



## mineral resources

Department:  
Mineral Resources  
**REPUBLIC OF SOUTH AFRICA**

### **SCOPING REPORT**

# **FOR LISTED ACTIVITIES ASSOCIATED WITH MINING RIGHT AND/OR BULK SAMPLING ACTIVITIES INCLUDING TRENCHING IN CASES OF COAL PROSPECTING.**

SUBMITTED FOR ENVIRONMENTAL AUTHORIZATIONS IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 AND THE NATIONAL ENVIRONMENTAL MANAGEMENT WASTE ACT, 2008 IN RESPECT OF LISTED ACTIVITIES THAT HAVE BEEN TRIGGERED BY APPLICATIONS IN TERMS OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT, 2002 (MPRDA) (AS AMENDED).

**NAME OF APPLICANT:** Purple Sunshine Trading 14 (Pty) Ltd

**TEL NO:** 013 691 1052

**POSTAL & PHYSICAL ADDRESS:** Plot 26, Naaupoort, Bethal, 0135. PO Box 2244, Emalahleni, Mpumalanga, 1035.

**FILE REF NUMBER SAMRAD:** MP30/5/1/2/2/10330MR

## IMPORTANT NOTICE

In terms of the Mineral and Petroleum Resources Development Act (Act 28 of 2002 as amended), the Minister must grant a prospecting or mining right if among others the mining “will not result in unacceptable pollution, ecological degradation or damage to the environment”.

Unless an Environmental Authorisation can be granted following the evaluation of an Environmental Impact Assessment and an Environmental Management Programme report in terms of the National Environmental Management Act (Act 107 of 1998) (NEMA), it cannot be concluded that the said activities will not result in unacceptable pollution, ecological degradation or damage to the environment.

In terms of section 16(3)(b) of the EIA Regulations, 2014, any report submitted as part of an application must be prepared in a format that may be determined by the Competent Authority and in terms of section 17 (1) (c) the competent Authority must check whether the application has taken into account any minimum requirements applicable or instructions or guidance provided by the competent authority to the submission of applications.

**It is therefore an instruction that** the prescribed reports required in respect of applications for an environmental authorisation for listed activities triggered by an application for a right or permit are submitted in the exact format of, and provide all the information required in terms of, this template. Furthermore please be advised that failure to submit the information required in the format provided in this template will be regarded as a failure to meet the requirements of the Regulation and will lead to the Environmental Authorisation being refused.

**It is furthermore an instruction that** the Environmental Assessment Practitioner must process and interpret his/her research and analysis and use the findings thereof to compile the information required herein. (Unprocessed supporting information may be attached as appendices). The EAP must ensure that the information required is placed correctly in the relevant sections of the Report, in the order, and under the provided headings as set out below, and ensure that the report is not cluttered with un-interpreted information and that it unambiguously represents the interpretation of the applicant.

## OBJECTIVE OF THE SCOPING PROCESS

- 1) The objective of the scoping process is to, through a consultative process—
    - (a) identify the relevant policies and legislation relevant to the activity;
    - (b) motivate the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the preferred location;
    - (c) identify and confirm the preferred activity and technology alternative through an impact and risk assessment and ranking process;
    - (d) identify and confirm the preferred site, through a detailed site selection process, which includes an impact and risk assessment process inclusive of cumulative impacts and a ranking process of all the identified alternatives focusing on the geographical, physical, biological, social, economic, and cultural aspects of the environment;
    - (e) identify the key issues to be addressed in the assessment phase;
    - (f) agree on the level of assessment to be undertaken, including the methodology to be applied, the expertise required as well as the extent of further consultation to be undertaken to determine the impacts and risks the activity will impose on the preferred site through the life of the activity, including the nature, significance, consequence, extent, duration and probability of the impacts to inform the location of the development footprint within the preferred site; and
    - (g) identify suitable measures to avoid, manage, or mitigate identified impacts and to determine the extent of the residual risks that need to be managed and monitored.
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## SCOPING REPORT

### 2) Contact Person and correspondence address

#### a) Details of: Amber Earth (Pty) Ltd

##### i) The EAP who prepared the report

Name of The Practitioner: Mr. T. van Stormbroek

Tel No.: 082 482 6202 or 066 237 1033

Fax No. : NA

e-mail address: [tim@amberearth.co.za](mailto:tim@amberearth.co.za) cc: [matt@amberearth.co.za](mailto:matt@amberearth.co.za)

##### ii) Expertise of the EAP.

###### (1) The qualifications of the EAP

(With evidence attached as **Appendix 1**).

Tim holds a Magister Technologiae (MTech) in Environmental Health (Ecotoxicology) and has studied various additional short courses. He started his professional career at the Impact Assessment cc assessing and writing reports on noise, chemical and thermal stresses and ventilation and illumination. At the same time and over a 5 year period he was also lecturing at the Cape Peninsula University of Technology (CPUT) and HACCP Academy on Occupation Health, Anatomy and Physiology, Management Practice and Food Hygiene. He was under full time employment at Ferret Mining and Environmental Service (Pty) Ltd for a 10 year period and was responsible for all aspects of environmental management with emphasis on the mining industry. All related stakeholder engagement requirements on various projects was also undertaken. He is a qualified Radiation Protection Officer (RPO) registered with the National Nuclear Regulator and is also involved in ISO 14001:2004 system development and implementation and is qualified as a lead auditor (TÜV SÜD). He is currently registered with the Herpetological Association of Africa and has a pending registration with SACNASP as a Professional Natural Scientist (PrSciNat). Registration with EAPASA will be completed once the DEA has finalised the EAPASA appointment

###### (2) Summary of the EAP's past experience.

(Attach the EAP's curriculum vitae as **Appendix 2**)

Please see the attached Appendix 2 for the EAP's past experience.

**b) Description of the property.**

<b>Farm Name:</b>	<p>This application represents a mining right area in extent approximately 71,6362 hectares comprising of portion 9 of the farm Driefontein 338 JS situated within the Magisterial District of Steve Tshwete, Mpumalanga Province. The name of the mine will be Driefontein Colliery.</p> <p>Purple Sunshine Trading 14 (PTY) Ltd with registration no 2009 / 023723 / 07 has applied for a mining right in terms of section 22 of the Mineral and Petroleum Resources Development Act, 2002 (act 28 of 2002) to mine coal.</p>			
<b>Application area (Ha)</b>	Extent of application area = 71,6362 hectares			
<b>Magisterial district:</b>	Steve Tshwete			
<b>Distance and direction from nearest town</b>	<p>The Driefontein Colliery mining right application falls within Ward 24 of the Steve Tshwete Local Municipality, which is situated in the Nkangala District, within the Mpumalanga Province. Steve Tshwete Municipality is one of the demarcated Administrative Regions, situated within the greater Nkangala District.</p> <p>The proposed Driefontein Colliery mine is located to the south of the N12 highway adjacent to Duvha Power Station and approximately 20km south east of Witbank and south west of the town of Middleburg</p>			
<b>21 digit Surveyor General Code for each farm portion</b>	<b>FARMNAME</b>	<b>FARMNO</b>	<b>SUBDIVNO</b>	<b>SG/LPI CODE</b>
	DRIEFONTEIN	338	JS	T-OJS-0000-00000338-00009

**c) Locality map**

(show nearest town, scale not smaller than 1:250000 attached as **Appendix 3**).  
See Appendix 3

**d) Description of the scope of the proposed overall activity.**

**i) Listed and specified activities**

Provide a plan drawn to a scale acceptable to the competent authority but not less than 1: 10 000 that shows the location, and area (hectares) of all the aforesaid main and listed activities, and infrastructure to be placed on site and attach as **Appendix 4**  
See Appendix 4

<b>NAME OF ACTIVITY (All activities including activities not listed) (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)</b>	<b>Aerial extent of the Activity Ha or m<sup>2</sup></b>	<b>LISTED ACTIVITY Mark with an X where applicable or affected.</b>	<b>APPLICABLE LISTING NOTICE (GNR 544, GNR 545 or GNR 546)/NOT LISTED</b>
<u>Dangerous goods:</u> The development and related operation of facilities or infrastructure, for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 cubic metres or more but not exceeding 500 cubic metres.	Driefontein 338 JS Ptn 9 = <u>~600m<sup>2</sup></u> (1 diesel bund next to the offices)	Activity 14	GN R327

<p><b><u>Mining Right:</u></b> Any activity including the operation of that activity which requires a mining right as contemplated in section 22 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including— (a) associated infrastructure, structures and earthworks, directly related to the extraction of a mineral resource [,] ; or (b) the primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening or washing; but excluding the secondary processing of a mineral resource, including the smelting, beneficiation, reduction, refining, calcining or gasification of the mineral resource in which case activity 6 in this Notice applies. This mining activity includes the following aspects that are not specifically listed in NEMA or NEMWA: Open Cast mining with excavation, drilling, blasting, loading and hauling. Topsoil perimeter berms and overburden dump. Discard placement and backfilling. ROM stockpiles, crush and screen plant, Temporary offices, parking, wash bay, lay-down area, services bay, pollution control dam and cut off berms and trenches.</p>	<p>Total mining right area: = 71,6362 Ha  Pit: Driefontein 338 JS Ptn 9 = &lt;20ha</p>	<p>Activity 17</p>	<p>GN R325</p>
<p><b><u>Infilling and/or depositing:</u></b> The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse; but excluding where such infilling, depositing, dredging, excavation, removal or moving will occur behind a development setback; is for maintenance purposes undertaken in accordance with a maintenance management plan; falls within the ambit of activity 21 in this Notice, in which case that activity applies; occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or where such development is related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies.</p>	<p>Driefontein 338 JS Ptn 9 = ~20ha This activity addresses the mining and backfilling of the north section of the pit which forms part of the southern edge of the wetland area.</p>	<p>Activity 19</p>	<p>GN R327</p>
<p><b><u>Road Development:</u></b> The development of a road: (ii) with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 metres;</p>	<p>22 400 m<sup>2</sup> on: Driefontein 338 JS Ptn 9 for access and haul roads.</p>	<p>Activity 24(ii);</p>	<p>GN R327</p>

<p><u>Clearance of Vegetation:</u> The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for— (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.</p>	<p>Driefontein 338 JS Ptn 9 = &lt;20ha as large portions of the site have either been planted before to maize and are not over-grown with alien invasives.</p>	<p>Activity 27</p>	<p>GN R327</p>
<p><u>Development:</u> Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 01 April 1998 and where such development: (i) will occur inside an urban area, where the total land to be developed is bigger than 5 hectares; or (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare; excluding where such land has already been developed for residential, mixed, retail, commercial, industrial or institutional purposes.</p>	<p>71,6362 Ha</p>	<p>Activity 28</p>	<p>GN R327</p>
<p><u>Residue Stockpiles:</u> (10) The construction of a facility for a waste management activity listed in Category B of this Schedule (not in isolation to associated waste management activity). (11) The establishment or reclamation of a residue stockpile or residue deposit resulting from activities which require a mining right, exploration right or production right in terms of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002).</p>	<p>Backfill into the Pit (100% backfill - no final residue on surface): Driefontein 338 JS Ptn 9 = &lt;20,ha</p>	<p>Category B Activity 10 &amp; 11</p>	<p>(GNR 921 of GG 37083 of 29 November 2013) (as amendment July 2015)</p>

**ii) Description of the activities to be undertaken**

(Describe Methodology or technology to be employed, and for a linear activity, a description of the route of the activity)

In the Driefontein locality the No.1 Seam was poorly developed and is located over a smaller portion of the No.2 Seam. The No.1 Seam has an average thickness of 0.54m, with a competent sandstone parting of 0.25m. This parting is probably ripable. In certain areas the No.2 Seam merges with the No.1 Seam to form a single Seam. The No.3 Seam has not been developed at all. The No.4 Seam has been encountered in only two boreholes and is severely affected by superficial weathering and probably not economic to mine. The largest portion of the No.4 Seam, as well as the No.5 Seam has been eroded.

The No.1 Seam usually directly overlies reworked diamictite of the Dwyka Formation, but occasionally occurs direct on crystalline felsitic rock of the basement complex. Top of seam lies 8 to 25m below surface. The No.2 Seam thickness range from 0.5 to 5.5m, whereas the No.1 Seam reaches a maximum thickness of 0.8m. The No.1 Seam has been developed over a much smaller area compared to the No.2 Seam. Seam thickness generally ranges with maximum thicknesses developed towards the southern boundary of the property.

The No.2 Seam is separated from the No.1 Seam by approximately 0.5m of mudstones with subordinate sandstones. The seam is split into sub-seams by several carbonaceous mudstone and sandstone partings. The No.2 Seam is usually about 0.5 to 5.5m in thickness and comprises acceptable quality coal.

The entire eastern portion of the prospecting area is affected by the presence of a pre-Karoo diabase intrusion. The qualities of the coal occurring in the proximity of the Pre-Karoo diabase intrusion have not been affected.

Seam dips are very gentle with base of seam elevations varying by less than 10m across the property.

The size of the deposit inclusive of all coal seams is given as 1,275,689 metric tonnes (Mt) of run of mine (RoM) as at May 2021. The planned production rate equates to 40,000 tons of coal per month, yielding about 1.275 million tons of coal over a period of about 3 years.

Mining would be fully contracted out. Mining will be conducted by opencast method, employing truck and shovel lateral rollover mining technique.

Soils and weathered horizons will be dug freely whereas overburden and mid-burden and, underlying coal will be drilled and blasted. The burden material removed will be moved back into the pit to fill the voids and, the soils removed from subsequent strips will be used to dress the levelled spoils as part of the rehabilitation programme. All coal removed from the pit will be stockpiled.

#### e) Policy and Legislative Context

<b>APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT</b> (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)	<b>REFERENCE WHERE APPLIED</b>
Constitution of South Africa (No. 108 of 1996)	Section 24
National Environmental Management Act (NEMA) (Act No 107, 1998)	Section 1(29)
National Environmental Management: Biodiversity Act (NEM:BA) (No 10 of 2004)	Various
National Environmental Management: Air Quality Act, 2004 (AQA)	Various
Mineral and Petroleum Resource Development Act (MPRDA) (Act 28 of 2004)	Various
National Water Act, 39 of 1998 (NWA)	Various
National Environmental Management Waste Act, Act 59 of 2008. (NEMWA) National Heritage Resources Act, Act 25 of 1999 Hazardous Substances Act (Act 15 of 1973)	Various

#### f) Need and desirability of the proposed activities.

(Motivate the need and desirability of the proposed development including the need and desirability of the activity in the context of the preferred location).

When assessing the need and desirability of the Driefontein Colliery the following needs to be considered:

- The proximity of the property to the Duvha PowerStation increases the probability that Eskom will purchase the coal.
- The local community will have an opportunity for employment.

#### g) Period for which the environmental authorisation is required

10 Years

#### h) Description of the process followed to reach the proposed preferred site.

NB!! – This section is not about the impact assessment itself; It is about the determination of the specific site layout having taken into consideration (1) the comparison of the originally proposed site plan, the comparison of that plan with the plan of environmental features and current land uses, the issues raised by interested and affected parties, and the consideration of alternatives to the initially proposed site layout as a result.



**i) Details of all alternatives considered.**

With reference to the site plan provided as Appendix 4 and the location of the individual activities on site, provide details of the alternatives considered with respect to:

- (a) the property on which or location where it is proposed to undertake the activity;
- (b) the type of activity to be undertaken;
- (c) the design or layout of the activity;
- (d) the technology to be used in the activity;
- (e) the operational aspects of the activity; and
- (f) the option of not implementing the activity.

Key criteria for consideration when identifying alternatives are that they should be practicable, feasible, relevant, reasonable and viable.

Assessment of alternatives would include a comprehensive comparison of all potential impacts, both direct and indirect and cumulative, on the environment. the goal of evaluating alternatives is to find the most effective way to meeting the need and purpose of the project either through enhancing the environmental benefits of the proposed activity, or through reducing or avoiding potentially significant negative impacts.

The type of activity that will be initiated, ie open cast mining for coal, will be in accordance with the approved Environmental Management Plan of the proposed Driefontein Colliery mining right.

The technology to be implemented at the Driefontein Colliery relies on standard truck and shovel mining activities with drilling and blasting of hards and coal blocks. Operational aspects include topsoil stripping, topsoil stockpiling, soft and hard overburden removal, soft and hard dumps, coal seam removal, ROM stockpiling, crushing and screening, discard in-pit placement and backfilling with rehabilitation.

A possible “no-go” course of action is a viable consideration since this is not an existing operational mine.

Assessment of alternatives in terms of infrastructure placement will be included in the EIA/EMP phase which would include a comprehensive comparison of all potential impacts, both direct and indirect and cumulative, on the environment. the goal of evaluating alternatives is to find the most effective way to meeting the need and purpose of the project either through enhancing the environmental benefits of the proposed activity, or through reducing or avoiding potentially significant negative impacts.

**ii) Details of the Public Participation Process Followed**

Describe the process undertaken to consult interested and affected parties including public meetings and one on one consultation. NB the affected parties must be specifically consulted regardless of whether or not they attended public meetings. (Information to be provided to affected parties must include sufficient detail of the intended operation to enable them to assess what impact the activities will have on them or on the use of their land.

IDENTIFICATION CRITERIA	Mark with an X where applicable	
	YES	NO
Will the landowner be specifically consulted?	x	
Will the lawful occupier on the property other than the Landowner be consulted?	x	
Will a tribal authority or host community that may be affected be consulted?		x
Will recipients of land claims in respect of the area be consulted?		x
Will the landowners or lawful occupiers of neighbouring properties been identified?	x	
Will the local municipality be consulted?	x	
Will the Authority responsible for power lines within 100 metres of the area be consulted?	x	

Will Authorities responsible for public roads or railway lines within 100 metres of the area applied for be consulted?	x	
Will authorities responsible for any other infrastructure within 100 metres of the area applied for be consulted? (Specify) i.e Vodacom & Transnet	x	
Will the Provincial Department responsible for the environment be consulted?	x	
Will all of the parties identified above be provided with a description of the proposed mining /prospecting operation as referred above?	x	
Will all the parties identified above be requested in writing to provide information as to how their interests (whether it be socio-economic, cultural, heritage or environmental) will be affected by the proposed mining project?	x	
Other, Specify		

**iii) Summary of issues raised by I&AP's**

This table has been duplicated in Appendix 5 of this Scoping Report and includes all comments and responses received thus far during the public consultation process.

Interested and Affected Parties		Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Consultation Status (consensus dispute, not finalised,etc)
List the names of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted.					
<b><u>AFFECTED PARTIES</u></b>					
Landowner/s	X	None received to date	The land owners of the portions included in the mining right have been consulted directly by the applicants. Contractual agreements with these land owners have been established. No comments or concerns have been raised by the land owners during the Scoping Report consultation process.	None required to date.	Consensus
Lawful occupier/s of the land	X	None received to date.	There are currently no lawful/unlawful occupiers on the property.	See Comment and Response Report in Appendix 5.	Finalised
Landowners or lawful occupiers on adjacent properties	X	None received to date.	No comments received yet.		
Municipal councillor	X		No comments received yet		
Municipality	X		No comments received yet		
Organs of state (Responsible for infrastructure that may be			No comments received yet		

<b>affected Roads Department, Eskom, Telkom, DWA e</b>					
<b>Communities</b>			See comments and responses captured in Appendix 5		
<b>Dept. Land Affairs</b>			No comments received yet		
<b>Traditional Leaders</b>			No comments received yet		
<b>Dept. Environmental Affairs</b>			No comments received yet		
<b>Other Competent Authorities affected</b>			No comments received yet		
<b><u>OTHER AFFECTED PARTIES</u></b>					
			See comments and responses captured in Appendix 5		
<b><u>INTERESTED PARTIES</u></b>			See comments and responses captured in Appendix 5		

#### iv) The Environmental attributes associated with the sites

##### (1) Baseline Environment

###### a) Type of environment affected by the proposed activity.

(its current geographical, physical, biological, socio- economic, and cultural character)

###### Geology

Driefontein Colliery is situated on the northern margin of the east Witbank coalfield. The pre-Karoo Loskop and Wilgerivier Formations in the area are overlain by the Dwyka Formation diamictite followed by the Permian coal-bearing Vryheid Formation. Rocky outcrops in the area are rare.

The Dwyka Group of late Carboniferous to Early Permian age is characterized by sediments of glacial origin including tillites, diamictites and varvites which lie unconformably on the pre-Karoo igneous basement. The succeeding Vryheid Formation comprises a predominantly arenaceous deltaic sequence of sandstones and conglomerates with subordinate siltstones, shales and coal seams.

Five coal seams (numbered 1 through 5 from the base upwards) are contained in a 70 m thick succession comprising dominantly of sandstone with subordinate siltstone and mudstone. The partings between the seams are remarkably constant although seam splits are common with up to 8 m between partings. The distribution and attitude of the No.1 and No.2 seams is largely determined by the pre-Karoo topography and the No.4 and No.5 seams are controlled by the present-day erosion surface. The No.3 seam is usually less than 0.5 m thick. Intrusive dolerite dykes and sills of Late Jurassic age (~144Ma) are present and devolatilisation of the coal can be significant.

In the Driefontein locality the No.1 Seam was poorly developed and is located over a smaller portion of the No.2 Seam. The No.1 Seam has an average thickness of 0.54m, with a competent sandstone parting of 0.25m. This parting is probably ripable. In certain areas the No.2 Seam merges with the No.1 Seam to form a single Seam. The No.3 Seam has not been developed at all. The No.4 Seam has been encountered in only two boreholes and is severely affected by superficial weathering and probably not economic to mine. The largest portion of the No.4 Seam, as well as the No.5 Seam has been eroded.

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###### Surface Water

The upper Olifants River basin is located on the Eastern Transvaal Highveld of the Mpumalanga Province. It drains a total catchment area of 3 446 km<sup>2</sup> to Witbank dam (**Error! Reference source not found.**). The catchment is characterized by diverse land use including urban development, agriculture, power generation and coal mining.

The Eastern Transvaal Highveld is one of the most fertile agricultural regions in the country. It is currently estimated that dry land cultivation of maize is practiced on 82 500 ha (24% of catchment area) within the catchment. Irrigation on a variety of crops is also practiced at the headwaters of the Olifants River and tributaries on an estimated 2 040 ha (0, 59% of catchment area). The high crop yields achieved by Eastern Transvaal Highveld maize cultivation is of strategic importance to the national staple food supply.

Power generation from four coal-fired power stations is the single biggest industry in the catchment. These four power stations namely Duhva, Kriel, Matla and Komati, are located in the catchment. Atmospheric deposition from mainly the power stations is of concern. Extensive underground and opencast coal mining for the domestic and foreign markets is taking place in the catchment. Two different coal fields are mined in the catchment. The Highveld coalfields are located in the southern portion of the catchment and the Witbank-Springs coalfields are located in

the northern part of the catchment. The mine drainages produced by the mining operations on the two different coalfields differ with respect to quality. Urban development in the catchment is limited to a number of smaller towns on the Highveld Ridge including Kinross, Trichardt and Bethal. Witbank town straddles the watershed between the Olifants River and the Klipspruit. The catchment mainly drains along the river valleys of the Olifants River and Steenkoolspruit. Several tributaries including the Trichardtspruit, Vaalbankspruit, Rietspruit, Saaiwaterspruit, Boesmanskransspruit and the Naauwpoortspruit drain into these two major drainage valleys

### **Dry Weather Flow**

The dry weather base flow (April to September) for the Witbank dam catchment was calculated at  $31.07 \times 10^6 \text{ m}^3/\text{year}$  (26% of the MAR). The corresponding base flow for the Olifants River upstream of Driefontein Colliery is estimated at  $0,73 \times 10^6 \text{ m}^3/\text{year}$ .

### **Flood Peaks and Volumes**

The peak flows calculated using each method was evaluated for each node and a representative value adopted. The 1:20, 1:50, 1:100 and Regional Maximum Flood (RMF) for each node, together with catchment areas, are presented in Table 6-4

### **Flood lines**

The information contained in this section has been included, despite the fact that there are no rivers or tributaries present on the property.

Flood lines were determined based on the calculated flood peaks. A steady flow, backwater analysis was performed for each stream using the HEC-RAS river modelling system. HEC-RAS was developed by the United States Army Corps of Engineers and is considered industry standard software for flood line determination in many countries, including the United States, the United Kingdom, Europe, Australia and South Africa.

When determining flood lines, each stream is defined by inputting a number of cross sections along the length of the stream.

### **Water Authority**

The Department of Water and Sanitation (Mpumalanga Province) is the responsible water authority, and the eMalahleni Local Municipality supplies potable water to the area.

### **Wetlands**

The presence of wetlands in the study area is linked to both perched groundwater and surface water.

A single wetland occurs within Driefontein 338JS Ptn 9 and is approximately 26,03 ha in extent. The soil character can be described as: shallow, dark brown to grey, poorly drained, clay soils underlain by gleyed clay, largely covered with surface water. These areas are regularly flooded and support a zone of floodplain vegetation, hygrophilous species. On the southern and southeastern side maize fields have been ploughed right to the edge, leaving little intact catchment area. Typical vegetation cover includes reeds, sedges and/or hygrophilous grasses. Evidence of the fact that this wetland is no longer pristine can be seen in the extensive grazing impacts (cattle paths are visible throughout the wetland) through the agricultural use of the wetland. In addition the wetland has been used for the dumping of builder's rubble on the southern side. The potential for this rubble to possibly be used as a foundation for a coal stockpile could improve the conservation status of this wetland following rehabilitation of the mining area.

### **Surface Water Quality**

Water quality of the small drainage lines crossing the mining site could not be determined because there is hardly ever flow, except during rainfall events. However, specific effort will be undertaken to overcome the shortcoming. A detailed monitoring programme has been implemented to gather water quality information pertaining to the mine site.

### **Paleontology**

No paleontological data is applicable to the Driefontein Colliery site.

### **Heritage**

No heritage resources have been identified on the Driefontein site during the preliminary assessments. Should any heritage resources be identified during the EIA phase the appropriate assessments will be initiated and reported in the EIA and EMP.

### **Socio and Economic Environment**

The Driefontein Colliery falls within the SA province previously known as the Eastern Transvaal. It has since been renamed 'Mpumalanga' which means 'place where the sun rises'. The province occupies 6.5% of the surface area of South Africa and has a population of approximately 3 million people (Stats SA, 2002). The population is largely SiSwati and isiNdebele speaking, although fairly large communities of Xitsonga, SeSotho, isiZulu, Afrikaans and English speaking people exist in the province (MTA, 2003; Stats SA 2002).

Middelburg was first established as Nasareth, (*root from dry land*), in 1864 by the Voortrekkers on the banks of the Klein Olifants River. The name was changed in 1872 to Middelburg to mark its situation midway between the Transvaal capital Pretoria and the gold mining town of Lydenburg.

Mining claims' offices were set up, stocks and shares were traded through a simple yet effective exchange, while the towns and villages prospered. New wagon routes to the coast at Delagoa Bay were worked by hundreds of wagons hauling much needed supplies to the booming communities. When the gold bearing reefs were exhausted the miners moved to the newly discovered Witwatersrand goldfields leaving agriculture to take over as the region's major source of wealth.

Mpumalanga is divided into three districts namely, the Gert Sibande - Ehlanzeni - and Nkangala district municipalities. Each district municipality is divided into municipal areas, the Steve Tshwete Municipal area falls within the Nkangala district municipality and comprise 4.8% of the total population of Mpumalanga.

### **Economic Features**

The historical drivers of the local economy are mining, agriculture and electricity generation.

Mining occurs throughout the broader study area, with large sections of the area affected by undermined areas, rehabilitated mining land and areas covered by mining and/or mining rights. Due to the rich coal reserves in local area, Eskom developed the Kendal, Kriel, Matla, Wilge and Duvha power stations during the 1970's and 1980's to provide for South Africa's electricity needs. This has led to the establishment of towns such as Kriel, Thubelihle and Wilge.

The non-urban areas consist mainly of farms and agricultural holdings. The agricultural holdings are found on the periphery of the urban settlements. In terms of agriculture, stock farming (sheep and cattle) and maize farming with some irrigated farming occur throughout the area and especially along the river drainage basins. Intensive and extensive agriculture activities are present.

The economic profile of the study area indicates the importance of mining as a driver in the local economy. This is supported by manufacturing activities in the local economy. Additionally, the employment figures indicate that the majority of people either work in the trade sector or the mining sector.

### a. Description of the current land uses.

The majority of the surveyed area is used for maize production and grazing. Table 1 shows the current land uses, the number of units per land use and the area and percentage comprised by each land use. The extent and location of land uses for the total surveyed area is shown on the land use map **Error! Reference source not found.**

**Table 1. Current land uses**

Land Use Code	Current Land Use	Unit Count	Area (ha)	Area (%)
<b>M</b>	Maize	1	16.53	23.081
<b>G</b>	Grazing - mainly cattle	1	49.97	69.762
<b>R</b>	R575 tar road including road edges	1	1.47	2.051
<b>V</b>	Vacant - portion of southern closed depression - no specific land use observed	1	1.20	1.678
<b>V-G</b>	Vacant area within fenced off maize field - probably grazed during winter	1	0.77	1.072
<b>V-Exc</b>	Vacant - Excavated area	1	1.53	2.142
<b>FB</b>	Old farm building with adjacent stone cattle kraal - appeared fairly abandoned	1	0.15	0.215
<b>TOTAL</b>		<b>7</b>	<b>71.6271.62</b>	<b>100.001</b>

#### **Arable Land**

Land capable of sustaining arable crop production is generally found on deeper (>750 mm) well drained, red (Hutton) and yellow-brown (Clovelly and Griffin) soils on the midslope and upper midslope positions in the landscape. Areas where deeper hydromorphic soil forms (soil that developed in the presence of excess water) are found, are also capable of sustaining agricultural crop production (Glencoe, Katspruit, Kroonstad, Rensburg, Westleigh, Pinedene and Avalon) if good management practices are employed. The more structured and shallow hydromorphic soils are not considered to be arable soils.

#### **Grazing Land**

Grazing land is generally confined to areas with shallower soils. These soils are generally darker in colour and are hydromorphic. They can be moderately to well drained, but are not always free draining to a depth of 750 mm. These soils are capable of sustaining palatable plant species on a sustainable basis, especially since only the subsoils (at a depth of 500 mm) are periodically saturated. To be classified as grazing land, there should be no rocks or pedocrete fragments (a type of infertile and compacted soil formed by the concentration of minerals due to terrestrial weathering in the upper soil layers). If present, these would limit the land capability to wilderness land. The Driefontein application area is dominated by old planted lands and grazing lands that are grazed by cattle after the maize harvest every year.

#### **Wetlands**

Wetlands are generally delineated based on a combination of soil types and the presence of hydromorphic vegetation. Wetland soils are defined using hydromorphic soil criteria. The soils are generally dark grey to black in the topsoil horizons with a high transported clay component and show pronounced mottling in the subsoils layers. One wetland area has been identified to the north of the planned operations.

### a. Description of specific environmental features and infrastructure on the site.

Almost the entire Driefontein Colliery area has been utilised as agricultural land for maize production and grazing. Environmental features are restructure to the following:

- **Wetlands**

Wetlands are generally delineated based on a combination of soil types and the presence of hydromorphic vegetation. Wetland soils are defined using hydromorphic soil criteria. The soils are generally dark grey to black in the topsoil horizons with a high transported clay component and show pronounced mottling in

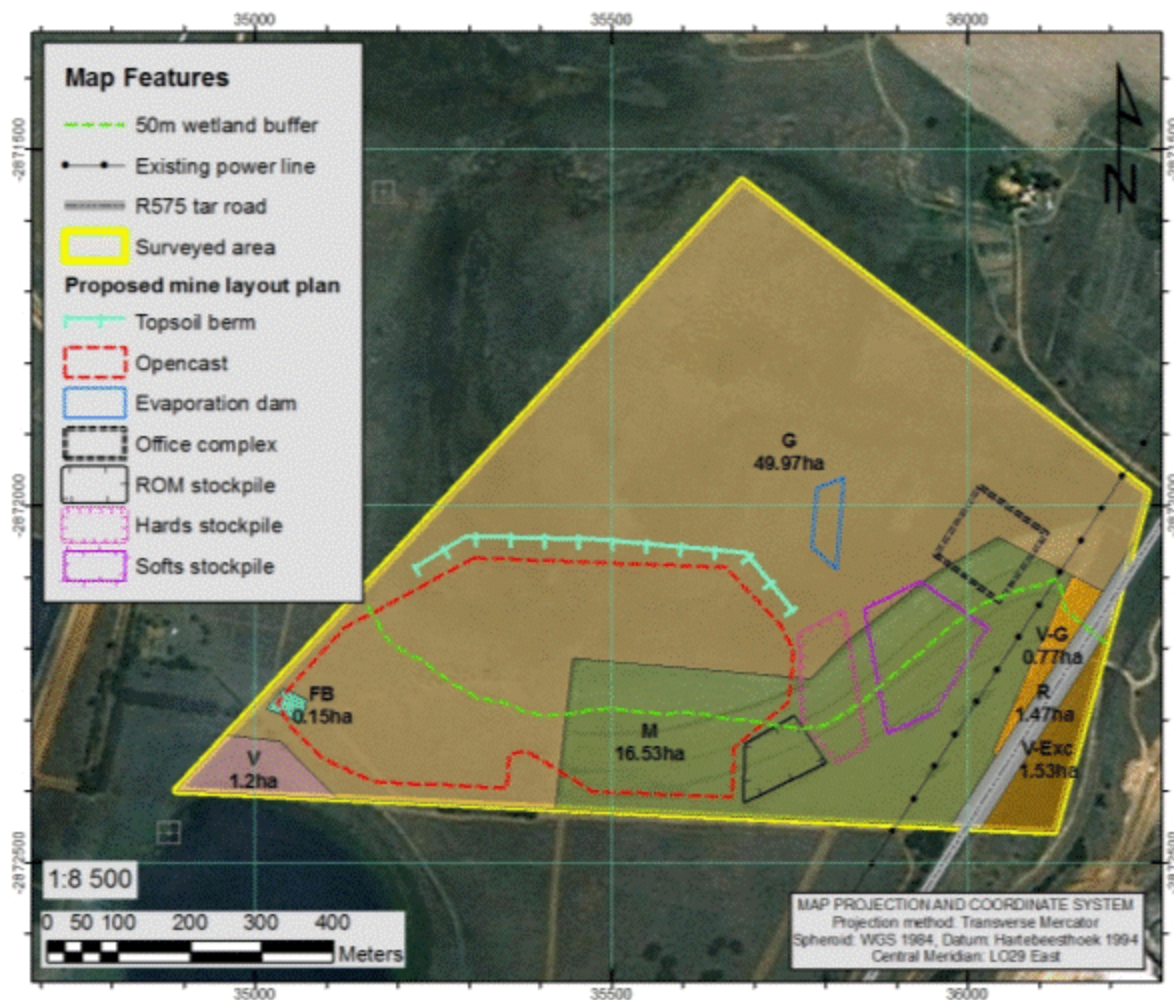


the subsoils layers. One wetland area has been identified. This area has been excluded from all mine planning and delineation of these areas has been undertaken by the site surveyor

**b. Environmental and current land use map.**

(Show all environmental, and current land use features)

Land use within the application site is limited to agriculture – more specifically maize production.



LEGEND – CURRENT LAND USE				
Land Use Code	Current Land Use	Unit Count	Area (ha)	Area (%)
M	Maize	1	16.53	23.081
G	Grazing - mainly cattle	1	49.97	69.762
R	R575 tar road including road edges	1	1.47	2.051
V	Vacant - portion of southern closed depression - no specific land use observed	1	1.20	1.678
V-G	Vacant area within fenced off maize field - probably grazed during winter	1	0.77	1.072
V-Exc	Vacant - Excavated area	1	1.53	2.142
FB	Old farm building with adjacent stone cattle kraal - appeared fairly abandoned	1	0.15	0.215
<b>TOTAL</b>		<b>7</b>	<b>71.62</b>	<b>100.0</b>

Figure 1. Land use map of the proposed mining area situated on portion 9 of the farm Driefontein 338 JS.

**v) Impacts identified**

(Provide a list of the potential impacts identified of the activities described in the initial site layout that will be undertaken, as informed by both the typical known impacts of such activities, and as informed by the consultations with affected parties together with the significance, probability and duration of the impacts

Climate and Greenhouse gases  
Baseline / Existing Environment Conditions

The key land uses in the project area are agricultural activities. Natural vegetation remains in those areas where it is unsuitable for cultivation (drainage lines, pans).

The project area is surrounded by mines, roads, power stations and related constructions and operations. These all have an existing negative impact on local, regional and national climatic conditions due to release of greenhouse gas emissions into the atmosphere and removal of the carbon sink.

Impact Assessment

*Project Impacts*

The impact on climate due to greenhouse gas emissions from the proposed project will take place during construction and operational phases of the project.

	<u>Project Activity / Impact Source</u>	<u>Potential Impact</u>
<i>Construction Phase:</i>	Use of fossil fuels (diesel and petrol) Grid electricity consumption Clearing of vegetation	Increase in greenhouse gases such as carbon dioxide, methane and nitrous oxide and a decrease in the carbon sink
<i>Operational Phase:</i>	Use of fossil fuels (diesel and petrol) Grid electricity consumption Fugitive methane emissions from exposed coal seams due to depressurization and processing Blasting Clearing of vegetation	Increase in greenhouse gases such as carbon dioxide, methane and nitrous oxide and decrease in the carbon sink
<i>Decommission and Closure Phase:</i>	Greenhouse gas emissions as result of the project will decrease.  Rehabilitation will increase the vegetation area within the project area	Increase in carbon sink
<i>Post Closure:</i>	Post closure, the establishment of a vegetation cover can have a positive impact compared to the current maize cultivation.	Increase in carbon sink

**Surface Water**

**Description of Baseline Environment Conditions**

The catchment is characterized as a rural setting with no urban setting contained within the catchment. The slope of the catchment is typically flat (average catchment slope of 1 %). The catchment cover consists of cultivated fields or grasslands with the only exception being the regional road (east of the mini pit). There are a number of historically cultivated fields (which are now fallow due to the mining activities), which are regarded as grassland. .

**Baseline Impact Sources**

There are several opencast mines and power stations, Duvha, located within the catchment. All of these have or will have an impact on catchment yield, as well as water quality in the area.

Operations at Duvha Power Station are continuing.

- Agricultural activities (cattle, maize and others).
- Neighbouring coal mining
- Phola Sewage Works.

**Synthesis of Baseline Impacts**

The existing impacts will include the above-mentioned impacts, which need to be taken into account.

The aspects affected are catchment yield and surface water quality and quantity. In terms of catchment yield, there are several opencast mines in the catchment which have large dirty areas that should be contained to prevent it contributing to the catchment. Thus, there is already an impact on catchment yield in the catchment.

In addition, dirty water containment is not necessarily effective on all of these sites, resulting in impacts on surface water quality. A further notable impact on water quality is the Phola sewage works, resulting in an increase of E. Coli in the affected river sections.

## Groundwater

### Description of Baseline Environment Conditions

Most mines and mining-related activities impact on groundwater quality and quantity. Quantification of such impacts on the groundwater regime requires knowledge of the pre-mining environment. The purpose of this section is to describe the pre-mining environment; thus the current prevailing groundwater conditions. This will serve as a reference baseline for quantifying potential mining impacts on the existing groundwater regime. In this case, however, the area under investigation cannot be strictly classified as a pristine pre-mining environment. It could be affected by current mining operations of the area, as well as the nearby power station.

### Baseline Impact Sources

<b>Groundwater Quantity</b>	Borehole water abstraction by external users (e.g. irrigation, crop watering, domestic etc.); Water use and consumption in the area of influence (the area of influence on borehole levels is expected to be less than 250 m around mine pit perimeter).
<b>Groundwater Quality</b>	Deterioration of clean water associated with historical mining in the area.

### Synthesis of Baseline Impacts

<b>Groundwater Quantity</b>	Groundwater use reported (including mining activities from other mining houses, existing agricultural activities, nearby sand mining and coal washing plant). Mining activities from other mining houses in place. Existing agricultural activities. Nearby coal washing plant.
<b>Groundwater Quality</b>	Groundwater use reported (including mining activities from other mining houses, existing agricultural activities, nearby sand mining and coal washing plant). Mining activities from other mining houses in place. Existing agricultural activities. Nearby coal washing plant.
<b>Increased groundwater recharge</b>	A number of mining houses are active in the area mining mostly by opencast mining methods and secondary mining of old underground workings.  Any opencast activity (coal, sand mining, etc.) will have an impact on the volumes of groundwater recharge that will report to open voids/spoils.
<b>Inter-mine flow</b>	Existing old underground mine workings are flooded. Water can flow from this section to adjacent sections and/or decant on surface.
<b>External Groundwater Users</b>	Groundwater use reported (including mining activities from other mining houses, existing agricultural activities, nearby sand mining and coal washing plant).  Mining activities from other mining houses in place.

	Possible isolated complaints about groundwater depletion due to surrounding mining activities.
<b>Loss of stream base flow</b>	The current impact on stream base flow is currently low. GN704 requires that mining activities take place outside of the 1:100 year flood line or outside a horizontal distance of 100 meters from any watercourse or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked.
<b>Deterioration in groundwater quality in the opencast pit</b>	Limited existing opencast mining in the catchments. Current groundwater quality ranging between pristine and moderately impacted.
<b>Impact on groundwater quality due to the construction and operation of a number of surface facilities</b>	No surface infrastructure is developed in the catchment at the moment.

**Impact Assessment**

**Project Impact Sources**

<b>Construction Phase:</b>	<p><b>Groundwater Quantity</b></p> <p>Water abstraction for Driefontein Colliery construction activities.</p> <p>Water use (mining activities from other mining houses, existing agricultural activities, and consumption in the area of influence (area of influence is expected to be less than 250 m around mine pit perimeter).</p> <p><b>Groundwater Quality</b></p> <p>Deterioration of clean water in open void (box-cut).</p>
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<p><b>Operational Phase:</b></p>	<p><b>Increased groundwater recharge</b></p> <p>Open pit, spoils and rehabilitated areas in mining footprint;</p> <p>Increased recharge from rainfall due to the disturbed nature of mining activities; Management of excess water in voids and spoils.</p> <p><b>Impact on external groundwater users</b></p> <p>Borehole water use. Cone of depression with an expected maximum radius of 250 m beyond the mining extent.</p> <p><b>Loss of stream base flow</b></p> <p>Cone of depression; Groundwater flow reversal.</p> <p><b>Deterioration in groundwater quality in the opencast pit</b></p> <p>Acidification of spoils; Coal discard disposal in-pit; Different waste streams;</p> <p>Deterioration in groundwater quality (different waste water streams described in Appendix H: Groundwater Specialist Impact Assessment); All water to be treated before release.</p> <p><b>Impact on groundwater quality due to the construction and operation of a number of surface facilities</b></p> <p>Different surface infrastructure with its associated liner systems. Migration of pollution to the underlying aquifers. Monitoring around all facilities required.</p>
<p><b>Post Closure:</b></p>	<p><b>Decant and Inter-mine flow from Driefontein Colliery</b></p> <p>No inter-mine flow FROM Driefontein Colliery due to pumping and treatment. All contaminated water to be pumped and transported to be treated until such time that monitoring results prove that treatment is no longer necessary.</p> <p><b>Deterioration of in-pit water and residual pollution from surface infrastructure</b></p> <p>Polluted water from different waste water streams.</p> <p>Impacts if rehabilitation during operational phase was not done to standard.</p>

**Air Quality**

**Description of Baseline Environment Conditions**

Sources of SO<sub>2</sub> and NO<sub>x</sub> that occur in the region include Eskom power stations, industrial emissions, blasting operations at mines, spontaneous combustion of discard at coal mines, veld burning, vehicle exhaust emissions and household fuel burning.

Various local and far-a-field sources are expected to contribute to the suspended fine particulate concentrations in the region. Local sources include wind erosion from exposed areas, fugitive dust from agricultural and mining operations, particulate releases from industrial operations, vehicle entrainment from roadways and veld burning. Household fuel burning also constitutes a significant local source of low-level emissions. Long-range transport of particulates, emitted from remote tall stacks and from large- scale biomass burning in countries to the north of South Africa, has been found to contribute significantly to background fine particulate concentrations over the interior (Andrea et al., 1996; Garstang et al., 1996; Piketh, 1996).

### **Wind-blow Dust from Eskom's Ash Dams and Dumps**

Parameters which have the potential to impact on the rate of emission from ash dam/dump facilities include the extent of surface compaction, moisture content, ground cover, the shape of the dam, particle size distribution, wind speed and precipitation.

Ash dumps in close proximity to the proposed activities are the existing Duvha dump.

### **Materials Handling**

Materials handling operations associated with mining and power station activities in the area include the transfer of coal by means of tipping, loading and off-loading of trucks. The quantity of dust that will be generated from such loading and off-loading operations will depend on various climatic parameters, such as wind speed and precipitation, in addition to non-climatic parameters such as the nature (i.e. moisture content) and volume of the material handled.

### **Industrial Emissions**

Industrial sources within the Mpumalanga region include the following:

Emissions from coal combustion by power generation, metallurgical and petrochemical industries represents the greatest contributors to total emissions from the industrial / institutional / commercial fuel use sector within the Mpumalanga region.

The metallurgical group is estimated to be responsible for at least ~50% of the particulate emissions from this sector. This group includes iron and steel, ferro-chrome, ferro-alloy and stainless steel manufacturers (includes Evraz Highveld Steel & Vanadium (~35km from the proposed Driefontein Colliery), Ferrometals, Columbus Stainless, Transalloys, Middelburg Ferrochrome). Petrochemical and chemical industries are primarily situated in Secunda (viz. Sasol Chemical Industries). The use of coal for power generation and the coal gasification process represent significant sources of sulphur dioxide emissions. (Particulate emissions are controlled through the implementation of stack gas cleaning equipment.)

Other industrial sources include: brick manufacturers which use coal (e.g. Witbank Brickworks, Quality Bricks, Corobrik, Hoëveld Stene, Middelwit Stene), wood burning and wood drying by various sawmills (Bruply, Busby, M&N Sawmills) and other heavy industries (use coal and to a lesser extent HFO for steam generation). The contribution of fuel combustion (primarily coal) by institutions such as schools and hospitals to total emissions is relatively low due to the extent of emissions from other groups.

In the immediate vicinity of the proposed Driefontein mine, the industrial activities consist of the Corobrickworks, Mooifontein Colliery and the Duvha Power Station.

### **Household Fuel Burning**

Despite the intensive national electrification program, a large number of households continue to burn fuel to meet, all or part of their energy requirements. The main fuels associated with air pollution potentials used by households within the study region are coal, wood and paraffin.

Coal burning emits a large amount of gaseous and particulate pollutants including sulphur dioxide, heavy metals, as well as total and respirable particulates. These include, heavy metals and inorganic ash, carbon monoxide, polycyclic aromatic hydrocarbons, and benzo(a)pyrene. Polyaromatic hydrocarbons are recognized as carcinogens. Pollutants arising due to the combustion of wood include respirable particulates, nitrogen dioxide, carbon monoxide, polycyclic aromatic hydrocarbons, particulate benzo(a)pyrene and formaldehyde. The main pollutants emitted from the combustion of paraffin are NO<sub>2</sub>, particulates carbon monoxide and polycyclic aromatic hydrocarbons.

An area of notable domestic fuel burning in close proximity to Driefontein Colliery is Duvha Park Informal Settlement. The largest part of Duvha Park falls within the 100 – 1000 households/km<sup>2</sup> burning coal and 30 – 100 households/km<sup>2</sup> burning wood with between 100 – 500 households/km<sup>2</sup> burning paraffin.

### **Vehicle Exhaust Emissions**

Air pollution from vehicle emissions may be grouped into primary and secondary pollutants. Primary pollutants are those emitted directly into the atmosphere, and secondary, those pollutants formed in the atmosphere as a result of chemical reactions, such as hydrolysis, oxidation, or photochemical reactions. The significant primary pollutants emitted by motor vehicles include carbon dioxide (CO<sub>2</sub>), carbon monoxide (CO), hydrocarbon compounds (HC), sulphur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>) and particulate matter (PM). Secondary pollutants include nitrogen dioxide (NO<sub>2</sub>), photochemical oxidants (e.g. ozone), hydrocarbon compounds (HC), sulphur acid, sulphates, nitric acid and nitrate aerosols. The main roads in the study area are the N12 to the west of the Driefontein coal reserve and the R575 and R544 to the east and south respectively.

**Fugitive Dust Emissions from Open Cast Mining**

Open cast mines are associated with significant dust emissions, sources of which include land clearing, blasting and drilling operations, materials handling, vehicle entrainment, crushing, screening (etc.). Surface mines in the immediate vicinity of Driefontein consist of the Mooifontein Colliery, Ifalethu Colliery and a number of other mines located in the vicinity.

**Other Fugitive Dust Sources**

Fugitive dust emissions may occur as a result of vehicle entrained dust from local paved and unpaved roads, wind erosion from open areas, dust generated by agricultural activities (e.g. tilling) and mining. The extent of particulate emissions from the main roads will depend on the number of vehicles using the roads and on the silt loading on the roadways.

**Impact Assessment**

**Project Impact Sources**

<p><b>Construction Phase:</b></p>	<p><b><u>TSP and PM10</u></b></p> <p>Plant / mine site; Unpaved roads; Transport infrastructure.</p>
<p><b>Operational Phase:</b></p>	<p><b><u>Gaseous and particulate emissions: fugitive dust</u></b></p> <p>Vehicle activity on paved and unpaved roads.</p> <p><b><u>Fugitive dust</u></b></p> <p>Mining operations within open pit; Materials handling operations; Crushing and screening activities; Wind erosion.</p>
<p><b>Decommission and Closure Phase:</b></p>	<p><b><u>Generation of TSP and PM10</u></b></p> <p>Topsoil stockpiles; Plant site; Unpaved roads.</p> <p><b><u>Gas emissions</u></b></p> <p>Vehicles</p>

## vi) **Methodology used in determining the significance of environmental impacts**

(Describe how the significance, probability, and duration of the aforesaid identified impacts that were identified through the consultation process was determined in order to decide the extent to which the initial site layout needs revision).

The identification and assessment of environmental impacts is a multi-faceted process, using a combination of quantitative and qualitative descriptions and evaluations. It involves applying scientific measurements and professional judgement to determine the significance of environmental impacts associated with the proposed project. The process involves consideration of, *inter alia*: the purpose and need for the project; views and concerns of interested and affected parties; social and political norms, and general public interest.

The methodology used for assessing impacts associated with the proposed project follows the philosophy of environmental impact assessments, as described in the booklet Impact Significance, Integrated Environmental Management Information Series 5 (DEAT, 2002b). The philosophy is summarised by the following extracts:

“The impact magnitude [or intensity] and significance should as far as possible be determined by reference to legal requirements, accepted scientific standards or social acceptability. If no legislation or scientific standards are available, the EIA practitioner can evaluate impact magnitude based on clearly described criteria. Except for the exceeding of standards set by law or scientific knowledge, the description of significance is largely judgemental, subjective and variable. However, generic criteria can be used systematically to identify, predict, evaluate and determine the significance of impacts.” (DEAT, 2002b).

“Determining significance [of impacts] is ultimately a judgement call. Judgemental factors can be applied rigorously and consistently by displaying information related to an issue in a standard worksheet format.” (Haug et al., 1984 taken from DEAT, 2002b).

The purpose of undertaking an impact assessment is to ensure that the project proactively considers environmental issues as part of the project planning and decision-making processes throughout the project life cycle.

For each environmental component (i.e. visual, air quality, health), impacts will be identified and described in terms of: detectability / visibility of the impact, exposure of receptors to the impact, compliance with legislation and standards, other applicable targets, limits or thresholds of concern, the level of change / intrusion imposed, and receptor sensitivity.

The impact assessment will consider:

- Physical, biological, social and economic components of the environment and their interrelationships.
- The ability of receptors and affected parties to adapt to changes and thus maintain livelihoods after the operation has closed.
- The effects of all stages of the project life cycle, including planning construction, operation, decommissioning and post closure must be considered.
- Positive and negative environmental and social impacts.
- Direct, indirect, induced and cumulative impacts.
- Short- and long-duration impacts within the zone(s) of influence, and extreme events.
- Potential trans-boundary effects and global impacts (e.g. air pollution, withdrawal of water from an inter-provincial waterway and emission of greenhouse gasses).
- Potential impacts on local communities and/or other vulnerable individuals or groups.
- Socio-political risks (e.g. political instability).
- Impacts associated with supply chains where the resource(s) utilised by the project are sensitive.



The perceived sensitivity of receptors (people and/or receiving environment) will be professionally judged based on available scientific data (fact) and feedback from public participation processes (views, opinions, attitudes, and concerns) as documented in the Public Consultation Documentation (Appendix D) and the Impact Rating criteria described in Section 3.6. The following impacts will be described:

**Existing Impacts (Impacts of Existing Developments within Project Impact Area)**

The proposed coal mine is located in an area affected by various historical and existing activities including mining, processing, agriculture, residential, major roads and highways and other linear infrastructure as well as the Duvha Power Station.

The assessment of existing impacts will consider the current level of environmental degradation associated with existing developments, as well as developments under construction and new or planned developments that will be operational at implementation of Driefontein Colliery and for which the impacts have been defined.

Defining the current level of degradation associated with existing developments is essential to understand and enable the assessment of cumulative impacts (see below). The assessment of existing impacts is qualitative and limited to the area of impact for the individual environmental components.

**Incremental Impacts**

Incremental impacts refers to the impacts of an activity looked at in isolation (impacts of an individual activity), thus not considering the combined, cumulative or synergistic impacts of the activity, or the cumulative impacts of the activity with other activities or the existing impacts. The environmental impact report will describe the incremental impacts of the development alternatives.

**No-go Development Impacts**

The no-go development is considered as an alternative in the evaluation of development alternatives. In the environmental impact assessment the no-go development impacts would be similar to the existing impacts.

The no-go development will have high negative impacts on the cost and timing of coal supply to Eskom Power Stations, delivery of electricity to the national grid, and associated impacts on the national economy. Therefore it is assumed that if the Driefontein Colliery is not allowed to be developed, an alternative coal supply and transportation of that coal supply will have to be found to supply Eskom Power Stations.

**Cumulative Impacts**

For this project, cumulative impacts will be determined as:

<b>Existing Impacts</b>	+	<b>Incremental Impacts</b>	=	<b>Cumulative Impacts</b>
Existing impacts within the project area of impact for individual project components (current level of degradation) associated with existing developments.		Impacts of the proposed Driefontein Colliery and associated activities and infrastructure		Existing impacts (current level of degradation) associated with existing developments and developments under construction combined with the impacts of the proposed Driefontein Colliery and associated activities and infrastructure

The Impact Rating System:

Impact Rating Criteria (Symbol / Short Description)		Explanation of Rating Criteria			
<b>Nature of the Impact</b>		Description of the direct and indirect effect of human actions and activities on the environment, and impacts of the environment on development.			
<b>Mitigation</b>		Environmental Management Programme Framework. Measures designed to avoid, reduce or remedy adverse potential negative impacts, including compensation for residual impacts and measures designed to expand and augment the effect of potential positive impacts for consideration during development of the final environmental management programme.			
<b>Impact Status</b>		Negative	Impacts with a potential negative / adverse effect.		
		Neutral	Neutral, no impact.		
		Positive	Impacts with a potential positive / beneficial effect.		
<b>Consequence</b> (Severity + Scale)	<b>Severity</b> (Intensity + Duration + frequency)	<b>Intensity</b> (Negative Impacts)	1	low	Slight change, disturbance or nuisance. Targets, limits and thresholds of concern never exceeded. Impacts are rapidly and easily reversible. Require no or only minor interventions or clean-up actions. No complaints expected when the impact takes place.
			2	moderate	Moderate change, disturbance or discomfort. Real but not substantial. Targets, limits and thresholds of concern may occasionally be exceeded. Impacts are reversible but may require some effort, cost and time. Sporadic complaints can be expected when the impact takes place.
			3	high	Prominent change, disturbance or degradation. Real and substantial. May result in illness or injury. Targets, limits and thresholds of concern regularly exceeded. Regular complaints can be expected when the impact takes place.
			4	very high	Severe change, disturbance or degradation. May result in illness, injury or death. Targets, limits and thresholds of concern continually exceeded. Interest group / community mobilisation against project can be expected when the impact takes place. May result in legal action if impact occurs.
		<b>Intensity</b> (Positive Impacts)	1	low	Slight change or improvement. Minor benefits.
			2	moderate	Moderate change or improvement. Real but not substantial benefits.
			3	high	Prominent change or improvement. Real and substantial benefits. General community support.
			4	very high	Considerable and large-scale change or improvement. Real and considerable benefit. Widespread support.
		<b>Duration</b>	Refers to the total length of time (i.e. number of years) that the impact source or risk will be present.		
			1	low	Short-term. May occur for weeks or a few months and are rapidly reversible.
			2	moderate	Medium-term. May occur for the first few years of the project, during construction, up to three years. Impacts reversible within a three year period.
			3	high	Long-term. May occur throughout the life of the mine, but will cease after operations ceases either because of natural processes or human intervention.
	4		very high	Permanent and irreversible. Residual impacts will remain after decommissioning and closure.	
	<b>Frequency</b>	Refers to the time intervals and how often (i.e. number of days per year) the impact would manifest over the entire duration of the impact.			
		1	low	Seldom. Impact would be intermitted, limited to a few days a year (0-10 % of the time).	
		2	moderate	Occasional. Impact would occur now and again, not more than seven days a month (occurs 10-25% of the time).	
		3	high	Often. Impact would be present more than fourteen days a month (occurs >50% of the time).	
		4	very high	Continuous. Impact would occur all the time (occurs 100% of the time).	
	<b>Scale / Extent</b>	0	none	None. Impact will not occur anywhere.	
		1	low	Site impact. Small area. No sensitive receptors outside property affected.	
		2	moderate	Local. May affect immediate neighbours, never nearby townships. Small area or small number of sensitive receptors affected. Generally within 50 km from project site.	
		3	high	Widespread impact. Affects nearby townships. Large area or large numbers of sensitive receptors affected.	
		4	very high	National or international impact. Impacts over a vast area or over vast numbers of sensitive receptors.	

Final Scoping Report: Driefontein Colliery

<b>Probability</b>	0	none	Never (0 % likelihood).	
	1	low	Conceivable. Will only happen in exceptional circumstances (<10 % likelihood).	
	2	moderate	Plausible. Could happen and has occurred here or elsewhere (11-40 % likelihood).	
	3	high	Probable (>40-80 % likelihood).	
<b>Impact Rating Criteria</b> (Symbol / Short Description)			<b>Explanation of Rating Criteria</b>	
	4	very high	Expected. Highly likely to happen (>80 % likelihood).	
<b>Significance</b> (Consequence + Probability)	Neg Very High		Widespread negative effect. Negative impact that is of the highest order. Potential fatal flaw.	
	Neg High		Substantial negative impact.	
	Neg Moderate		Negative impact that is real but not substantial.	
	Neg Low		Low to negligible negative impact with little real effect.	
	Non		No discernible impact.	
	Pos Low		Low to insignificant positive impact.	
	Pos Moderate		Positive impact that is real but not substantial.	
	Pos High		Substantial positive impact.	
	Pos Very High		Widespread / substantial beneficial effect. An alternative means to achieve the same benefits not possible.	
<b>Impact Status</b>	Negative		Impacts with a potential negative / adverse effect.	
	Neutral		Neutral, no impact.	
	Positive		Impacts with a potential positive / beneficial effect.	
<b>Project Phase</b>	Planning		Activities, impacts and mitigation measures applicable to the planning (or pre-implementation) phase.	
	Construction		Activities, impacts and mitigation measures applicable to the construction phase, including decommissioning of existing infrastructure.	
	Operational		Activities, impacts and mitigation measures applicable to the operational phase.	
	Decommissioning / Closure		Activities, impacts and mitigation measures applicable to decommissioning (closure, removal, rehabilitation). For this project, the impacts associated with the decommissioning very similar to that of the construction phase. Due to the long project life (60+ years), the impacts are not discussed separately.	
<b>Precautionary Weighting</b> (Value Judgement)	<b>(Negative Impacts)</b>	Used when there is a potential understatement of the significance of a negative impact to increase the significance rating.		
		0	none	No weighting required. Significance rating is a true reflection of the potential effect of the impact.
		1	low	There may be a slight understatement of the significance of the impact. Impact significance adapted to be slightly higher.
		2	moderate	There may be a moderate understatement of the significance of the impact. Impact significance adapted to be higher.
		3	high	The impact significance rating is highly understated. Impact significance adapted to be higher.
		4	very high	The impact significance rating is severely understated. Impact significance adapted to be higher.
	<b>(Positive)</b>	Used when there is a potential overstatement of the significance of a positive impact to reduce the significance rating.		
		0	none	No weighting required. Significance rating is a true reflection of the potential effect of the impact.
		1	low	There may be a slight understatement of the significance of the impact. Impact significance adapted to be lower.
		2	moderate	There may be a moderate understatement of the significance of the impact. Impact significance adapted to be lower.
		3	high	The impact significance rating is highly understated. Impact significance adapted to be lower.
		4	very high	The impact significance rating is severely understated. Impact significance adapted to be lower.
				Calculated as the difference between the rating of Unmitigated Impacts and Mitigated Impacts, assuming mitigation will be implemented successfully and in full.
None / Not applicable		Not applicable - no impacts to be mitigated. None - impacts cannot be mitigated (no difference between the rating of 'Unmitigated Impacts' and 'Mitigated Impacts').		

Final Scoping Report: Driefontein Colliery

Degree to which impacts can be mitigated	Low	The difference between the impact rating of 'Unmitigated Impacts' and 'Mitigated Impacts' is Low. Low potential to mitigate impacts even if mitigation is implemented successfully and in full.	
	Moderate	The difference between the impact rating of 'Unmitigated Impacts' and 'Mitigated Impacts' is Moderate. Moderate potential to mitigate impacts if mitigation is implemented successfully and in full.	
<b>Impact Rating Criteria</b> (Symbol / Short Description)		<b>Explanation of Rating Criteria</b>	
	High	The difference between the impact rating of 'Unmitigated Impacts' and 'Mitigated Impacts' is High. High potential to mitigate impacts if mitigation is implemented successfully and in full.	
	Very High	The difference between the impact rating of 'Unmitigated Impacts' and 'Mitigated Impacts' is Very High. Very High potential to mitigate impacts, assuming mitigation is implemented successfully and in full.	
Risk of Mitigation Failure	The likelihood of mitigation failure rated based on: - research and technology, - timing, and thus secondary potential of outside influences occurring over time (i.e. climate change, political instability, inter/national economic instability), - financial considerations, - skills and labour availability and potential for human error.		
	0	No / Very Low Risk	Less than 10% likelihood that mitigation measures could fail. Mitigation implemented quickly and easily to implement, proven technology used, no special labour skills required. More than 90% likelihood that impacts will be reversed.
	1	Low Risk	10-30% likelihood that mitigation measures could fail.
	2	Moderate Risk	30 to 60% likelihood that mitigation measures could fail.
	3	High Risk	60 to 80% likelihood that mitigation measures could fail.
4	Very High Risk	>80% likelihood that mitigation measures could fail. May need research and new technologies to be developed, and/or may have to take place over many years after closure, and/or may involve exorbitant/prohibitive expenses to implement successfully, and/or may require highly skilled personnel with special training, and/or have a high risk of human error during the execution of the mitigation.	
Impact Reversibility	The degree to which an impact can be reversed when impact source is removed.		
	Permanent Impact		Impact less than 10% reversible even if source of impact is removed.
	Low Reversibility		Impact 10-30% reversible. Difficult to reverse impact once source of impact is removed.
	Moderate Reversibility		Impact 30 to 60% reversible. Impact can be partially reversed once source of impact is removed.
	High Reversibility		Impact 60 to 80% reversible. Easy and possible to reserve most of the impacts once source of impact is removed.
Impact Reversible		Impact more than 90% reversible, in essence the impact is reversible once source of impact is removed.	
Impact on Irreplaceable Resources	Positive / Reduction		Positive impact or reduction in the impact on irreplaceable resources.
	None		No impact on irreplaceable resources.
	Neg Low		Negative low impact on irreplaceable resources.
	Neg Moderate		Negative moderate impact on irreplaceable resources.
	Neg High		Negative high impact on irreplaceable resources.
Neg Very High		Negative very high impact on irreplaceable resources.	
Impact Rating Methodology	Formula	Example	Rating Criteria
	I	2.0	Intensity (I)
	D	2.0	Duration (D)
	F	2.0	Frequency (F)
	$S=(I+D+F)/3$	2.0	Severity (S) = (Intensity + Duration + Frequency) / 3
	E	2.0	Scale (Extent) (E)
	$C=(S+E)/2$	2.0	Consequence (C) = (Severity + Extent) / 2
	P	3.0	Probability (P)
	$S1=(C+P)/2$	2.3	Significance (S1) = (Consequence + Probability) / 2
	W	1.0	Precautionary Weighting (W)
$S2=(S+W)/2$	2.8	Significance with Precautionary Weighting (S2) = (S1 + W)	
Overall Risk / Benefit	Calculated based on the rating for Unmitigated Impacts and Mitigated Impacts, the degree to which the impacts can be mitigated and the likelihood for the mitigation measures failing.		
Formula	Level	Level	
<=	-3.3	Neg Very High	
<=	-2.9	Neg High	

<b>Impact Rating</b> (and Risk / Benefit Rating)	<=	-2.0	Neg Moderate
	<	0.0	Neg Low
		0.0	None
	>	0.0	Pos Low
	>=	2.0	Pos Moderate
<b>Impact Rating Criteria</b> (Symbol / Short Description)		<b>Explanation of Rating Criteria</b>	
	>=	2.9	Pos High
	>=	3.3	Pos Very High
<b>Assessment Confidence</b>	Complete		No information gaps exist. Decision-making can go ahead.
	Adequate		Minor information deficiencies exist but this does not affect decision-making. Decision-making can still go ahead.
	Incomplete		Not enough information for decision-making. Current data to be supplemented with further monitoring or research.
<b>IAP Interest</b>	Neg Very High		Widespread concern and/or concerns of very high importance. Concerns difficult to be addressed to satisfaction of authorities or concerned parties. Appeals against project anticipated if not addressed.
	Neg High		Several concerns and/or concerns of high importance. Real and substantial.
	Neg Moderate		Limited concerns. All concerns addressed. Real but not substantial.
	Neg Low		Very minor or minor concerns.
	Neutral / None		No interest.
	Not defined		Level of interest has not been tested.
	Pos Low		Very little support for project.
	Pos Moderate		Limited support for project.
	Pos High		General support. May be associated with high community expectations.
	Pos Very High		Widespread support. May be associated with extremely high community expectations.
	Diverse Low		Minor interest. Some support. Some concerns.
	Diverse Moderate		Limited interest. Some support. Some concerns.
	Diverse High		General interest. Some support. Some concerns.
Diverse Very High		Widespread interest. Some support. Some concerns.	

**vii) The positive and negative impacts that the proposed activity (in terms of the initial site layout) and alternatives will have on the environment and the community that may be affected.**

(Provide a discussion in terms of advantages and disadvantages of the initial site layout compared to alternative layout options to accommodate concerns raised by affected parties)

**Geohydrology**

- Reduction in groundwater recharge

Technical assessment:

Construction of the box-cuts could result in the reduction of recharge to the groundwater over the mining area and surrounding areas.

Mitigation measures:

Impacts can be minimised by directing clean storm water runoff away from the box-cut and stockpile areas to a soak away.

Impact significance:

It is anticipated that the box-cut will result in negligible impacts, and will be restricted to the site only.

Impacts of low significance are therefore expected.

- Leakage of stored (poor quality) water

Technical assessment:

Poor quality water may be stored on site in Pollution control dams. Leakage and/or spillage of this water could result in groundwater contamination.

Mitigation measures:

Ensure all water storage containers are located in the “dirty” areas. Water storage containers must be robust

and not overfilled. Area to be bunded to contain any spillage.

Impact significance:

It is anticipated that spillage of water will result in negligible impacts and will be restricted to the site only. Impacts of low significance are therefore expected.

- Leakage of stored drilling fluids and chemicals

Technical assessment:

Drilling fluids and chemicals may be stored on site. Leakage and/or spillage of could result in groundwater contamination.

Mitigation measures:

Ensure all storage containers are located in the “dirty” areas. The storage containers must be robust and not overfilled. Area to be bunded to contain any spillage. Personnel to be inducted into correct and careful handling of drilling fluids and chemicals. Suitable intervention and clean-up plan must be in place and clean up facilities available on standby.

Impact significance:

It is anticipated that spillages will result in negligible impacts and will be restricted to the site only. Impacts of low significance are therefore expected.

## CONSTRUCTION PHASE

Impacts on Groundwater

It is accepted for the purposes of this document that the construction phase will consist of preparations for the colliery, which is assumed to consist mainly of establishment of infrastructure on site, the mobilisation of earth moving equipment and the opening of the boxcut.

This phase is not expected to influence the groundwater levels. With the exception of lesser oil and diesel spills, there are also no activities expected that could impact on regional groundwater quality. This phase should thus cause very little additional impacts in the groundwater quality. It is expected that the current status quo will be maintained.

Groundwater Management

The potential impact of sulphate related pollution plume development will be assessed as a vital component of the Geohydrological study.

Diesel and oil spills have been identified as potential groundwater pollutants during this phase, measures to prevent and contain such spills should be introduced. The following is suggested:

- It must be ensured that a credible company removes used oil after vehicle servicing.
- A sufficient supply of absorbent fibre should be kept at the site to contain accidental spills.
- Used absorbent fibre must be land-farmed, using approved methodologies.

## OPERATIONAL PHASE

The operational phase is interpreted as the active mining of the proposed mine, consisting of a number of opencast pits (Excavation, blasting, loading hauling, Equipment storage, Temporary office, berms, crushing; Diesel storage, and softs dumps as well as over burden stockpiles). It is inevitable that these effects will impact on the groundwater regime. The potential impacts that will be considered are the groundwater quantity and quality.

Impacts on Groundwater Quantity

During the operational phase, it is expected that the main impact on the groundwater environment will be de-watering of the surrounding ground water table. Water entering the mining areas will have to be pumped out to enable mining activities. This will cause a lowering in the groundwater table, in and adjacent to the mine. The calculated drawdown of the worst-case scenario will be depicted, as contours of drawdown for the opencast mine.

Surface Water

Potential for contaminated runoff

During the different phases of the project there will be a number of potential sources for contamination of runoff water from the site including:

- Fuel and/or other chemicals (e.g. those required for hydraulic fracturing) stored on site during the various project phases;
- Toilet and sanitation facilities.

There is potential for runoff water from the site to become contaminated by these sources by:

- Overflow of stormwater from chemical storage facilities;
- Leakages from PCD's;
- Accidental spill of chemicals, fuels, or return water to soil followed by rainfall runoff.

#### Soil

Due to the general low soil potential and subsequent land capability as well as similar land use over the total area where mineral bodies occur, alternative sites did not deliver any advantages or disadvantages compared to initial site layouts.

#### **viii) The possible mitigation measures that could be applied and the level of risk.**

(With regard to the issues and concerns raised by affected parties provide a list of the issues raised and an assessment/ discussion of the mitigations or site layout alternatives available to accommodate or address their concerns, together with an assessment of the impacts or risks associated with the mitigation or alternatives considered).

#### Geo-hydrology

##### OPERATIONAL PHASE

A substantial drop in groundwater level is not expected, but it is confined to no more than 500 metres around the mining area. As a drawdown of 5 metres and more is needed to seriously affect the yield of boreholes, some negative quantity impact on any current private groundwater users is predicted as previously discussed. It will not be possible to mitigate these impacts within the constraints of reasonable expenditure, and it is advised that affected boreholes be bought out or replaced with alternative supply of water.

It is also important to monitor static groundwater levels on a quarterly basis in all boreholes within a zone of two kilometres surrounding the opencasts to ensure that any deviation of the groundwater flow from the idealised predictions is detected in time and can be reacted upon appropriately. Preferred flow structures (dykes, sills, faults, etc) have not been included in the model due to the unknown hydraulic characteristics, and these structures could alter the actual effects considerably.

If it can be proven that the mining operation is indeed affecting the quantity of groundwater available to certain users, the affected parties should be compensated. This may be done through the installation of additional boreholes for water supply purposes, or an alternative water supply.

Although little or no groundwater contamination is expected during this stage due to the cone of depression, it is nevertheless also recommended that groundwater quality be monitored on a quarterly basis. This is essential to provide a necessary database for future disputes.

Water samples must be taken from all the monitoring boreholes by using approved sampling techniques and adhering to recognised sampling procedures. Samples should be analysed for both organic as well as inorganic pollutants, as mining activity often lead to hydrocarbon spills in the form of diesel and oil. At least the following water quality parameters should be analysed for:

- Major ions (Ca, K, Mg, Na, SO<sub>4</sub>, NO<sub>3</sub>, Cl, F)
- pH
- Electrical Conductivity (EC),
- Total Alkalinity

These results should be recorded on a data sheet. It is proposed that the data should be entered into an appropriate computer database and reported to the Department of Water and Sanitation.

##### DECOMMISSIONING PHASE

During this phase of mining it is assumed that dewatering of the pits will cease, and the surface of the pit(s) will be rehabilitated. The groundwater regime will return to a state of equilibrium once mining has stopped and the removal of water from the mining void has been discontinued.

The rise in groundwater level is predicted to be relatively slow and the water levels are expected to recover only in about many years.

No additional impacts on the groundwater of the study area other than the impacts discussed in above are expected during the decommissioning phase of the project.

## POST-MINING PHASE

This phase of the mining process is the period following the completion of mining and rehabilitation of the proposed pits. The following possible impacts were identified at this stage:

- Following closure of the pits, the groundwater level will rise to an equilibrium that will differ from the pre-mining level due to the disturbance of the bedrock and increase in recharge from rainfall.
- Groundwater within the mined areas is expected to deteriorate due to chemical interactions between the disturbed geological strata and the groundwater. The resulting groundwater pollution plume will commence with downstream movement.

## Soil

The soils were investigated by making observations with the use of a bucket type auger to a maximum depth of 1500 mm or to the depth of refusal. At each observation point the South African Taxonomic Soil Classification System (Soil Classification Working Group, 2nd edition 1991) was used to describe and classify the soil. The classification system categorises soil types in an upper soil Form level which are subdivided in a number of lower Family levels. Each soil Form (higher level) is defined by a unique vertical sequence of soil horizons with specific defined properties. The soil Families (lower level) are a subdivision of the soil Form (higher level) differentiated on the basis of specific characteristics such as leaching status, calcareousness, structure types and sizes etc.

In this way, standardised soil identification and communication is allowed by use of soil Form names and family numbers or names e.g. Hutton 2100 or Hutton Hayfield. The soil Form and soil Family together are referred to as soil types. At each auger observation point the following procedure was followed to note soil properties and classify soils accordingly:

i) Identify applicable diagnostic horizons by noting the physical properties such as:

- Effective depth (depth of soil suitable for root development);
- Colour (in accordance with Munsell colour chart);
- Texture (refers to the particle size distribution);
- Structure (aggregation of soil particles into structural units);
- Mottling (alterations due to continued exposure to wetness);
- Concretions (cohesion of minerals into hard fragments) and
- Leaching (removal of soluble constituents by percolating water).

ii) Determine according to above properties the appropriate soil Form and soil Family

The soil Form are indicated by the name and the Family by its appropriate number e.g. Hutton 2100. The soil Form and Family were then symbolized e.g. Hu and referred to as soil type Hu. The soil Form and Family were often further categorized based on effective soil depth, terrain unit and slope and a numerical number was added to the symbol e.g. Hu1. For example where the Hutton 2100 soil Form and Family occurs at an effective depth of 900-1200 mm it was symbolized and referred to as soil type Hu1 and where this soil Form and Family occurs at an effective depth of 600-900 mm it was symbolized and referred to as soil type Hu2.

A total of 42 auger observations were made at grid points and 25 randomly where deemed necessary to locate and accurately map soil boundaries. A total of 8 soil types, based on dominant soil form, effective soil depth, terrain unit and slope percentage were identified during field observations and were symbolised as: **Hu1, Hu2, Cv1, Cv2, Av, Ms/R, Lo and Ka.**

Soil type **Hu1**, dominated by the Hutton soil Form, covering 16.30 ha (22.8%) occurs on gently sloped midslopes (1-4% slopes) and consists of deep, red, well-drained, often gravely, loamy sand to sandy loam soils underlain by weathered rock. The land capability was classified as arable land with moderate to high agricultural potential. These are stable loamy sand to sandy loam soils on gentle slopes and the erodibility was rated low.

Soil type **Hu2**, dominated by the Hutton soil Form, covering 2.86 ha (4.0%) occurs on gently sloped midslopes (1-2% slopes) and consists of moderately deep, red, well-drained, loamy sand soils underlain by weathered or hard rock. Shallow spots and small patches of exposed surface rock occur occasionally. The land capability was classified as arable land with moderate agricultural potential and the erodibility was rated low to moderate.

Soil type **Cv1**, dominated by the Clovelly soil Form, covering 1.34 ha (1.9%) occurs on gently sloped footslopes (2-4% slopes) and consists of deep, yellow brown, well-drained, loamy sand to sandy loam soils



underlain by weathered rock. The land capability was classified as arable land with moderate to high agricultural potential and the erodibility was rated low to moderate.

Soil type **Cv2**, dominated by the Clovelly soil Form, covering 1.12 ha (1.6%) occurs on gently sloped footslopes (2-4% slopes) and consists of moderately deep, yellow brown, well-drained, loamy sand soils underlain by weathered or hard rock. Shallow spots and small patches of exposed surface rock occur occasionally. The land capability was classified as arable land with moderate agricultural potential and the erodibility was rated low to moderate.

Soil type **Av**, dominated by the Avalon soil Form, covering 4.19 ha (5.8%) occurs on gently moderately sloped footslopes (3-6% slopes) and consists of moderately deep, greyish yellow to yellow brown, moderately drained, loamy sand soils underlain by soft plinthite. The land capability was classified as arable land with moderate agricultural potential and the erodibility was rated low to moderate. This soil type forms a transitional zone between the imperfectly drained wetland soils and the higher lying well-drained soils.

Soil type **R/Ms**, dominated by the Mispah soil Form, covering 1.14 ha (1.6%) occurs on a gently to slightly steep midslopes (2-8% slopes) and consists of a narrow sandstone outcrop (flat rock plates as well as large rock boulders) in a complex association with shallow, yellowish red, well-drained, loamy sand soils (5-50% exposed surface rock). The land capability was classified as grazing potential with very low agricultural potential and the erodibility was rated moderate. Shallow soils have lower water holding capacity which together with exposed surface rock increases runoff which result in a higher erosion susceptibility.

Soil type **Lo1**, dominated by the Longlands soil Form, covering 17.14 ha (24.0%) occurs on gently sloped edges of a closed depression and consists of shallow, grey, leached, imperfectly to poorly drained, sandy soils, underlain by soft plinthite. The outer edge of this soil type was dry on the surface with water tables present between 400 and 800 mm while the inner part was covered with approximately 100-200 mm surface water. The land capability was classified as seasonal wetland with very low agricultural potential and cannot be cultivated due to insufficient effective soil depth and impeded internal drainage. The erodibility was rated low to moderate.

Soil type **Ka**, dominated by the Katspruit soil Form, covering 26.03 ha (36.3%) occurs in a closed depression (0-1% slopes) and consists of moderately deep, dark brown to grey, poorly drained, clay soils, underlain by gleyed clay. The majority of this area was covered with approximately 100-300 mm surface water. The land capability was classified as permanent wetland with very low agricultural potential and cannot be cultivated due to saturated soil conditions and the erodibility was rated moderate.

**ix) The outcome of the site selection Matrix. Final Site Layout Plan**

(Provide a final site layout plan as informed by the process of consultation with interested and affected parties)

The mineralization body determines where mining would occur. Associated infrastructure may still be shifted should the impact assessment phase provide data to support such adjustments. Some variation of the mine planning and final site layout is anticipated as a final outcome of the EIA/EMP process.

**x) Motivation where no alternative sites were considered.**

The Driefontein Colliery falls within an area that has historically been mined and currently has a large number of collieries in the vicinity. The need for coal for power production and Driefontein's close proximity to a number of power stations means no alternative sites can be considered.

**xi) Statement motivating the preferred site.**

(Provide a statement motivation the final site layout that is proposed)

The site plan layout as presented in Appendix 4 is the current preferred site. The position of the open cast pits is dictated by the geographical position of the mineral body. The EIA phase may result in small adjustments to the associated infrastructure which will be presented in the EMP.

Soil

Soils, land capability and current land uses had a low impact on the preferred site option due to the general low soil potential and subsequent land capability as well as similar land use over to the total area where mineral bodies occur. Sites are located on the largest mineral bodies to increase the feasibility of the planned operation.

## **(i) Plan of study for the Environmental Impact Assessment process**

### **i. Description of alternatives to be considered including the option of not going ahead with the activity.**

No-go option, No mining, no job creation, coal would be available for extraction at a later stage.

### **ii. Description of the aspects to be assessed as part of the environmental impact assessment process**

**(The EAP must undertake to assess the aspects affected by each individual mining activity whether listed or not, including activities such as blasting, Loading, hauling and transport, and mining activities such as Excavations, stockpiles, discard dumps or dams, water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)**

#### Site establishment

- Road construction and widening
- Culvert construction over drainage lines
- Office, change house and ablution establishment
- Diesel storage
- Topsoil stripping
- Foot print preparation of waste stockpiles
- Drilling
- Overburden blasting
- Loading
- Hauling
- Dumping
- Coal Discard deposition and Backfilling
- Service bay operation
- Water provision

No coal processing is planned to take place within the Driefontein Colliery Project Block with the exception of crushing and screening.

#### Soils

Soils at site office and ablution footprints will be assessed by hand auger observations as required depending on the size of the footprint. Soils at haul road footprints will be assessed by hand auger observations at 500 m intervals. Soils at pit footprints will be assessed by means of auger observations at a fixed grid with a density of 200 x 200 m. Coordinates of the observation points will be loaded onto a GPS to locate points in the field. Auger observations will be made to the depth of the first restricting layer or to a maximum depth of 1500 mm. The following attributes will be recorded at each observation:

- Soil form and family classified according to the Taxonomic Soil Classification System for South Africa, 1991.
- Soil depth
- Estimated soil texture.
- Soil wetness – mottling, leaching, gleyeing
- Soil structure.
- Underlying material.
- Current land use.
- Land capability.

The topsoil and subsoil (0-300 and 300-600 mm) of the dominant soil forms will be sampled. Samples will be analyzed for indicators of acidity and salt pollution as well as fertility indicators as follows:

- pH (water)
- Extractable cations Na, K, Ca, Mg (Amm.Acetate.)

- Phosphorus (Bray1)

#### Land capability

Land capability will be assessed according to the definitions outlined in the guidelines for the rehabilitation of mined land by the Chamber of Mines of South Africa and Coaltech Research Association (2007). Soil types will be classified into the following categories for areas that exclude wetlands and riparian zones:

- Arable land;
- Grazing land; and
- Wilderness.

Wetland and riparian zones will be delineated according to the practical field procedure for the identification and delineation of wetlands and riparian areas. Four indicators will be used in the study to delineate wetland and riparian zones, namely:

- Terrain unit;
- Soil form;
- Soil wetness; and
- Wetland and riparian vegetation.

#### Land use

The localities and extents of land use practices were surveyed during the time of the soil assessment

### **iii. Description of aspects to be assessed by specialists**

All activities and installations as described above will be assessed during the impact assessment phase by the specialist team. This team include specialists in the following aspects:

Air quality; Biodiversity; Hydrology; Geohydrology; Geo chemistry; Soil; Land Capability; Land use; Heritage and culture; Socio- Economics; Noise and Traffic.

Additional and updated studies are being conducted during this application process EMP Phase which includes Geohydrology and Storm Water management.

### **iv. Proposed method of assessing the environmental aspects including the proposed method of assessing alternatives**

Please see Section vi) above.

**v. The proposed method of assessing duration significance**

Impact Rating Criteria (Symbol / Short Description)		Explanation of Rating Criteria			
<b>Nature of the Impact</b>		Description of the direct and indirect effect of human actions and activities on the environment, and impacts of the environment on Environmental Management Programme Framework.			
<b>Mitigation</b>		Measures designed to avoid, reduce or remedy adverse potential negative impacts, including compensation for residual impacts and measures designed to expand and augment the effect of potential positive impacts for consideration during development of the final environmental management programme			
<b>Impact Status</b>		Negative	Impacts with a potential negative / adverse effect.		
		Neutral	Neutral, no impact.		
		Positive	Impacts with a potential positive / beneficial effect.		
Con seq	S e	Intens ity	1	low	Slight change, disturbance or nuisance. Targets, limits and thresholds of concern never exceeded. Impacts are rapidly and easily reversible. Require no or only minor
			2	moderate	Moderate change, disturbance or discomfort. Real but not substantial. Targets, limits and thresholds of concern may occasionally be exceeded. Impacts are reversible but may require some effort, cost and time. Sporadic complaints can be expected
			3	high	Prominent change, disturbance or degradation. Real and substantial. May result in illness or injury. Targets, limits and thresholds of concern regularly exceeded.
			4	very high	Severe change, disturbance or degradation. May result in illness, injury or death. Targets, limits and thresholds of concern continually exceeded. Interest group / community mobilisation against project can be expected when the impact takes place. May result in legal action if impact occurs.
		Intensit y	1	low	Slight change or improvement. Minor benefits.
			2	moderate	Moderate change or improvement. Real but not substantial benefits.
			3	high	Prominent change or improvement. Real and substantial benefits. General community support.
			4	very high	Considerable and large-scale change or improvement. Real and considerable benefit.
	Duratio n	Refers to the total length of time (i.e. number of years) that the impact source or risk will be present.			
		1	low	Short-term. May occur for weeks or a few months and are rapidly reversible.	
		2	moderate	Medium-term. May occur for the first few years of the project, during construction, up to	
		3	high	Long-term. May occur throughout the life of the mine, but will cease after operations	
	Duratio n	4	very high	Permanent and irreversible. Residual impacts will remain after decommissioning and	
		Refers to the time intervals and how often (i.e. number of days per year) the impact would manifest over the entire			
		1	low	Seldom. Impact would be intermitted, limited to a few days a year (0-10 % of the	
		2	moderate	Occasional. Impact would occur now and again, not more than seven days a month	
	Frequ ency	3	high	Often. Impact would be present more than fourteen days a month (occurs >50% of the	
		4	very high	Continuous. Impact would occur all the time (occurs 100% of the time).	
		Refers to the time intervals and how often (i.e. number of days per year) the impact would manifest over the entire			
		0	none	None. Impact will not occur anywhere.	
Scale / Extent	1	low	Site impact. Small area. No sensitive receptors outside property affected.		
	2	moderate	Local. May affect immediate neighbours, never nearby townships. Small area or small number of sensitive receptors affected. Generally within 50 km from		
	3	high	Widespread impact. Affects nearby townships. Large area or large numbers of sensitive		
	4	very high	National or international impact. Impacts over a vast area or over vast numbers of sensitive receptors.		
	Refers to the time intervals and how often (i.e. number of days per year) the impact would manifest over the entire				
Probability	0	none	Never (0 % likelihood).		
	1	low	Conceivable. Will only happen in exceptional circumstances (<10 % likelihood).		
	2	moderate	Plausible. Could happen and has occurred here or elsewhere (11-40 %		
	3	high	Probable (>40-80 % likelihood).		

## **vi. The stages at which the competent authority will be consulted**

The competent authority, the Department of Mineral Resources (DMR) will be involved in this project from the very beginning. Consultation with the Mpumalanga DMR will take place throughout the process. Further consultation through feedback from this scoping report will add value to the impact assessment process. Should it be required, further meetings and a site visit by the DMR will be made available to provide clarification where needed.

## **vii. Particulars of the public participation process with regard to the Impact Assessment process that will be conducted**

### **1. Steps to be taken to notify interested and affected parties.**

(These steps must include the steps that will be taken to ensure consultation with the affected parties identified in (h) (ii) herein).

Initial Project Announcement July 2021

Initial Public consultation process inclusive of:

- Email and posting of Background Information Documents to known IAP's
- Newspaper adverts with project announcement and contact details
- Public meetings: A public meeting is will take place should it be requested.
- Focus group meetings

Impact Assessment Phase Public Consultation will be initiated after August 2021. The consultation with IAP's regarding the content of the EIA and EMP will be announced to all IAP's.

During the Impact Assessment Phase, the public consultation process will continue. Further land owner engagement and focus group meetings will be conducted. Any reasonably request for a meeting or presentation regarding the project will be obliged.

### **2. Details of the engagement process to be followed.**

(Describe the process to be undertaken to consult interested and affected parties including public meetings and one on one consultation. NB the affected parties must be specifically consulted regardless of whether or not they attended public meetings and records of such consultation will be required in the EIA at a later stage).

The engagement process has been initiated for this project with land owners and adjacent land owners being consulted regarding these applications (MR & WULA). The newspaper advert will run on 9 July 2021. The site notices were placed at various locations on the boundary of the application area as well as at other locations in the vicinity on 9 July 2021.

The comment period for this scoping report closed at end of business on 08 August 2021 allowing 30 days for comments. All registered IAP's will be informed of the consultation dates for the EIA and EMP phase.

### **3. Description of the information to be provided to Interested and Affected Parties.**

(Information to be provided must include the initial site plan and sufficient detail of the intended operation and the typical impacts of each activity, to enable them to assess what impact the activities will have on them or on the use of their land).

See Appendix 5 for copies of the following:

- Newspaper Advert
- Site Notice
- Background Information Document

## **viii. Description of the tasks that will be undertaken during the environmental impact assessment process**

Tasks that will be undertaken during the impact assessment phase include but are not limited to the following:

- Ongoing public consultation
- Site assessments by the specialist team
- Sample collection
- Sample analysis
- Data interpretation
- Integration of input from registered IAP's
- Impact assessment of identified aspects
- Mitigation and control measure development
- Content contribution for other license applications (i.e. Water Use License App)
- Reporting
- Providing recommendations

**(ix) 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.**

<b>ACTIVITY</b> whether listed or not listed.  (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.).	<b>POTENTIAL IMPACT</b>  (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc....etc...)	<b>MITIGATION TYPE</b>  (modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc)  E.g. Modify through alternative method. Control through noise control Control through management and monitoring through rehabilitation..	<b>POTENTIAL FOR RESIDUAL RISK</b>
Please see Appendix 6	Please see Appendix 6	Please see Appendix 6	Please see Appendix 6

**I) Other Information required by the competent Authority**

- i) Compliance with the provisions of sections 24(4)(a) and (b) read with section 24 (3) (a) and (7) of the National Environmental Management Act (Act 107 of 1998). the EIA report must include the:

**(1) Impact on the socio-economic conditions of any directly affected person.**

(Provide the results of Investigation, assessment, and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any directly affected person including the landowner, lawful occupier, or, where applicable, potential beneficiaries of any land restitution claim, attach the investigation report as **Appendix 2.19.1** and confirm that the applicable mitigation is reflected in 2.5.3; 2.11.6.and 2.12.herein).

The social environment constantly changes and adapts to change, and external factors outside the scope of the project can offset social changes, for example changes in local political leadership. It is therefore difficult to predict all impacts to a high level of accuracy, although care has been taken to identify and address the most likely impacts in the most appropriate way for the current local context within the limitations.

Social impacts can be felt on an actual or perceptual level, and therefore it is not always straightforward to measure the impacts in a quantitative manner. Social impacts commence when the project enters the public domain. Some of these impacts are thus already taking place, irrespective of whether the project continues or not. These impacts are difficult to mitigate, and some would require immediate action to minimize the risk.

There are different groups with different interests in the community, and what one group may experience as a positive social impact, might be experienced as a negative impact by another group. This duality will be pointed out in the impact assessment phase of the report.

The social environment constantly changes and adapts to change, and external factors outside the scope of the project can offset social changes, for example changes in local political leadership or economic changes such as a recession. It is therefore difficult to predict all impacts to a high level

of accuracy, although care has been taken to identify and address the most likely impacts in the most appropriate way for the current local context within the limitations.

- 2) Impact on any national estate referred to in section 3(2) of the National Heritage Resources Act.** (Provide the results of Investigation, assessment, and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any national estate referred to in section 3(2) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) with the exception of the national estate contemplated in section 3(2)(i)(vi) and (vii) of that Act, attach the investigation report as **Appendix 2.19.2** and confirm that the applicable mitigation is reflected in 2.5.3; 2.11.6. and 2.12. herein).

#### Heritage Impact Assessment

The Heritage Impact Assessment did not identify any heritage resources within the Driefontein Colliery application Area.

- m) Other matters required in terms of sections 24(4)(a) and (b) of the Act.**  
(the EAP managing the application must provide the competent authority with detailed, written proof of an investigation as required by section 24(4)(b)(i) of the Act and motivation if no reasonable or feasible alternatives, as contemplated in sub-regulation 22(2)(h), exist. The EAP must attach such motivation as **Appendix 4**).

As directed by this template Scoping Report, Appendix 4 contains the site infrastructure plans. The revised NEMA does not include section 24(4)(a) and (b). Having said that, the consideration of alternatives only applies to the associated infrastructure and access routes for the proposed mining operation. The actual mining sites are dictated by the geographical location of the mineral/ore deposit.



**j) UNDERTAKING REGARDING CORRECTNESS OF INFORMATION**

I Tim van Stormbroek 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 has been correctly recorded in the report.



---

**Signature of the EAP**

**DATE: 10 July 2021** (at date of completion – no MR Acceptance letter had been received from the DMRE)

**-END-**

**APPENDIX 1 & 2**

**Experience and Qualification of the EAP**

**CURRICULUM VITAE of TIM VAN STORMBROEK**

<b>Name of Firm</b>	Amber Earth (Pty) Ltd
<b>Name of Member</b>	Tim van Stormbroek
<b>Profession</b>	Environmental Consultant & Systems Auditor
<b>Date of Birth</b>	29 August 1979
<b>Years experience</b>	16 years
<b>Nationality</b>	South African

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**SUMMARY**

Tim holds a Magister Technologiae (MTech) in Environmental Health (Ecotoxicology) and has studied various additional short courses. He started his professional career at the Impact Assessment cc assessing and writing reports on noise, chemical and thermal stresses and ventilation and illumination. At the same time and over a 5 year period he was also lecturing at the Cape Peninsula University of Technology (CPUT) and HACCP Academy on Occupation Health, Anatomy and Physiology, Management Practice and Food Hygiene. He was under full time employment at Ferret Mining and Environmental Service (Pty) Ltd for a 10 year period and was responsible for all aspects of environmental management with emphasis on the mining industry. All related stakeholder engagement requirements on various projects was also undertaken. He is a qualified Radiation Protection Officer (RPO) registered with the National Nuclear Regulator and is also involved in ISO 14001:2004 system development and implementation and is qualified as a lead auditor (TÜV SÜD). He is currently registering with SACNASP as a Professional Natural Scientist (PrSciNat) and has written and presented seven professional papers.

**KEY QUALIFICATIONS**

NDip: Environmental Health	Cape Technikon	2000
BTech: Environmental Health	Cape Technikon	2001
MTech: Environmental Health	Cape Peninsula University of Technology	2007
	100% Thesis: Fresh Water System Ecotoxicology focus	

**PROFESSIONAL DEVELOPMENT**

Advanced Diamond Drilling	Geological Society of South Africa	2007
Radiation Protection Officer	National Nuclear Regulator	2009
SAATCA Auditor Exam: ISO14001	SABS	2010
Invasive Species Consultant Training	South African Green Industries Council	2015

**PROFESSIONAL REGISTRATIONS/BODIES**

SACNASP	PrSciNat (Current Registration pending)
Herpetological Association of Africa (HAA)	Member

**WORK EXPERIENCE SAMPLE SUMMARY:**

British American Tobacco

- Waste License Application via NEMA Sec24G process

Masama Coal (Botswana)

- EIA: Waste stream specialist study

Tasman RSA Mines

- Public Consultation Process project management
- Scoping, EIA/EMPr development
- Departmental Liaison

Central Rand Gold Ltd

- Monthly EMP Compliance Monitoring
- Monthly Surface and Ground Water monitoring and reporting
- Certificate of Registration application development and NNR approval
- Public consultation

Wescoal Mining

- Weekly waste management compliance inspection
- Monthly EMP Compliance Monitoring
- Monthly Surface and Ground Water monitoring and reporting
- Monthly Change House Swab sampling
- DMR/DWS Submission and liaison
- Annual Water Use License External Audits
- EMPr Amendment and Consolidation

Bokoni Platinum Mine

- Bi-annual Sewage Plant Audits (5 x sewage treatment plants)
- Annual Waste Management Audits
- Soil contamination assessment
- EMPr Consolidation

Eskom Generation - Coal

- ISO14001 Certification audits under TÜV SÜD for 13 Eskom Power Stations

Eskom Generation – Nuclear

- ISO14001 Certification audits under TÜV SÜD for Koeberg Power Stations

Kendal Siding

- WUL application
- Dust fall out monitoring (monthly)
- Surface and ground water monitoring (monthly)

Transalloys

- Alien Vegetation Assessment and control programme
- Ground Water Impact Assessment

Anglo Coal: Kleinkopje Colliery

- Section 102 EMPr amendment
- EMPr amendment public consultation process
- Independent Power Producer (Khanyisa Power Station) EIA: Waste Stream Specialist Study

Keldoron

- Mining Right EIA/EMP Development

Council for Scientific and Industrial Research (CSIR)

- Alien vegetation eradication plan implementation – 15ha

Mashala Resources

- Section 102 EMPr amendment for inclusion of additional surface area

**LANGUAGES**

	Spoken	Read	Write
English	Excellent	Excellent	Excellent
Afrikaans	Good	Good	Fair

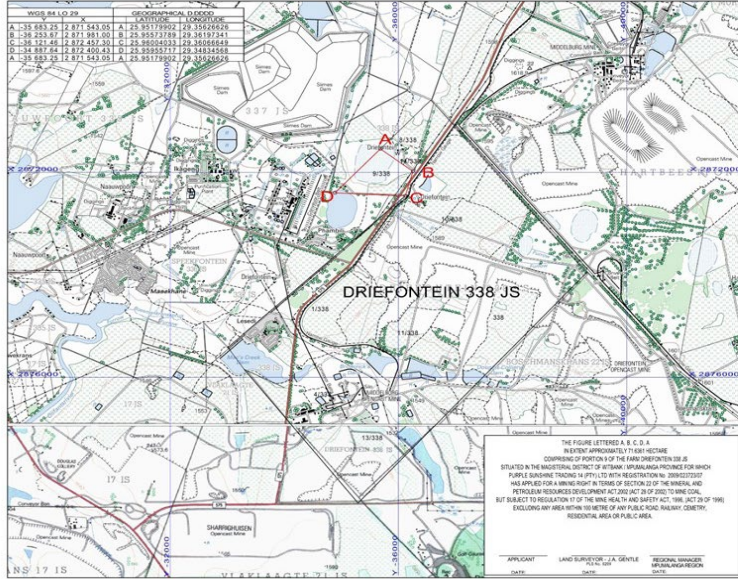
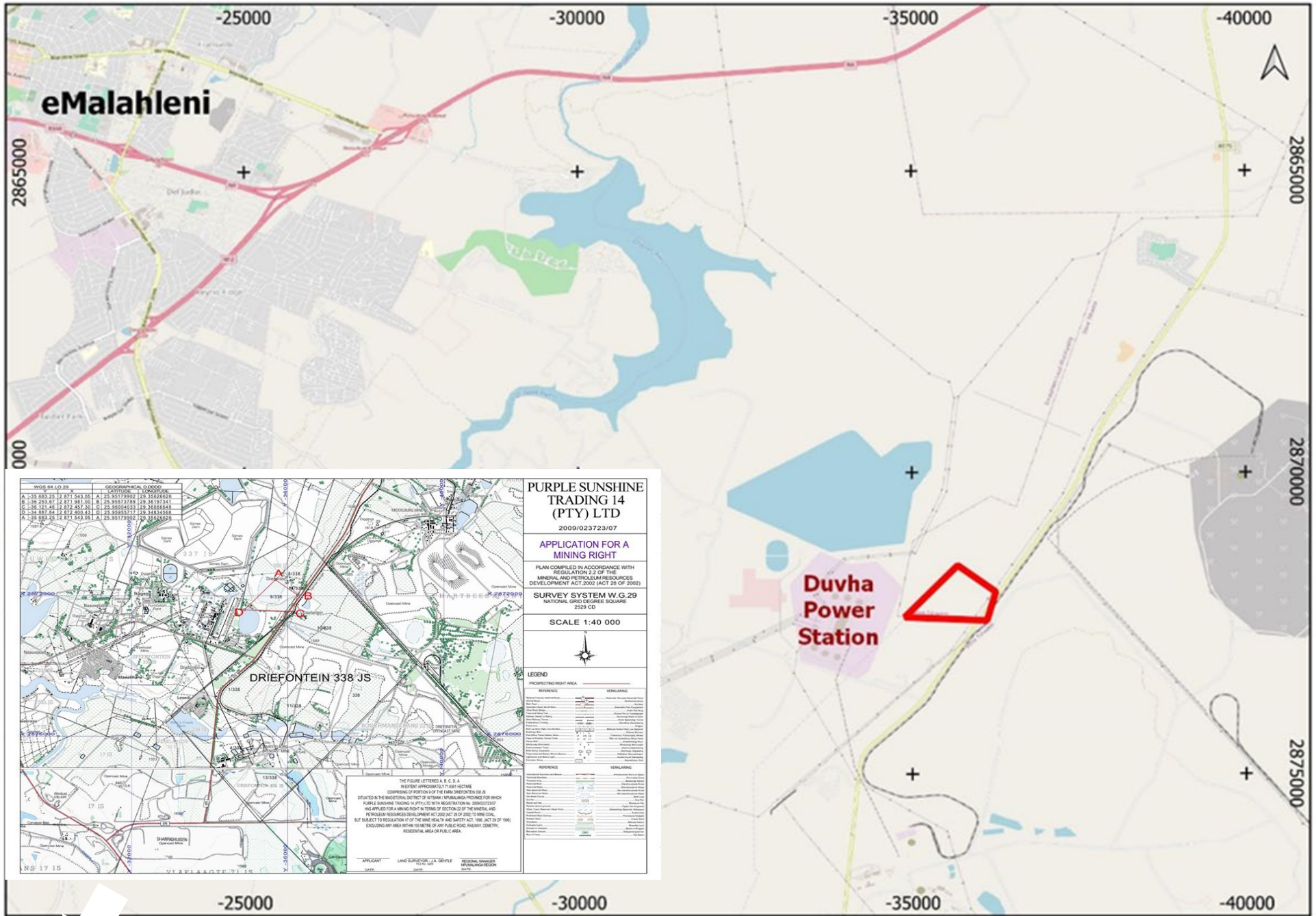
**EMPLOYMENT RECORD**

2001 – 2006	Part time	Impact Assessments Cc Physical and Chemical Occupational Stressor Assessments
2002 – 2006	Part time	Cape Peninsula University of Technology Lecturer: Occupational Health and Safety II, III & IV Anatomy and Physiology I & Management Practice II
2007 – Sep 2016	Full time	Ferret Mining and Environmental Services (Pty) Ltd See Experience summary above
Oct 2016 – current	Full time	Amber Earth (Pty) Ltd

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## **APPENDIX 3**

### **Locality Map**



**PURPLE SUNSHINE TRADING 14 (PTY) LTD**  
 2009/023723/07

**APPLICATION FOR A MINING RIGHT**

PLAN COMPILED IN ACCORDANCE WITH REGULATION 2.2 OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT 2002 (ACT 28 OF 2002)

**SURVEY SYSTEM W.G.29**  
 NATIONAL GRID SQUARE: 2529 CD

SCALE 1:40 000

**LEGEND**

REFERENCE	VERSKLARING
1	PROSPECTING RIGHT AREA
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THE FIGURE LETTERS A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z, AA, AB, AC, AD, AE, AF, AG, AH, AI, AJ, AK, AL, AM, AN, AO, AP, AQ, AR, AS, AT, AU, AV, AW, AX, AY, AZ, BA, BB, BC, BD, BE, BF, BG, BH, BI, BJ, BK, BL, BM, BN, BO, BP, BQ, BR, BS, BT, BU, BV, BW, BX, BY, BZ, CA, CB, CC, CD, CE, CF, CG, CH, CI, CJ, CK, CL, CM, CN, CO, CP, CQ, CR, CS, CT, CU, CV, CW, CX, CY, CZ, DA, DB, DC, DD, DE, DF, DG, DH, DI, DJ, DK, DL, DM, DN, DO, DP, DQ, DR, DS, DT, DU, DV, DW, DX, DY, DZ, EA, EB, EC, ED, EE, EF, EG, EH, EI, EJ, EK, EL, EM, EN, EO, EP, EQ, ER, ES, ET, EU, EV, EW, EX, EY, EZ, FA, FB, FC, FD, FE, FF, FG, FH, FI, FJ, FK, FL, FM, FN, FO, FP, FQ, FR, FS, FT, FU, FV, FW, FX, FY, FZ, GA, GB, GC, GD, GE, GF, GG, GH, GI, GJ, GK, GL, GM, GN, GO, GP, GQ, GR, GS, GT, GU, GV, GW, GX, GY, GZ, HA, HB, HC, HD, HE, HF, HG, HH, HI, HJ, HK, HL, HM, HN, HO, HP, HQ, HR, HS, HT, HU, HV, HW, HX, HY, HZ, IA, IB, IC, ID, IE, IF, IG, IH, II, IJ, IK, IL, IM, IN, IO, IP, IQ, IR, IS, IT, IU, IV, IW, IX, IY, IZ, JA, JB, JC, JD, JE, JF, JG, JH, JI, JJ, JK, JL, JM, JN, JO, JP, JQ, JR, JS, JT, JU, JV, JW, JX, JY, JZ, KA, KB, KC, KD, KE, KF, KG, KH, KI, KJ, KK, KL, KM, KN, KO, KP, KQ, KR, KS, KT, KU, KV, KW, KX, KY, KZ, LA, LB, LC, LD, LE, LF, LG, LH, LI, LJ, LK, LL, LM, LN, LO, LP, LQ, LR, LS, LT, LU, LV, LW, LX, LY, LZ, MA, MB, MC, MD, ME, MF, MG, MH, MI, MJ, MK, ML, MM, MN, MO, MP, MQ, MR, MS, MT, MU, MV, MW, MX, MY, MZ, NA, NB, NC, ND, NE, NF, NG, NH, NI, NJ, NK, NL, NM, NN, NO, NP, NQ, NR, NS, NT, NU, NV, NW, NX, NY, NZ, OA, OB, OC, OD, OE, OF, OG, OH, OI, OJ, OK, OL, OM, ON, OO, OP, OQ, OR, OS, OT, OU, OV, OW, OX, OY, OZ, PA, PB, PC, PD, PE, PF, PG, PH, PI, PJ, PK, PL, PM, PN, PO, PP, PQ, PR, PS, PT, PU, PV, PW, PX, PY, PZ, QA, QB, QC, QD, QE, QF, QG, QH, QI, QJ, QK, QL, QM, QN, QO, QP, QQ, QR, QS, QT, QU, QV, QW, QX, QY, QZ, RA, RB, RC, RD, RE, RF, RG, RH, RI, RJ, RK, RL, RM, RN, RO, RP, RQ, RR, RS, RT, RU, RV, RW, RX, RY, RZ, SA, SB, SC, SD, SE, SF, SG, SH, SI, SJ, SK, SL, SM, SN, SO, SP, SQ, SR, SS, ST, SU, SV, SW, SX, SY, SZ, TA, TB, TC, TD, TE, TF, TG, TH, TI, TJ, TK, TL, TM, TN, TO, TP, TQ, TR, TS, TT, TU, TV, TW, TX, TY, TZ, UA, UB, UC, UD, UE, UF, UG, UH, UI, UJ, UK, UL, UM, UN, UO, UP, UQ, UR, US, UT, UY, UZ, VA, VB, VC, VD, VE, VF, VG, VH, VI, VJ, VK, VL, VM, VN, VO, VP, VQ, VR, VS, VT, VU, VW, VX, VY, VZ, WA, WB, WC, WD, WE, WF, WG, WH, WI, WJ, WK, WL, WM, WN, WO, WP, WQ, WR, WS, WT, WU, WV, WW, WX, WY, WZ, XA, XB, XC, XD, XE, XF, XG, XH, XI, XJ, XK, XL, XM, XN, XO, XP, XQ, XR, XS, XT, XU, XV, XW, XX, XY, XZ, YA, YB, YC, YD, YE, YF, YG, YH, YI, YJ, YK, YL, YM, YN, YO, YP, YQ, YR, YS, YT, YU, YV, YW, YX, YY, YZ, ZA, ZB, ZC, ZD, ZE, ZF, ZG, ZH, ZI, ZJ, ZK, ZL, ZM, ZN, ZO, ZP, ZQ, ZR, ZS, ZT, ZU, ZV, ZW, ZX, ZY, ZZ

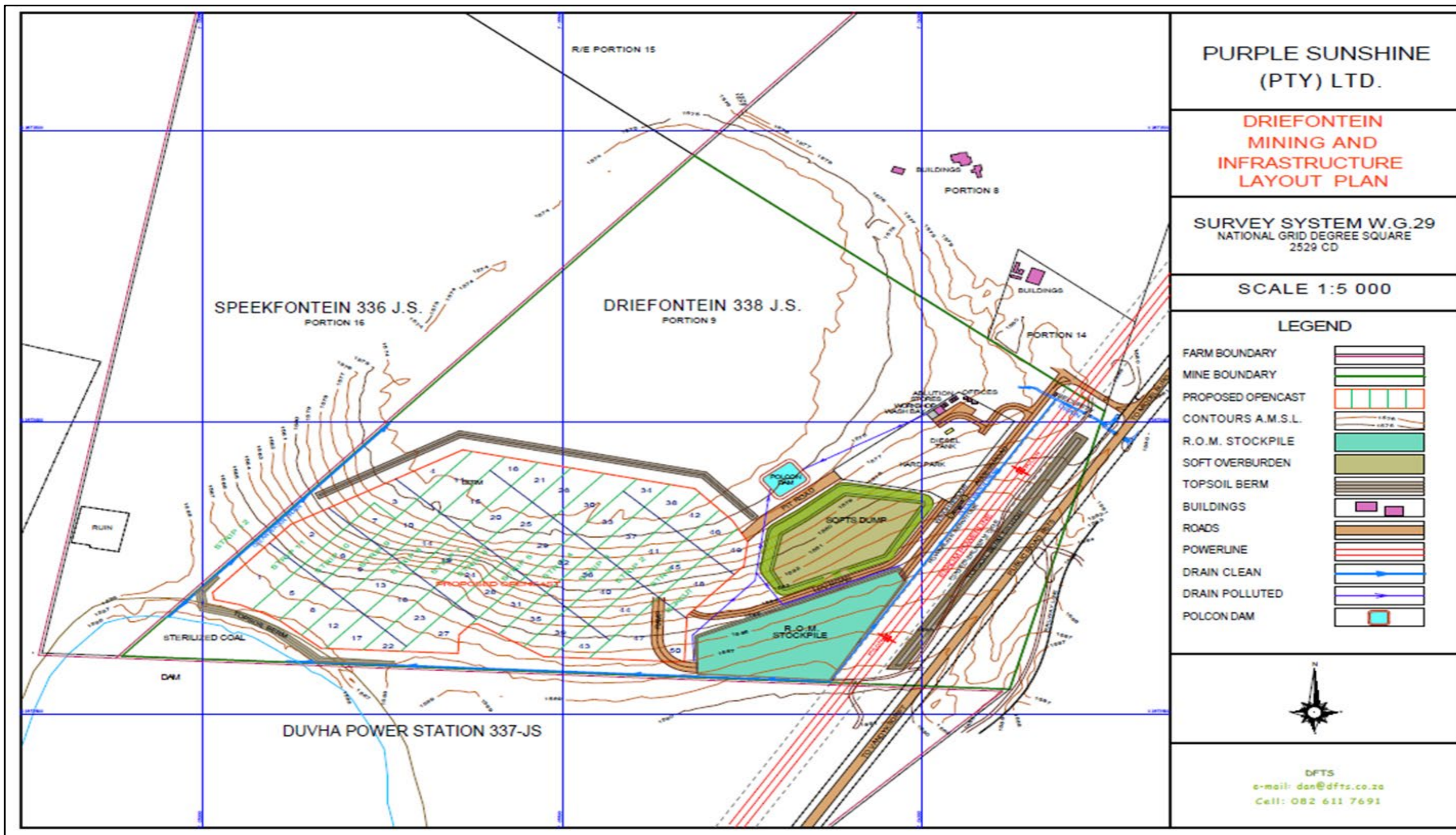
APPLICANT: LAND SURVEYOR: A. J. VENTURE  
 DATE: 2009/02/23

REGIONAL MANAGER: MAMALANGA REGION  
 DATE: 2009/02/23

## **APPENDIX 4**

### **Site Plan & Mine planning**





## **APPENDIX 5**

**Public Consultation:**

**INVITATION FOR PUBLIC COMMENT  
ENVIRONMENTAL AUTHORISATIONS FOR MINING RIGHT APPLICATIONS  
AND WATER USE LICENCE APPLICATION**

**APPLICANT:** Purple Sunshine Trading 14 (Pty) Ltd

**PROJECT:** Driefontein Colliery Mining Right for coal as well as a WULA

**REFERENCE NUMBER:** MP30/5/1/2/2/10330MR

**DISTRICT OF:** Steve Tshwete Local Municipality, Mpumalanga Province.

**PROPERTY DESCRIPTIONS:** Purple Sunshine Trading 14 (Pty) Ltd has applied for the mining right to mine coal on portion 9 of the farm Driefontein 338JS situated within the Magisterial District of Steve Tshwete, Mpumalanga Province. The name of the mine would be Driefontein Colliery.

The draft Scoping Report will be available for public comment from **9 July 2021 – 08 August 2021**. A public meeting regarding the above will be made available at the request of any interested and affected parties. Soft copies of the Draft Scoping Report will be made available as well as a hard copy for viewing upon request.

Landowners, lawful occupants and interested and/or affected parties are given the opportunity to access the abovementioned documentation and to provide comments.

Please submit comments/questions to:

**Amber Earth (Pty) Ltd**

**Post:** PO Box 72313, Lynnwood Ridge, 0040;

**Tel** (082) 482 6202 or (066) 237 1033 or

**E-mail** [tim@amberearth.co.za](mailto:tim@amberearth.co.za) **cc.** [matt@amberearth.co.za](mailto:matt@amberearth.co.za)

**Public Notice content placed in the Witbank News on 09 July 2021.**

**Win! BLUE RIBBON bread 200 loafs!**

Name: \_\_\_\_\_

Cellphone number: \_\_\_\_\_

Please enter in the green entry box at the Middelburg Observer reception - Roper Street

### Hundreds of loaves of bread up for grabs

This week's Blue Ribbon bread lucky draw winners, each receiving five loaves of bread each, are: Gerhard Spijs (15 loaves), Edward Froncencar (10 loaves), Gerhard Nieuwoudt (10 loaves), Sebastian Nieuwoudt (10 loaves), M. Wehrmeyer (5 loaves), Noels Meyer (5 loaves), Thys Wehrmeyer (5 loaves), Niomakhava Makhlangu (5 loaves), Mangoba Muzini (5 loaves), Susan Masemola (5 loaves), Salelo Makhlangu (5 loaves), S.M.E. Boshoff (5 loaves), Marie Els (5 loaves), Stephen Ntuli (5 loaves), Guy Mofha (5 loaves), Santa Wessels (5 loaves), Mia Els (5 loaves), Zandile Makhala (5 loaves), Melanie Kidson (5 loaves), Stephans Makhlangu (5 loaves), Lettie

Masemola (5 loaves), Solomon Shabangu (5 loaves), Sam Masolela (5 loaves), Yolanda Spijs (5 loaves) and Olga Nkumbule (5 loaves).

Congratulations to our first winners in our four-week draw. Three weeks remain for readers to enter the lucky draw to stand a chance to win their share of 200 loaves of Blue Ribbon bread each week.

The next draw will take place on Wednesday, July 14, at 10:00. Just fill in the original entry form inside each week's edition of the Middelburg Observer and drop it into the competition box at the paper's reception.

### Vote for Clubville Pharmacy

Vote for the Clubville Pharmacy as your choice in the Sponsors of Brave Award, and you can help change the lives of residents at Bethesda House of Hope. The head pharmacist at Clubville Pharmacy, Jacqui Clapton, was nominated for the Sponsors of Brave Award by one of their clients after the pharmacy literally rose from the ashes after it was nearly gutted in a fire on April 12. In a video, the client validated their choice of nomination by lauding Ms Clapton and

the pharmacy for always walking the extra mile for their patients. Ms Clapton was also recognised for her efforts in serving Covid-19 positive patients inside their vehicles to protect her staff members. The Sponsors of Brave Award has a prize of R25 000 up for grabs, which, if Clubville Pharmacy wins, will be donated to Bethesda House of Hope. To vote, visit the Sponsors of Brave website and click on the heart.

### Facebook comments - here's what you had to say

**Saam Praat:** For the "traffic law enforcement" - Oti speedcoops in Middelburg: don't think this goes unnoticed! Just last night you used your blue lights and sirens to get out of the red light queue just to skip another red light to stop at KFC. This is why we as the public don't have any respect for you! You are supposed to be an example to everyone else but you think you can do as you please.

**Post Box:** This happens often. I had a similar experience some time ago at the Protea/ Stoffberg road.

**Karin Ebersohn:** I think it's the same person who endangered all other road users' lives a few weeks ago just to turn into Midwater Spa. He was driving recklessly and speeding from the one side of the road to the other, ignoring the fact that was parking illegally on a non-parking zone, blocking traffic, but he was in too much of a hurry to go and stop or eat.

**Die kat het meer as negs lewens**

**Jack Swanepoel:** Dankie vir die omgee, daar is nog baie mense daar baie.

**Mario Van Aardt:** Dankie aan die mense wat nog omgee vir wilde diere en hom gered het van 'n gewilde dood.

### Inwoner / Doring van die week

**Inwoner van die week:** Zak van Arwagen en die brokrywer, net bekend as Eteki, wat 'n tierboskat gered het langs die N11 nadat sy raakgery is. Eteki, die brokrywer van Durban af, het met sy tros skaars oor die pad gestop sodat ander motoriste hulle nie doordry nie. Zak, 'n werknemer by Alza, het toe die kat in sy buidjie toegevoer en na 'n voersto gehaas, waar sy ten volle herstel het en vrygelat is. Zak, kom haal gerus jou Hobo's Cafe oewerwys, ter waarde van R250 by die Middelburg Observer redaksie kantoor af.

**Doring van die week:** Die mense wat nog steeds nie voldoen aan Covid regulasies nie terwyl die gevalle en sterftes loer. As ons saamwerk kan ons almal die virus se verspreiding bekamp en dalk nog basiese daagse maskers. Die verbot op drank is ons verdiende loon, as julle julle soos kinders wil gedra dan gaan julle soos kinders kantar word.

**Karel Louis Le Grange:** Thank you Eteki, give that man a bell.

**Ben Van Wyk:** Baie baie skaars, en moosie van wilde katte. Tierboskat?

**Monaelle Erasmus:** Thank you Eteki. We need more people like you.

**Chantelle Jansen van Vuuren:** Eteki...you are a true hero! May your future be blessed!

**Rita Brink:** God bless you Eteki!

### NOTICES! KENNISGEWINGS

**ARNOT PS 2020 MTD** Eskom

**ESKOM ARNOT PLANT NOTICE EXISTING MAJOR HAZARDOUS INSTALLATION**

Notice is hereby given in terms of section 3 (6) of the Major Hazardous Installation Regulations issued in terms of the Occupational Health and Safety Act No. 85 of Regulations that Eskom has issued a notification to the chief inspector, local authority and provincial director of labour for the declaration of the chlorine and hydrogen facilities at the Eskom Arnot Power Station, Rietkuil, Middelburg Mpumalanga as a MAJOR HAZARDOUS INSTALLATION.

A copy of the risk assessment contemplated in the regulations is available at the Eskom Arnot Power Station Hendrina Road Rietkuil, Middelburg Mpumalanga Province and at Occutach cc 291 JB Maris Road, Glenwood Durban for scrutiny.

In terms of Regulation 3 (7), any interested or affected persons may make representations in writing to the local government authorities or to the provincial director of the department of labour within 60 days of the publication hereof.

**INVITATION FOR PUBLIC COMMENT ENVIRONMENTAL AUTHORISATIONS FOR MINING RIGHT APPLICATIONS AND WATER USE LICENCE APPLICATION**

**APPLICANT:** Purple Sunshine Trading 14 (Pty) Ltd

**PROJECT:** Driefontein Colliery Mining Right for coal as well as a WULA

**REFERENCE NUMBER:** MP30/5/1/0/2/10330MR

**DISTRICT OF:** Steve Tshwete Local Municipality, Mpumalanga Province.

**PROPERTY DESCRIPTIONS:** Purple Sunshine Trading 14 (Pty) Ltd has applied for the mining right to mine coal on portion 9 of the farm Driefontein 338/5 situated within the Magisterial District of Steve Tshwete, Mpumalanga Province. The name of the mine would be Driefontein Colliery.

The draft Scoping Report will be available for public comment from 9 July 2021 – 08 August 2021. A public meeting regarding the above will be made available at the request of any interested and affected parties. Soft copies of the Draft Scoping Report will be made available as well as a hard copy for viewing upon request.

Landowners, lawful occupants and interested and/or affected parties are given the opportunity to access the abovesmentioned documentation and to provide comments.

Please submit comments/questions to: Amber Earth (Pty) Ltd

Post: PO Box 72313, Lynnwood Ridge, 0040; Tel (082) 462 6202 or (066) 237 1033 or E-mail: info@amberearth.co.za or: info@amberearth.co.za

### Vaarwel

**Herman en Corrie van Niekerk:** Na 35 jaar groot ons Middelburg, wat ons verruil as gevolg van gesondheidsredes, vir Estelene Afrococci in Nelspruit. Ons betrokke word by ons kinders se kinderkerke, Laerkerk Middelburg en Hoërkerk Middelburg, die Wilkerk en Hervormde Kerk Noord, asook by die gewese kultuursaad en aksiekerk, laat ons met verrykte kennis en lewenservaring wat ons met dankbaarheid vul. Vong herby Van Niekerk Buse en daarna Soerab Bunde (later Soerab Supa Quick) en die lys van vriende en kennisse word te lank om almal persoonlik te groot. Daarom wil ons op die wyse aan almal vaarwel sê, versl ons



Herman en Corrie van Niekerk

**MKANGALA DISTRICT MUNICIPALITY**

**PUBLIC NOTICE: THE UPGRADING OF PAYROLL SYSTEM TO SAGE 300**

Notice is hereby given, in accordance with the Provisions of Local Government: Municipal Systems Act, 32 of 2000 and Local Government: Municipal Finance Management Act, 56 of 2003 that Nkangala District Municipality will be upgrading the Payroll and HR module system from VIP to VIP 300 people effect from 2021-22 Financial year. The contract will therefore be amended in terms of section 116 of the MFMA.

Enquiries can be directed to the following official: **Divisional Manager Budget and Expenditure: Mr Mzira A.S 013 249 2117 during office hours: 07H30-16H30.**

**MM SKOSANA, MUNICIPAL MANAGER**

### Save these dates

If you are hosting a social or sporting event that you would like to be advertised in the Middelburg Observer diary, please call Sjeni Czemper on 013 243 1434 or send an email to sjeni@mobsobserver.co.za.

As jy jou gemeenskap se sportgeestesheid wil adverties, bel Dalen Naudé by 013 243 1434 of stuur 'n e-pos na dalen@mobsobserver.co.za.

**Elke Vrydag:**

- Die Hoopievereniging bak patrekkok by hul kantoor in Kogelstrat. R6 per patrekkok. Bestellings by sr. July Tota by 083 231 5831 of bel die kantoor by 013 243 6713.
- 10 Julie** (10-11 Julie) Hostelpep Vlootmark by Anson Vlootpark. Toegang R5. Marietje 079 450 2336.
- Every Sunday:**
- Mhizi Sunday Market is hosted weekly at Extension 7 Park. For stalls bookings contact Andries Sibanyoni on 076 975 5084.
- 24 July**
- The Wesa Nabantani Bakho Chess Academy invites you and your friends to come and join them for a game of chess. 09:00. Coonon, Hendrina. Contact 079 940 5714.
- 9 August**
- The Wesa Nabantani Bakho Chess Academy invites you and your friends to come and join them for a game of chess. 09:00. Middelburg Town Square (park adjacent to the Wilkerk). Contact 079 940 5714.

### Quiet Time

Doule de Kock

James invites us to pray for wisdom... We live in times where all of us dependently need wisdom. What is the difference between knowledge and wisdom? Knowledge is knowing that a tomato is a fruit; wisdom is knowing that a tomato doesn't belong in a fruit salad.

We hear many voices around us. Many speak up and confuse a lot of people. God invites you, ask for wisdom from Me. He is the only true source of wisdom. King Solomon made the wisest decision of his life when he had to choose between riches and wisdom. He chose wisdom!

I urge you today to not lend out your ears to so-called wise people... Study their fruit, measure their speech to the Word, and then make a wise decision. The invitation still stands; when you need wisdom, pray for it from the Lord.

Be a blessing everywhere.

**INVITATION TO NOTICE OF THE WATER USE LICENSE APPLICATION PROCESS AS PER THE NATIONAL WATER ACT (36 OF 1998) AND A MINING RIGHT APPLICATION IN TERMS OF SECTION 22 OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT, 2002 (ACT 28 OF 2002) FOR THE PROPOSED DRIEFONTEIN COLLIERY ON PORTION 9 OF FARM DRIEFONTEIN 338 J.S.**

REGISTRATION AND COMMENT SHEET  
**July 2021**

Please complete the following in clear handwriting to register as an Interested and Affected Party (I&AP) and return by to the address below.

Return address for this Registration and Comment Sheet:

Amber Earth (Pty) Ltd

PO Box 75166; Lynnwood Ridge; 0040 Cell: 082 482 6202; Fax: 086 647 8026; Email: tim@amberearth.co.za

Title:			
Name:			
Surname:			
Organisation:			
Address:			
City:			
Postal Code:			
Tel:			
Fax:			
Email:			
<i>I would like to be registered as an I&amp;AP on the above project.</i>	YES	NO	
1. The Mining Right Application should consider the following issues/studies/aspects:			
2. I have the following comments on the proposed public participation process:			
3.			
4. Name and contact number of friend/colleague who may be interested in the project:			
5.			

Thank you for completing the form.

You are welcome to scan it and send it via email to [tim@amberearth.co.za](mailto:tim@amberearth.co.za) or [matt@amberearth.co.za](mailto:matt@amberearth.co.za) or photograph the completed form and send it via WhatsApp to 082 482 6202 or 066 237 1033

## **NOTICE OF APPLICATION FOR A MINING RIGHT & WATER USE LICENSE FOR THE DRIEFONTEIN COLLIERY**

**PROPOSER:** Purple Sunshine Trading 14 (Pty) Ltd

**PROJECT:** Driefontein Colliery Water Use License Application (WULA) and Mining Right Application (MRA)

**REFERENCE NUMBER :** MP30/5/1/2/2/10330MR

**DISTRICT OF:** Steve Tshwete Local Municipality, Mpumalanga Province

**PROPERTY DESCRIPTIONS:** Portion 9 of the farm Driefontein 338 JS .

**Project Overview:** Purple Sunshine Trading 14 (Pty) Ltd appointed Amber Earth (Pty) Ltd, to conduct the public participation process for the WUL application (WULA) and for the Mining Right Application (MRA) for the operation of the proposed colliery. The anticipated water uses include Section 21(a) taking water from a water body; Section 21(b) for the storage of water; Section 21(c) impeding or diverting the flow of water in a watercourse; and Section 21(i) altering the bed, banks, course or characteristics of a watercourse as well as Section 21(g) water management related to the stockpiling and handling of ROM and product as well as the use of water for dust suppression and a pollution control dam as well as Section 21(j) removing, discharging or disposing of water found underground.

**Public Consultation:** A public meeting will be made available at the request of any and all interested and affected parties at which point all registered IAP's will be invited. If you would like to review the documentation you are welcome to contact the numbers and email's below. Digital copies will be made available on request. Public comment must reach the offices of Amber Earth by 08 August 2021.

For more information, to register as an interested or affected party and to receive further background information please contact Mr. Tim van Stormbroek. All comments and/or questions are welcome.

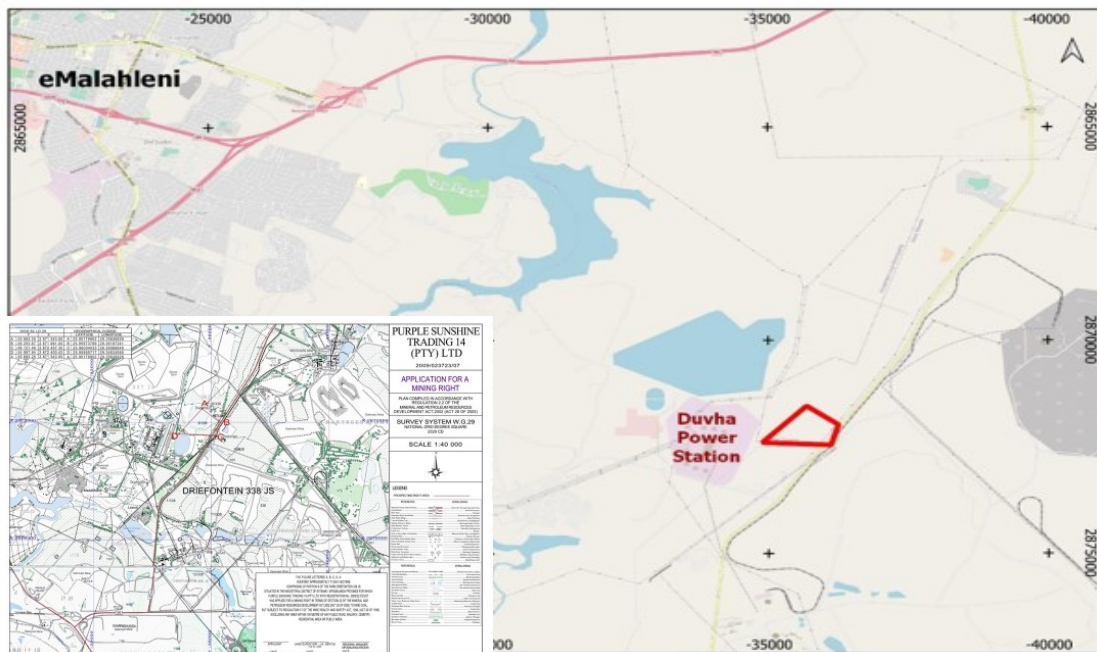
**Amber Earth (Pty) Ltd:**

**Contact:** Tim van Stormbroek / Matt de Kiewit

**Postal address:** PO Box 75166; Lynnwood Ridge 0040

**Tel:** 082-482-6202 or 066-237-1033:

**Email:** [tim@amberearth.co.za](mailto:tim@amberearth.co.za) or [matt@amberearth.co.za](mailto:matt@amberearth.co.za)



**Site notice content placed around the application area during July.**

**Site Notice Evidence:**



**Site Notice on site boundary**



**Site Notice at informal petrol station and store.**



**Site Notice on site boundary**



**Site Notice at informal eating spot**



**Site Notice at Total Garage on R544**

**Section iii) Summary of Issues Raised by IAP's – see Issues & Response report below**

**COMMENT & RESPONSE REPORT**

**MINING PERMIT APPLICATION FOR COAL EXTRACTION BY MWELASE MINING OVER PORTIONS 61 AND 14 OF THE FARM KLIPFONTEIN 568 J.R., PORTIONS 11 AND 22 OF THE REMAINING EXTENT OF FARM VLAKFONTEIN 569 J.R., PORTION 35 AND A PORTION OF PORTIONS 11 AND 103 OF THE FARM HEUVELFONTEIN 215 I.R., AND A PORTION OF PORTIONS 6,10 AND 11 OF THE FARM BANKFONTEIN 216 I.R. IN EMALAHLENI (WITBANK).**

**DMR REF NO.: MP30/5/1/2/2/10215MR**

This report records the issues of concern, questions and comments contributed by interested and affected parties (I&APs) from the date the proposed project was announced. This report also reflects the issues that were raised at the public meeting that was convened on Saturday 08 September 2018. In addition, the report reflects the responses to the questions and/or comments.

The issues have been categorized as follows:

**Contents**

1	ISSUES RELATED TO ROADS.....	<b>Error! Bookmark not defined.</b>
2	ENVIRONMENTAL IMPACTS.....	<b>Error! Bookmark not defined.</b>
2.1	ISSUES RELATED TO AIR QUALITY .....	<b>Error! Bookmark not defined.</b>
2.2	ISSUES RELATED TO GROUND WATER.....	<b>Error! Bookmark not defined.</b>
2.3	ISSUES RELATED TO SURFACE WATER .....	<b>Error! Bookmark not defined.</b>
2.4	ISSUES RELATED TO NOISE .....	<b>Error! Bookmark not defined.</b>
2.5	ISSUES RELATED TO REHABILITATION .....	<b>Error! Bookmark not defined.</b>
2.6	ISSUES RELATED TO SPECIALIST STUDIES.....	<b>Error! Bookmark not defined.</b>
2.7	SOCIO-ECONOMIC ISSUES.....	<b>Error! Bookmark not defined.</b>
3	GENERAL.....	<b>Error! Bookmark not defined.</b>



ISSUES/COMMENTS	COMMENTATOR	REFERENCE	RESPONSE
<b>1 ISSUES RELATED TO ROADS</b>			
<b>2 ENVIRONMENTAL IMPACTS</b>			
<b>2.1 ISSUES RELATED TO AIR QUALITY</b>			
<b>2.2 ISSUES RELATED TO GROUND WATER</b>			
<b>2.3 ISSUES RELATED TO SURFACE WATER</b>			
<b>2.4 ISSUES RELATED TO NOISE</b>			
<b>2.5 ISSUES RELATED TO HERITAGE</b>			
<p>Sir/madam</p> <p>I would like to be part of the Driefontein project due to the GRAVES of our family that are there ..as members who lived on the farm for many years .</p> <p>As concerned members would like to be registered</p> <p>For any information regarding this registration please contact me on the following numbers</p> <p>Thela Phindile</p> <p>064 804 2628/083 7549014</p>	Phindile Thela	Email 14/07/2021	<p>Dear Phindile</p> <p>Thank you for your email.</p> <p>We will add you to the IAP register.</p> <p>We will forward your message regarding the graves to the previous landowner as well as to the Heritage Specialist.</p> <p>Could we arrange to meet on site soon for you to point out the graves?</p> <p>Are you perhaps related to Lazarus Mtshweni as I see you share the same cell phone numbers? See his email below:</p>
<p>Sir/madam</p> <p>I am Lazarus Mtshweni who is a family member(grand son) of the Jantjie family which lived at the above mentioned farm for a very long time. My family has got graves of our loved ones based at that farm.</p> <p>With that said i believe were also need to be registered as beneficiaries or affected communities.</p> <p>Please assist us with further details of this registration.</p> <p>Your assistance will be highly appreciated</p>	Lazarus Mtshweni	Email 14/07/2021	<p>Dear Lazarus</p> <p>Thank you for your email.</p> <p>We will forward your message regarding the graves to the previous landowner as well as to the Heritage Specialist.</p> <p>Could we arrange to meet on site soon for you to point out the graves?</p>

ISSUES/COMMENTS	COMMENTATOR	REFERENCE	RESPONSE
<p>For more details i can be contacted on the following contact details :  0837549014... 0729473661.. 0648042628 and 0826794218.  Lmtshweni2@gmail.com</p>			
<b>2.6 ISSUES RELATED TO SPECIALIST STUDIES</b>			
<p>Future mining activities (dust, water pollution and building deterioration)</p>	Andries Gouws	Email 09/07/2021	<p>Good afternoon Dries  Thank you for your prompt email and attached letter which we received.  We will add you to the IAP's Register and note the contents of your letter in the Comment and Response Report.  Should you wish to provide any further comments or questions please feel free to do so.</p>
<b>2.7 SOCIO-ECONOMIC ISSUES</b>			
<b>3 CONSULTATION</b>			
<b>4 GENERAL</b>			
<p>Good evening  Please find attachment of my cv  Kind regards  Juliet</p>	Juliet Senong	Email 09/07/2021	<p>Thank you Juliet  I will pass this on to the mining right applicant.  Kind Regards,</p>
<p>I am very excited in applying for ELECTRICAL TECHNICAL.  Please take a moment and view my supporting documents.  I am looking forward for this exciting opportunity, where i will be able to gain more experience on my career.  It would be a sincere pleasure to hear back from you soon to discuss this exciting opportunity with you.  Best Regards</p>	Nicholas Mququ	Email 09/07/2021	<p>Dear Nicholas  Thank you for your email and your CV.  We will pass it onto the mining right applicant.  Kind Regards,</p>

ISSUES/COMMENTS	COMMENTATOR	REFERENCE	RESPONSE
<p>MBULELO NICHOLAS MQUQU</p> <p>Dear Hiring Manager.</p> <p>I am writing this letter because I'm interested in your vacancy for work experience, which I came across on the internet.</p> <p>I am an ambitious and driven individual. I like being in an environment where I can constantly challenge myself personally and professionally, I am always willing to learn because I believe that's the only way I can grow my knowledge and better my skills. I am an ELECTRICAL (ELECTRONIC) ENGINEERING Graduate from the Central University of Technology (CUT) in Free State (Bloemfontein campus) with two qualifications, a Nation Diploma and a B Tech (Bachelor of Technology) both under the Electrical Engineering field. I have 1 year Electrical Engineering experience which I obtained through the help of a company called Eskom, where I was employed on a 12 month contract as a Technician in Training (TIT).</p> <p>I want this work experience with your company because the company's mission to help and provide young talent with the best working and learning environment resonates with me. I believe this will be a perfect start-up for my career because it's rare nowadays to find companies that has a positive working environment and values young talent. I have excellent</p>	<p>Philane Tshabalala</p>	<p>Email 09/07/2021</p>	<p>Dear Philane</p> <p>Thank you for your email and your CV.</p> <p>We (Amber Earth) are not hiring but we will pass your CV onto the Mining Right applicant.</p> <p>Kind Regards,</p>

ISSUES/COMMENTS	COMMENTATOR	REFERENCE	RESPONSE
<p>communication and presentation skills and I believe with the experience I've obtained in my previous job my technical skills will add value to the company's Engineering team. My ability to work under pressure, time management, micro-software proficiency and my negotiation skills makes me believe I'm the perfect candidate for this position. I am excited about the possibility of joining your company and becoming part of your Engineering team. I can be reached at 084 695 7211 or philanetshabalala389@gmail.com. I will follow up with an email/call to confirm that you have received my application. Thank you for your consideration, and I look forward to hearing from you. Sincerely, Philane Tshabalala</p>			

**IAP Database:** This database is update constantly as IAP's register for the project.

IAP/Company Name	Occupation/Agency/ Department	Address	Phone	Email	Contact Mechanism
Andries Gouws	Land Owner - Neighbour	Portion 14	0824410550	atgouws@gmail.com	Email
Juliet Senong	Employment Seeker	Protea Glen	0678597478	motlagomangsenong@gmail.com	Email
Nicholas Mququ	Employment Seeker			<a href="mailto:nicholasmququ@gmail.com">nicholasmququ@gmail.com</a>	Email
Philane Tshabalala	Employment Seeker	Balfour	0846857211	philanetshabalala389@gmail.com	Email
Phindile Thela	IAP Resident	Middelburg	0648042628	Phind.pt@gmail.com	Email
Lazarus Mtshweni	IAP Resident	Middelburg	0837549014	Lmtshweni2@gmail.com	Email



## APPENDIX 6

**Section iX) 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.**

<b>ACTIVITY</b> <b>Whether listed or not listed.</b> (e.g. Excavations, stockpiles, discard dumps or dams, water supply dams or boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads and pipe lines, power lines, conveyors etc.	<b>POTENTIAL IMPACT</b> (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc.	<b>MITIGATION TYPE</b> (modify, remedy, control or stop) through (e.g. noise control measures, storm water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc)	<b>POTENTIAL FOR RESIDUAL RISK</b>
Excavation	Dewatering of mine workings	<ul style="list-style-type: none"> <li>• Monitor static groundwater levels on a quarterly basis in all boreholes within a zone of one to two kilometres surrounding the opencasts to ensure that any deviation of the groundwater flow from the idealised predictions is detected in time and can be reacted on appropriately.</li> <li>• If it can be proven that the mining operation is indeed affecting the quantity of groundwater available to certain users, the affected parties should be compensated. This may be done through the installation of additional boreholes for water supply purposes, or an alternative water supply.</li> <li>• The numerical model should be updated during mining by using the measured water ingress, water levels, mining and geophysics information to re-calibrate and refine the impact prediction</li> </ul>	Definite
Storage of Hydrocarbons (oil and diesel – 80m <sup>3</sup> )	Contamination	<ul style="list-style-type: none"> <li>• It must be ensured that a credible company removes used oil after vehicle servicing.</li> <li>• A sufficient supply of absorbent fibre should be kept at the site to contain accidental spills</li> <li>• Store all potential sources in secure facilities with appropriate storm water management, ensuring contaminants are not released into the environment.</li> </ul>	Probable

<b>ACTIVITY</b> Whether listed or not listed.	<b>POTENTIAL IMPACT</b>	<b>MITIGATION TYPE</b>	<b>POTENTIAL FOR RESIDUAL RISK</b>
Removal of mineral	Contamination potential by mine material	<ul style="list-style-type: none"> <li>•Ensure that the appropriate design facilities (berms, storm water channels etc.) are constructed.</li> <li>•Implement the EMP's of other environmental related aspects, including pollution prevention and impact minimisation.</li> <li>•Groundwater monitoring boreholes should be sited with the aid of geophysics at designated positions based on final infrastructure layout, to comply with the design requirements of a groundwater monitoring system, as recommended.</li> <li>•Groundwater monitoring boreholes should be installed to comply with the minimum requirements as set by governmental guidelines.</li> </ul>	Probable
Mining – change in geology.	Deterioration of groundwater quality down gradient of the mining operations	<ul style="list-style-type: none"> <li>•Groundwater quality must be monitored on a quarterly basis.</li> <li>•The monitoring results must be interpreted annually by a qualified hydrogeologist and the monitoring network should be audited annually to ensure compliance with regulations.</li> <li>•Numerical groundwater model must be updated by calibrating the model with monitoring data.</li> <li>•Pollution control dams should be lined to prevent ingress of contamination</li> <li>•Mine sections should be sealed where possible during mining to reduce the contact of water and air with remaining sulphides.</li> <li>•Install water collection and pumping systems within the mining areas capable of rapidly pumping water out, so minimising contact of water and the geochemically reactive material.</li> <li>•Kinetic testing of the pillar material should be conducted to aid in the prediction of post mining geochemical conditions.</li> <li>•Process water must be stored in a lined pollution control dam and the processing areas should be designed to prevent standing water.</li> <li>•Clean and dirty water systems should be separated.</li> </ul>	Probable

<b>ACTIVITY Whether listed or not listed.</b>	<b>POTENTIAL IMPACT</b>	<b>MITIGATION TYPE</b>	<b>POTENTIAL FOR RESIDUAL RISK</b>
Mining – removal of material	Change in ground water level - Decant volume	<ul style="list-style-type: none"> <li>• All sulphate containing waste material should be stored underground and flooded as soon as possible to exclude oxygen.</li> <li>• Treatment of the decant may be viable, however all passive methods should be investigated first during the operational phase of the mine</li> <li>• Major underground fractures encountered while mining must be sealed by grouting, both on inflow and outflow areas.</li> </ul>	Probable
Stockpiling & Berms	Change in drainage pattern	<ul style="list-style-type: none"> <li>• Separating clean and dirty water for appropriate treatment and disposal; <ul style="list-style-type: none"> <li>o A channel and berm configuration is proposed for the eastern edge of the property, which would prevent run-off outside of the premises. Furthermore, this channel would feed the storm water to the pollution control dam located on the premises;</li> <li>o The pollution control dam collecting the water from the catchment would serve as an evaporation and pollution control dam;</li> <li>o One large dam would fulfil the function of preventing spillage of storm water originating in Catchment of storm water;</li> <li>o Stock piling upstream to minimize inflow into workings</li> </ul> </li> <li>• Sustainable use of storm water for dust suppression operations during the operational lifetime of the facility;</li> <li>• Minimising the risk of environmental damage.</li> </ul>	Definite
Chemical toilets	Contamination surface run off and soil.	Regular servicing of toilets	Possible
PCD	Storage of dirty water	Trenches to direct water to PCD Collect water from pit.	Definite



<b>ACTIVITY Whether listed or not listed.</b>	<b>POTENTIAL IMPACT</b>	<b>MITIGATION TYPE</b>	<b>POTENTIAL FOR RESIDUAL RISK</b>
Erosion of roads	Sedimentation of run off	Maintain roads	Possible
River crossings	Impeding the flow	Investigate route to ensure minimal crossing of drainage channel; Culverts with rip-rap to prevent erosion.	Possible
Stock piling of top soil and overburden material at open cast areas	Fossils buried under stockpiles.	Geologist to ensure identification of potential fossils during top soil removal and stockpiling of material	Very low

**Consultation Evidence to date:**

# BORN FREE INVESTMENTS 10 (PTY) LTD

Suite 118  
Private Bag X1866  
MIDDELBURG  
1050

9 July 2021

Purple Sunshine Trading14 (Pty) Ltd

**Re:Driefontein Colliery Ref No MP30/5/1/2/2/10330MR**

It is of great concern to take note of above mentioned proposed mining activities.

Please take note that as the owners of adjacent Portion 14 we reserve our rights as to any affects your activities could have on our property.

Please register us as affected party in your application for mining rights.

Best regards



Andries T Gouws

For Born Free Inv 10 PtyLtd

## Tim van Stormbroek

---

**From:** Tim van Stormbroek <tim@amberearth.co.za>  
**Sent:** 09 July 2021 14:40  
**To:** 'dries gouws'  
**Cc:** 'gouchris@outlook.com'; 'Wian Gouws'  
**Subject:** RE: Application of Mining Right Driefontein Ref No MP30/5/1/2/2/10330MR

Good afternoon Dries

Thank you for your prompt email and attached letter which we received.

We will add you to the IAP's Register and note the contents of your letter in the Comment and Response Report.

Should you wish to provide any further comments or questions please feel free to do so.

Kind Regards,



**Tim van Stormbroek**  
**AmberEarth** PTY Ltd  
347 Graham Rd  
Tiegerpoort, 0056  
Cell: 082 482 6202  
tim@amberearth.co.za  
Reg No.: 2013/168645/07

---

**From:** dries gouws <atgouws@gmail.com>  
**Sent:** 09 July 2021 14:27  
**To:** tim@amberearth.co.za  
**Cc:** gouchris@outlook.com; Wian Gouws <delarouteauctioneers@gmail.com>  
**Subject:** Application of Mining Right Driefontein Ref No MP30/5/1/2/2/10330MR

Good day Tim

Please find attached notice and revert

Best regards

*Dries Gouws*  
*Email :atgouws@gmail.com*  
*Cell :0824410550*

## Tim van Stormbroek

---

**From:** Tim van Stormbroek <tim@amberearth.co.za>  
**Sent:** 09 July 2021 19:41  
**To:** 'Motlagomang mankgomela pheladi senong'  
**Cc:** 'matt@amberearth.co.za'  
**Subject:** RE: CS001EE

Thank you Juliet

I will pass this on to the mining right applicant.

Kind Regards,



Tim van Stormbroek  
**AmberEarth** PTY Ltd  
347 Graham Rd  
Tiegerpoort, 0056  
Cell: 082 482 6202  
tim@amberearth.co.za  
Reg No.: 2013/168645/07

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**From:** Motlagomang mankgomela pheladi senong <motlagomangsenong@gmail.com>  
**Sent:** 09 July 2021 19:38  
**To:** tim@amberearth.co.za  
**Cc:** matt@amberearth.co.za  
**Subject:** CS001EE

Good evening

Please find attachment of my cv

Kind regards

Juliet

## Tim van Stormbroek

---

**From:** Tim van Stormbroek <tim@amberearth.co.za>  
**Sent:** 09 July 2021 20:09  
**To:** 'Nicholas mbulelo Mququ'  
**Cc:** Matthew De Kiewit  
**Subject:** RE: CS001EE

Dear Nicholas

Thank you for your email and your CV.  
We will pass it onto the mining right applicant.

Kind Regards,



Tim van Stormbroek  
**AmberEarth** PTY Ltd  
347 Graham Rd  
Tiegerpoort, 0056  
Cell: 082 482 6202  
tim@amberearth.co.za  
Reg No.: 2013/168645/07

---

**From:** Nicholas mbulelo Mququ <nicholasmququ@gmail.com>  
**Sent:** 09 July 2021 19:57  
**To:** tim@amberearth.co.za  
**Subject:** CS001EE

Reff: CS001EE.

I am very excited in applying for ELECTRICAL TECHNICAL.  
Please take a moment and view my supporting documents.

I am looking forward for this exciting opportunity, where i will be able to gain more experience on my career.

It would be a sincere pleasure to hear back from you soon to discuss this exciting opportunity with you.

Best Regards  
MBULELO NICHOLAS MQUQU

## Tim van Stormbroek

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**From:** Tim van Stormbroek <tim@amberearth.co.za>  
**Sent:** 09 July 2021 19:43  
**To:** 'Philane Tshabalala'  
**Cc:** 'matt@amberearth.co.za'  
**Subject:** RE: S4 ELECTRICAL TECHNICIAN

Dear Philane

Thank you for your email and your CV.

We (Amber Earth) are not hiring but we will pass your CV onto the Mining Right applicant.

Kind Regards,



Tim van Stormbroek  
**AmberEarth** PTY Ltd  
347 Graham Rd  
Tiegerpoort, 0056  
Cell: 082 482 6202  
tim@amberearth.co.za  
Reg No.: 2013/168645/07

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**From:** Philane Tshabalala <philanetshabalala389@gmail.com>  
**Sent:** 09 July 2021 19:32  
**To:** tim@amberearth.co.za  
**Cc:** matt@amberearth.co.za  
**Subject:** S4 ELECTRICAL TECHNICIAN

Dear Hiring Manager.

I am writing this letter because I am interested in your vacancy for work experience, which I came across on the internet.

I am an ambitious and driven individual. I like being in an environment where I can constantly challenge myself personally and professionally, I am always willing to learn because I believe that is the only way I can grow my knowledge and better my skills. I am an ELECTRICAL (ELECTRONIC) ENGINEERING Graduate from the Central University of Technology (CUT) in Free State (Bloemfontein campus) with two qualifications, a Nation Diploma and a B Tech (Bachelor of Technology) both under the Electrical Engineering field. I have 1 year Electrical Engineering experience which I obtained through the help of a company called Eskom, where I was employed on a 12 month contract as a Technician in Training (TIT).

I want this work experience with your company because the company's mission to help and provide young talent with the best working and learning environment resonates with me. I believe this will be a perfect start-up for my career because it is rare nowadays to find companies that has a positive working environment and values young talent. I have excellent communication and presentation skills and I believe with the experience I've obtained in my previous job my technical skills will add value to the company's Engineering team. My ability to work under pressure, time management, micro-software proficiency and my negotiation skills makes me believe I am the perfect candidate for this position.

I am excited about the possibility of joining your company and becoming part of your Engineering team. I can be reached at 084 695 7211 or [philanetshabalala389@gmail.com](mailto:philanetshabalala389@gmail.com). I will follow up with an email/call to confirm that you have received my application.

Thank you for your consideration, and I look forward to hearing from you.  
Sincerely,

Philane Tshabalala  
CV attached





## Tim van Stormbroek

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**From:** Tim van Stormbroek <tim@amberearth.co.za>  
**Sent:** 09 July 2021 19:58  
**To:** 'SIBUSISO MAKWAKWA'  
**Cc:** 'matt@amberearth.co.za'  
**Subject:** RE: Application for electro-mechanical engineering internship

Hi Sibusisi

Thank you for your email.

We will pass on your CV to the mining right applicant.

Kind Regards,



Tim van Stormbroek  
**AmberEarth** PTY Ltd  
347 Graham Rd  
Tiegerpoort, 0056  
Cell: 082 482 6202  
tim@amberearth.co.za  
Reg No.: 2013/168645/07

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**From:** SIBUSISO MAKWAKWA <216138469@edu.vut.ac.za>  
**Sent:** 09 July 2021 19:49  
**To:** tim@amberearth.co.za  
**Cc:** matt@amberearth.co.za  
**Subject:** Application for electro-mechanical engineering internship

Dear sir/madam

My name is Sibusiso makwakwa I was an NSFAS beneficiary.

I studied electro-mechanical engineering and now am done with all my modules, am hereby applying for an internship advertised at your company.

Attached is my comprehension CV and other required documents.

Please feel free to contact me through phone call at 0655452402 for any additional information concerning my application.

Your response will be highly appreciated.

Regards  
Makwakwa S

## Tim van Stormbroek

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**From:** Tim van Stormbroek <tim@amberearth.co.za>  
**Sent:** 09 July 2021 21:35  
**To:** 'Spelele Apelele'  
**Subject:** RE: P1&P2

Dear Spelele

Thank you for your email and CV.

We will pass it on to the mining right applicant.

Kind Regards,



**Tim van Stormbroek**  
**AmberEarth** PTY Ltd  
347 Graham Rd  
Tiegerpoort, 0056  
Cell: 082 482 6202  
tim@amberearth.co.za  
Reg No.: 2013/168645/07

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**From:** Spelele Apelele <speleleapgelem@gmail.com>  
**Sent:** 09 July 2021 21:31  
**To:** tim@amberearth.co.za  
**Subject:** P1&P2