence appears.	Moderate to Low
	Alteration of the geological nature and sequence.	Geology	Construction, Operation, Decommissioning	Moderate	This is the nature of mining developments. Apply responsible mining techniques with appropriate safety factors.	Moderate
	Recovery of groundwater level after dewatering stopped	Groundwater	Post Closure	Moderate to High	Mitigation is not applicable as positive aspect.	Moderate to High
	Long-term impacts on groundwater quality due to poor quality seepage from the mining area once water level has recovered	Groundwater	Post Closure	Moderate to High	No viable measures available to mitigate the impact **CONTROL** Proper sealing and rehabilitation of shaft. **REMEDY** Ensure registered affected water users are compensated with water of pre-mining quality and quantity.	Moderate to High
All material stockpile areas	Erosion via wind and water leading to sedimentation and pollution of water resources	Hydrology, Wetlands & Aquatics	Construction, Operation, Decommissioning	Moderate	**CONTROL** Establish storm water control measures before any other activities commence to ensure clean and dirty water separation and dirty water containment. This will include upslope berms to divert clean water around the site of activity into natural drainage lines and internal channels to drain dirty water from the active footprint to lined PCD. Apply dust control measures as per dust management plan. Have clearly defined hauling routes/vehicle access areas. These areas should preferably be paved where possible or treated for dust suppression.	Moderate to Low
	Cumulative dust , PM10 & PM 2.5 generation	Air Quality	Construction, Operation, Decommissioning	Moderate		Moderate to Low
	Stockpiles will change the topographical nature of the area.	Topography	Construction, Operation, Decommissioning	Moderate	**CONTROL** Stockpile heights must not exceed 2m for topsoil, 3m for coal stockpiles, 6m for subsoil, 25m for overburden. Move coal stockpiles on a first-in-first-out basis to reduce extent of coal stockpile areas. Coal stockpile and handling must be in designated areas only. Conduct soil handling as per soil utilisation guide which will be included in the soil report. Vegetation removal must be over a minimal area as possible. Establish storm water control measures before any other activities commence to ensure clean and dirty water separation and dirty water containment. Establish approved erosion control measures such as top and toe berms around stockpiles. All soil and overburden stockpiles must have	Moderate to Low

Activity	Impact	Aspect	Applicable Mine Phase	SIGNIFICANCE (pre-mitigation)	Mitigation measures	SIGNIFICANCE (post-mitigation)
					top and toe perimeter berms to prevent soil wash out. Slopes must be stable and must not exceed 1:3 (vertical: horizontal) in order to reduce flow velocity on the side slopes. **REMEDY** Material stockpile and soil berm placement should consider remediation of other impacts, such as utilising material as a berms to shield visual impacts or divert clean water runoff from site. Rehabilitate all disturbed areas as soon as they are no longer required. Revegetate all bare soils.	
Integrated discard and slurry dump	Uncontrolled runoff and spillages of dirty water into surrounding environment, leading to contamination of water resources	Hydrology, Wetlands & Aquatics	Construction, Operation, Decommissioning, Closure, Post Closure	Moderate	**CONTROL** Discard dump must have a suitable liner to protect groundwater resources. Apply dust control measures and storm water runoff management measures to ensure impact area is contained to dump area and all water runoff and seepage is contained. Install downstream monitoring boreholes and monitor for potential contaminated seepage. If needed install downstream cut-off trench and direct seepage to PCD. Apply good housekeeping practices and ensure all discard is placed only in designated dump area. **REMEDY** Visual screens (vegetated berms, trees or wind breaks) will be considered where necessary. Construct the dump as per engineered designs and clad and vegetate integrated dump as it develops. Inspect for and treat spontaneous combustion by covering areas with fine subsoil to douse the combustion.	Moderate to Low
	Long-term impacts on water quality due to poor quality seepage from the surface pollution source areas	Groundwater	Post Closure	Moderate to High		Moderate to Low
	Dump will permanently alter the topographical nature of the area.	Topography & Visual aesthetics	Construction, Operation, Decommissioning, Closure, Post Closure	Moderate to High		Moderate
	Potential for spontaneous combustion and associated emissions.	Air Quality	Operation	Moderate		Low
Access and hauling along roads	Cumulative dust , PM10 & PM 2.5 generation	Air Quality	Construction, Operation, Decommissioning, Rehabilitation	Moderate	**CONTROL** Apply dust control measures as per dust management plan. Have clearly defined hauling routes/vehicle access areas. These areas should preferably be paved where possible or treated for dust suppression. Conduct regular cleaning/sweeping of paved road surfaces to prevent the accumulation of dust. Conduct regular maintenance and checks for haul road surfaces. Immediate clean-up of any spillage. All material that is being transported should be covered during transport (where possible). Control the number of trucks on the road, weight of trucks and the travelling speed. Implement strict vehicle speed limits. Monitor dust and amend mitigation measures accordingly.	Moderate to Low
ALL coal handling (RoM coal stockpiling, Coal product stockpile and loading area, Crushing & Screening facilities,	Cumulative dust , PM10 & PM 2.5 generation	Air Quality	Operation, Decommissioning	Moderate	**CONTROL** Ensure water separation and dirty water containment on site as per GN704 requirements.	Moderate to Low

Activity	Impact	Aspect	Applicable Mine Phase	SIGNIFICANCE (pre-mitigation)	Mitigation measures	SIGNIFICANCE (post-mitigation)
Processing plant and coal beneficiation)	Impaired water quality from coal fines and dust generation being deposited into wetlands and rivers	Wetlands & Aquatics	Operation, Decommissioning	Moderate	All dams will be constructed and lined as per designs and operated with a 0.8m freeboard. Coal stockpile and handling must be in designated areas with compacted base (Class-C barrier) and must form part of the dirty water footprint and drain to the PCD. Manage dust through water carts or sprinklers. All material that is being transported should be covered during transport (where possible). Control the number of trucks on the road, weight of trucks and the travelling speed. Implement strict vehicle speed limits. Trucks must not be overloaded. **REMEDY** Keep all materials within properly prepared and designated areas and apply good housekeeping practices by keeping surface clear of all materials. Coal spillages must be cleared.	Moderate to Low
	Runoff and spillages of dirty water into catchment	Hydrological, Wetlands & Aquatics	Operation, Decommissioning	Moderate		Moderate to Low
Water Supply and storage (potable and process)	Irresponsible use of water and water wastage.	Surface water & associated wetlands & aquatic ecosystems	Construction, Operation, Decommissioning	Moderate	**CONTROL** Saving water initiatives will be included in environmental awareness training. Utilise water on site responsibly. Record all water usage on site. **REMEDY** Inspection of ALL water features for leaks and immediate repair.	Low
Dirty water trenches, PCD's & other surface water manage measures	Altered hydrological regime (flow) of the rivers and local catchment	Hydrology, Wetlands & Aquatics	Construction, Operation, Decommissioning	Moderate	**STOP** No dirty water area is within any 1:100 year flood lines.	Moderate to Low
	Environmental pollution due to uncontrolled runoff in to surrounding environment and water resources	Flora & Fauna, Wetlands & Aquatics, Hydrology	Construction, Operation, Decommissioning	High	**CONTROL** Demarcate designated activity area and keep as small as possible. Establish storm water control measures before any other activities commence to ensure clean and dirty water separation and dirty water containment. Establish clean water diversion berms upslope of activity footprint to prevent clean water runoff flowing onto site. Drain all water runoff on activity area to PCDs and dirty water containment features. **REMEDY** Contain all dirty water on site by establishing appropriately sized, designed and lined mine water dams on site. Line all dirty water dams to prevent seepage. Line all trenches carrying high or continuous loads of dirty water runoff to prevent seepage.	Low
Ablutions and change house	Environmental pollution due to increased sedimentation and chemical runoff into the surrounding environment.	Flora & Fauna	Construction, Operation, Decommissioning	High	**CONTROL** Conservancy tanks must be designed to have sufficient capacity. Conservancy tanks to be emptied weekly.	Low

Activity	Impact	Aspect	Applicable Mine Phase	SIGNIFICANCE (pre-mitigation)	Mitigation measures	SIGNIFICANCE (post-mitigation)
	Potential contamination of surface water bodies with sewage and nutrient enrichment of aquatic environments.	Surface water & associated wetlands & aquatic ecosystems	Construction, Operation, Decommissioning	Moderate	**REMEDY** Inspect and repair all sewage facilities as needed, including any plumbing associated with the bathrooms and toilets.	Moderate to Low
Stores, workshops, washbays, Fuel storage & Hard park within Administration area	Environmental pollution due to hydrocarbon contamination into the natural environment	Soils, Flora & Fauna	Construction, Operational	High	**CONTROL** Maintenance of vehicles must be conducted on a demarcated area with a concrete slab and oil collection system. All diesel storage must be within concrete bunded areas that contain 110% of storage capacity if roofed or 120% storage capacity if not roofed; must be to SANS standards, refuelling areas will be over concrete platform. Bunds in workshop, wash bay and fuel storage facility will be fitted with an outlet valve and drain to an oil trap. The outflow will flow through an oil trap and water component will be treated and recycled as process water. Oil from oil traps will be removed to the used hydrocarbon drums which will be temporarily stored in concrete bunded areas prior to removal from site by a reputable hydrocarbon waste contractor. All vehicles / machinery on site will be up-to-date with their service and maintenance plans. Trucks and equipment should only be washed / serviced in dedicated areas and the dirty water is not allowed to discharge into the watercourse or surrounding natural vegetation. The use of persistently leaky equipment will be discontinued until repairs are made. Equipment will not be parked over bare ground; where unavoidable, drip trays will be placed under the equipment to collect potential leaks. **REMEDY** Spill kits must be available on site and personnel trained to utilise these to clear spills.	Low
	Impaired water quality by hydrocarbon contamination on surface which could impact the environment through runoff and seepage.	Hydrological, Wetlands & Aquatics	Construction, Operational	Moderate		Moderate to Low
Substation, power transmission & Lighting	Direct mortality of fauna through increased collisions	Flora & Fauna	Construction	Moderate	**CONTROL** Ensure power lines across high risk natural areas (such as ridges, wetlands) are fitted with bird diverters to prevent any large avifaunal species from flying into these power lines. Ensure the substation is well secured and locked to prevent access to the site by animals and people. Ensure appropriate warning signs to protect people in the area. Lighting must be designed to reduce impact on fauna as well as the sense of place.	Moderate to Low
	Hindrance to nocturnal animals, including nocturnal birds and bats	Flora & Fauna	Construction, Operation	Moderate		Moderate to Low
	Increased visibility of the site.	Visual aesthetics	Construction, Operation	Moderate		Moderate to Low
	Potential danger to surrounding communities	Social	Construction, Operation	Moderate		Low

11 PLAN OF STUDY FOR THE EIA PROCESS

The purpose of this section of the Scoping Report is to map a way forward to ensure that the EIA study will be undertaken in a manner that will include all relevant aspects of the proposed project in the context of the project site. This plan of study is set out as per the required contents of the plan of study as contained in the EIA Regulations, 2014 (as amended), as follows:

(i) a description of the alternatives to be considered and assessed within the preferred site, including the option of not proceeding with the activity;
(ii) a description of the aspects to be assessed as part of the environmental impact assessment process;
(iii) aspects to be assessed by specialists;
(iv) a description of the proposed method of assessing the environmental aspects, including aspects to be assessed by specialists;
(v) a description of the proposed method of assessing duration and significance;
(vi) an indication of the stages at which the competent authority will be consulted;
(vii) particulars of the public participation process that will be conducted during the environmental impact assessment process; and
(viii) a description of the tasks that will be undertaken as part of the environmental impact assessment process;
(ix) identify suitable measures to avoid, reverse, mitigate or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored.

11.1 Alternatives to be Considered and Assessed

The alternatives identified in this Scoping Report will be included in the EIA investigations to further refine the feasible project options. Additional alternatives identified through the PPP will also be included where feasible and where these are not further investigated, reasons will be provided.

11.2 Aspects to be Assessed

The aspects that will be assessed as part of the EIA Process will be the same aspects as identified in Section 10.2 of this Scoping Report. If additional aspects are identified through the PPP and/or specialist assessments, these will be added to the assessment as necessary. These aspects will, in most instances, be assessed by specialists. The terms of reference for the specialist studies commissioned as part of the EIA Process are provided in Section 11.6.

11.3 Method of Assessment

The impact assessment methodology proposed in Section 10.1 will be used in the EIA phase to assess the significance of the identified impacts, though it is anticipated that a number of specialists will adopt alternative assessment methodologies specific to the relevant specialist field. Specialist studies will be attached to the EIA Report as appendices and the findings of the specialist impact assessments will be summarised in the EIA Report, according to the Impact Assessment Methodology described herein.

11.4 Planned public participation and authority consultation

The public and authorities will be engaged throughout the application process – this report is made available to I&APs to verify their comments have been captured and addressed. The report is also submitted to DMRE for consideration. Once the DMRE approves the Scoping Report

and Plan of study for EIA, the EAP will compile the EIA Report (specialist studies will be included). The EIA Report will be subject to a thirty (30) day public review and comment period. Whereafter, the EIA Report will be updated with comments from the public and authorities, and the final report submitted to DMRE for consideration.

At this stage it is not anticipated that a public meeting will be held. Focus group meetings/micro-consultation with the affected landowners and Schurvekop Community are proposed.

11.5 Tasks that will be undertaken for EIA

As the project description is further refined and the design developed, the activities associated with the project which could be associated with impacts (either positive or negative) on the receiving environment (physical, biological and socio-cultural) will be expanded. Each activity associated with the proposed project throughout its development phases (construction, operation, decommissioning & closure) will be included in the assessment. In summary, the tasks that will be undertaken as part of the EIA process include:

1. Refine the project description to such an extent that the detail is sufficient to identify each project-related activity that could impact on the surrounding environment;
2. Describe the likely nature of the impacts (what aspect(s) of the environment are the activities likely to impact upon, is the impact positive or negative, is the impact avoidable or reversible, will the impact result in irreplaceable loss of resources etc.)
3. Define the significance of each impact, in the absence of management and mitigation measures, according to the Impact Assessment Methodology (Section 10.1).
4. Rank the impacts in order of significance and identify avoidance, management and/or mitigation measures for each that are appropriate to the impact significance.
5. Re-assess the impact significance taking the proposed management measures into account. Compile the management measures into a comprehensive EMP that must be implemented during the different project phases and against which compliance can be audited.
6. In addition to the management measures, formulate a monitoring and auditing plan for the proposed project to ensure the EIA/EMP is regularly updated and will remain valid and relevant throughout the project life-cycle, and that potential non-compliances can be addressed immediately.
7. Based on the impact significance, after mitigation measures have been applied, formulate a professional opinion on the benefits and risks of the project to assist the decision-making authorities in assessing the merit of the project and reaching a decision on the project.
8. All the preceding steps go hand-in-hand with public and authority consultation as well as specialist input.

11.6 Specialist Studies to be undertaken in the EIA Phase

A number of specialist assessments have been completed for the project to date. Where these remain valid, these will be utilised for the compilation of the EIA / EMP. Where necessary, these will be reviewed and updated.

The table below summarises the specialist assessment identified by the National Screening Tool, the status of the assessment (if completed / proposed) and motivation for the inclusion/exclusion thereof.

All specialist studies have/will be undertaken by a SACNASP registered professional in accordance with Appendix 6 of the EIA Regulations, 2014, as amended and/or the Procedures for the Assessment and Minimum Criteria for Reporting on identified Environmental Themes (as per the Screening Report), which were promulgated in Government Notice No. 320 of 20 March 2020 and in Government Notice No. 1150 of 30 October 2020 (i.e. "the Protocols")

Table 25: Specialist Studies

No.	Specialist Assessment	Status	Motivation
1	Agricultural Impact Assessment (Soils, Land Use & Land Capability)	Study completed in 2017. This will need to be updated in accordance with the recently published GN320 and GN1150.	According to the NEMA Screening Tool the agricultural theme for the project area is considered to be of High Sensitivity. Based on aerial imagery the current land use is agriculture with a large portion of the project area currently under cultivation.
2	Landscape/Visual Impact Assessment	No visual impact assessment has been undertaken to date. Proposed for the EIA phase.	Visual impacts are associated with the proposed integrated dump, and plant.
3	Archaeological and Heritage Impact Assessment	A phase 1 study was completed for the project in 2017. A follow up survey is proposed for the EIA phase.	According to the NEMA Screening Tool the archaeological and cultural theme for the project area is considered to be of Low Sensitivity.
4	Palaeontology Impact Assessment	A desktop study was completed for the project in 2017.	According to the NEMA Screening Tool and SAHRIS the project falls within an area of Medium Sensitivity. It is anticipated that the existing study can be used and no additional

No.	Specialist Assessment	Status	Motivation
			studies are proposed at this stage.
5	Terrestrial Impact Assessment	Study completed in 2017. This will need to be updated in accordance with the recently published GN320 and GN1150.	According to the NEMA Screening Tool the terrestrial biodiversity theme for the project area is considered to be of Very High Sensitivity. The specialist will undertake a site survey and update the existing study with the findings.
6	Aquatic Biodiversity Impact Assessment	Study completed in 2017. This will need to be updated in accordance with the recently published GN320 and GN1150.	According to the NEMA Screening Tool the terrestrial biodiversity theme for the project area is considered to be of Low Sensitivity. The specialist will undertake a site survey and update the existing study with the findings.
7	Hydrology	The floodlines and hydrology of the site were assessed in 2017.	It is anticipated that the existing study can be used and no additional studies or updates are proposed at this stage.
8	Noise Impact Assessment	No noise impact assessment has been undertaken to date. Proposed for the EIA phase.	The change in land use will require a noise impact assessment.
9	Radioactivity Impact Assessment	Excluded in its entirety.	The geology of the mineral in question (Coal) is not associated with radioactive materials and as such no study is deemed necessary.
10	Traffic Impact Assessment	A transport / traffic impact assessment was undertaken for the project in 2017.	It is anticipated that the existing study can be used and no additional studies or updates are proposed at this stage.
11	Geotechnical Assessment	A geotechnical and rock engineering report was completed for the project in 2017.	It is anticipated that the existing study can be used and no additional studies or updates are proposed at this stage.

No.	Specialist Assessment	Status	Motivation
12	Climate Impact Assessment	No specialist studies have been undertaken to date. No studies proposed.	Mmakau will report on their emissions during the operational phase of the mine, in line with the GHG Reporting Regulations.
13	Health Impact Assessment	No studies have been undertaken to date. Proposed for the EIA phase.	Due to the close proximity of the Schurvekop community is recommended that this study be undertaken.
14	Socio-economic Assessment	No socio-economic assessment has been undertaken to date. No studies proposed.	Surface disturbance will be limited to Portion 8 of the farm Schurvekop, owned by the Applicant. Employment and procurement will be undertaken as per the SLP.
15	Ambient Air Quality Impact Assessment	An air quality impact assessment, including dispersion model, was completed for the project in 2017.	It is anticipated that the existing study can be used and no additional studies or updates are proposed at this stage.
16	Seismicity Assessment	A blast and vibration assessment was completed for the project in 2017.	It is anticipated that the existing study can be used and no additional studies or updates are proposed at this stage.
17	Plant Species Assessment	Will be assessed in the review and update of the Terrestrial Biodiversity Impact Assessment.	The NEMA Screening Tool identifies the project area as having a Medium Sensitivity.
18	Animal Species Assessment	Will be assessed in the review and update of the Terrestrial Biodiversity Impact Assessment.	The NEMA Screening Tool identifies the project area as having a Medium Sensitivity.

12 ASSUMPTIONS AND LIMITATIONS RELEVANT TO THIS REPORT

This Scoping Report is currently being made available for a review and comment period of 30 days and has not yet incorporated the views of I&APs. This report will be updated with comments received from authorities and the public following conclusion of the public review period.

Where specialists contributed to the assimilation of baseline information, impacts or mitigation measures, such inputs have been referenced. Other information presented in this report is based

on available desktop information. This report will therefore be updated as more site-specific specialist input is received.

The level of project detail presented in this report is sufficient to ensure a realistic identification of potential impacts. In assessing the potential significance of those impacts, the precautionary principle was implemented and a worst-case scenario assessed in each instance.

13 CONCLUSION

This is the draft scoping report pertaining to the proposed Schurvekop Mine.

It is anticipated that the proposed project will be associated with a number of environmental impacts, associated with the mining and processing of coal. These potential impacts have been identified in this report and will be investigated further in the EIA phase of the Project. A number of specialist studies have already been completed for the proposed operations, these will be reviewed and updated where necessary.

13.1 Specific Information Required

The scoping report must also address the matters referred to in section 24(4)(a) and (b) of the NEMA. The provisions of this section, and how these are addressed in this report are shown in Table 26:

Table 26: How the provisions of NEMA Section 24(4)(a) and (b) are addressed in this report

Provision of NEMA	Relevance to this application and report
(4) Procedures for the investigation, assessment and communication of the potential consequences or impacts of activities on the environment – *(a) must ensure, with respect to every application for an environmental authorisation—*	
(i) coordination and cooperation between organs of state in the consideration of assessments where an activity falls under the jurisdiction of more than one organ of state;	The DMRE has been identified as the competent authority in terms of the applications under the MPRDA, NEMA and NEMWA related to the Project. An application has been submitted for an integrated environmental authorisation process (NEMA and NEMWA). Relevant local and provincial authorities are also included in the I&AP database.
(ii) that the findings and recommendations flowing from an investigation, the general objectives of integrated environmental management laid down in this Act and the principles of environmental management set out in section 2 are taken into account in any decision made by an organ of state in relation to any proposed policy, programme, process, plan or project;	It is assumed that the decision-making authorities will take the provisions of section 2 of the NEMA into account when evaluating the Project.
(iii) that a description of the environment likely to be significantly affected by the proposed activity is contained in such application;	Please see the baseline description in Section 9 of this report. This information will be updated as specialist studies are concluded.

Provision of NEMA	Relevance to this application and report
(iv) investigation of the potential consequences for or impacts on the environment of the activity and assessment of the significance of those potential consequences or impacts; and	A preliminary impact identification and assessment is presented in **Table 24** of this report. This will be expanded upon, refined and updated as the project and specialist assessments progress.
(v) public information and participation procedures which provide all interested and affected parties, including all organs of state in all spheres of government that may have jurisdiction over any aspect of the activity, with a reasonable opportunity to participate in those information and participation procedures; and	The PPP is discussed in Section 8 of this report. This report is being made available for a public comment period.
(b) must include, with respect to every application for an environmental authorisation and where applicable—	
(i) investigation of the potential consequences or impacts of the alternatives to the activity on the environment and assessment of the significance of those potential consequences or impacts, including the option of not implementing the activity; *(ii) investigation of mitigation measures to keep adverse consequences or impacts to a minimum;*	This is the draft scoping report and does not yet include detailed investigation of potential impacts or management measures. These can only be assessed in detail in the EIA Phase of the project. Alternatives are however discussed in this report, including the no-development option.
(iii) investigation, assessment and evaluation of the impact of any proposed listed or specified activity on any national estate referred to in section 3(2) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999), excluding the national estate contemplated in section 3(2)(i)(vi) and (vii) of that Act;	Listed activities relevant to the proposed project are identified in this report. The impact(s) of these activities must be assessed in further detail in the EIA Phase. A specialist archaeological and palaeontological impact assessment have also been undertaken for the project, these will be updated in the EIA phase of the project.
(iv) reporting on gaps in knowledge, the adequacy of predictive methods and underlying assumptions, and uncertainties encountered in compiling the required information;	Current assumptions, limitations and gaps are highlighted in this report. This will be expanded upon as the studies progress.
(v) Investigation and formulation of arrangements for the monitoring and management of consequences for or impacts on the environment, and the assessment of the effectiveness of such arrangements after their implementation;	Monitoring and management measures are not included in detail in this draft scoping report but will be included in the EIA phase.
(vi) consideration of environmental attributes identified in the compilation of information and maps contemplated in subsection (3); and	The baseline environment is described in this report and will be expanded upon as the studies progress.
(vii) provision for the adherence to requirements that are prescribed in a specific environmental management Act relevant to the listed or specified activity in question.	Provisions of the Air Quality Act, Waste Act, Heritage resources Act, Water Act and other relevant legislation are included in this report.

14 UNDERTAKING REGARDING CORRECTNESS OF INFORMATION

I, Jane Barrett herewith undertake that the information provided in the foregoing report is correct, and that the comments and inputs from stakeholders and Interested and Affected parties have been correctly recorded in the report.

Final Copy to be Signed

_____

Signature

DATE:

15 UNDERTAKING REGARDING LEVEL OF AGREEMENT

I, Jane Barrett, herewith undertake that the information provided in the foregoing report is correct, and that the level of agreement with Interested and Affected Parties and stakeholders has been correctly recorded and reported herein.

Final Copy to be Signed

_____

Signature

DATE:

-END-

16 REFERENCES

Archaetnos Culture & Cultural. (2017). *Report on a Cultural Heritage Impact Assessment for a Proposed Underground Mine on the Farm Schurvekop 227 IS.*

Bamford, P. M. (2017). *Palaeontological Impact Assessment for the proposed mining of the Schurvekop Coal Resource.*

Future Flow. (2018). *Schurvekop Colliery Groundwater EIA Study.* Future Flow Groundwater & Project Management Solutions.

Letsolo. (2016). *Hydrological Impact Assessment for Mmakau Coal (Pty) Ltd, Schurvekop Mine.* Letsolo Water & Environmental Services.

Metallurgical Resources Consulting. (2022). *Mining Works Programme submitted for a Mining Right Application.*

Meteoblue. (2022). *Simulated historical climate & weather data for 26.28°S 29.49°E.* Retrieved from Meteoblue: https://www.meteoblue.com/en/weather/historyclimate/climatemodelled/-26.280N29.492E

MPSDF. (2018). Mpumalanga Spatial Development Framework. https://cer.org.za/wp-content/uploads/2019/01/Phase1.pdf.

NSDF. (2018). National Spatial Development Framework Draft 2018. Government of the Republic of South Africa. Retrieved 04 01, 2019, from https://www.dpme.gov.za/keyfocusareas/gwmeSite/The%20PME%20Forum%202018/FINAL-DRAFT-NSDF-September-2018-B-1.pdf

TBC. (2017). *Agricultural Potential assessment for the proposed Schurvekop Mine* . The Biodiversity Company.

TBC. (2017, updated 2018). *Baseline Ecology and Environmental Impact Assessment Report for the proposed Schurvekop Mine.*

TBC. (2017, updated in 2018). *Aquatic & Wetland Impact Assessment Report for the proposed Schurvekop Mine.* The Biodiversity Company.

APPENDIX 1: CURRICULUM VITAE OF EAP PROJECT TEAM

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CURRICULUM VITAE: KEN VAN ROOYEN

SUMMARY PROFILE

Ken started his career working as an Exploration Geologist in 1987 after which he specialised in Environmental Management, working both within the Mining Industry and then as an Environmental Consultant.

His main areas of interest are:

- the design, management and repair of waste facilities;
- rehabilitation planning and modelling;
- risk assessment; and
- quantifying environmental liabilities.

He obtained a Masters degree in Geography based on his final dissertation entitled "*An integrated method of coal discard and slurry disposal to reduce the environmental impact from coal residue*".

Ken's project experience is extensive in scope and covers various developments including agricultural and residential developments, power generation, infrastructure and mining projects. In addition to working on projects throughout South Africa, Ken has worked in Botswana, Mozambique, Zimbabwe, Zambia, Madagascar, Sierra Leone, Rwanda, Mali, Nigeria and the United States of America.

He has presented at numerous local and international forums on issues such as waste management, integrated environmental management and sustainability. As well as represented companies on various committees and advisory groups e.g. the Atmospheric Pollution Prevention Committee, the Water Research Commission (Vaal Barrage), the National Groundwater Quality Management Strategy Advisory Group, the Inkomati-Usuthu Catchment forum and many more.

EXPERIENCE

30+ years

QUALIFICATIONS

MSc Geography, Rand Afrikaans University, 1991

BSc Hons. Geography, Geomorphology & Climatology, Rand Afrikaans University, 1989

BSc Earth Science, Geology & Geography, Rand Afrikaans University, 1986

PROFESSIONAL MEMBERSHIPS & AFFILIATIONS

Registered with the South African Council for Natural Scientists (**SACNASP**), Pr.Sci.Nat Reg. 400121/93

Member of the International Association for Impact Assessment, South Africa

Member of the Geological Society of South Africa

Associate Member of Environmental Earth Science Group

SHORT COURSES

Carbon Footprint Analyst, Terra Firma Academy, *currently completing*

WRSM/Pitman model and WR2012, Bailey and Pitman Water Resources, 2020

SAMREC Code, Geological Society of South Africa, 2020

Financial Provision Regulations & Mine Closure Liabilities, Imbewu, 2016

Mining & Rehabilitation Modelling, Modelmakers, 2014

NEM:Waste Management Act, Mac Roberts Attorneys, 2014

Environmental and Mining Law, Mac Roberts Attorneys, 2013

Integrated Environmental Management Course (I.E.M.), 1991. Received group projects award.

Geographical Information Systems (GIS), Honours Level, 1991

EMPLOYEMENT HISTORY

Cabanga Environmental: 2006 – current

Position Held: Managing Member

Digby Wells & Associates: 1995 – 2006

Last Position Held: Executive Director

Rand Mines: 1989 – 1994

Last Position Held: Group Environmental Scientist

Ecological Evaluators: 1988 – 1989

Position Held: Environmental Consultant

Rand Mines, Durban Roodepoort Deep and Blyvoor Gold: 1987 – 1988

Last Position Held: Surface and Underground Geologist

SELECTED PROJECT EXPERIENCE

Pre-Feasibility & Feasibility Assessments

Scope: Assessing the viability of a development from an environmental perspective. Identifying potential issues and risks to the successful completion of the project and proposing mitigatory measures where appropriate.

Client: Various -

- Tumelo Coal Mines, Tumelo Colliery 4 Seam Project, Mpumalanga Province (2019)
- Future Coal, Chelmsford Colliery, Macclesfield Opencast, KwaZulu-Natal (2018)
- Optimum Coal, Marion 4 Dragline Crossing, Mpumalanga (2017)
- Mmakau Coal, Schurvekop Colliery, Mpumalanga (2017)
- Evander Gold Mines, Elikhulu Re-processing Project, Mpumalanga Province (2016)
- Tinco Investments, Rutonga Mining Operation, Rwanda (2013)
- Tinco Investments, Nyakabingo Minining Operation, Rwanda (2013)
- Badger Mining and Consulting, Sakoa Coal, Madagascar (2012)

Rehabilitation Modelling & Assessment of Financial Liabilities

Scope: Modelling of the final landform for various mining operations, and calculating the environmental liabilities associated therewith.

Client: Various -

- Tumelo Coal Mines, Tumelo Colliery, Mpumalanga (2020)
- Eyethu Coal, Mooifontein Colliery (Washplant) (2019 - 2020)
- Iyanga Mining, Klipfontein Colliery (2019 - 2020)
- G&W Base and Industrial Minerals, Boane Bentonite Mine, Mozambique (2016 – 2019)
- MC Mining, Uitkomst Colliery, Kwa-Zulu Natal (2016 – 2019)
- Matsopa Minerals, Benadeplaats Limestone Mine, North-west Province (2016 - 2020)
- G&W Base and Industrial Minerals, Koppies Bentonite Mine, Free State (2016 – 2020)
- Witkop Fluorspar, Witkop Mine, North-west Province (2017)
- Optimum Coal, Optimum Colliery, Mpumalanga (2017)

Environmental Advisory, ECO Services & Technical Reviews

Client: Various -

- Pan African Resources, Technical Review and Opinion of the Sasol Secunda UG Water Storage Risk Assessment, Mpumalanga (2020)
- Sabi Sand Conservation Trust, Save the Sands Project, Independent Environmental Review: Current status of development affecting the Sand River, Mpumalanga (2020)
- Overlooked Colliery, Strategic Environmental Advisor and ECO services, Mpumalanga (2016 - current)

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SELECTED PROJECT EXPERIENCE (continued)

- Droogvallei Rail Siding Company, Strategic Environmental Advisor and ECO services, Mpumalanga (2012 – 2019)
- Idwala Coal, River Reinstatement, Project Management and ECO services for the Reinsatement and Rehabilitation of the tributary to the Rietspruit River, Mpumalanga (2017)
- Evander Gold Mines, Internal Review and Approval of the Environmental Reports for the Elikhulu Project, Mpumalanga (2016)
- Worldwide Coal Carolina (Pembani Coal), Strategic Environmental Advisor for the Groenvallei Colliery, Mpumalanga (2006 – 2015)
- IG Chem, Olifantsfontein Plant, Internal Review and Approval of the 24G EMP, Gauteng (2015)
- Logistics Intelligence Siding Depot, Internal Review and Approval of the EMP for the Upgrade and Operation of a Siding Depot, Gauteng (2015)
- Shanduka Coal (Glencore Coal South Africa), Strategic Environmental Advisor for Mpumalanga and KwaZulu-Natal operations (2006 – 2014)
- Overlooked Colliery, Technical Review and Contributing Author of Mine Works Programme, Mpumalanga (2013)
- Ludwich's Landscapes and Water Features, Internal Review and Approval of the EMP for Kya Sands Industrial Township, Gauteng (2013)
- Shanduka Coal (Glencore Coal South Africa), Internal Review and Approval of the EMP for the MTC Water Treatmetn Plant, Mpumlanaga (2013)
- Eskom SOC Ltd and Shanduka Coal, Internal Review and Approval of the EMP for the Deviation and Re-alignment of a 400kv powerline
- West Middelburg Community Forum, Establishment and Facilitation of the Middelburg Community Forum (2009 – 2012)
- Worldwide Coal (Pembani Coal), Ebuhleni Township Development, Mpumalanga. Internal Review and Approval of the Basic Assessment Report and EMP for the development of twenty two (22) RDP style houses (2009)

Mine Residue Management

Scope: Conceptual design and remediation of various waste management facilities throughout South Africa, including:

- Iscor Vanderbijl, conceptual design of the slag dump
- Durban Roodepoort Deep, conceptual design of the tailings facility
- Duiker Mining, Tselentis Colliery, conceptual design of co-disposal dump
- Vansa Vanadium remediation and extension of the mine residue facility
- Duiker Mining, Spitzkop Colliery, remediation of the burning discard dump
- Union Colliery, remediation of burning discard dump

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CURRICULUM VITAE: JANE BARRETT

PROFESSIONAL PROFILE

Jane holds a BSc degree in Environmental Management and Botany which she completed part-time whilst gaining practical experience in the Environmental Management field. She has also succesfully completed certificated courses in Project Management and Carbon Footprinting and Environmental, Social and Governance (ESG) Reporting.

She has a good understanding of Environmental Legilsation, and its application to factual scenarios. Her experience includes: Environmental Impact Assessments; Environmental Management Plans; Monitoring and Compliance Reporting; Environmental Auditing; Water Use Licensing; Mineral Right Applications; Pre-feasibility and feasibility Studies.

YEARS EXPERIENCE

10 + years

EMPLOYMENT HISTORY

Environmental & Sustainability Consultant

Cabanga Environmental (2015 – Current)

- Responsible for the overall management of mining and development projects, ensuring alignment of the project with the applicable Environmental Legislation.
- Project management, including reviewing and tracking project expenses; supervising project assigned personnel and specialist sub-contractors; and liaising with other project-level functional leads (e.g. engineering) to assist them in integrating and/or addressing the applicable environmental requirements in their work products and activities.
- Permitting and Licensing (in terms of MPRDA, NEMA, NEM:AQA, NEM:WA and NWA).
- Carbon Accounting / GHG Emissions Reporting and Carbon Tax calculations.
- Compliance Auditing (e.g. EMP performance assessments, due diligence investigations, water use license compliance audits etc.).

EMPLOYEMENT HISTORY (CONT.)

Environmental Consultant

Cabanga Environmental (2013 – 2015)

- Compilation of Environmental Impact Assessments and Management Plans.
- Environmental licensing and permitting.
- Environmental Compliance Auditing.

Project Assistant

Cabanga Environmental (2006 – 2013)

- Prepare applicable permit applications.
- Communicate and manage projects with subcontractors and specialists.
- Fieldwork, information gathering and data analysis.
  Assist with the compilation of impact assessments and technical documents. Stakeholder coordination and public participation.

PA to EXCO

Digby Wells Environmental (2002 – 2006)

Candidate Estate Agent & Office Administrator

Realty Executives (2000 – 2002)

QUALIFICATIONS

BSc: Environmental Management & Botany, University of South Africa, 2013

Certificate: Advanced Project Management, University of Cape Town, 2015

Certificate: Carbon Footprint Analysis, Terra Firma Academy, 2015

Certificate: ESG Reporting based on the GRI Sustainability Reporting Standards, GRI Academy, 2021

PROFESSIONAL MEMBERSHIPS & AFFILIATIONS

South African Council for Natural Scientific Professions (SACNASP): Certificated Natural Scientist, Environmental Science. Reg. No. 130485

Member: International Association for Impact Assessment, South Africa

Member: International Association for Public Participation, Southern Africa

Member: Environmental Law Association, South Africa

PROFESSIONAL DEVELOPMENT:

GRI Disclosures Workshop, Environmental and Sustainability Solutions, 2021

SAGERS Reporting Training, Department of Environment, Forestries and Fisheries, 2020

Introductory EIA Report Writing, International Association for Impact Assessment South Africa, 2020

The Health Effects of Climate Change, Harvard University via edX, 2020

NWA: Workshop on Section 21(c) and (i) Water Use Activities, Department of Water Affairs and Sanitation, 2017

NEMA: One Environmental System, Imbewu Sustainability Legal Specialists, 2015

NEMA: Environmental Impact Assessment Regulations, Imbewu Sustainability Legal Specialists, 2015

NEMA: Environmental Impact Assessment Regime, Gauteng Department of Agriculture and Rural Development, 2014

NEM:Waste Management Act, Mac Roberts Attorneys, 2014

Environmental and Mining Law, Mac Roberts Attorneys, 2013

South African Waste Legislation, Integrated Water and Waste Management Planning, CBS Solution, 2011

National Environmental Management Act & NEM:Waste Act, EcoLaw, 2011

South African Property and Real Estate Law, Millpark, 2001

SELECTED PROJECT EXPERIENCE

Geluk & Goudlaagte Prospecting Right Application for Clay

Client: Matsopa Minerals (Pty) Ltd

Location: Koppies, Free State

Year: 2021 (current)

Role: Project Manager & EAP

Tumelo Colliery IWUL Compliance Audit

Client: Tumelo Coal Mines (Pty) Ltd

Location: Hendrina, Mpumalanga

Year: 2020

Role: Auditor / EAP

- Undertake site visit and data review to determine compliance of the mining operations against the approved water use license as well as GN704 of the National Water Act, 1998.

Overlooked Alpha Greenhouse Gas Emissions Report

Client: Halfgewonnen and Weltevreden Collieries

Location: Hendrina, Mpumalanga

Year: 2020

Role: Environmental & Sustainability Consultant

- Compilation of an emissions inventory.
- Calculation of the Carbon Footprint in terms of the GHG Reporting Regulations, 2016 and reporting via NAEIS.

Union Mine Greenhouse Gas Emissions Report

Client: Siyanda Bakgatla Platinum Mine (Pty) Ltd

Location: Swartklip, Limpopo

Year: 2019 - 2020 (annually)

Role: EAP

- Compilation of an emissions inventory.
- Calculation of the Carbon Footprint in terms of the GHG Reporting Regulations, 2016 and reporting via NAEIS.
- Calculation of Environmental Levies payable in terms of the Carbon Tax Act.

Tumelo Colliery Greenhouse Gas Emissions Report

Client: Tumelo Coal Mines (Pty) Ltd

Location: Pullenshope, Mpumalanga

Year: 2019 – 2020 (annually)

Role: EAP

- Compilation of an emissions inventory.
- Calculation of the Carbon Footprint in terms of the GHG Reporting Regulations, 2016 and reporting via NAEIS. Calculation of Environmental Levies payable in terms of the Carbon Tax Act.

SELECTED PROJECT EXPERIENCE (continued)

Benadeplaats Limestone Mine Annual Update of the IWWMP Report

Client: G&W Base and Industrial Minerals (Pty) Ltd

Location: Slurry, North-West

Year: 2020 – 2021 (annually)

Role: Project Manager & EAP

- Review and contributing author of the Integrated Water and Waste Management Plan (IWWMP) and Rehabiliation Strategy Implementation Plan (RSIP) report.

Mooinfontein Wash Plant Annual Closure & Rehabilitation Report

Client: Eyethu Coal (Pty) Ltd

Location: Witbank, Mpumalanga

Year: 2019 – 2020 (annually)

Role: EAP

- Undertake site visit and data review.
- Primary author of the annual closure and rehabilitation report.

Overlooked Colliery Monitoring & Compliance

Client: Overlooked Colliery (Pty) Ltd

Location: Bethal, Mpumalanga

Year: 2016 – 2021 (ongoing)

Role: Environmental Officer

- Responsible for undertaking monthly site inspections to monitor the effectives of mitigation measures as proposed by the EMP. Including the review and management of the ongoing monitoring programme.
- Responsible for undertaking the Internal IWUL Compliance Audit on an annual basis.

Tumelo Colliery Amendment for Partial Pillar Extraction

Client: Tumelo Coal Mines (Pty) Ltd

Location: Hendrina, Mpumalanga

Year: 2019 - 2020

Role: Project Manager & EAP

- Responsible for managing the overall project, to ensure alignment of the project with NEMA and NWA.
- Primary Author of the EMP Amendment, IWULA and IWWMP Reports.
- Review and management of the various specialist studies.
- Authorities liaison.

Benadeplaats Limestone Mine Compliance Audits

Client: G&W Base and Industrial Minerals (Pty) Ltd

Location: Slurry, North-West

Year: 2016 – 2021 (annually)

Role: EAP / Auditor

- Undertake the site visit and data review to determine compliance of the mining operations with regards to the conditions stipulated within the approved water use license and EMP report.
- Primary author of the Compliance Audit reports.

Sudor Coal / Overlooked Alpha Section 11 Application

Client: Overlooked Colliery Alpha (Pty) Ltd

Location: Hendrina / Bethal, Mpumalanga

Year: 2019

Role: EAP

- Completion of the Section 11 Application in terms of the MPRDA for the transfer of Ownership from Sudor Coal to Overlooked Alpha for the Halfgewonnen and Weltevreden Collieries.

Verdoorst kolk Prospecting Right Application

Client: Witkop Fluorpsar (Pty) Ltd / SA Lime

Location: Brandvlei, Northern Cape

Year: 2018

Role: Project Manager & EAP

- Completion of the Prospecting Right Application in terms of the MPRDA.
- Responsible for managing the overall EIA process, to ensure alignment of the project with NEMA and NWA.
- Contributing author and review of the Basic Assessment and EMP report

SELECTED PROJECT EXPERIENCE (continued)

Elikhulu Project for the re-processing of tailings

Client: Evander Gold Mines (Pty) Ltd

Location: Evander, Mpumalanga

Year: 2016 - 2018

Role: Project Manager & EAP

- Responsible for managing the overall EIA process, to ensure alignment of the project with NEMA.
- Co-author of Scoping, EIA and EMP reports.
- Review and management of the various specialist studies.
- Authorities liaison.

Schurvekop Colliery Mining Right Application

Client: Mmakau Coal (Pty) Ltd

Location: Bethal, Mpumalanga

Year: 2017 - 2018

Role: Project Manager & EAP

- Responsible for managing the overall EIA process, to ensure alignment of the project with NEMA and NWA.
- Primary Author of the Scoping Report.
- Co-author of the EIA / EMP, and IWWMP Reports.
- Review and management of the various specialist studies.
- Authorities liaison.

Uitkomst Colliery Application to review and amend the IWUL

Client: Pan African Resources (PLC)

Location: Newcastle, KwaZulu Natal

Year: 2016

Role: Project Manager & EAP

- Primary Author responsible for the compilation of the IWWMP Report.
- Review and management of the various specialist studies.
- Authorities liaison.

Prospect & Sahara Prospecting Right Application for Bentonite

Client: G&W Base and Industrial Minerals (Pty) Ltd

Location: Koppies, Free State

Year: 2015

Role: Project Manager & EAP

- Responsible for compiling the Prospecting Right Application in terms of the MPRDA.
- Primary Author responsible for the compilation of the Basic Assessment & EMP Report

24G Application for Rectification for actvities associated with the storage and handling of dangerous goods

Client: IG Chem (Pty) Ltd

Location: Olifantsfontein, Gauteng

Year: 2015

Role: EAP

- Responsible for compiling the necessary appilcation forms in terms of NEMA.
- Primary Author responsible for the compilation of the EMP Report.
- Authorities liaison.

Application to review and amend the IWUL

Client: Pembani Coal Carolina (Pty) Ltd

Location: Carolina, Mpumalanga

Year: 2015

Role: Project Manager & EAP

- Primary Author responsible for the compilation of the IWWMP Report.
- Review and management of the various specialist studies.
- Authorities liaison.

Weglgelegen Colliery IWUL Compliance Audit

Client: Iyanga Mining (Pty) Ltd

Location: Delmas, Mpumalanga

Year: 2015

Role: EAP / Auditor

- Undertake the site visit and data review to determine compliance of the mining operations with regards to the conditions stipulated within the approved water use license.
- Primary author of the Compliance Audit report.

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jane@cabangaenvironmental.co.za
www.cabangaenvironmental.co.za

SELECTED PROJECT EXPERIENCE (continued)

Koppies Bentonite Mine Atmospheric Emission License Application

Client: G&W Base and Industrial Minerals (Pty) Ltd

Location: Koppies, Free State

Year: 2015

Role: EAP

- Responsible for compiling the application for Atmosopheric Emissions License.
- Authorities liaison.

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michelle@cabangaenvironmental.co.za
www.cabangaenvironmental.co.za

CURRICULUM VITAE: MICHELLE VENTER

PROFESSIONAL PROFILE

Key Experience includes:

- Environmental Auditing
- Water Use License Auditing
- Basic Assessments
- Scoping Reports
- Environmental Impact Assessments
- Environmental Management Programmes
- Rehabilitation and Closure reports
- Water Use License Applications and IWWMP compilation, IWWMP Annual Updates
- Monitoring (dust, water and noise) and Compliance
- GIS Mapwork
- Public Participation Process

YEARS EXPERIENCE

10 years

QUALIFICATIONS

BSc Honours in Geography, University of South Africa, 2014

BSc Environmental Management & Zoology, University of South Africa, 2010

PROFESSIONAL MEMBERSHIPS & AFFILIATIONS

South African Council for Natural Scientific Professions (SACNASP): Certificated Natural Scientist- Reg. No. 114447

Registered EAP (EAPASA): 2019/456

Society of South African Geographers (SSAG): 27/19

COURSES, WORKSHOPS & SEMINARS

An Introduction on How to Map and Groundtruth Wetlands, Western Cape Wetlands Forum, 2020

Introductory EIA Report Writing, IAIASA, 2020

IWRM, NWA, and Water Use Authorisations: Focusing on WULA's and IWWMP's, Carin Bosman Sustainble Solutions, 2018

NWA: Workshop on Section 21(c) and (i) Water Use Activities, Department of Water Affairs and Sanitation, 2017

SANBI GIS Training, SANBI, 2017

South African Carbon Tax: Lessons to Learn from Australia, Warburton Gunn Attorneys, 2013

EMPLOYEMENT HISTORY

Cabanga Environmental: 2016- current

Position Held: **Environmental Assessment Practitioner and Public Participation Officer**

Phanda Risk Firm: 2014- 2016 (2 years)

Last Position Held: **Environmental Control Officer**

CS Environmental Services: 2010- 2014 (4 years)

Last Position Held: **Junior Environmental Consultant**

PROJECT EXPERIENCE: DEVELOPMENT

Khusile Power Station: Ogies, Mpumalanga: Environmental awareness training material compilation during the construction of the power station.

Polokwane High Court: Polokwane, Limpopo: Internal environmental compliance and Environmental Management Plan report for the construction of the Polokwane High Court. General Environmental Control Officer duties.

South32, Enslin Crossing, Ogies, Mpumalanga: Environmental Management Plan report for the construction of a road crossing.

PROJECT EXPERIECE: MINING

Steenkampskraal Monazite Mine (Pty) Ltd: Steenkampskraal, Western Cape. Intergrated Water and Waste Management Programme and Rehabilitation Strategy and Implementation Programme for an existing mine that intend on being recomissioned.

Witkop Fluorpsar (Pty) Ltd, Kanakies, Northern Cape: Scoping Report, Management Plan report, Environmental Impact Assessment and Environmental Management Plan report for activities associated with the mining of gypsum. Full Public Participation Process under NEMA and EIA Regulations and for a mining right application and a Rehabilitation Plan

Witkop Fluorpsar (Pty) Ltd, Verdoorstkolk, Northern Cape: Co-author of Basic Assessment and Management Plan report for activities associated with the prospecting of gypsum. Full Public Participation Process under NEMA and EIA Regulations and for a prospecting right application.

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michelle@cabangaenvironmental.co.za
www.cabangaenvironmental.co.za

Mhloli Mining and Exploration (Pty) Ltd: Rietbult, Limpopo. Basic Assessment and Management Plan report for activities associated with the prospecting of gold. Full Public Participation Process under NEMA and EIA Regulations and for a prospecting right application.

Afrisam (Pty) Ltd, Ulco, Northern Cape: Water Use License Audit; Atmospheric Emission License Audit; and Environmental Management Plan report.

Corobrik (Pty) Ltd, Olifantsfontein, Driefontein, Rietvlei, and Springs: Water Use License Audit; Water Use Audit; partial application of National Water Use Licenses and Alien invasive plant identification.

Droogvallei Rail Siding Company (Pty) Ltd, Carolina, Mpumalanga: Environmental monthly inspections and reporting, monthly water sampling (surface and ground water) and dust fall out monitoring, Environmental Compliance Audit; Annual IWWMP update and IWUL Audit.

Eyethu Coal (Pty) Ltd: Leeuwpoort, Inyanda, Blesboklaagte, and Blackhll Siding - Closure and Rehabilitation Reports.

Tegeta Exploration and Resources (Pty) Ltd, Brakfontein Colliery, Delmas, Mpumalanga: Environmental monthly inspections and reporting; monthly water sampling (surface and ground water); and Environmental Compliance Audit.

Pan African Resources, Evander Gold Mines, Evander, Mpumalanga: Full Public Participation Process under NEMA and EIA Regulations for a Mining Right Applicaton.

Mmakau Coal (Pty) Ltd, Schurvekop Mine, Bethal, Mpumalanga: Full Public Participation Process under NEMA and EIA Regulations for a Mining Right Application and noise monitoring of baseline levels for EIA/EMPr.

Shiva Uranium (Pty) Ltd, Gold and Uranium Operations, Mpumalanga: Environmental Compliance Audit.

Pan Africa Resources PLC: Barberton Mines (Pty) Ltd – Fairview Mine: Full Public Participation Process under NEMA Regulations for a Mining Right Application.

Future Coal (Pty) Ltd, Chelmsford Mine, Newcastle, Kwa-Zulu Natal: Full Public Participation Process under NEMA and EIA Regulations for an EMPr amendment.

Thutha Amalahle (Pty) Ltd: Water Use License Application and Intergrated Water and Waste Management Programme. Full Public Participation Process under the NWA.

G&W Base and Industrial Minerals (Pty) Ltd, Koppies Bentonite Mine, Free State: GN704 Compliance Audit.

Uitkomst Colliery (Pty) Ltd, Wykoms Siding, Newcastle, Kwa-Zulu Natal: Environmental compliance inspection

PROJECT EXPERIENCE: FACTORIES

DB Thermal, a division of DBT Technologies (Pty) Ltd, Nigel, Gauteng: Water Use Audit, creation and upkeep of environmental management system; internal environmental audits; and environmental awareness training material compliation.

Sedibeng Brewery (Pty) Ltd, Meyerton, Gauteng: Closing of ISO14001 external audit findings; creation and upkeep of environmental management system; and Water Use Audit.

REVIEWS:

Minerano Resources (Pty) Ltd, Millo, Freestate: Review of Basic Assessment Report for a prospecting right application.

Minerano Resources (Pty) Ltd, Du Preez Leger, Freestate: Review of Basic Assessment Report for a prospecting right application.

Minerano Resources (Pty) Ltd, Rebelkop, Freestate: Review of Basic Assessment Report for a prospecting right application.

Minerano Resources (Pty) Ltd, Vermeulenskraal, Freestate: Review of Basic Assessment Report for a prospecting right application.

Minerano Resources (Pty) Ltd, Klipbankfontein, Northern Cape: Review of Basic Assessment Report for a prospecting right application.

Minerano Resources (Pty) Ltd, Vaalbank, North West: Review of Basic Assessment Report for a prospecting right application.

Minerano Resources (Pty) Ltd, Rhenosterdrift, North West: Review of Basic Assessment Report for a prospecting right application.

PROFICIENCIES

Proficient in Microsoft Office Suite (Excel, Word, Outlook etc.)

Proficient with SANBI BGIS

Proficient with Google Earth

Proficient with Global Mapper

Proficient with Surfer

Proficient in QGIS

APPENDIX 2: SCREENING TOOL REPORT

SCREENING REPORT FOR AN ENVIRONMENTAL AUTHORIZATION AS REQUIRED BY THE 2014 EIA REGULATIONS – PROPOSED SITE ENVIRONMENTAL SENSITIVITY

EIA Reference number: TBC

Project name: Schurvekop Colliery

Project title: Screening Tool Report

Date screening report generated: 25/05/2022 11:23:36

Applicant: Mmakau Coal (Pty) Ltd

Compiler: J.Barrett, Cabanga Environmental

Compiler signature: .....

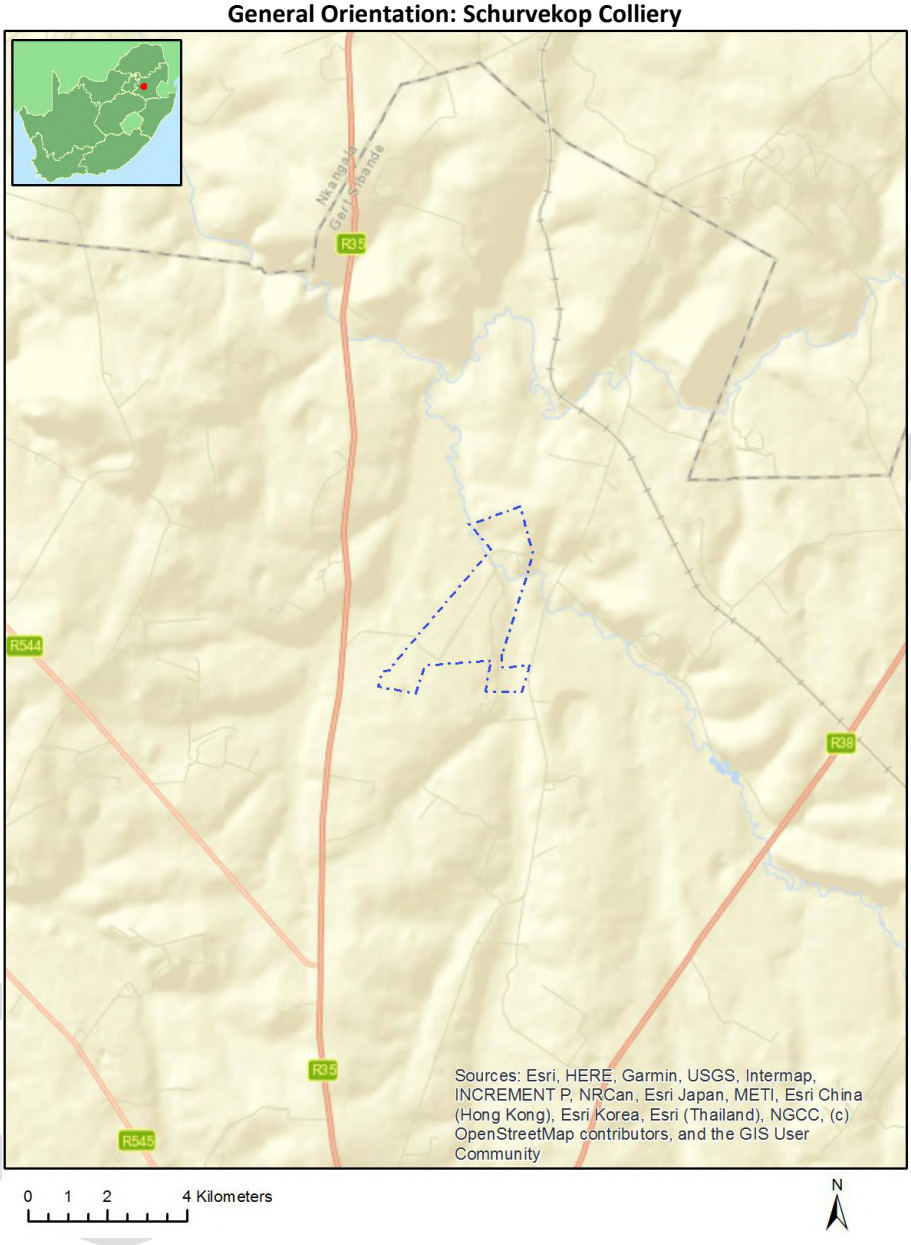
Application Category: Mining|Mining Right

Table of Contents

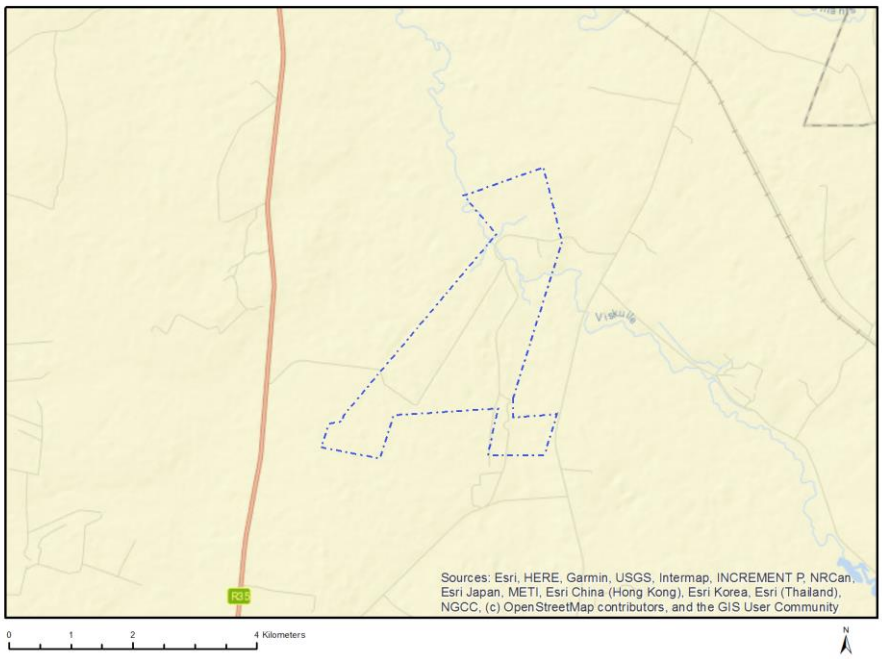
Proposed Project Location

Orientation map 1: General location

General Orientation: Schurvekop Colliery



Map of proposed site and relevant area(s)



Cadastral details of the proposed site

Property details:

No	Farm Name	Farm/ Erf No	Portion	Latitude	Longitude	Property Type
1	SCHURVEKOP	227	0	26°16'48.47S	29°29'56.87E	Farm
2	SCHURVEKOP	227	8	26°16'55.9S	29°29'8.41E	Farm Portion
3	SCHURVEKOP	227	6	26°16'25.76S	29°29'58.58E	Farm Portion
4	SCHURVEKOP	227	18	26°17'14.2S	29°29'33.76E	Farm Portion
5	SCHURVEKOP	227	16	26°15'50.56S	29°29'54.47E	Farm Portion
6	SCHURVEKOP	227	15	26°17'41.49S	29°28'31.1E	Farm Portion
7	SCHURVEKOP	227	19	26°16'57.57S	29°29'42.05E	Farm Portion
8	SCHURVEKOP	227	14	26°16'55.8S	29°30'14.5E	Farm Portion
9	SCHURVEKOP	227	17	26°17'25.67S	29°29'28.58E	Farm Portion
10	SCHURVEKOP	227	20	26°17'38.72S	29°29'58.09E	Farm Portion

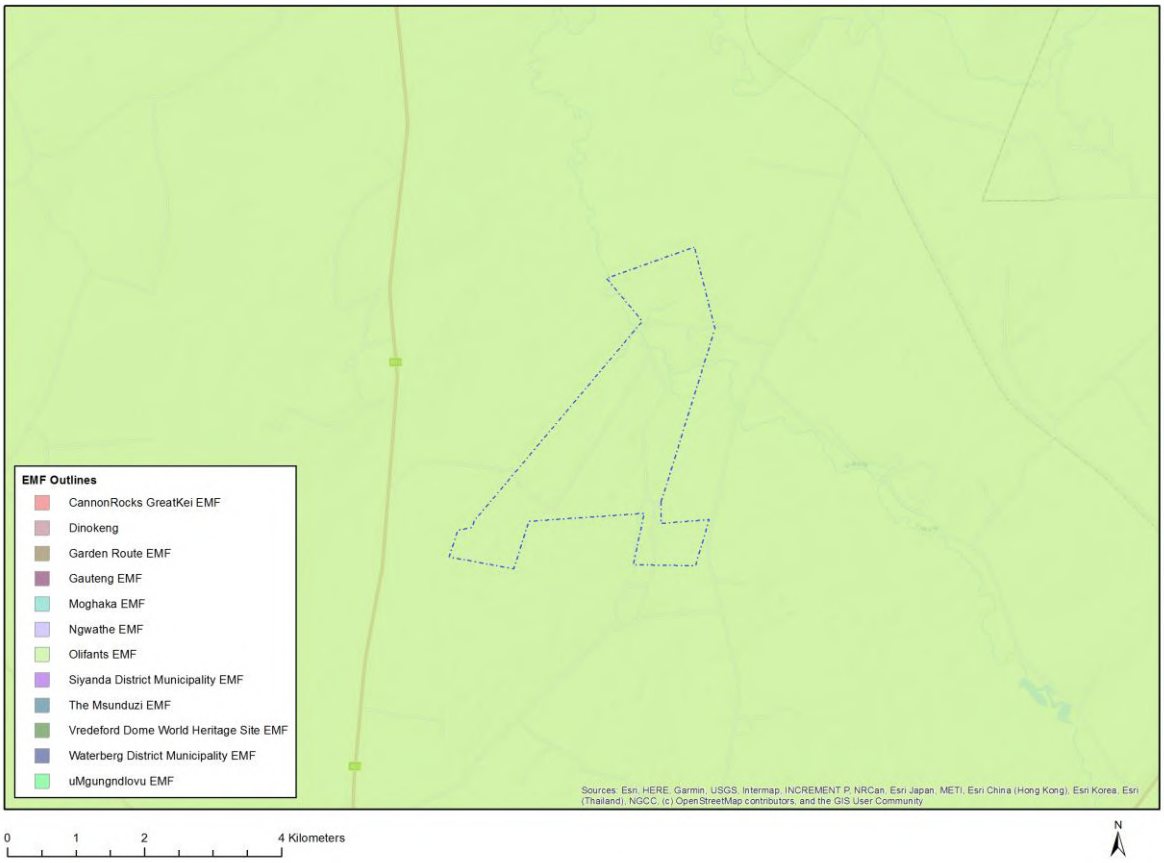
Development footprint[1] vertices:
No development footprint(s) specified.

Wind and Solar developments with an approved Environmental Authorisation or applications under consideration within 30 km of the proposed area

No nearby wind or solar developments found.

[1] "development footprint", means the area within the site on which the development will take place and incudes all ancillary developments for example roads, power lines, boundary walls, paving etc. which require vegetation clearance or which will be disturbed and for which the application has been submitted.

Environmental Management Frameworks relevant to the application



Environmental Management Framework	LINK
Olifants EMF	https://screening.environment.gov.za/ScreeningDownloads/EMF/Zone_46,_67,_78,_80,_92,_103,_122,_129.pdf

Environmental screening results and assessment outcomes

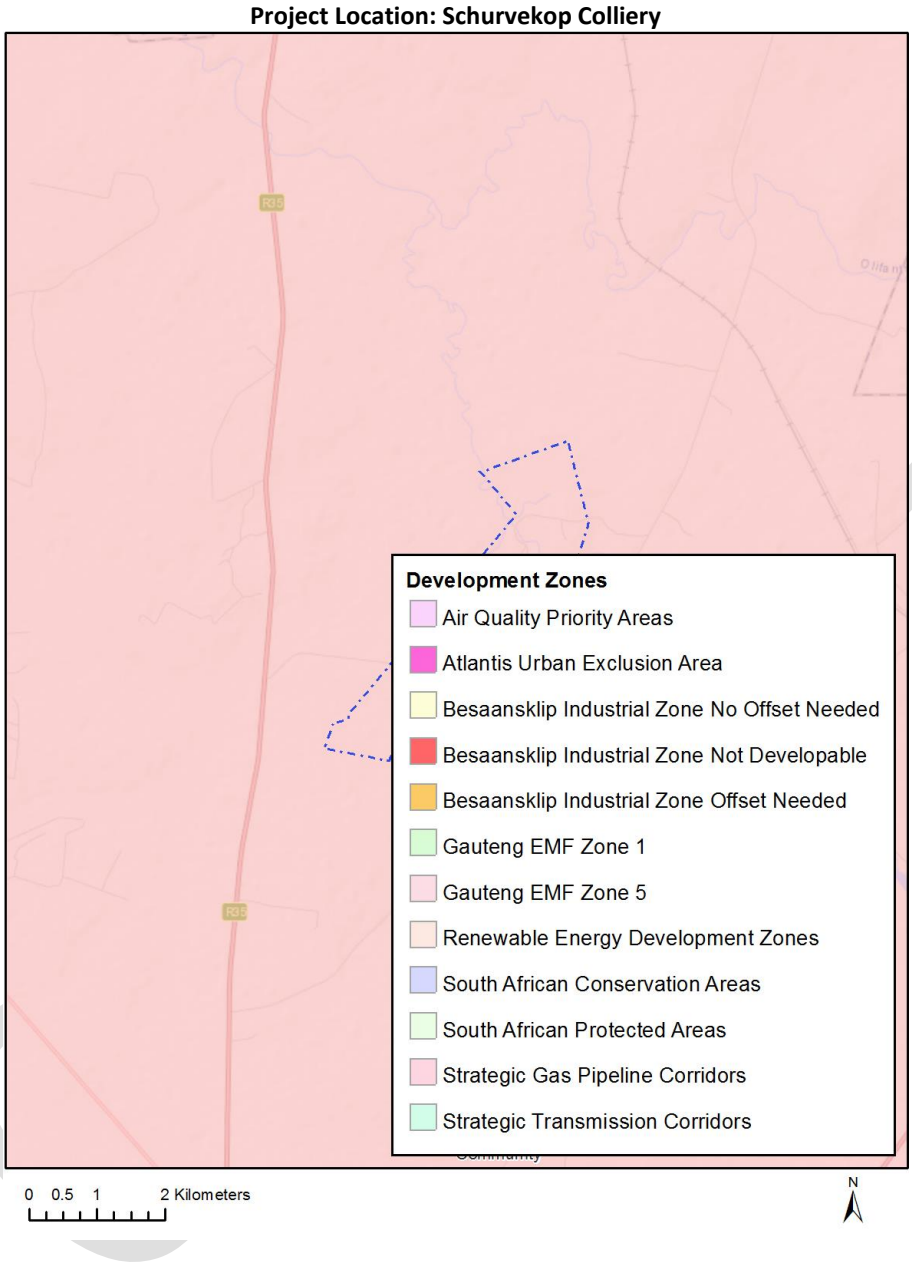
The following sections contain a summary of any development incentives, restrictions, exclusions or prohibitions that apply to the proposed development site as well as the most environmental sensitive features on the site based on the site sensitivity screening results for the application classification that was selected. The application classification selected for this report is: **Mining|Mining Right**.

Relevant development incentives, restrictions, exclusions or prohibitions

The following development incentives, restrictions, exclusions or prohibitions and their implications that apply to this site are indicated below.

Incentive, restriction or prohibition	Implication
Air Quality-Highveld Priority Area	https://screening.environment.gov.za/ScreeningDownloads/DevelopmentZones/HIGHVELD_PRIORITY_AREA_AQMP.pdf
Strategic Gas Pipeline Corridors -Phase 8: Rompco Pipeline Corridor	https://screening.environment.gov.za/ScreeningDownloads/DevelopmentZones/Combined_GAS.pdf

Map indicating proposed development footprint within applicable development incentive, restriction, exclusion or prohibition zones



Proposed Development Area Environmental Sensitivity

The following summary of the development site environmental sensitivities is identified. Only the highest environmental sensitivity is indicated. The footprint environmental sensitivities for the proposed development footprint as identified, are indicative only and must be verified on site by a suitably qualified person before the specialist assessments identified below can be confirmed.

Theme	Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
Agriculture Theme		X		
Animal Species Theme			X	

Aquatic Biodiversity Theme				
Archaeological and Cultural Heritage Theme		X		
Civil Aviation Theme				X
Defence Theme				X
Plant Species Theme			X	

Specialist assessments identified

Based on the selected classification, and the environmental sensitivities of the proposed development footprint, the following list of specialist assessments have been identified for inclusion in the assessment report. It is the responsibility of the EAP to confirm this list and to motivate in the assessment report, the reason for not including any of the identified specialist study including the provision of photographic evidence of the site situation.

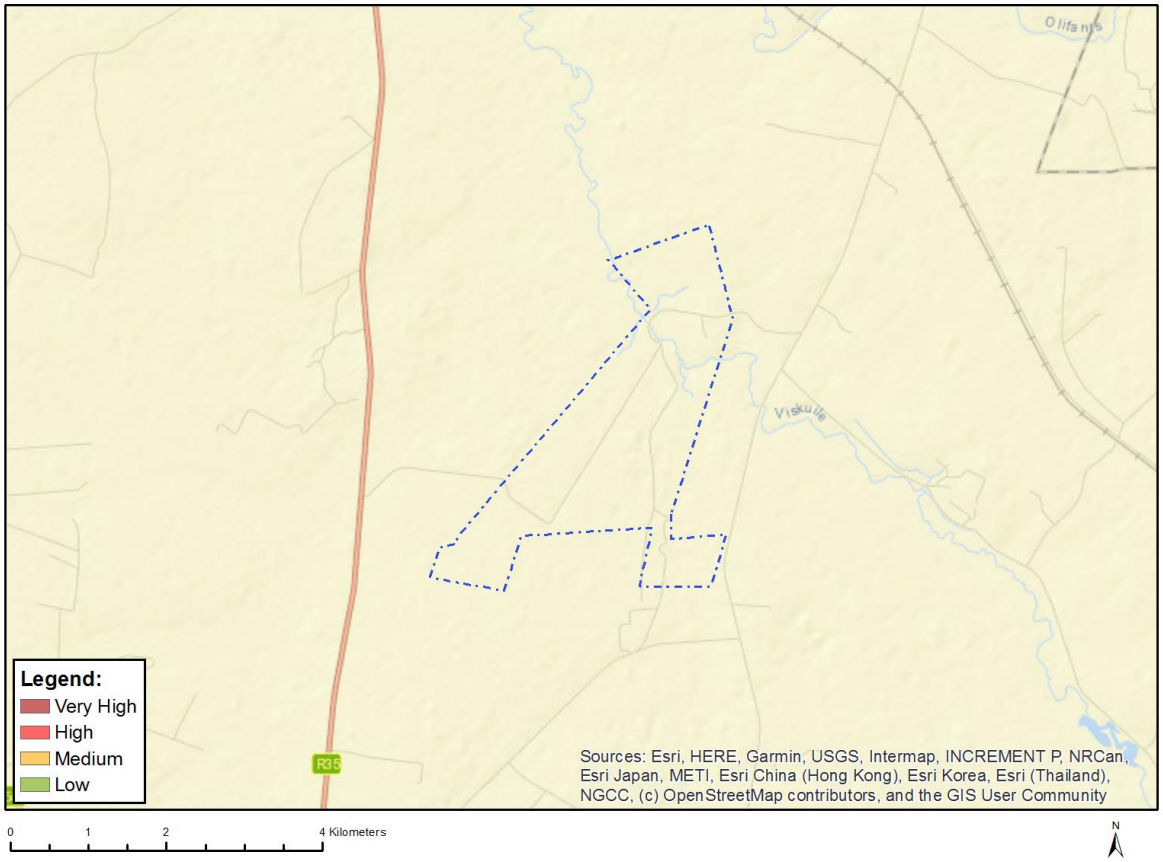
No	Specialist assessment	Assessment Protocol
1	Agricultural Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Agriculture_Assessment_Protocols.pdf
2	Landscape/Visual Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
3	Archaeological and Cultural Heritage Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
4	Palaeontology Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
5	Terrestrial Biodiversity Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Terrestrial_Biodiversity_Assessment_Protocols.pdf
6	Aquatic Biodiversity Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Aquatic_Biodiversity_Assessment_Protocols.pdf
7	Hydrology Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf

8	Noise Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Noise_Impacts_Assessment_Protocol.pdf
9	Radioactivity Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
10	Traffic Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
11	Geotechnical Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
12	Climate Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
13	Health Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
14	Socio-Economic Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
15	Ambient Air Quality Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
16	Seismicity Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
17	Plant Species Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Plant_Species_Assessment_Protocols.pdf
18	Animal Species Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Animal_Species_Assessment_Protocols.pdf

Results of the environmental sensitivity of the proposed area.

The following section represents the results of the screening for environmental sensitivity of the proposed site for relevant environmental themes associated with the project classification. It is the duty of the EAP to ensure that the environmental themes provided by the screening tool are comprehensive and complete for the project. Refer to the disclaimer.

MAP OF RELATIVE AGRICULTURE THEME SENSITIVITY

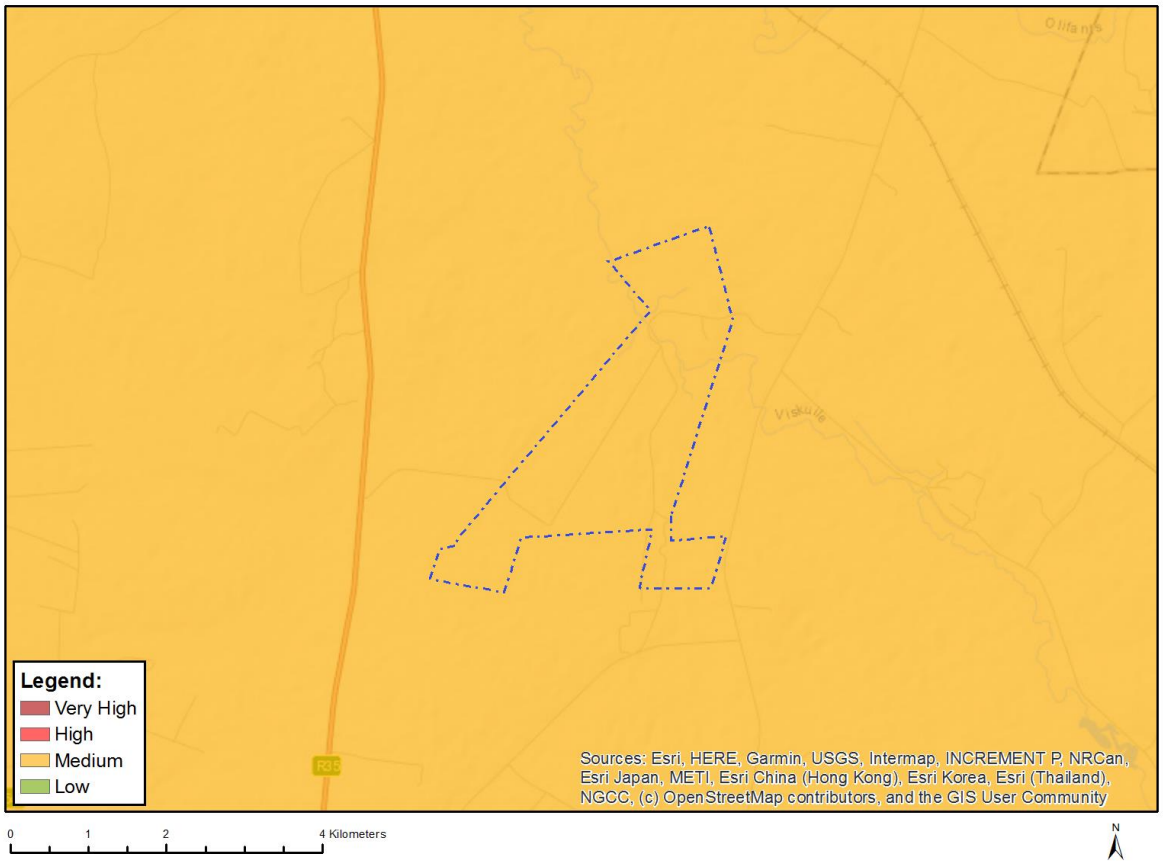


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Land capability;09. Moderate-High/10. Moderate-High
High	Annual Crop Cultivation / Planted Pastures Rotation;Land capability;09. Moderate-High/10. Moderate-High
High	Annual Crop Cultivation / Planted Pastures Rotation;Land capability;06. Low-Moderate/07. Low-Moderate/08. Moderate
Medium	Land capability;06. Low-Moderate/07. Low-Moderate/08. Moderate

MAP OF RELATIVE ANIMAL SPECIES THEME SENSITIVITY



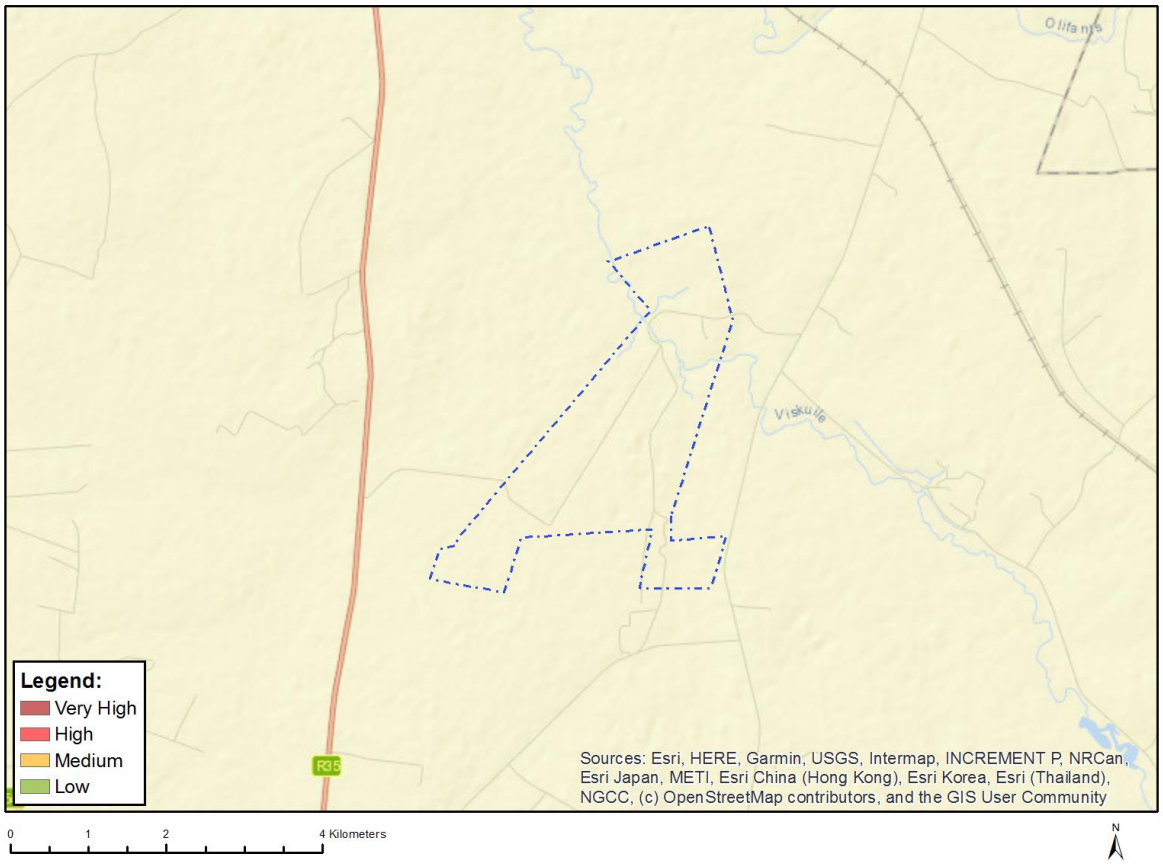
Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at eiadatarequests@sanbi.org.za listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Sensitivity Features:

Sensitivity	Feature(s)
Medium	Aves-Tyto capensis
Medium	Aves-Hydroprogne caspia
Medium	Aves-Eupodotis senegalensis
Medium	Mammalia-Crocidura maquassiensis
Medium	Mammalia-Hydrictis maculicollis
Medium	Mammalia-Ourebia ourebi ourebi

MAP OF RELATIVE AQUATIC BIODIVERSITY THEME SENSITIVITY

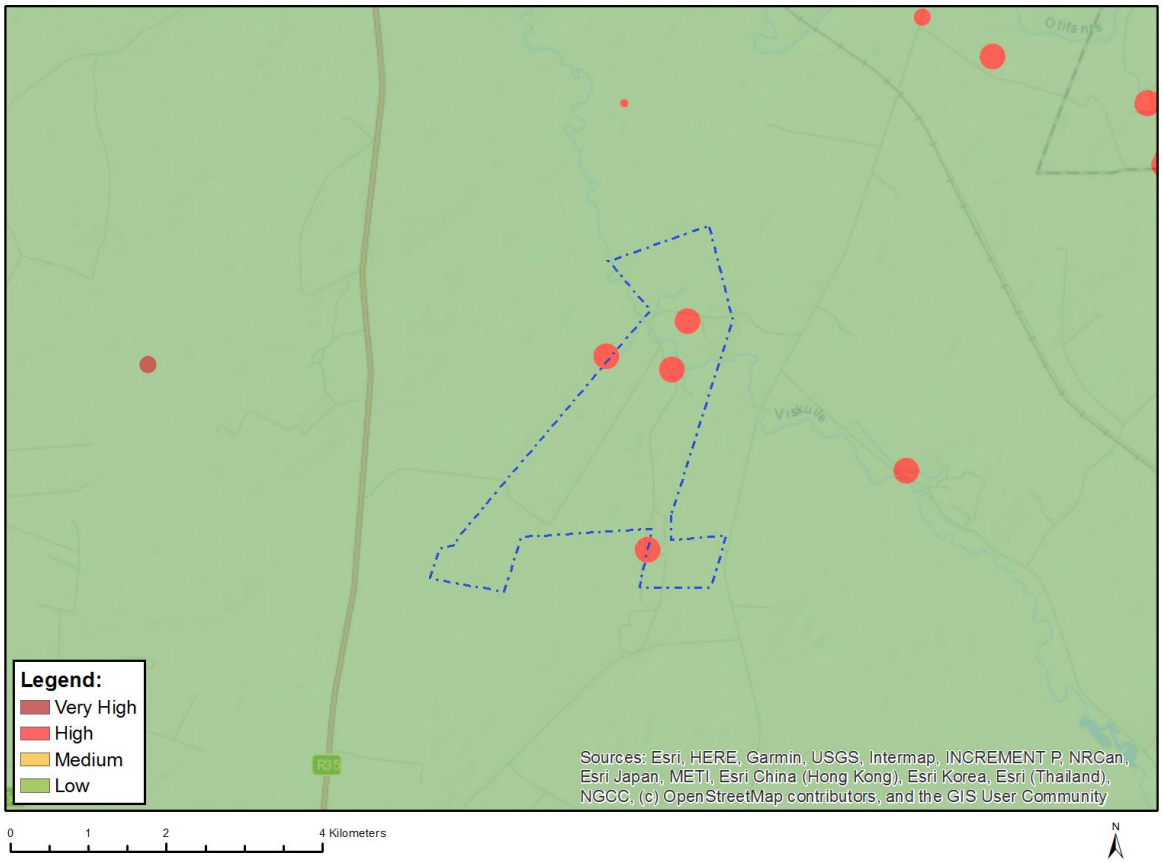


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity

Sensitivity Features:

Sensitivity	Feature(s)
	Low sensitivity
	Wetlands and Estuaries

MAP OF RELATIVE ARCHAEOLOGICAL AND CULTURAL HERITAGE THEME SENSITIVITY

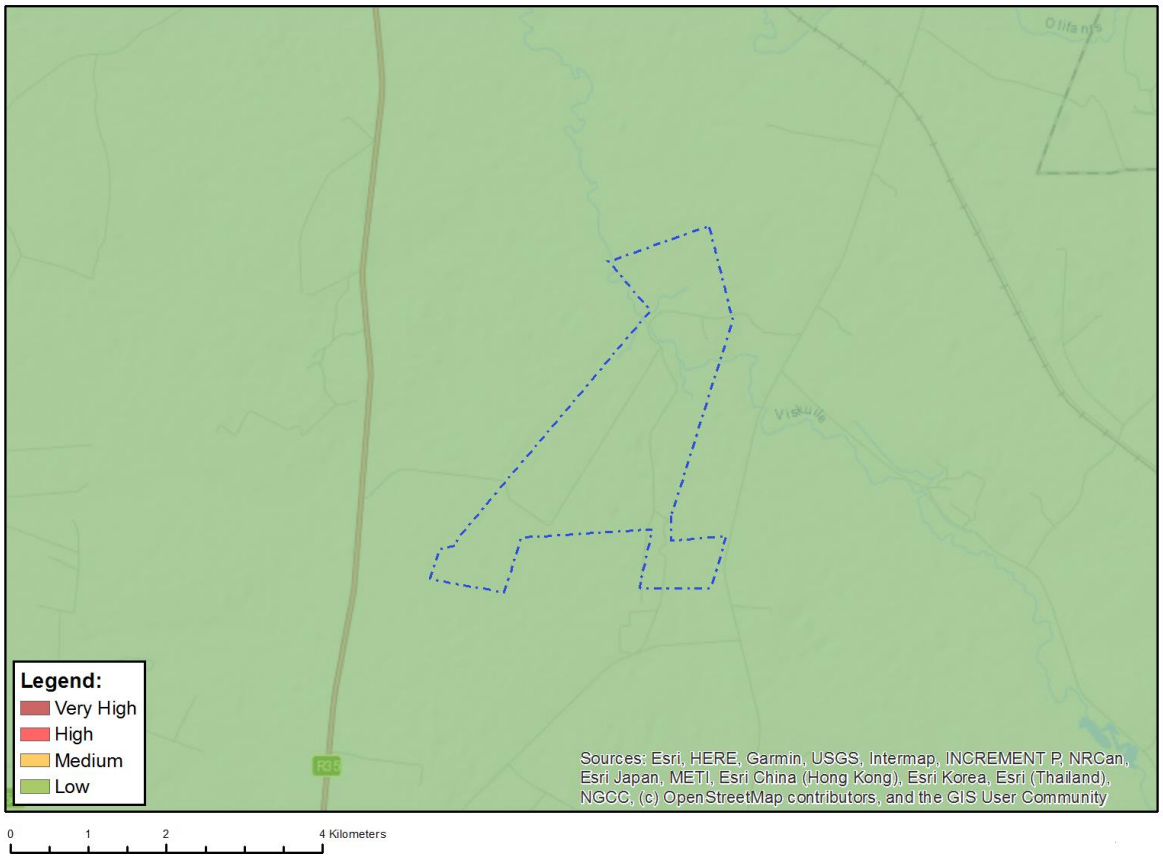


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	
Low	

MAP OF RELATIVE CIVIL AVIATION THEME SENSITIVITY

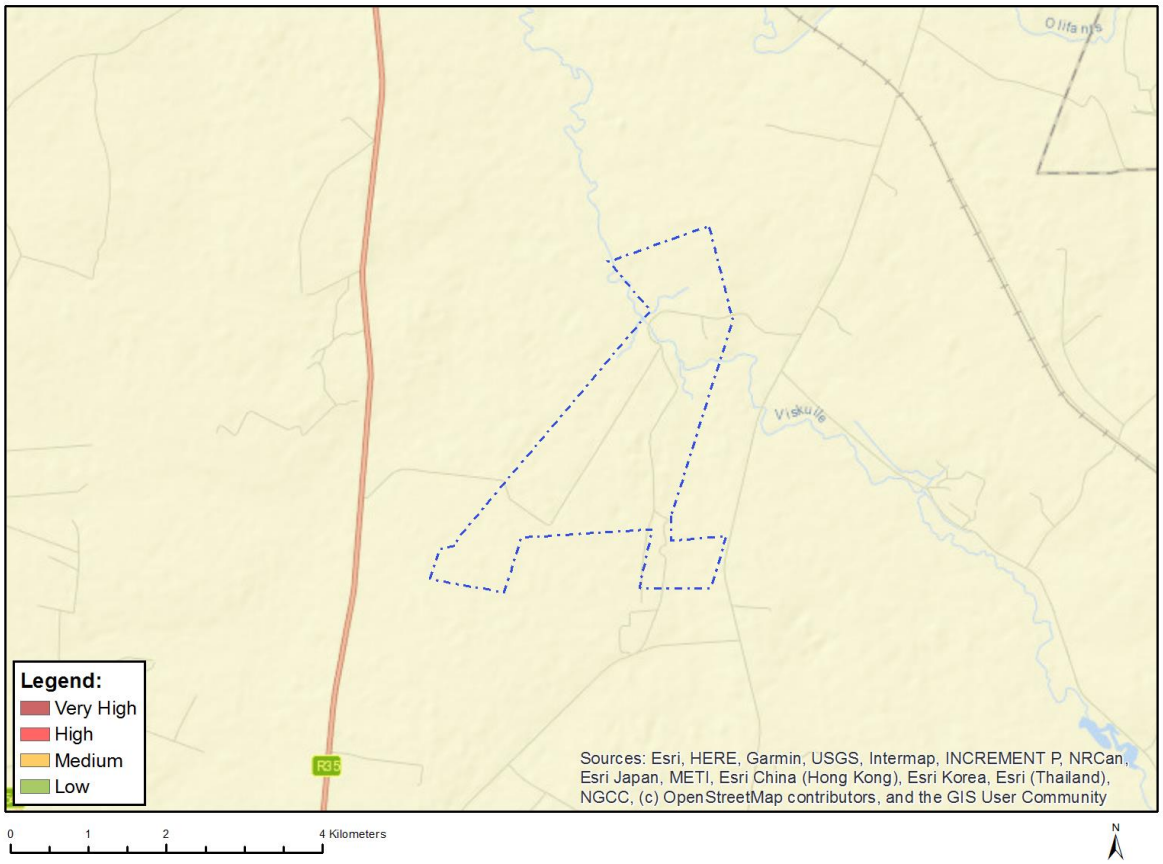


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low sensitivity

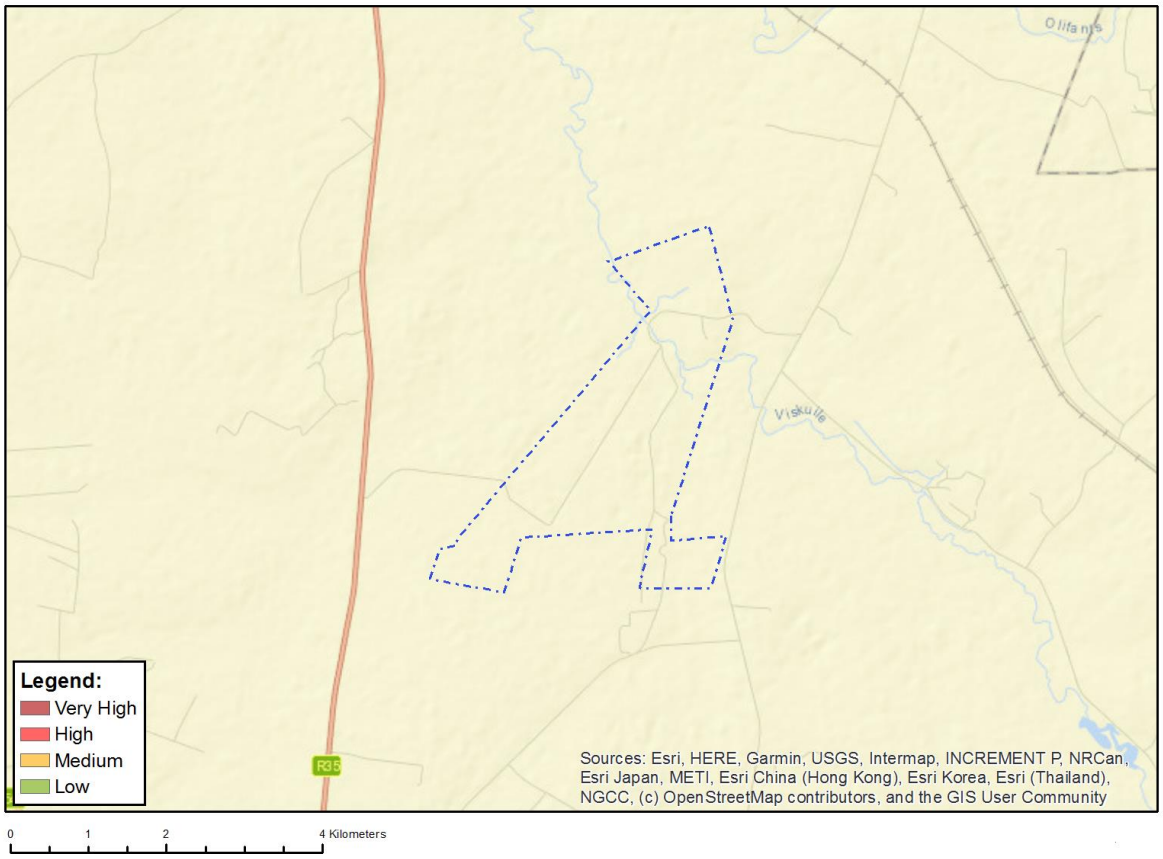
MAP OF RELATIVE DEFENCE THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:
No sensitivity features found.

MAP OF RELATIVE PLANT SPECIES THEME SENSITIVITY



Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at eiadatarequests@sanbi.org.za listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Sensitivity Features:

Sensitivity	Feature(s)
Low	
Medium	

APPENDIX 3: PUBLIC PARTICIPATION

I&AP Register:

Authority	Name/Company
Department of Forestry, Fisheries and Environment	Seoka Lekota Directorate: Biodiversity Conservation
Department of Mineral Resources and Energy	Seapei Sekgetho
Department of Mineral Resources and Energy	Samuel Mathavhela
Department of Mineral Resources and Energy	Mashudu Maduka
Department of Mineral Resources and Energy	Martha Seshweni
Department of Water and Sanitation	Standford Macevele
Mpumalanga Tourism and Parks Agency	Frans Krige
Mpumalanga Tourism and Parks Agency	Khumbelo Malele
Mpumalanga Tourism and Parks Agency	Thabile Mnisi
Mpumalanga Tourism and Parks Agency- Head of Scientific Services and Conservation	Johan Eksteen
Mpumalanga Department of Agriculture, Rural development, Land and Environmental Affairs (DARDLEA)	Charity Mthimunye
Mpumalanga Department of Agriculture, Rural development, Land and Environmental Affairs (DARDLEA)	Dineo Tswai
Mpumalanga Department of Agriculture, Rural development, Land and Environmental Affairs (DARDLEA)	Surgeon Marebane
Mpumalanga Department of Agriculture, Rural development, Land and Environmental Affairs (DARDLEA)	Jan Venter
Land Claims Commission	Lazarus Masuku
Department of Agriculture, Land Reform and Rural Development	R. Mabuler
Department of Agriculture, Land Reform and Rural Development	D. Khuthala
South African Heritage Resources Agency (SAHRA)	Online submission through https://www.sahra.org.za/sahris/
Mpumalanga Public Works, Roads & Transport	Fikile Sengwayo
Govan Mbeki Local Municipality (Environmental)	Hendrik Van Der Merwe
Govan Mbeki Local Municipality Ward 15	Councillor MJ Mtsweni
Gert Sibande District Municipality	Environmental Services- Tebogo Mogakabe
Gert Sibande District Municipality	Environmental Services
Gert Sibande District Municipality	Lindokuhle Magagula- Environmental Services
Gert Sibande District Municipality	M Orbert- Town Planner
Department of Agriculture, Land Reform and Rural Development	Mashudu Marubini
Department of Defence	Major LR Kenny
SA Weather Service (SAWS)	Zamikhaya Magogotya
SANRAL	Ernest Nqenqa
SANRAL	Kwanele Simelane
SANRAL	Gertrude Soko
Birdlife	Melissa Whitecross
ESKOM	Charmaine Masehela
SANparks	Phuti Namethe Mari Morland Akani Shivambu Patricia Mohlala Lindiwe Mbowane
SANparks	Lindiwe Chuma
Endangered Wildlife Trust	Frank J Bradley Gibbons
MTPA	Phumla Nkosi
Dept. of Human Settlements	Violet Siwela
Dept. of Public Works, Roads & Transport	KM Mohlaseedi
Dept. of Public Works, Roads & Transport	David Nkambule

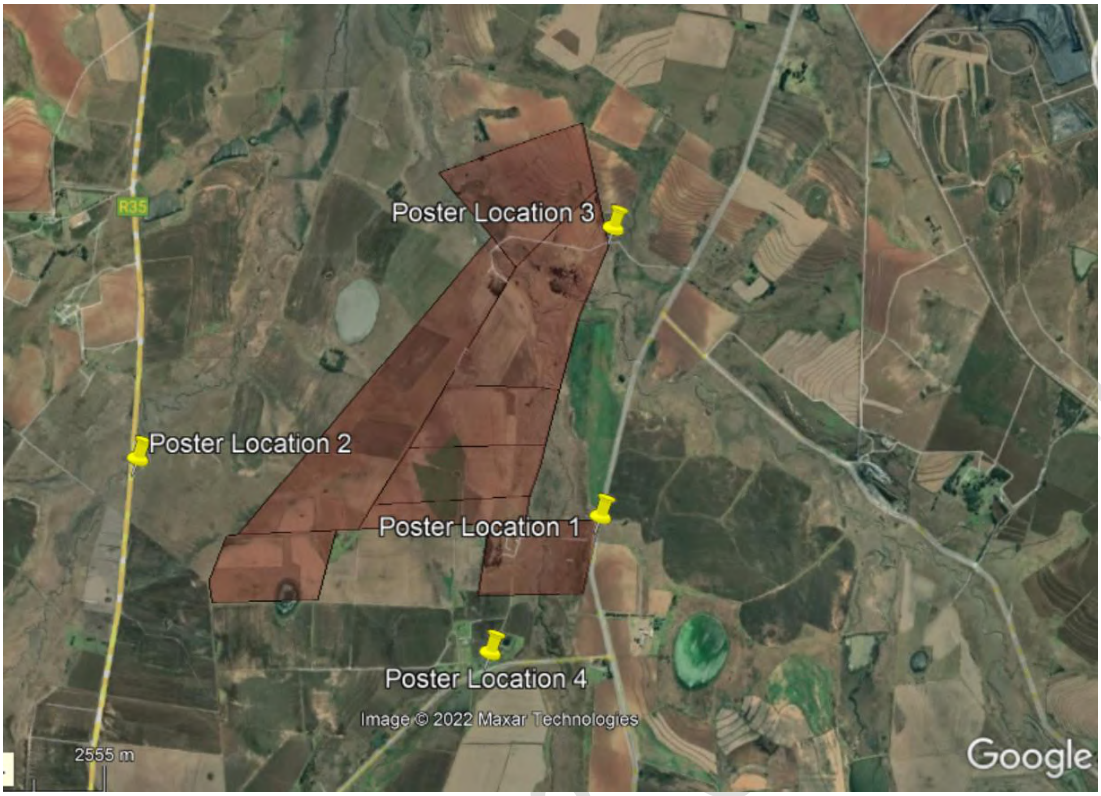
Authority	Name/Company
Dept. of Public Works	Dumisile Hlengethwa
Dept. of Land Affairs- Land Restitution Support	Sam Nkosi
Dept. of Land Affairs Provincial State Land Manager	Maximiliaan De Kock
Department of Defence	Major LR Kenny
Dept. of Defence	Ms Joy Nonzukiso Peter
Dept. of Public Enterprises	Mr Richard Mantu
Dept. of Energy	MEC Office
Dept. of Health	MEC Office
Dept. of Labour	Ms Zetu Gayeni
Dept. of Local Government & Housing	
Dept. of Traditional Affairs	
Department of Economic Development & Tourism	Thulane Mdakane
Department of Community Safety, Security and Liaison	Vusi Shongwe
Department of Co-Operative Governance and Traditional Affairs	Refilwe Mtsweni

I&AP	
Farm	**Name/Company**
Schurvekop 227 IS Portion 6 & 16	Anglo Coal / Thungela
Schurvekop 227 IS Portion 0, 4, 17, 18, 19, 20 ,21, 23 & 24 Uitgedacht 229 Portion 7 & 8	Zelpy 1110 Pty Ltd, Dewald Te Water
Schurvekop 227 IS Portion 8 & 15, Lessee	Adolf Bosman
Community on Portion 17 and 20	Schurvekop Community Representative, Joseph Mtsweni
Schurvekop 227 IS Portion 7	Jastoet Holsteins Pty Ltd
Schurvekop 227 IS Portion 12, 13, 14, 26, 27 & 28	Anglo American Inyosi Coal Pty Ltd
Schurvekop 227 IS Portion 26 Lessee	Johan Engelbrecht
Geluk 226 Portion 1 & 2, Schurvekop 227 IS Portion 22	Susanna Cornelia Schoeman
Vlakkuilen 76 Portion 0	Anglo American Inyosi Coal Pty Ltd
Legdaar 78 Portion 4 Uitgedacht 229 Portion 3	Grobler Balthazer Johannes
Uitgedacht 229	Jacques Grobler
Legdaar 78 IS; Uitgedacht 229 RE1	F.R.Grobler
Stephanus	Van Der Spuy
Eco Elementum	Vernon Siemelink
Uthingo Mining Services	Menzi Nsimbi
Private	John Smitt
M.C.O	John Mathebula
Ngcondobeza 3662 Ext-4-Emznoni	Samuel Masilela
Schurvekop Farm	Nkosi Thandi
Ex 26 Embalenhle	Lehiohonoio
4779 Et 23 Emznoni township	Fikile Shadrack Mayisele
Vlakkuilen	BH Motau
Bosman Boerdery	AJ Bosman
Da Silva Carriers	ZJ Mdlou
Vlakkuilen	Moses Khumalo
TW Schurvekop	Interested Party (???)
TW Group	Dewald Te Water
4710 Ext 4 Emznoni	Martha Nkosi
Cow Village	Masagula
Cow Village	Vusi Mahlangu
Interested Party	Lindiwe Moloi

I&AP	
Farm	**Name/Company**
Interested Party	Xolisile Nkosi
Interested Party	Jabu Nguma
Interested Party	Nkosi Thandi
Interested Party	Sphiwe Makhubu
Balie Goje Pty Ltd	Goje Mthembu
Interested Party	Jabu Mhlangu
Sibabusi Trading	Sibu-Simelone
Govan Mbeki Local Municipality	Joseph Mtsweni
Madodana	Lenard Mahlangu
Interested Party	Liudeni Mbotha
Interested Party	Magaret Ndlovu
Interested Party	JK Mitchell
Interested Party	Khosi Vilakazi
Govan Mbeki Local Municipality	Abegail Hadebe
Govan Mbeki Local Municipality	Priscillah Mesombuka
Govan Mbeki Local Municipality	Dudu Ndinisa
Elephantus	Sifiso Sithole
Interested Party	Lee-Roy Finyoth
Bondurant Pty Ltd	Gcina Mnisi
Interested Party	Morris Mashiloane
Interested Party	Jabulane Mahlangu
Interested Party	Bongani
Interested Party	Tshepo Sithole
Interested Party	Mandla Mahlangu
Interested Party	Virginia Vilakazi
Schurvekop	Sophia Semeke
Sibusiso Nkosi	Nomakanjane
December Masuko	SS Construction
Interested Party	Khehla Mazibuke
Nipcon Transport	Richard Lukhuleni
Sincere Enterprises	Fortune Mabizela
Interested Party	Zanele Sithole
Pastor	SD Mahlangu
Da Silva Carriers	Paulo Hannes Da Silva
Mosphale	MJ Mogashoa
Mosphale	Bugani B Sibiya
Mosphale	Christopher N Ndhlou
Interested Party	MM Phalane
Interested Party	Marlene van der Linde
Interested Party	Grace Vilakazi
Anglo American	Daphney Tshehla
Anglo Coal Environmental Services	Wilda Meyer
Anglo American	Chantal Murdock
Werksmans.inc	Chris Stevens
Anglo American	Jill Marks
Interested Party	Zanele Pricelia Sithole
Interested Party	Marlaine Andersen
Anglo American	Chantelle Gerber
Affected	Alwyn Bosman
Private	Jabu Sibawoe
Private	Sbusiso Masinu
G&DM	Lindokuhle Magagula

I&AP	
Farm	**Name/Company**
Exxaro	William Seabi
MTS Holdings	Michael Nkomo
Leads 2 Business	Melanie Miles

POSTER LOCATIONS & PHOTOGRAPHS:



Poster 1

Poster 2

Poster 3

Poster 4

Poster 5 Bethal Public Library

MMAKAU COAL (PTY) LTD

APPLICATION FOR A MINING RIGHT AND INTEGRATED ENVIRONMENTAL AUTHORISATION

FARM SCHURVEKOP 227 IS, BETHAL

MP30/5/1/2/2/10366MR

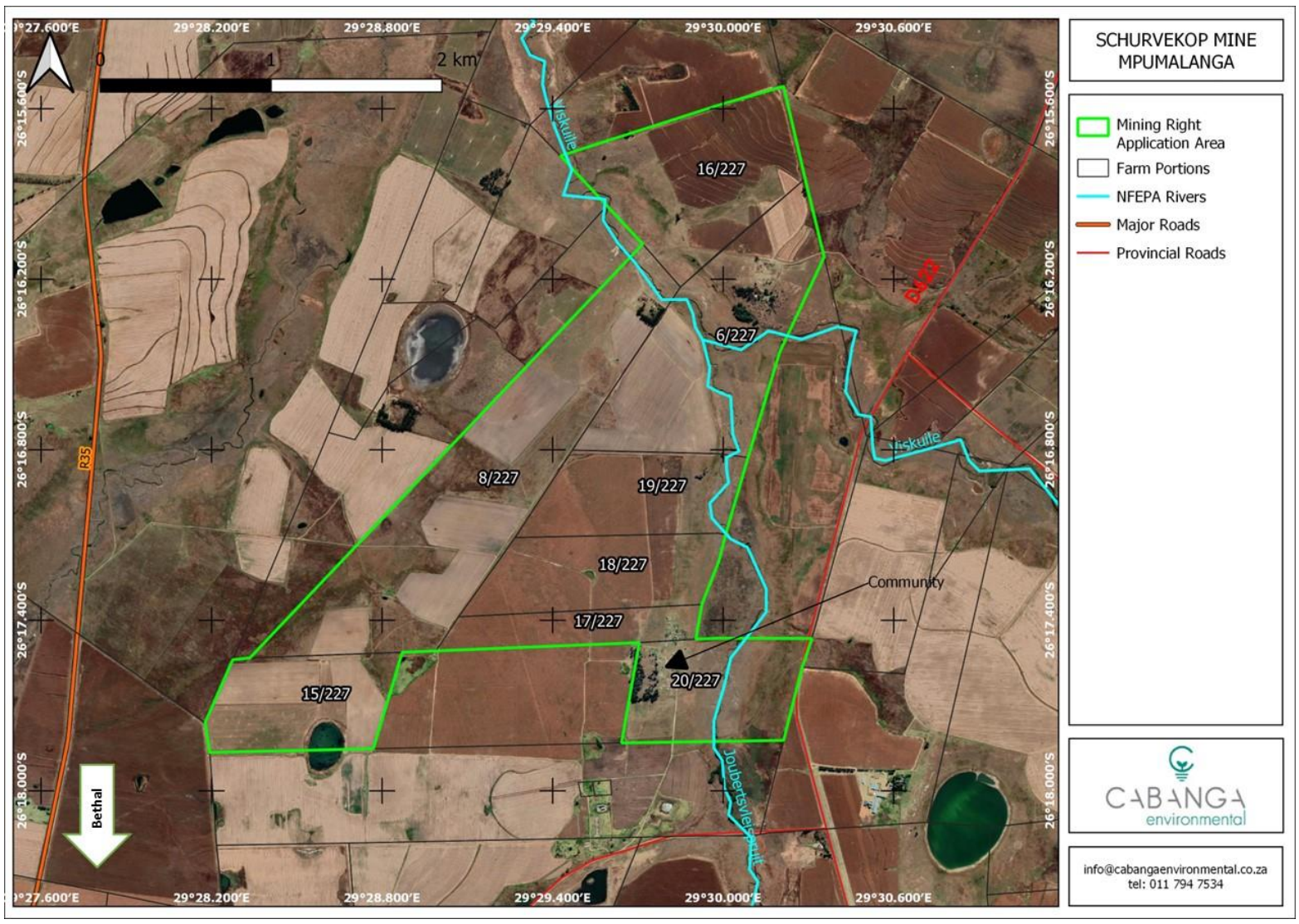
Mmakau Coal (Pty) Ltd has submitted an application for environmental authorisation in terms of the National Environmental Management Act, Act 107 of 1998 (NEMA) and the National Environmental Management Waste Act, Act 59 of 2008 (NEMWA) in respect of Listed Activities triggered by the application for a Mining Right in terms of the Mineral and Petroleum Resources Development Act, Act 28 of 2002 (MPRDA).

The application relates to the underground mining of coal; the beneficiation (washing) of coal and associated infrastructure (including a plant and stockpile area, discard dump, administration and ablution facilities, workshops, washbays, fuel storage etc.).

The Competent Authority for the application is the Department of Mineral Resources and Energy (DMRE).

APPLICANT: Mmakau Coal (Pty) Ltd

LOCATION: The proposed mining right area is located 20km north of the town of Bethal, off the D622 - Halfgewonnen Road and is adjacent to the Forzando South Mine. The proposed mining right area is approx. 696.57 hectares and includes Portions 6, 8, RE15, 16, 17,18, 19 and 20 of the farm Schurvekop 227 IS within the Govan Mbeki Local Municipality. See plan below.



Mmakau Coal (Pty) has appointed Cabanga Environmental as the Environmental Assessment Practitioner (EAP) to undertake the necessary processes required in terms of legislation with regards to the various environmental and public participation processes. The following listed activities have been identified in terms of the NEMA EIA Regulations (2014) and GNR 921 of NEMWA:

- **GNR 983, Listing Notice No. 1:** Activity No's 9, 10, 11, 12, 14, 19, 24, 30, 56
- **GNR 984, Listing Notice No. 2:** Activity No's 6, 15, 17
- **GNR 985, Listing Notice No. 3:** Activity No's 2, 4, 12, 14, 18
- **GNR 921, Category B:** Activity 7, 9, 10, 11
- **GNR 921, Category C:** Activity 1, 2

As such, the application will be subject to a Scoping and Environmental Impact Assessment (EIA) Process.

INVITATION TO COMMENT & REGISTER AS AN INTERESTED PARTY

Please register as an Interested and Affected Party (I&AP) to receive notifications regarding the Project and Application Processes. The Reports associated with the applications will be made available for public review and comment for a minimum period of thirty (30) days and all registered I&APs will be notified of their availability. **Public review of the Scoping Report will commence on 08 August 2022- 07 September 2022. Copies of the Scoping Reports can be found at the Bethal Public Library and/or online at www.cabangaenvironmental.co.za under the Public Participation Tab. Please send all comments on or before 07 September 2022.**

FOR MORE INFORMATION ON THE PROJECT PLEASE CONTACT:

Michelle Venter / Jane Barrett

Tel: (011) 794-7534 / Fax: (011) 794-6946

E-mail: info@cabangaenvironmental.co.za

Online: www.cabangaenvironmental.co.za

CABANGA environmental

MMAKAU STEENKOOL (EDMS) BPK

AANSOEK OM 'N MYNREG EN VERWANTE OMGEWINGSMAGTIGING

PLAAS SCHURVEKOP 227 IS, BETHAL

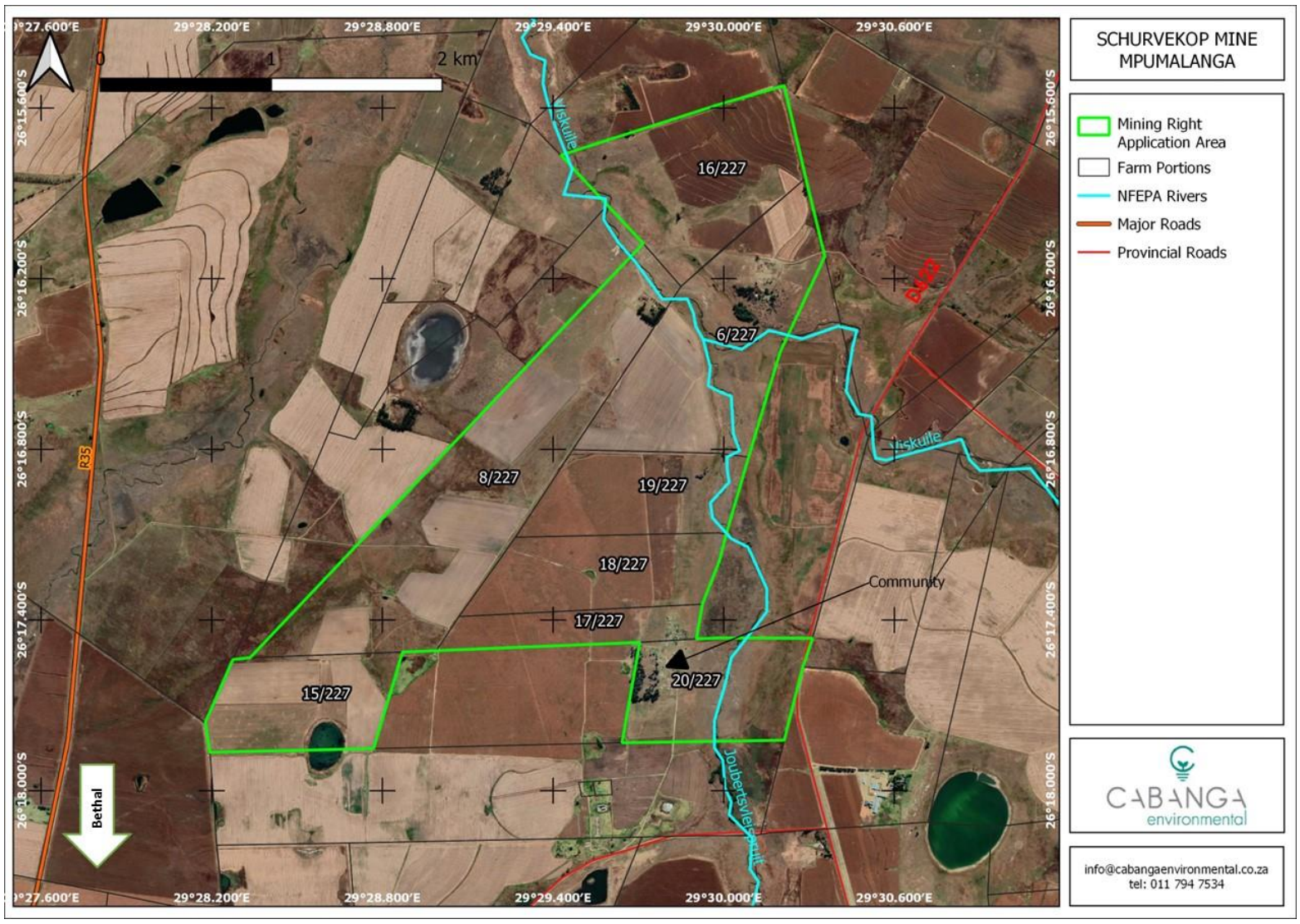
MP30/5/1/2/2/10366MR

Mmakau Steenkool (Edms) Bpk het aansoek gedoen om omgewingsmagtiging in terme van die Wet op Nasionale Omgewingsbestuur, Wet 107 van 1998 ("WNOB") en die Nasionale Omgewingsbestuur: Wet op Afwal, Wet 59 van 2008 ("NOWA") ten opsigte van Gelysde Aktiwiteite veroorsaak deur die aansoek vir 'n Mynreg ingevolge die Wet op die Ontwikkeling van Minerale en Petroleumhulpbronne, Wet 28 van 2002 ("WOMPH").

Die aansoek hou verband met die ondergrondse myn van steenkool; die veredeling (was) van steenkool en verwante infrastruktuur (insluitend 'n aanleg en voorraadstapelgebied, wegdoenhoop, administrasie- en ablusiegeriewe, werkwinkels, wasvakke, brandstofberging, ens).

AANSOEKER: Mmakau Steenkool (Edms) Bpk

LIGGING: Die voorgenome mynreggebied lê 20km noord van die dorp Bethal, af van die D622 - 'Halfgewonnenpad' en grens aan die Forzando Suid Myn. Die voorgenome mynreggebied beslaan sowat 696.57 hektaar en sluit die volgende eiendomme in die Govan Mbeki Plaaslike Munisipaliteit in: Erfdeel 6, 8, RE15, 16, 17,18, 19 en 20 van die plaas Schurvekop 227 IS.



Mmakau Steenkool (Edms) Bpk het Cabanga Environmental aangestel as die omgewingskonsultant om die onderskeie omgewings- en openbare deelnameprosesse, soos deur wetgewing vereis, te onderneem. Die volgende gelyste aktiwiteite is geïdentifiseer kragtens die WNOB se omgewings-impak assessering (OIA) Regulasies (2014) en GNR 921 van NOWA.

- **GNR 983, Lysnotering No. 1:** Aktiwiteit No's 9, 10, 11, 12, 14, 19, 24, 30, 56
- **GNR 984, Lysnotering No. 2:** Aktiwiteit No's 6, 15, 17
- **GNR 985, Lysnotering No. 3:** Aktiwiteit No's 2, 4, 12, 14, 18
- **GNR 921, Kategorie B:** Aktiwiteit 7, 9, 10, 11
- **GNR 921, Kategorie C:** Aktiwiteit 1, 2

Derhalwe sal 'n Bestek- en Omgewingsimpakassesseringsproses vir hierdie projek gevolg word.

OPENBARE KOMMENTAAR EN UITNODIGING OM TE REGISTREER AS 'N BELANGHEBBENDE PARTY

Registreer asseblief as 'n geïnteresseerde en belanghebbende party (G&BP) om verdere kennisgewings rakende die projek en aansoek prosesse te ontvang. Die verslae wat met die aansoeke geppard gaan sal beskikbaar gestel word vir 'n publieke hersiening en kommentaar periode vir 'n minimum tydperk van dertig (30) dae en alle G&BPs sal in kennis gestel word van verslae se beskikbaarheid. **Publieke hersiening van die Bestekopnameverslag sal plaasvind vanaf 08 Augustus 2022 tot 07 September 2022. Kopiee van die Bestekopname Verslag kan gevind word by die Bethal Publieke Biblioteek, en/of aanlyn by www.cabangaenvironmental.co.za onder "Public Participation"**

Stuur asseblief alle kommentaar voor of op 07 September 2022.

VIR VERDERE INLIGTING OOR DIE PROJEK, SKAKEL ASSEBLIEF:

Michelle Venter / Jane Barrett

Tel: (011) 794-7534 / Fax: (011) 794-6946

E-mail: info@cabangaenvironmental.co.za

Online: www.cabangaenvironmental.co.za

CABANGA environmental

Telephone: +27 11 794 7534
Fax: +27 11 794 6946
E-mail: info@cabangaenvironmental.co.za

BACKGROUND INFORMATION DOCUMENT:

APPLICATION FOR A MINING RIGHT AND INTEGRATED ENVIRONMENTAL AUTHORISATIONS

MMAKAU COAL (PTY) LTD: FARM SCHURVEKOP 227 IS, BETHAL, MPUMALANGA

REF: MP30/5/1/2/2/10366MR

1. INTRODUCTION

Mmakau Coal (Pty) Ltd has submitted an application for a mining right in terms of the Minerals and Petroleum Resources Development Act, Act 28 of 2002 (MPRDA) over Portions 6, 8, RE15, 16, 17,18, 19 and 20 of the farm Schurvekop 227 IS.

The proposed mining right area comprises +696.57 hectares and is located approximately 20km north of the town of Bethal, within the Govan Mbeki Local Municipality (MP307), Mpumalanga (Figure 1).

This application for a mining right is subject to an application for an Environmental Authorisation in terms of the National Environmental Management Act, Act 107 of 1998 (NEMA) and the National Environmental Management Waste Act, 59 of 2008 (NEMWA).

Cabanga Environmental has been appointed as the independent Environmental Assessment Practitioner (EAP) to complete the necessary environmental applications and public participation process.

2. PURPOSE OF THIS DOCUMENT

This document (the Background Information Document or "BID") has been compiled to provide you, the Interested and Affected Party (I&AP), with information on the proposed project and the associated environmental authorisation process.

You are hereby invited to participate freely and submit any questions or information you feel may contribute to the process. All comments received will be recorded and addressed as part of the environmental impact assessment process.

Please complete the attached questionnaire and return to us on Fax: 011 794 6946 or info@cabangaenvironmental.co.za to register as an I&AP. Alternatively call us on Tel: 011 794 7534 or complete a form online at www.cabangaenvironmental.co.za.

3. PROJECT OVERVIEW

Mineral:	Coal
Mining Method:	Underground bord-&-pillar
Depth of mining:	60m below surface
Life of Mine:	+14 years

The underground will be accessed via a boxcut adit. It is proposed that the boxcut, plant and associated mine infrastructure be located on Portion 8 of the farm Schurvekop 227 IS, owned by the applicant (Figures 2 and 3).

Coal will be transferred from the underground to surface by means of a conveyor belt. Whereby, it will be sent to the plant area for processing (crushing, screening and washing).

Mine residue from the plant will be disposed of onto an integrated disposal dump.

Product coal will be sized and stockpiled in designated areas for pre-qualification prior to being trucked to market.

It is currently anticipated that the plant will run 24/7.

Service Requirements:

- Electricity for the operation will be sourced from Eskom (10MVA required).
- Process water will initially be sourced from rain water and onsite borehole, thereafter (once steady state production is reached) the process water will be sourced from the underground workings.
- It is envisaged that potable/domestic water will be sourced from boreholes on site.
- General waste will be collected for disposal at the Municipal dump.
- Industrial waste will be collected for disposal at a suitably licensed facility.
- Sewage will be collected within conservancy tanks to be emptied by honey sucker for treatment at a suitably licensed facility.

Alternatively a small, package sewage plant will be installed on site.

Employment:

- The project will create employment for approximately 279 people.

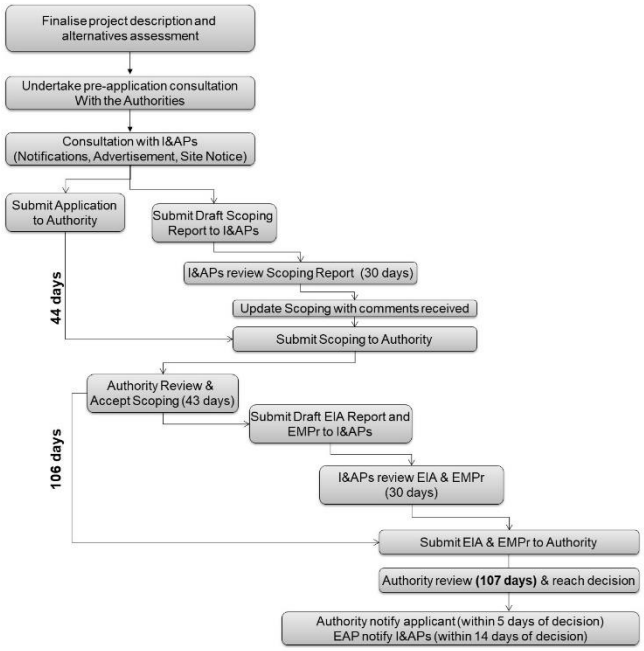
4. ENVIRONMENTAL AUTHORISATION PROCESS

Mmakau Coal (Pty) Ltd has submitted an integrated application for environmental authorisation for the proposed operations to the competent authority – being the Department of Mineral Resources and Energy (DMRE).

Following the submission of an application for an environmental authorisation the applicant is required to subject the application to either a Basic Assessment or a Scoping and Environmental Impact Assessment (EIA) process.

During this process the positive and negative impacts associated with the development are assessed; and suitable alternatives and/or management measures are proposed to reduce the environmental impacts.

As the application relates to mining activities (Listing Notice 2), a full Scoping and EIA process will be followed. The steps in this process are briefly outlined below:



The Scoping and EIA/EMP reports will be compiled in the format prescribed by the DMRE, in accordance with NEMA and NEMWA (integrated application).

The overall timeframe for the environmental authorisation process is approximately 300 days as regulated by NEMA.

Once the DMRE has reached a decision on the application, all registered I&APs will be notified of the outcome. The notification will also include details of the available appeal process.

5. LISTED ACTIVITIES

The following table summarises the activities identified in terms of NEMA and NEMWA, for which an application has been submitted:

- **GNR 983, Listing Notice No. 1:** Activity No's 9, 10, 11, 12, 14, 19, 24, 30, 56
- **GNR 984, Listing Notice No. 2:** Activity No's 6, 15, 17
- **GNR 985, Listing Notice No. 3:** Activity No's 2, 4, 12, 14, 18
- **GNR 921, Category B:** Activity 7, 9, 10, 11
- **GNR 921, Category C:** Activity 1, 2

6. POTENTIAL ENVIRONMENTAL IMPACTS

The following potential impacts have been identified and will be assessed further during the environmental authorisation process:

- Potential to alter the topography
- Loss of soil characteristics - erosion and compaction
- Change in land use from farming to mining
- Loss of biodiversity and species of conservation concern - vegetation clearance and habitat destruction
- Potential for alien invasive establishment
- Reduced flow to downstream water catchment
- Potential pollution to water resources (surface and groundwater)
- Drawdown cone from dewatering activities (groundwater quantity)
- Increased dust and emissions
- Increased noise levels
- Visual aesthetics and sense of place will be altered

- Damage to property/infrastructure from blast events
- Potential damage to heritage sites (grave and/or archaeological artefacts)
- Influx of job seekers to the area
- Increased traffic – coal haulage

A number of specialist studies were completed for the project between 2017 – 2019, these will be reviewed and updated where necessary. These include:

- Air quality impact assessment;
- Blasting and vibration assessment;
- Freshwater Ecology;
- Terrestrial Ecology;
- Soils, land use and land capability;
- Groundwater assessment;
- Heritage and palaeontology; and
- Traffic impact assessment.

Additional studies proposed for the project, include:

- Health Impact Assessment;
- Visual Impact Assessment; and
- Noise Impact Assessment.

7. PUBLIC PARTICIPATION PROCESS

Public involvement is an essential component of the environmental process. It addresses the right of I&APs to be informed of the proposed activities and to be involved in decisions that affect them. It also affords the environmental assessment practitioner the opportunity to assess and address the issues and concerns raised by I&APs thus allowing us to assess all the potential impacts of the proposed project.

8. INVITATION TO REGISTER AND COMMENT

The Reader is invited to participate in the Application process, by registering as an I&AP. As a Registered I&AP you will be kept informed of the Application processes, invited to review and comment on draft reports as they become available. Furthermore, all comments received from I&APs will be included in the relevant reports, and addressed throughout the process.

To register please complete the attached questionnaire.

Public review of the Scoping Report will commence on 08 August 2022- 07 September 2022 (30 days). Copies of the Scoping Reports can be found at the Bethal Public Library and/or online at www.cabangaenvironmental.co.za under the Public Participation Tab.

Please send all comments on or before 07 September 2022.

For more information on the project please contact:

Michelle Venter / Jane Barrett
Cabanga Environmental
Tel: 011 794 7534 / Fax: 011 794 6946
michelle@cabangaenvironmental.co.za
Postnet Suite 470
Private Bag X3
Northriding
2162

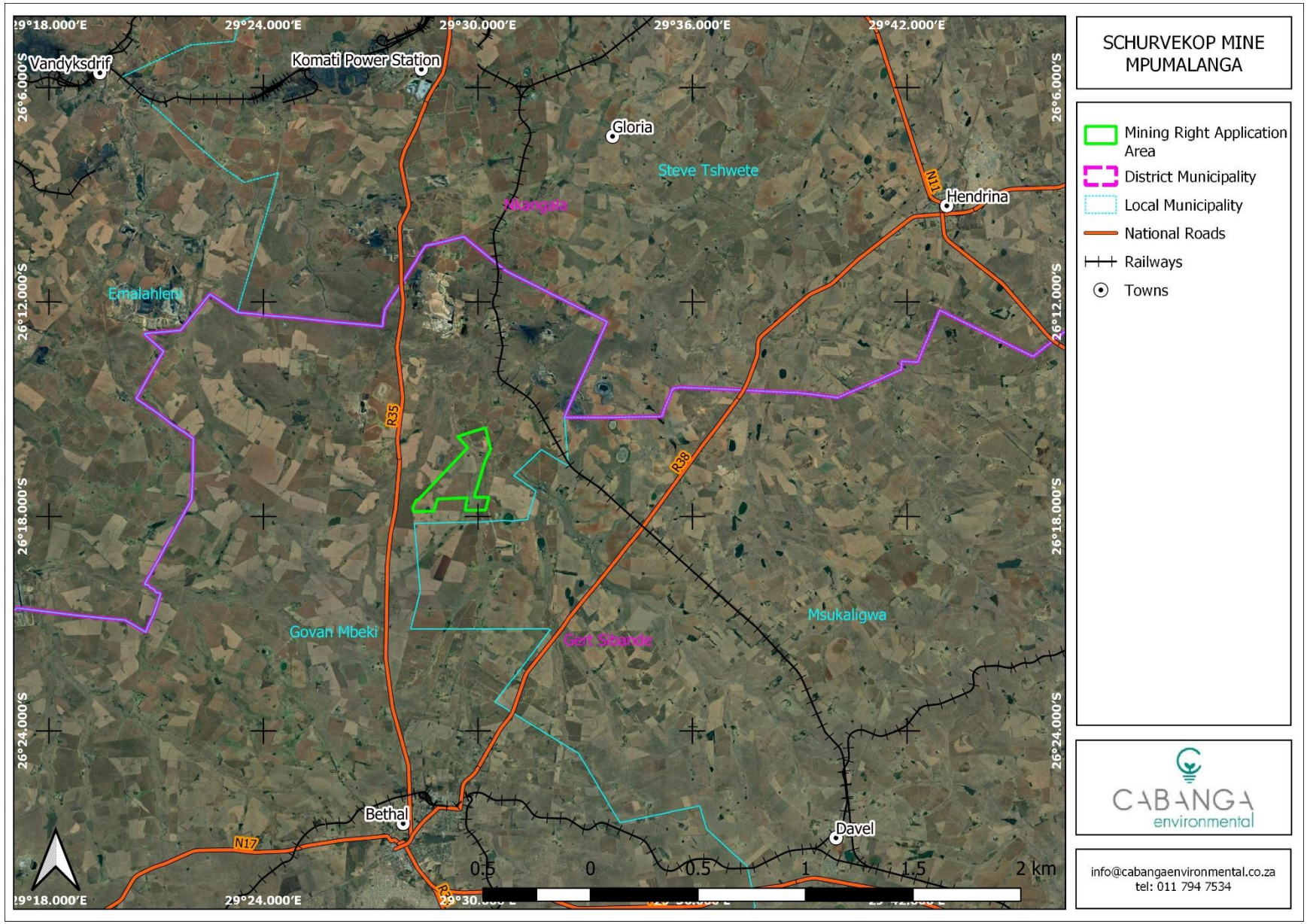


Figure 1: Regional Plan

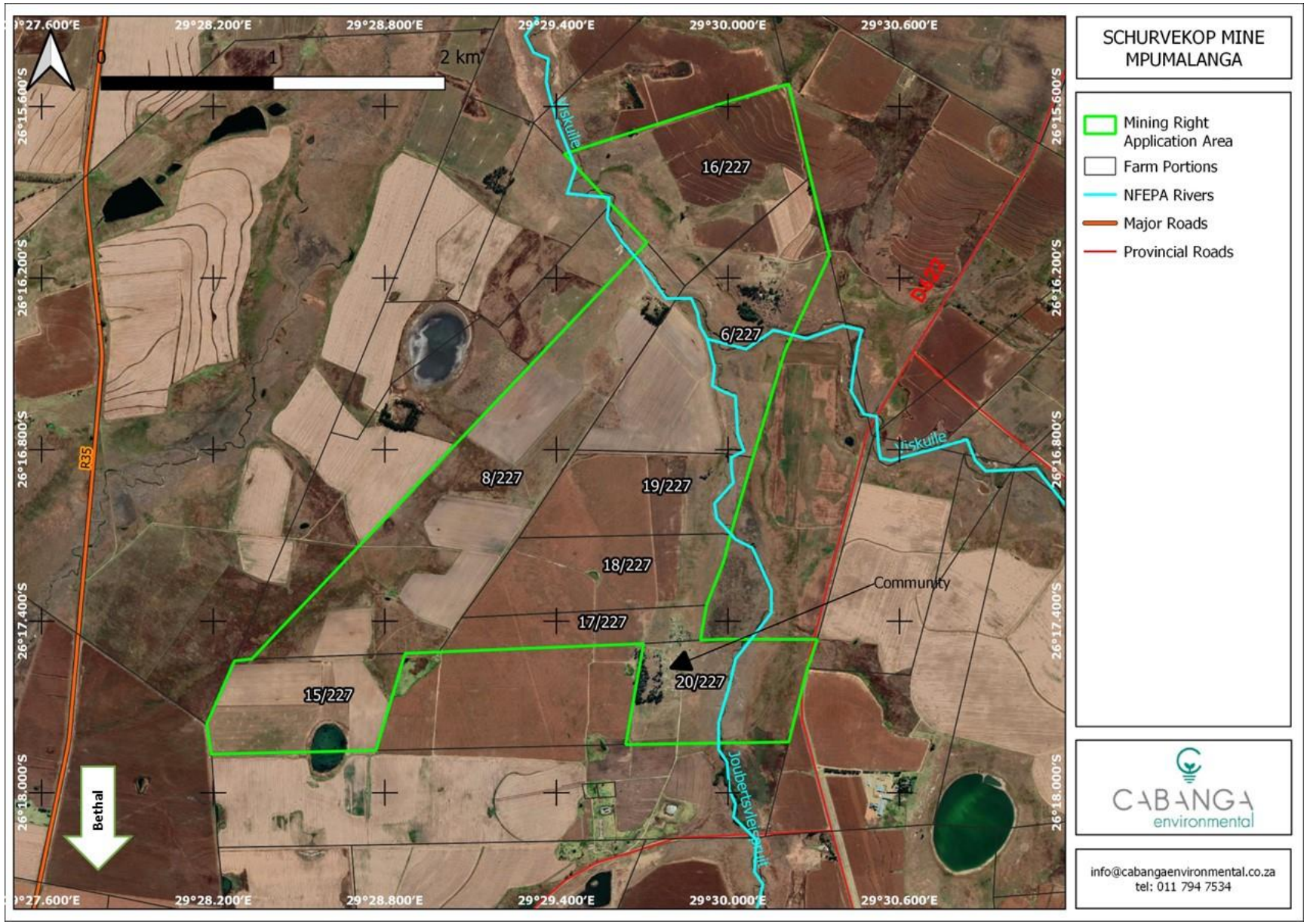


Figure 2: Locality Plan

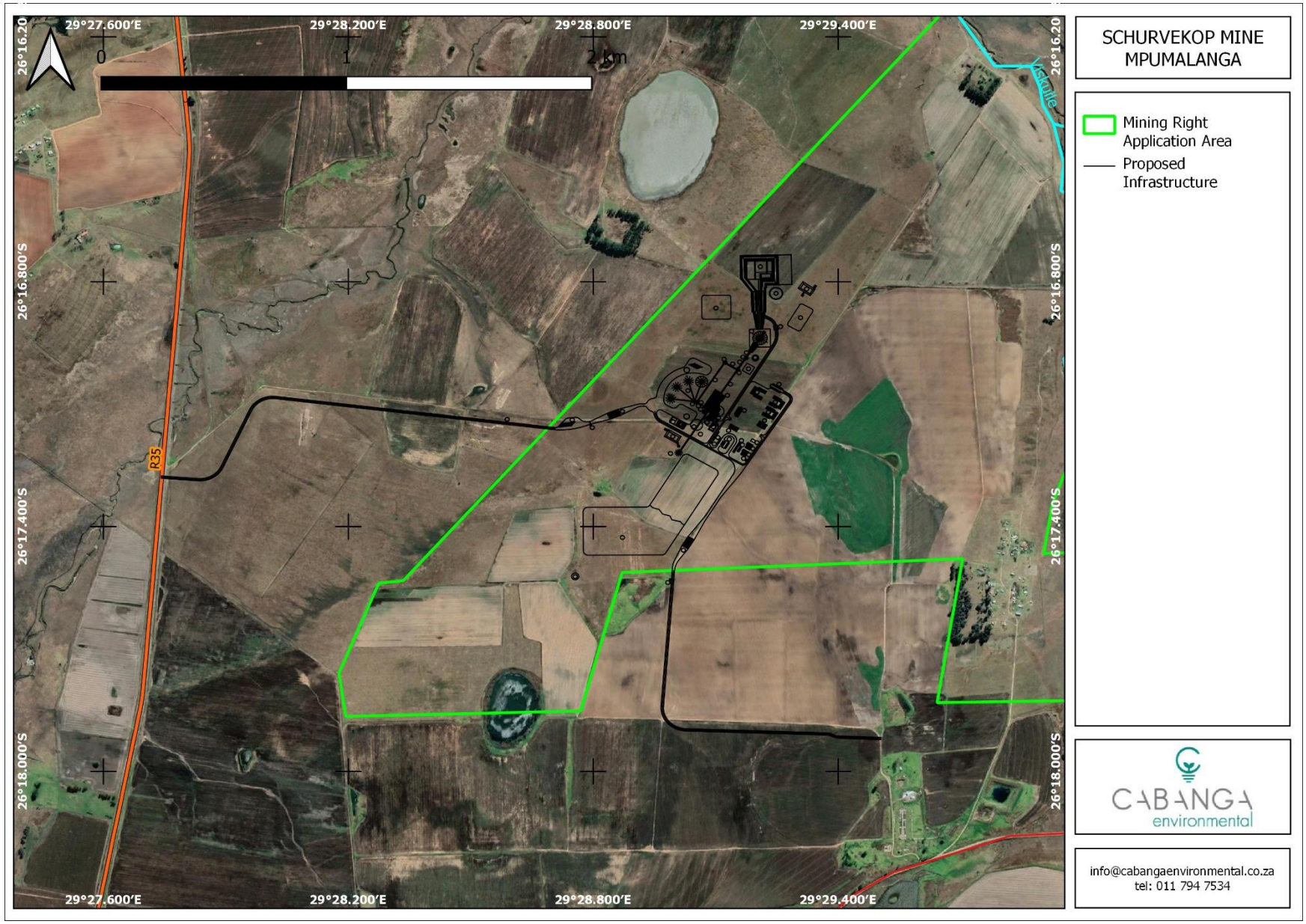


Figure 3: Proposed Layout

PUBLIC PARTICIPATION QUESTIONNAIRE: **MMAKAU COAL (PTY) LTD: FARM SCHURVEKOP 227 IS, BETHAL, MPUMALANGA** **REF: MP30/5/1/2/2/10366MR**			
To register as an I&AP, please complete and return to Cabanga via e-mail, fax or post:			
Fax: (011) 794 6946 info@cabangaenvironmental.co.za; Postnet Suite 470, P/Bag X3, Northriding, 2162		**Alternatively, please register on** www.cabangaenvironmental.co.za **click on "Public Participation"**	
Name:		Surname:	
Telephone No.:		Fax No.:	
Post:			
E-mail:			
How would you prefer to be contacted?		☐E-mail ☐Fax ☐Post ☐Telephone ☐SMS	
Are you an immediately affected or adjacent land owner or user? If no, what is your interest in the project? If yes, please indicate your farm / property name as well as details on the current land use.		☐Yes ☐No	
Do you have any vested interest in the approval or refusal of this project? If yes, please elaborate.		☐Yes ☐No	
Do you feel that the proposed activities will impact on you and / or your socio-economic conditions? How?		☐Yes ☐No	
Are you aware of any additional impacts not yet identified?			
Are you aware of any sensitive areas that should be avoided (i.e. graves, cultural sites, endangered species, special environmental features or areas etc.)			
Do you have any alternative mitigation measures to propose?			
Do you know of any other persons, organisations or parties that should be notified? Please provide contact details.		☐Yes ☐No	
Do you have any additional comments, concerns or queries? (please feel free to submit separate sheets if there insufficient space)			
As per the Protection of Personal Information (POPI) Act do you give Cabanga consent to use your name in the reports that will be submitted to the Competent Authority as well as for public review?		☐Yes ☐No	
As per the Protection of Personal Information (POPI) Act do you give Cabanga consent to use your contact details in order to send you public participation notifications pertaining to the project?		☐Yes ☐No	

Telephone: +27 11 794 7534
Fax: +27 11 794 6946
E-mail: info@cabangaenvironmental.co.za

AGTERGRONDINLIGTINGSDOKUMENT:

AANSOEK OM 'N MYNREG EN VERWANTE OMGEWINGSMAGTIGINGS

MMAKAU STEENKOOL (EDMS) BPK: PLAAS SCHURVEKOP 227 IS, BETHAL, MPUMALANGA

REF: MP30/5/1/2/2/10366MR

1. INLEIDING

Mmakau Steenkool (Edms) Bpk het aansoek gedoen om omgewingsmagtiging kragtens die Wet op Nasionale Omgewingsbestuur, Wet 107 van 1998 ("WNOB") en die Nasionale Omgewingsbestuur: Wet op Afval, Wet 59 van 2008 ("NOWA") ten opsigte van Gelysde Aktiwiteite veroorsaak deur die aansoek vir 'n Mynreg ingevolge die Wet op die Ontwikkeling van Minerale en Petroleumhulpbronne, Wet 28 van 2002 ("WOMPH").

Die voorgenome mynreggebied lê 20km noord van die dorp Bethal, af van die D622 - 'Halfgewonnenpad' en grens aan die Forzando Suid Myn. Die voorgenome mynreggebied beslaan sowat 696.57 hektaar en sluit die volgende eiendomme in die Govan Mbeki Plaaslike Munisipaliteit in (Figuur 1):

- Erfdeel 6, 8, RE15, 16, 17,18, 19 en 20 van die plaas Schurvekop 227 IS.

Mmakau Steenkool (Edms) Bpk het Cabanga Environmental aangestel as die omgewingskonsultant om die onderskeie omgewings- en openbare deelnameprosesse, soos deur wetgewing vereis, te onderneem.

2. DOEL VAN HIERDIE DOKUMENT

Hierdie dokument (Agtergrondinligtingsdokument of "AID"), is saamgestel om u, die Belanghebbende en Geaffekteerde Party (B&GP), in te lig oor die voorgenome projek en verwante omgewings-magtigingsprosesse.

Ons nooi u om vrylik deel te neem en enige vrae of inligting wat u meen tot die proses kan bydra, voor te lê. Alle kommentaar wat ontvang word sal aangeteken en behandel word as deel van die proses van omgewingsimpakassessering.

Om as B&GP te registreer, vul asb die aangehegte vraelys in en stuur terug per Faks: 011 794 6946 of info@cabangaenvironmental.co.za So nie, skakel ons by Tel: 011 794 7534 of voltooi die aanlyn vorm by www.cabangaenvironmental.co.za.

3. PROJEKOORSIG

Mineraal:	Steenkool
Mynmetode:	Ondergrondse pilaarafbou
Diepte van myn:	60m onder oppervlak
Lewensduur van myn:	+14 jaar

Toegang tot die ondergrondse area sal via 'n gang wees. Die voorneme is om die gang, aanleg en verwante myninfrastruktuur op Erfdeel 8 van die plaas Schurvekop 227 IS, besit deur die aansoeker, te plaas (Figuur 2 en 3).

Steenkool sal met 'n voerband van ondergronds na die oppervlak, en verder na die aanleg gebring word vir prosessering (ertsbreek, sif en was).

Mynreste van die aanleg sal op 'n geintegreerde afvalhoop gestort word.

Produksteenkool sal volgens grootte gesorteer en opgehoop word in toegewyde plekke vir pre-kwalifikasie voordat dit per vragmotor na die mark vervoer word.

Daar word tans voorsien dat die aanleg 24/7 in bedryf sal wees.

Diensvereistes:

- Elektrisiteit vir die bedryf sal van Eskom af kom (10MVA nodig).
- Proseswater sal aanvanklik van reënwater en 'n boorgat op die perseel kom. Wanneer bestendige produksie bereik word sas proseswater van die ondergrondse bedryf af kom.
- Die voorneme is om drink-/huishoudelike water uit boorgate op die terrein te kry.
- Algemene afval sal geberg word vir weg-doening op die Munisipale stortingsterrein.
- Nywerheidsafval sal versamel word vir wegdoening by 'n geskikte gelisensieerde fasiliteit.
- Riool sal in opgaartenks versamel, en per suier verwyder word vir behandeling by 'n geskikte gelisensieerde fasiliteit. So nie sal 'n klein, inbegrepe rioolaanleg op terrein geïnstalleer word.

Werkverskaffing:

- Die projek sal werk vir sowat 279 mense verskaf.

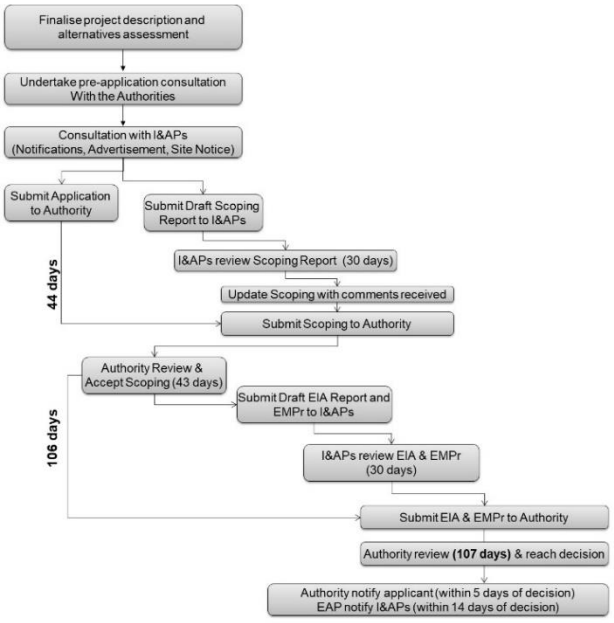
4. OMGEWINGSMAGTIGINGSPROSES

Mmakau Steenkool (Edms) Bpk het 'n geïntegreerde aansoek om omgewingsmagtiging vir die voorgestelde Projek ingedien by die relevante owerheid – naamlik die Departement van Minerale Hulpbronne and Energie (DMHE).

Na voorlegging van 'n aansoek om omgewingsmagtiging moet die aansoeker die aansoek onderwerp aan of 'n Basiese Assessering of 'n Bestek- en Omgewingsimpakassessering. (OIA).

Deur hierdie proses word die positiewe en negatiewe impakte van die ontwikkeling geassesseer; en geskikte alternatiewe en/of bestuursmaatreëls voorgestel om omgewingsimpakte te verminder.

Aangesien die aansoek met mynbedrywighede verband hou, (Lysnotering 2) sal 'n volle Bestek- en OIA-proses gevolg word. Die stappe in hierdie proses is kortliks as volg:



Die Bestek- en OIA/OBP verslae sal opgestel word in die formaat vereis deur die DMHE, ooreenkomstig met WNOB en WNOB:A (geintegreerde aansoek).

Die algehele tydsduur vir die omgewings-magtigingsproses is ongeveer 300 dae soos gereguleer deur WNOB.

5. GELYSTE AKTIWITEITE

Onderstaande tabel som die aktiwiteitslys op kragtens WNOB en WNOB:A. Die aansoek om omgewingsmagtiging het hierdie aktiwiteite ingesluit:

- **GNR 983, Lysnotering No. 1:** Aktiwiteit No's 9, 10, 11, 12, 14, 19, 24, 30, 56
- **GNR 984, Lysnotering No. 2:** Aktiwiteit No's 6, 15, 17
- **GNR 985, Lysnotering No. 3:** Aktiwiteit No's 2, 4, 12, 14, 18
- **GNR 921, Kategorie B:** Aktiwiteit 7, 9, 10, 11
- **GNR 921, Kategorie C:** Aktiwiteit 1, 2

6. POTENSIëLE OMGEWINGSIMPAKTE

Die volgende potensiële impakte is geidentifiseer en sal in die omgewingsmagtigingsproses geassesseer word:

- Wysiging van topografie
- Verlies van grondkenmerke – erosie en kompaksie

- Verandering in grondgebruik van boerdery na mynbou
- Verlies van biodiversiteit and spesies van bewaringsbelang – veroesting van habitat deur die sloop van plantegroei
- Vestiging van indringerplante
- Verlaagde watervloei na opvanggebied stroomaf
- Besoedeling van waterbronne (oppervlak- en grondwater)
- Sakkingskeël weens ontwateringsaktiwiteite (hoeveelheid grondwater)
- Meer stof en emissies
- Hoër geraasvlakke
- Visuele skoonheid en voorkoms sal verander
- Skade aan eiendom/infrastruktuur weens skietwerk
- Moontlike skade aan erfenisterreine (grafte en/of argeologiese oorblyfsels)
- Toeloop van werksoekers na die area
- Verkeerstoename – steenkoolvervoer

'n Aantal spesialisstudies is vir die projek tussen 2017 – 2019 voltooi. Hierdie studies sal hersien en opgedateer word waar nodig, en sluit in:

- Lug Kwaliteit Impak Studie;
- Skie ten vibrasie studie;
- Varswater ekologie;
- Landelike ekologie;
- Grond, grondgebruik en vermoë;
- Grondwater studie
- Erfenis en paleontologie, en
- Verkeersimpakstudie.

Bykomende spesialisstudies voorgestel vir die projek:

- Gesondheid Impak Studie;
- Visuele Impak Studie, en
- Geraas Impak Studie.

7. OPENBARE DEELNAMEPROSES

Openbare betrokkenheid is 'n wesenskomponent van die omgewingsproses. Dit hanteer die reg van B&GPe tot inligting oor voorgenome aktiwiteite en om betrokke te wees in besluite wat hulle raak. Dit gee ook die omgewingsassesseringspraktisyn kans om die kwessies en kwellings wat B&GPe opper, te oorweeg en te behandel en sodoende alle moontlike impakte van die voorgenome projek te assesseer.

8. UITNODIGING OM TE REGISTREER AS 'N BELANGHEBBENDE PARTY EN KOMMENTAAR TE LEWER

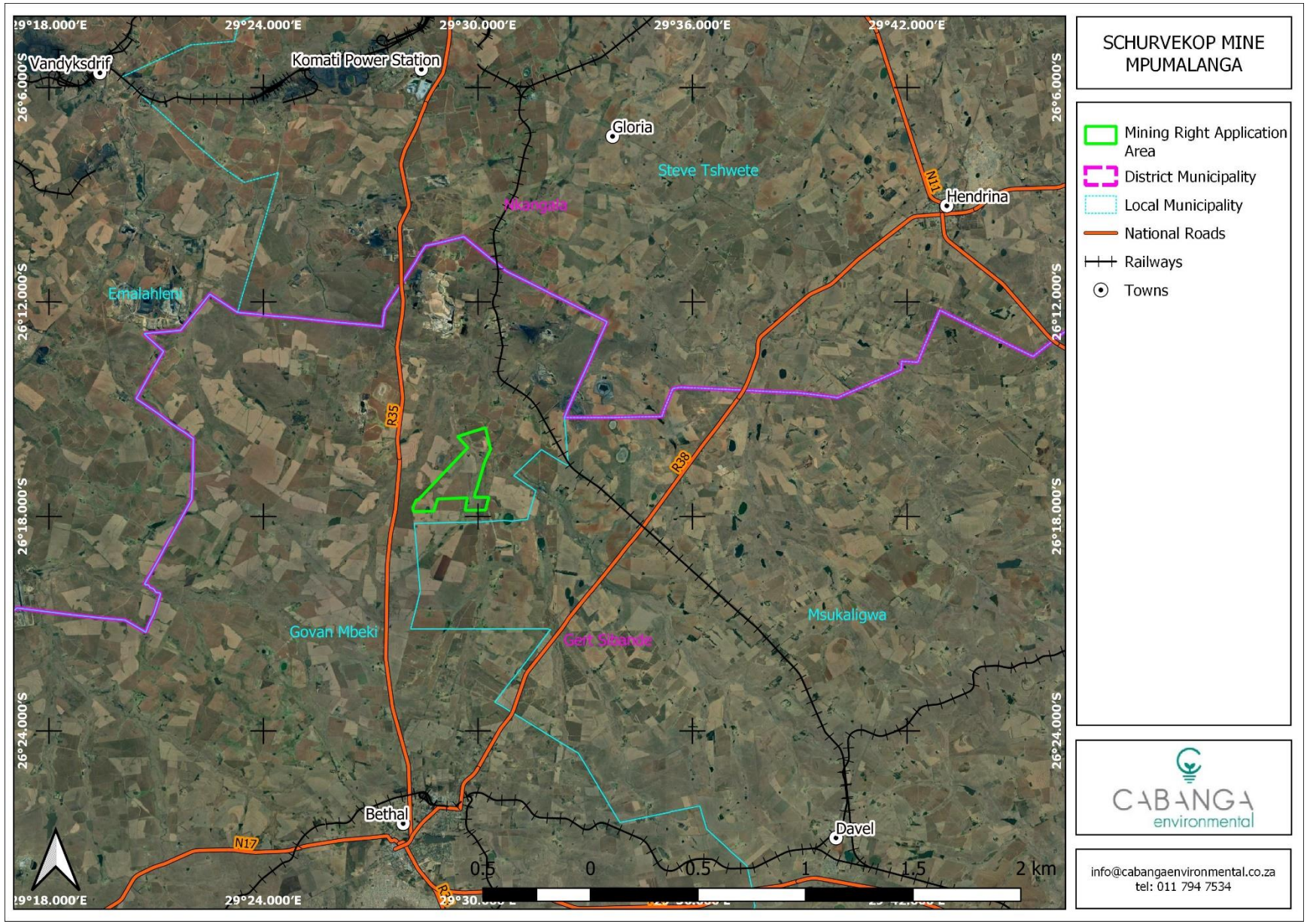
Die leser is uitgenooi om in die aansoek proses deel te neem deur te registreer as 'n geïnteresseerde en belanghebbende party (G&BP). As 'n G&BP sal u op hoogte gehou word van die aansoek proses en gennoi word om kommentaar te lewer op voorlopige verslae soos hulle beskikbaar word. Verder sal all kommentaar ontvang vanaf G&BPs in die verslae ingesluit word, en geaddresseer word tydens die aansoekproses.

Om te registreer, voltooi asseblief aangehegte vraelys

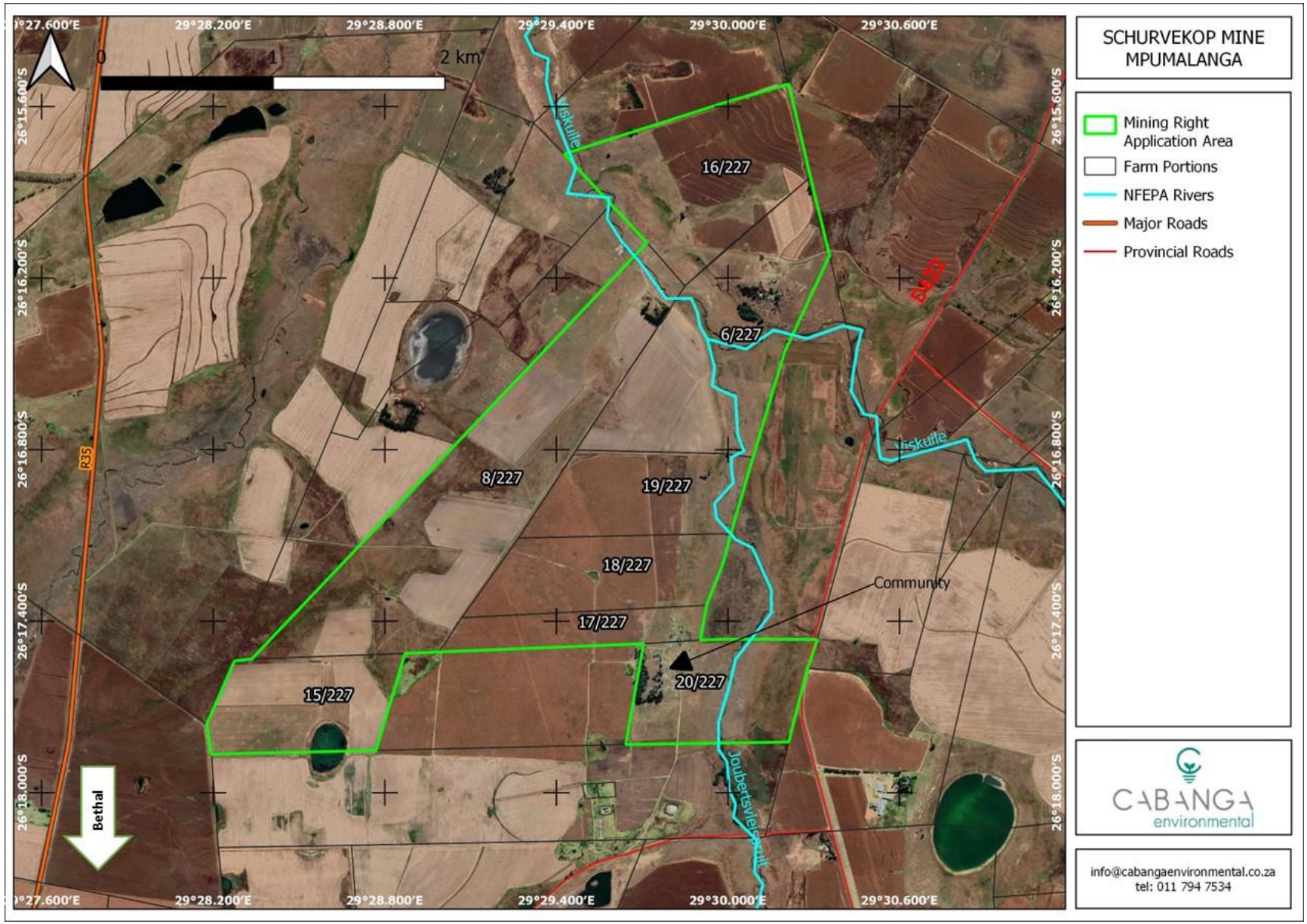
Publieke hersiening van die Bestekopnameverslag sal plaasvind vanaf 08 Augustus 2022 tot 07 September 2022 (30 dae). Kopiee van die Bestekopname Verslag kan gevind word by die Bethal Publieke Biblioteek, en/of aanlyn by www.cabangaenvironmental.co.za onder "Public Participation"

Stuur asseblief alle kommentaar voor of op 07 September 2022.

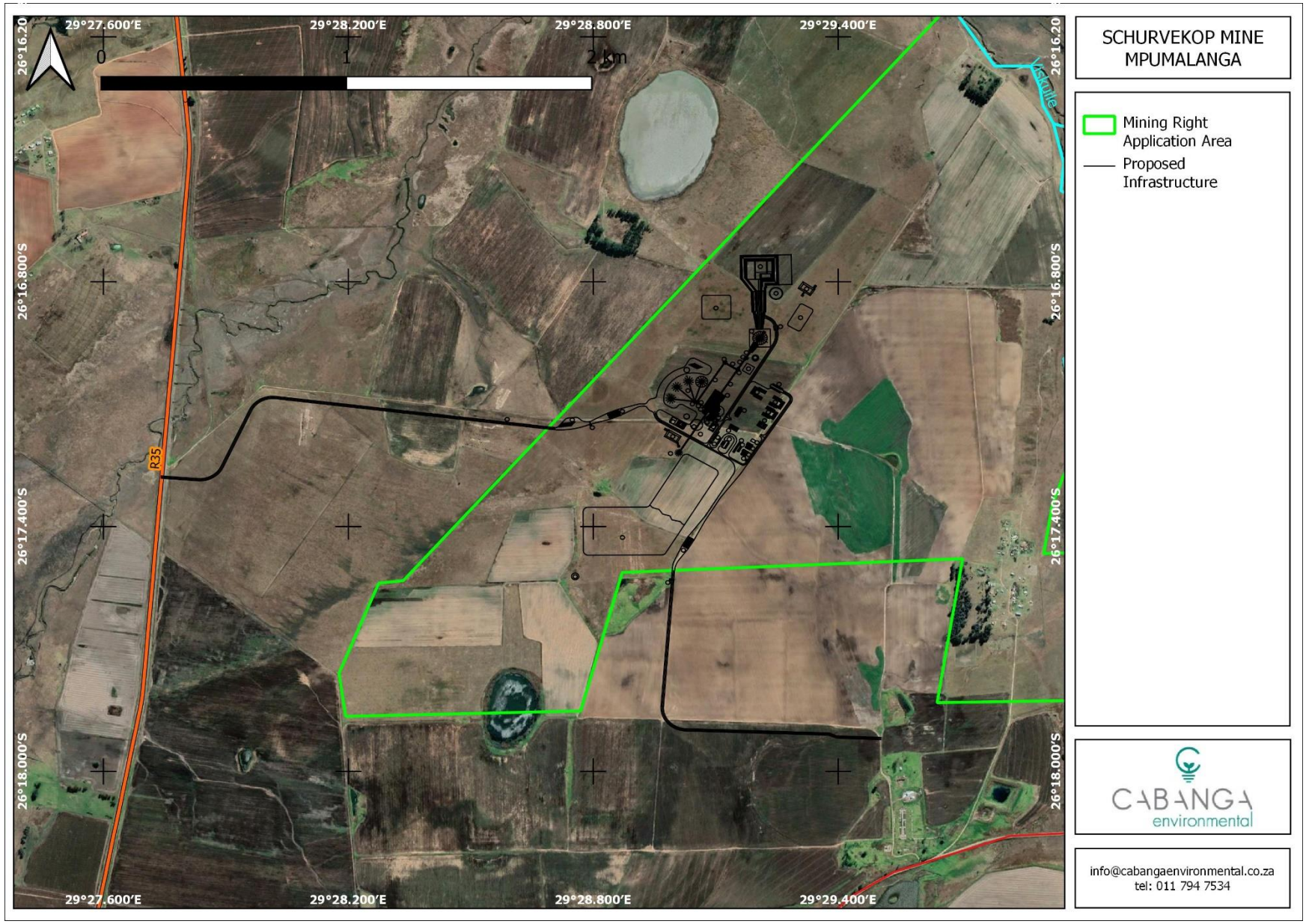
VIR VERDERE INLIGTING OOR DIE PROJEK, SKAKEL ASSEBLIEF: Michelle Venter / Jane Barrett
Cabanga Environmental
Tel: 011 794 7534 / Faks: 011 794 6946
info@cabangaenvironmental.co.za
Postnet Suite 470
Privaatsak X3
Northriding
2162



Figuur 1: Streeksplan



Figuur 2: Liggingsplan



Figuur 3: Voorgenome uitleg

VRAELYS VIR OPENBARE DEELNAME: **MMAKAU STEENKOOL (EDMS) BPK: PLAAS SCHURVEKOP 227 IS, BETHAL, MPUMALANGA** **REF: MP30/5/1/2/2/10366MR**			
Om as B&GP te registreer, vul asb in en stuur via e-pos, faks of pos na Cabanga:			
Faks: (011) 794 6946 info@cabangaenvironmental.co.za; Postnet Suite 470, P/Bag X3, Northriding, 2162		So nie, registreer asb op www.cabangaenvironmental.co.za klik op "Public Participation"	
Naam:		Van:	
Telefoonno.:		Faksno.:	
Pos:			
E-pos:			
Hoe wil u gekontak word?		☐E-pos ☐Faks ☐Pos ☐Telefoon ☐SMS	
Word u direk geraak, of is u 'n aangrensende grondeienaar of –gebruiker? Indien nee, wat is u belang by die projek? Indien ja, verstrek asb naam van u eiendom/plaas en gegewens oor huidige grondgebruik.		☐Ja ☐Nee	
Het u enige gevestigde belang by die goedkeuring/weiering van hierdie projek? Indien ja, verstrekasb besonderhede.		☐Ja ☐Nee	
Dink u dat die voorgenome projek 'n impak op u en/of u sosio-ekonomiese toestand sal hê? Hoe?		☐Ja ☐Nee	
Het u enige bepaalde kwellings oor die projek (bv water-, lugbesoedeling)?			
Weet u van enige sensitiewe areas wat vermy moet word (bv grafte, kultuurterreine, bedreigde spesies, spesiale omgewingskenmerke of areas, ens)?			
Kan u enige alternatiewe bestuursmaatreels voorstel?			
Weet u van enige ander persone, organisasies of partye wat in kennis gestel moet word? Verstrek asb kontakbesonderhede.		☐Ja ☐Nee	
Het u enige ander vrae of bekommernissse oor die projek?			
Kragtens die Wet op die beskerming van Persoonlike Inligting (POPI), gee u vir Cabanga toestemming om u naam in die verslae wat aan die owerhede en publiek bekend gemaak gaan word, te gebruik?		☐Ja ☐Nee	
Kragtens die Wet op die beskerming van Persoonlike Inligting (POPI), gee u vir Cabanga toestemming om u kntakbesonderhede te gebruik om sodoende vir u publieke deelname kennisgewings rakende die projek te stuur?		☐Ja ☐Nee	