



mineral resources

Department:  
Mineral Resources  
REPUBLIC OF SOUTH AFRICA

ENVIRONMENTAL IMPACT ASSESSMENT REPORT  
and  
ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

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:** PULENG RESOURCES (PTY) LTD

**TEL NO:** 013 492-1919

**FAX NO:** n/a

**POSTAL ADDRESS:** PO BOX 169

**PHYSICAL ADDRESS:** SECTION 55, KENDAL FORREST HOLDINGS, DISTRICT OF WITBANK

**FILE REFERENCE NUMBER:** 1/3/1/16/1N-348

**Title:**

Draft Environmental Impact Assessment Report for the Puleng Resources (Pty) Ltd: Siding operation in Broodsniersplaas, Mpumalanga Province

**Report compiled for:**

<b>APPLICANT:</b>	Puleng Resources (Pty) Ltd	
<b>Contact Person:</b>	Attie van Wyk	
<b>Address:</b>	PO Box 169 Middelburg 1050	
<b>Telephone No:</b>	082 822 5846	
<b>Fax No:</b>	013 492-1919	

**Report Compiled by:**

<b>CONSULTANT:</b>	M2 Environmental Connections (Pty) Ltd	
<b>Address:</b>	PO Box 2047 Garsfontein East, 0060	
<b>Telephone No:</b>	(012) 004 0362	
<b>Fax No:</b>	086 621 0292	
<b>E-mail:</b>	johan@menco.co.za	
<b>Author:</b>	J. Maré (M.Sc. Microbiology)	
<b>Reviewed:</b>	R. Lombard (M.Sc. Environmental Management)	
<b>EAP:</b>	J. Bezuidenhout	
<b>Report Number:</b>	EIA/Puleng/2023/05/draft	
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## 1. 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 a 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.



## 2. OBJECTIVE OF THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

The objective of the environmental impact assessment process is to, through a consultative process—

- (a) determine the policy and legislative context within which the activity is located and document how the proposed activity complies with and responds to the policy and legislative context;
- (b) describe 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 the location of the development footprint within the preferred site based on an impact and risk assessment process inclusive of cumulative impacts and a ranking process of all the identified development footprint alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects of the environment;
- (d) determine the—
  - (i) nature, significance, consequence, extent, duration and probability of the impacts occurring to inform identified preferred alternatives; and
  - (ii) degree to which these impacts—
    - (aa) can be reversed;
    - (bb) may cause irreplaceable loss of resources, and
    - (cc) can be avoided, managed or mitigated;
- (e) identify the most ideal location for the activity within the preferred site based on the lowest level of environmental sensitivity identified during the assessment;
- (f) identify, assess, and rank the impacts the activity will impose on the preferred location through the life of the activity;
- (g) identify suitable measures to manage, avoid or mitigate identified impacts; and
- (h) identify residual risks that need to be managed and monitored.



## **Executive Summary**

Puleng Resources (Pty) Ltd has appointed M2 Environmental Connections (Pty) Ltd (referred to as MENCO) to conduct the required environmental studies in order to obtain approval to operate a railway siding at Broodsniersplaas. This study was conducted under the supervision of Johan Maré of M2 Environmental Connections (Pty) Ltd. Mr. Maré holds a M.Sc. degree in Microbiology from the University of Stellenbosch and has more than 35 years' experience in the field of Environmental Management and Justin Bezuidenhout of Biosphere Enviro Solutions (Pty) Ltd. Mr. Bezuidenhout holds BA Degree in Geography and Environmental Management and has 9 years' experience in the field of Environmental and Water Management. Mr Bezuidenhout is also a registered EAP and Aquatic Ecologist.

The project entails the incorporation of a washing plant at an existing coal siding that is leased from Transnet Freight Rail. The activities include receiving of coal product by truck over a weighbridge, coal stockpiling, and shunting and loading of the washed coal product. Other activities include dust suppression and general housekeeping such as grading roads and cleaning coal spillage around the rail line. Due to the Broodsniersplaas siding being operational before the promulgation of the Environmental Conservation Act, 1989, no Environmental Authorisation has been applied for by the former South African Railways. Puleng Resources (Pty) Ltd is applying for an Environmental Impact Assessment in terms of the National Environmental Management Act, 1998 (Act No 107 of 1998) (as amended).

The following listed activities are triggered: Activity 27 and 34 of GNR 983 Notice 1, and Activity 6 and 19 of GNR 984 Notice 2.

The activities which take place at the siding include receiving of coal product by truck over a weighbridge for multiple customers, stockpiling the coal on the siding for different customers prior to dispatch on rail, shunting coal product by truck from stockpiles to the siding lip, loading coal product using front end loaders into TFR wagons and then the train is released from the siding to its destination which is primarily Richards bay Coal Terminal.

The study area falls within the Vryheid Formation of the Ecca Group as well as a dolerite sill towards the north of the study area. The rocks of the Vryheid Formation consist mainly of sandstone, shale and coal beds. The proposed siding site is located in the summer rainfall region of Southern Africa with precipitation usually occurring in the form of convectional thunderstorms. The average annual rainfall (measured over a period of 70 years) is approximately 697.3 mm, with the high rainfall months between November and April. Recharge is estimated at an average of 3.5% of annual rainfall, i.e. 25 mm/a.

The fertility status of the soils in the project area is generally considered moderate to high. The site had low soil pH and there is a possibility that the soils could further acidify due to the acidic nature of the coal material to be stockpiled on site. All of the soil samples collected on the site show the profile of Ca>Mg>K>>Na concentrations as expected. Soils had low organic carbon levels. Agricultural activities in the region of the project area are dominant with coal mining and processing also present within the greater areas. The area earmarked for expansion has very limited agricultural potential and at this point is unusable land for the property owner. As such, the land use of the expansion area will not be negatively affected.

The project area falls within the Olifant River catchment upstream of the Witbank Dam with a mean annual flow of 10,780 Mm<sup>3</sup>. The Department of Water Affairs has conducted a comprehensive Reserve determination for the Upper Olifants River. The study has revealed that



the Olifants River has an overall Ecological Class C classification. The siding project site is located in the headwaters of quaternary drainage area B11B which drains the Koringspruit. The site is also adjacent to quaternary drainage areas B11H and B12B. Only the northern corner of the project site intersects B11H.

A National List of Threatened Ecosystems for South Africa was gazetted on 9 December 2011, considering the data, it was found that the site is situated within the Eastern Highveld Grassland vegetation unit which is classed as Vulnerable. When considering the Terrestrial Biodiversity Assessment of the Mpumalanga Biodiversity Conservation Plan, it is found that the coal siding falls within a larger area classified as *No Natural Habitat Remaining*. This corroborates the data as described in the Specialist Assessment, indicating that no species of conservation concern is expected within the project area. The area directly east of the siding has been classed as *Highly Significant*, meaning that Dryland Crop Production, Intensive Animal Farming, Irrigated Crop, Timber Production, Urban Development, Major Development Projects and Surface Mining are not permitted. The area directly south-east of the siding has been classed as *Least Concern*, indicating that all land use forms are permitted, but that most as restricted (i.e. Rural Settlement, Timber Production, Urban Development, Major Development Projects, Linear Engineering Structures, Water Transfer Projects and Surface Mining). In terms of protected areas, the nearest nature reserve of concern is the Heyns Private Nature Reserve, approximately 11 km to the north-north-west.

The main wetland feature within the 500m buffer zone surrounding the project area is classified as a Seep wetland, with three Flat wetlands associated with the origin of the main wetland feature (outside the 500m buffer zone). This Seep wetland follows the general meandering of the unnamed tributary to the east of the site, and eventually forms a Channel valley-bottom wetland to the south east of the siding, still within the 500m buffer zone. However, as the project area is completely devoid of vegetation, and the fact that all surface water flow is directed around or under the siding, it is fair to assume that the delineation of the Seep wetland is historic in nature and therefore an over estimation of the extent of the wetland.

Sensitive receptors are areas surrounding the Broodsniersplaas Coal Siding that are more likely to be impacted by the siding's activities. Areas affected by coal haulage operations are typically within a 10 km radius and may include farm houses, residential areas, school or any infrastructure that houses people (Komati Village). For the current project the closest residential areas are Komati Village and the residential areas of Blikpan and Koornfontein Mines.

According to Nkangala District Municipality Air Quality Management Plan (AQMP) there is monitoring being within the Emalahleni Region which is mainly around major industrial and urban centres. The main pollutant identified in the Nkangala District Municipality AQMP as part of their baseline assessment is particulates. No measured or simulated PM10 or dust fallout data for the Broodsniersplaas Coal Siding Project are available. The area around the siding is largely used for mining purposes, farming activities, power generation and various fugitive dust sources such as roads and contributing vehicle tailpipe emissions. It could be reported that the Ambient Air Quality impact stemming from the main sources are likely to contribute to cumulative PM10, SO2, CO and VOC increases due to vehicle entrainment on unpaved road surfaces as well as during loading and off-loading of coal at the site. Air quality in the local region is foreseen to improve following decommissioning and successful rehabilitation as coal dust will no longer be released. Decommissioning will also result in less vehicle emissions.



There will be noise from the increased traffic along R35 road used by the trucks from various operations that share the entrance to the Broodsniersplaas Siding. The R35 road is also used by taxis and private cars towards Middelburg and Bethal. The vehicular movement of heavy machinery during construction of site infrastructure will contribute towards increased noise levels. During the construction phase noise impacts from the front-end graders, trucks offloading construction material and loading construction rubble for disposal is expected as well as noise from the construction workers and site personnel. Noise impacts during the operational phase include trucks offloading coal at the stockpile area and the loading into train wagons by front-end caterpillar with weight cells. The shunting of the train in and out of the loading zone is another on-going source of noise impacts. It is anticipated that the noise levels will increase during the operational phase. Noise levels will significantly reduce following decommissioning as coal loading and unloading will no longer take place. Noise emanating from the washing plant will also no longer form part of the spectrum and it is expected that the ambient noise level will drop to rural/natural levels.

Background research indicates that there are some cultural heritage sites and features in the larger geographical area within which the study area falls. No sites, features or material of cultural heritage (archaeological and/or historical) origin or significance were identified in the study area during the physical assessment. If any did exist here in the past it would have been extensively disturbed or destroyed as a result of recent historical developments and activities related to the existing Broodsniersplaas Coal Siding and Railway Line, as well as past agricultural activities that include ploughing, crop growing and irrigation (water pipelines).

The construction phase of the project could be seen as having positive impacts in terms of socio-economy through the availability of additional temporary job opportunities. Very limited negative social impacts are foreseen during the construction phase. The social benefits for the Broodsniersplaas Siding project include positive contribution towards the creation of job opportunities within the Municipality. Therefore, the local economy will benefit through provision/creation of employment opportunities for the local community. These opportunities will have a positive effect on the broader value chain extending to suppliers of goods and services from nearby towns. The positive social aspects related to the operational phase of the project will convert to job opportunities in the form of decommissioning and rehabilitation tenders and jobs. Following successful rehabilitation, local sustainable farming could potentially commence resulting in local positive socio-economic impacts.

The construction and operation of a coal siding project in the Mpumalanga province of South Africa, including the expansion of the stockpile area by 7ha, is expected to have significant impacts on the environment. Overall 12 broad impact categories were investigated as part of the Impact Assessment and it was found that six of these could have high level impacts without the implementation of mitigation measures, three could have medium level impacts and three could have low level impacts. Following the mitigation measures recommended in the report, none of these impacts are rated as high.

During the construction phase, soil disturbance and land-use changes can affect the natural balance of ecosystems in the area, leading to soil erosion and loss of biodiversity. Surface water can also be affected due to changes in the topography of the area, leading to increased runoff and soil erosion. Similarly, the excavation and construction activities can impact groundwater levels and quality, potentially leading to contamination and reduced availability.

Sensitive areas such as wetlands can also be impacted, leading to damage or loss of valuable ecosystems and the species that depend on them. The aquatic ecology can also be affected by



changes in water quality and flow regimes, leading to impacts on fish and other aquatic species. Lastly, air quality can be impacted due to dust generated during the handling and transportation of coal.

However, with the implementation of appropriate mitigation measures, all of these high-level impacts can be effectively reduced to low or medium-level impacts. For instance, measures such as the use of advanced dust suppression systems, stormwater management plans, and environmental management plans can be employed to mitigate air quality, surface water, and soil and land-use impacts.

Similarly, sensitive areas can be protected through the implementation of buffer zones and avoiding construction activities during sensitive times of the year. Monitoring programs can be established to ensure that groundwater and aquatic ecology impacts are minimized.

Therefore, it is possible to minimize the environmental impacts of the coal siding project by effectively implementing appropriate mitigation measures. All medium and low-level impacts can also be mitigated to low-level impacts, resulting in minimal environmental damage while still meeting the operational needs of the facility.

In addition to the high-level impacts, the construction and operation of the coal siding is also expected to have medium to low-level impacts on the environment. These impacts include the loss of terrestrial biodiversity due to land-use changes and habitat destruction, increased noise levels due to construction and operation activities, visual impacts due to changes in the landscape, increased traffic in the area and no impacts on cultural heritage sites.

However, these medium to low-level impacts can also be mitigated effectively with the implementation of appropriate measures. For example, habitat restoration and the establishment of buffer zones can help minimize the impact on terrestrial biodiversity. Noise barriers and the use of quieter machinery can reduce noise levels, and visual impacts can be minimized through the use of landscaping and other design features. Lastly, traffic impacts can be minimized through traffic management plans, road improvements, and the use of alternative transportation modes.

Moreover, the coal siding project is expected to have positive impacts on local socio-economies, such as job creation, increased economic activity, and improved access to energy resources. These benefits can have a significant positive impact on the local communities, provided that the project is implemented in a sustainable and responsible manner.

In conclusion, while the construction and operation of the coal siding project is expected to have potential impacts on the environment, with appropriate mitigation measures, it is possible to minimize these impacts to a low or medium level. Moreover, the project's positive impacts on local socio-economies should also be taken into account while making decisions about the project.

Please refer to Section 9 of this report for the Public Participation Process followed to date.

The conclusion of the impact assessment is that there are no fatal flaws identified in the current project, based on inputs from specialists and engagement with competent authorities, and following the prescribed impact assessment methodology. All potential negative impacts have





been identified and can be effectively and sufficiently mitigated to lower impact classes. Moreover, the project will have positive impacts on local socio-economies.

As Puleng Resources is also applying for a Water Use License, which is a requirement for the EIA, a successful environmental authorisation will result in the issuance of a Water Use License with set conditions that the company must comply with. These conditions will include the need for monitoring and dissemination of data, which will allow for improved regional management of water sources. Therefore, overall, the project can be considered to be environmentally responsible and sustainable, and it can bring significant benefits to the local economy while minimizing negative environmental impacts.

With the current coal requirements in South Africa, the extent of supply in the surrounding area and the long term nature of sidings, the maximum period of Environmental Authorisation is requested from the department.





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### List of Appendices of EIA

<b>Appendix A</b>	EAP Information (CV, Work Experience)
<b>Appendix B</b>	Public Participation Process
<b>Appendix C</b>	Surface Water Assessment
<b>Appendix D</b>	Aquatic Ecology Study
<b>Appendix E</b>	Geohydrology
<b>Appendix F</b>	Fauna and Flora
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<b>Appendix H</b>	Heritage Assessment Study

### List of Appendices of EMP

<b>Appendix I</b>	Master Layout Plans
<b>Appendix II</b>	Rehabilitation Plan
<b>Appendix III</b>	Monitoring and Auditing Plan





## ABBREVIATIONS

<b>AMD</b>	Acid Mine Drainage
<b>BID</b>	Background Information Document
<b>CARA</b>	Conservation of Agricultural Resources Act (Act No. 43 of 1983)
<b>CRR</b>	Comments and Response Report
<b>DFFE</b>	Department of Forestry, Fisheries and Environment
<b>DWS</b>	Department of Water and Sanitation
<b>DWAF</b>	Department of Water Affairs and Forestry
<b>EA</b>	Environmental Authorisation
<b>EAP</b>	Environmental Assessment Practitioner
<b>EIA</b>	Environmental Impact Assessment
<b>EIAr</b>	Environmental Impact Assessment Report
<b>EIS</b>	Ecological Importance and Sensitivity
<b>EMPr</b>	Environmental Management Programme
<b>GCL</b>	Geo synthetic clay liner
<b>HDPE</b>	High Density Polyethylene
<b>HIA</b>	Heritage Impact Assessment
<b>I&amp;APs</b>	Interested and Affected Parties
<b>IUCMA</b>	Inkomati Usuthu Catchment Management Agency
<b>IDP</b>	Integrated Development Plan
<b>MAP</b>	Mean Annual Precipitation
<b>MDARDLEA</b>	Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs
<b>MDRT</b>	Mpumalanga Department of Roads and Transport
<b>MHSA</b>	Mines Health and Safety Act (Act No. 50 of 1991)
<b>NEM: AQA</b>	National Environmental Management: Air Quality Act (Act No. 39 of 2004)
<b>NEM: BA</b>	Biodiversity Act (Act No. 10 of 2004)
<b>NEM: WA</b>	National Environmental Management: Waste Act (Act No. 59 of 2008)
<b>NEMA</b>	National Environmental Management Act (Act No. 107 of 1998)
<b>NFEPA</b>	National Freshwater Ecosystem Priority Areas
<b>NHRA</b>	National Heritage Resources Act (Act No. 25 of 1999)
<b>NPAES</b>	National Protected Area Expansion Strategy
<b>NWA</b>	National Water Act (Act 36 of 1998)
<b>PCD</b>	Pollution Control Dam
<b>PES</b>	Present Ecological State
<b>PPP</b>	Public Participation Process
<b>RBCT</b>	Richards Bay Coal Terminal
<b>RDL</b>	Red Data List
<b>REC</b>	Recommended Ecological Class
<b>SAHRA</b>	South African Heritage Resources Agency
<b>SANBI</b>	South African National Biodiversity Institute
<b>SANS</b>	South African National Standards
<b>SAR</b>	Sodium Absorption Ratio
<b>SAS</b>	Scientific Aquatic Services
<b>SAWS</b>	South African Weather Services
<b>SDF</b>	Spatial Development Framework
<b>TFR</b>	Transnet Freight Rail
<b>SANS</b>	South African National Standards
<b>WULA</b>	Water Use License Application





## PART A SCOPE OF ASSESSMENT AND ENVIRONMENTAL IMPACT ASSESSMENT REPORT

### 1. INTRODUCTION

Puleng Resources (Pty) Ltd has appointed M2 Environmental Connections (Pty) Ltd (referred to as Menco) to conduct the required environmental studies in order to obtain approval to operate a railway siding at Broodsniersplaas.

**Table 1-1: Contact details of the Applicant**

<b>Name of Applicant</b>	Attie van Wyk
<b>Tel No</b>	(013) – 492-1919
<b>Mobile No</b>	082 822 5846
<b>e-mail address</b>	attie@kegomining.co.za

### 2. ITEM 3: PROJECT APPLICANT

#### 2.1 Item 3(A)(I): Details of the EAP

The contact detail of the Environmental Assessment Practitioner (EAP) is contained in **Table 2-1**.

**Table 2-1: EAP contact details**

<b>Name of Practitioner</b>	Johan Maré
<b>Tel No</b>	083 389 6617 / 012 004 0362
<b>Fax No</b>	086 621 0292
<b>e-mail address</b>	johan@menco.co.za

The following team of specialists (refer **Table 2-2**) conducted the studies identified in Section 5.1 of this Draft EIA which is in accordance with the Plan of Study for EIA approved as part of the Final Scoping Report submitted to the MDARDLEA.

**Table 2-2: Specialist team involved with project**

<b>Field of Study</b>	<b>Company</b>	<b>Specialist</b>
Aquatic Ecology	MENCO	Mathys de Beer
Biodiversity	MENCO	Reuhl Lombard
Civil Engineering	LNW Consulting Engineers	Tawanda Matendawafa
Geohydrology	Geo Pollution Technologies	Morné Burger
Heritage	A Pelser Archaeological Consulting	AJ Pelser
Surface Water	MENCO	Hanjo Fourie
Wetlands	MENCO	Johan Maré

#### 2.2 Item 3(A)(ii): Expertise of the EAP

This study was conducted under the supervision of Johan Maré of M2 Environmental Connections (Pty) Ltd. Mr. Maré holds a M.Sc. degree in Microbiology from the University of Stellenbosch and has more than 35 years' experience in the field of Environmental Management and Justin Bezuidenhout of Biosphere Enviro Solutions (Pty) Ltd. Mr. Bezuidenhout holds BA Degree in Geography and Environmental Management and has 9 years' experience in the field of Environmental and Water Management. Justin is also a registered EAP and Aquatic Ecologist.



MENCO has a demonstrated track record of undertaking independent environmental assessments for a variety of clients as illustrated in the Table below.

**Table 2-3: MENCO Project Experience**

Client	Project
Bauba A Hlabirwa	<ul style="list-style-type: none"> <li>• Moeijlik Chrome Mine</li> <li>• North and South Cluster</li> </ul>
Eco Elementum (Pty) Ltd	<ul style="list-style-type: none"> <li>• Diep Vaalbank Wetland Delineation</li> <li>• Vunene Mining</li> <li>• Usuthu Mine</li> <li>• Kalabasfontein Mining wetland scoping</li> <li>• Witbank Bricks</li> <li>• Chromex scoping and EIAr</li> </ul>
Geo Pollution Technologies (Pty) Ltd	<ul style="list-style-type: none"> <li>• Fulcrum Project</li> <li>• Kleinzee</li> <li>• Omnia Eco Gypsum Plant</li> </ul>
Gudani Projects	<ul style="list-style-type: none"> <li>• EMF for LDEDET</li> </ul>
Jacana Environmental	<ul style="list-style-type: none"> <li>• Mutsho IPP – surface water</li> </ul>
Prescali (Pty) Ltd	<ul style="list-style-type: none"> <li>• Leandra Urban Development</li> <li>• Nooitgedacht and Haakdoringfonten Flora and Fauna assessment</li> <li>• Vlakpoort Mining Right</li> <li>• Apollo Brick</li> <li>• Grassvalley and Zoetveld</li> <li>• Pan Palladium Expansion</li> <li>• Volspruit Sylvania Platinum</li> <li>• Harriet/Hacra Platinum</li> <li>• International Ferro metals (IFM)</li> <li>• Sky Chrome</li> <li>• Sekoko Waterberg Colliery</li> <li>• Phoenix</li> <li>• North West Recycling</li> </ul>
Samancor	<ul style="list-style-type: none"> <li>• Eastern Chrome Mines – Lwala</li> <li>• Eastern Chrome Mines – Tweefontein</li> <li>• Eastern Chrome Mines - Doornbosch</li> <li>• Eastern Chrome Mines – Lannex</li> <li>• Eastern Chrome Mine – Jaglust</li> <li>• Eastern Chrome Mines – Spitskop Opencast</li> <li>• Eastern Chrome Mines – Mecklenburg Open Cast</li> <li>• Western Chrome Mines – Elandsdrift</li> <li>• Western Chrome Mines - mooinooi</li> </ul>
Savannah Environmental	<ul style="list-style-type: none"> <li>• Exxaro Lephalale surface water</li> <li>• Umbani Power Station</li> <li>• Transalloys</li> <li>• Waterberg IPP Power Station</li> </ul>
SCIP Engineering	<ul style="list-style-type: none"> <li>• Scoping for Fort West Project</li> </ul>
Sola Group	<ul style="list-style-type: none"> <li>• Lichtenburg Solar Park</li> </ul>
Submerged Industries	<ul style="list-style-type: none"> <li>• Scoping for Weltevreden Mining Project</li> </ul>
Virtual Engineering	<ul style="list-style-type: none"> <li>• Ncomi Prison</li> <li>• Ekuseni Youth Centre</li> </ul>



Client	Project
Vusi'themba Project Solutions (Pty) Ltd	<ul style="list-style-type: none"> <li>Vaalwater piggery</li> <li>Witklip Piggery</li> </ul>
WPB Colliery (Pty) Ltd	<ul style="list-style-type: none"> <li>Groenvlei Coal</li> <li>Oak Tree Sand</li> </ul>

### 2.2.1 Qualifications of the EAP

Mr Maré has obtained an M.Sc degree in Microbiology from the University of Stellenbosch during 1989. His thesis dealt with the control of Acid Mine Drainage (AMD) and was funded by the Water Research Commission and Rand Mines. Mr. Bezuidenhout holds BA Degree in Geography and Environmental Management and has 9 years' experience in the field of Environmental and Water Management. Justin is also a registered EAP and Aquatic Ecologist.

### 2.2.2 Summary of the EAP's Past Experience

The project below only refers to the EAP's past EIA Experience. Please refer to Appendix A for a more detailed Work Experience Report of Mr. J Bezuidenhout.

**Table 2-4: EAP EIA Project Experience**

Client	Project
Walt Landgoed (Pty) Ltd:	<ul style="list-style-type: none"> <li>Basic Assessment Biesjeskuil Sow Unit Piggery</li> <li>Basic Assessment Leeuwkuil Piggery</li> <li>Basic Assessment Roodekuil Bio-Security Facility</li> <li></li> </ul>
International Ferro Metals (SA) PTY Ltd	<ul style="list-style-type: none"> <li>Basic Assessment Application Process for a Solar Plant</li> </ul>
Chevron South Africa (Pty) Limited:	<ul style="list-style-type: none"> <li>Basic Assessment Application Process Wastewater Treatment works</li> </ul>
The Reeds Filling Station	<ul style="list-style-type: none"> <li>Basic Assessment Application Process for a filling station</li> </ul>
Blue Sky Homes	<ul style="list-style-type: none"> <li>Basic Assessment Application Process for a proposed Residential Development</li> </ul>
INSA Coal	<ul style="list-style-type: none"> <li>EMPr Audits for over 30 prospecting sites</li> </ul>
Number two piggeries	<ul style="list-style-type: none"> <li>Environmental Control Officer for the construction of the piggy operations</li> </ul>
Janlizmar Piggery	<ul style="list-style-type: none"> <li>Environmental Control Officer for the construction of the piggy operations</li> </ul>

## 3. ITEM 3(b): PROPERTY DESCRIPTION

The Broodsniersplaas Project is located on the property as described in **Table 3-1**.

**Table 3-1: Property description**

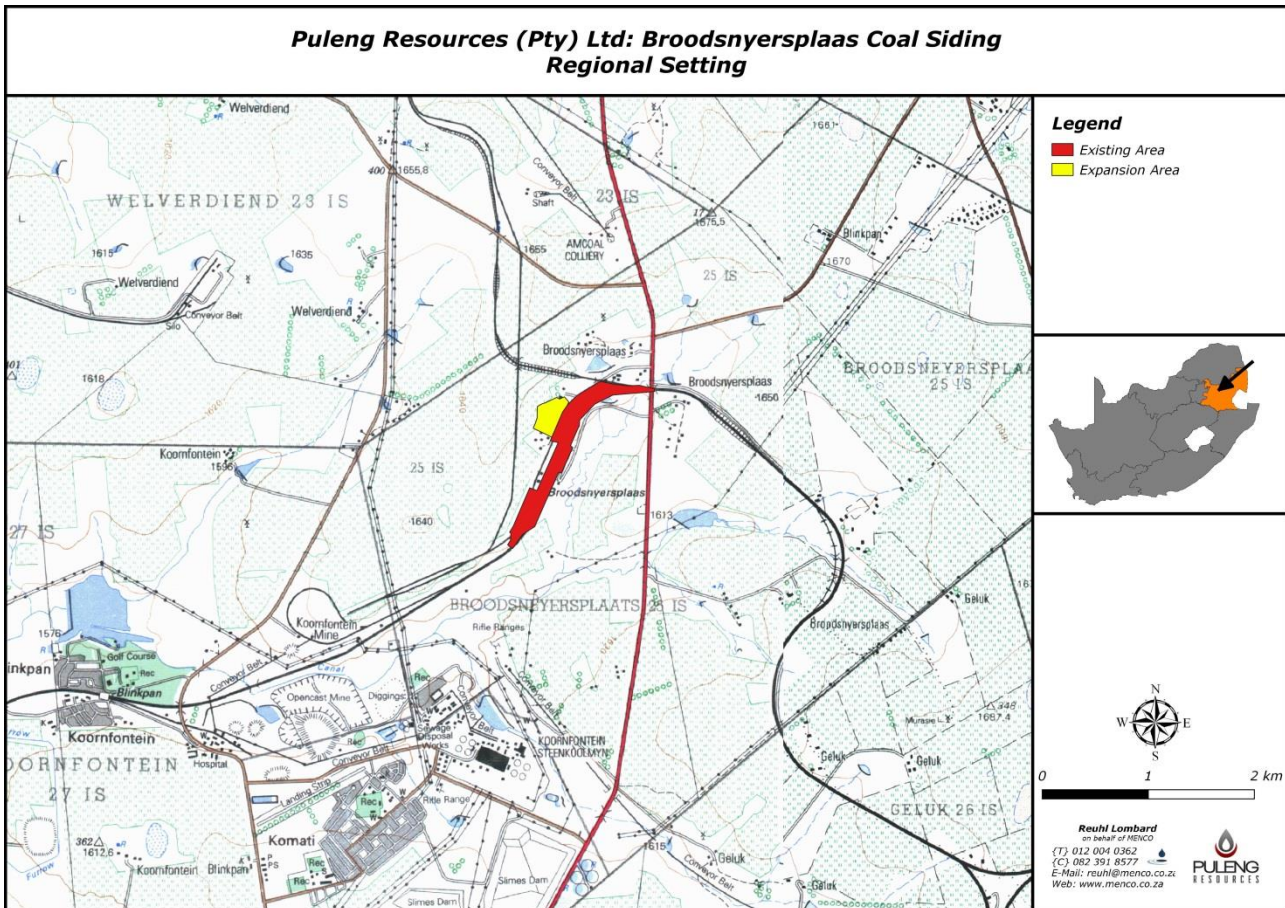
<b>Farm Name:</b>	Portion of Portion 14, and Portion 16, Portion 20, Portion 23 of the farm Broodsniersplaas 25-IS.
<b>Application area (Ha)</b>	8



<b>Magisterial district:</b>	Nkangala District Municipality
<b>Distance and direction from nearest town</b>	Middelburg to Broodsniersplaas siding 41 km south; Bethal to Broodsniersplaas Siding, 43 km north
<b>21 digit Surveyor General Code for each farm portion</b>	TOIS 00000000025 00016

**4. ITEM 3(c): APPENDIX 3: LOCALITY MAP**

Broodsniersplaas Coal Siding is situated in the Mpumalanga Province on the R35 between Middelburg and Bethal. The locality of the project is depicted in **Figure 4-1**.



**Figure 4-1: Local setting of Broodsniersplaas Siding**

**5. ITEM 3(d): DESCRIPTION OF THE SCOPE OF THE PROPOSED OVERALL ACTIVITY**

The project entails the incorporation of a washing plant at an existing coal siding that is leased from Transnet Freight Rail. The activities include receiving of coal product by truck over a weighbridge, coal stockpiling, and shunting and loading of the washed coal product. Other activities include dust suppression and general housekeeping such as grading roads and cleaning coal spillage around the rail line.

Due to the Broodsniersplaas siding being operational before the promulgation of the Environmental Conservation Act, 1989, no Environmental Authorisation has been applied for by the former South African Railways. Puleng Resources (Pty) Ltd is applying for an Environmental Impact Assessment in terms of the National Environmental Management Act, 1998 (Act No 107 of 1998) (as amended).



## 5.1 Item 3(d)(i) of Appendix 3: Listed and Specified Activities

The listed activities that are triggered are contained in **Table 5-1** below.

**Table 5-1: Triggered Listed activities**

NAME OF ACTIVITY	Extent of the Activity Ha or m <sup>2</sup>	ACTIVITY or affected	NOTICE (GNR 983, GNR 984 or GNR 985)/ NOT LISTED
Activity associated with the upgrading of the Broodsnyersplaas Siding and the associated access road within areas with indigenous vegetation.	7.4 ha	Activity 27	GNR 983 Notice 1
Broodsnyersplaas Siding will be subject to a Water Use License Authorisation in terms of the NWA	7.4 ha	Activity 34	GNR 983 Notice 1
A Water Use License in terms of the NWA will be required.	7.4 ha	Activity 6	GNR 984 Notice 2
Puleng Resources will be applying for the construction of a coal washing/screening plant on the expansion area.	7.4 ha	Activity 19	GNR 984 Notice 2

## 5.2 Item 3(d)(ii): Description of the Activities to be Undertaken

The activities which take place at the siding include receiving of coal product by truck over a weighbridge for multiple customers, stockpiling the coal on the siding for different customers prior to dispatch on rail, shunting coal product by truck from stockpiles to the siding lip, loading coal product using front end loaders into TFR wagons and then the train is released from the siding to its destination which is primarily RBCT, but an application to supply Eskom on rail from the siding is an option. Other activities include dust suppression and general housekeeping such as grading roads and cleaning coal spillage around the rail line

### 5.2.1 Mineral Resources and Life of Mine

As this is not a mining related project, the Life of Mine is not relevant. The mineral resource, coal, will be transported to the siding for further transportation by means of railway to the relevant markets.

### 5.2.2 Mining Method

There is no mining involved at the Broodsnyersplaas Project.

### 5.2.3 Power Supply

The siding has already been supplied with Eskom Power from the nearby Komati Power Station.

## 6. ITEM 3(e): POLICY AND LEGISLATIVE CONTEXT

**Table 6-1: Relevant environmental legislation**

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE POLICY AND LEGISLATIVE CONTEXT
The Constitution of the Republic of South Africa (Act No. 108 of 1996)	In terms of Section 24 of the Constitution of the Republic of South



	<p>Africa (Act No.108 of 1996), everyone has the right to an environment that is not harmful to their health or well-being and to have the environment protected, for the benefit of present and future generations, through reasonable legislation and other measures that prevent pollution and ecological degradation, promote conservation and secure ecologically sustainable development and use of natural resources while prompting justifiable economic and social development. The needs of the environment, as well as affected parties, should thus be integrated into overall project management in order to fulfil the requirements of Section 24 of the Constitution.</p>
<p>National Environmental Management Act (Act No. 107 of 1998)</p>	<p>The NEMA, as amended, contains a set of principles in Chapter 2 that govern environmental management. These principles must be adhered to and taken into consideration during the EA Application as well as all the life cycle phases of the proposed project.</p> <p>The applicant and current application triggers listed activities that are being applied for in this regard.</p>
<p>EIA Regulations GN R543 of 18 June 2010</p>	<p>The EIA Regulations (GN R543 of 18 June 2010) were promulgated in terms of Section 24 of the NEMA, to manage the process, methodologies and requirements for the undertaking of an application for an EA as stipulated in Section 24 of NEMA. GN R543 of 18 June 2010 stipulates that the applicant must appoint an independent EAP to manage the application process for EA where a development constitutes activity/ies listed in terms of GN R544, GN R545 and/or GN R546 of 18 June 2010.</p> <p>Based on the regulatory requirements, a 'full' EIA process is to be undertaken in order to meet the requirements.</p>
<p>NEMA Listing Notices</p>	<p>Listing Notice 1 (GN R.983)</p> <ul style="list-style-type: none"> <li>• Activity 27</li> <li>• Activity 34</li> </ul> <p>Listing Notice 2 (GN R.984)</p> <ul style="list-style-type: none"> <li>• Activity 6</li> <li>• Activity 19</li> </ul> <p>Based on the regulatory requirements, a 'full' EIA process is to be undertaken</p>





<p>National Environmental Management: Biodiversity Act (Act No. 10 of 2004)</p>	<p>in order to meet the requirements.</p> <p>In line with the Convention on Biological Diversity, the National Environmental Management: Biodiversity Act (Act No. 10 of 2004) (NEM: BA) aims to legally provide for biodiversity conservation, sustainable use and equitable access and benefit sharing. NEM: BA creates a basic legal framework for the formation of a national biodiversity strategy and action plan and the identification of biodiversity hotspots and bio-regions which will then be given legal recognition. It imposes obligations on landowners (state or private) governing alien invasive species as well as regulates the introduction of genetically modified organisms.</p> <p>A National List of Threatened Ecosystems for South Africa was gazetted on 9 December 2011, considering the data, it was found that the site is situated within the Eastern Highveld Grassland vegetation unit (Mucina &amp; Rutherford, 2006), which is classed as Vulnerable. During the specialist investigation phase it was found that the area of expansion does not represent pristine habitat but rather degraded and non-natural vegetation.</p>
<p>National Environmental Management: Air Quality Act (Act No. 39 of 2004)</p>	<p>The National Environmental Management: Air Quality Act (Act No. 39 of 2004) (NEM: AQA) was implemented on 24 February 2005 and reforms the law regulating air quality in order to protect the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development while promoting justifiable economic and social development; to provide for national norms and standards regulating air quality monitoring, management and control by all spheres of government; for specific air quality measures; and for matters incidental thereto.</p> <p>On 22 November 2013 the list of activities which result in atmospheric emissions which have or may have a significant detrimental effect on the</p>



	<p>environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage was published under GN 893 of 22 November 2013.</p> <p>The proposed coal stockpile area will not trigger the minimum emissions standards as stipulated under subcategory 5.1 of GN 893 of 22 November 2013.</p> <p>On 1 November 2013 the National Dust Control Regulations were published under GN R827. The dust fall rate for non-residential areas should less than 1200 mg/m<sup>2</sup>/day measured over 30 days. In order to comply with this, the applicant will do continuous dust suppression and monitoring.</p>
<p>National Water Act (Act No. 36 of 1998)</p>	<p>The National Water Act (Act No. 36 of 1998) (NWA) is the primary regulatory legislation, controlling and managing the use of water resources as well as the pollution thereof. The NWA provides for fundamental reformation of legislation relating to water resource use.</p> <p>In order to comply with the NWA, the applicant is also applying for several Section 21 water uses under full license conditions. These water uses include Section 21 a, c, i, and g.</p>
<p>National Heritage Resources Act (Act No. 25 of 1998)</p>	<p>Aspects concerning the conservation of cultural resources are dealt with mainly in two Acts. These are the National Heritage Resources Act (Act 25 of 1999) and the National Environmental Management Act (Act 107 of 1998).</p> <p>A Heritage Impact Assessment (HIA) was followed and it was found that no structures, human remains, archaeological, palaeontological or meteorite sites will be disturbed or impacted by the proposed activities.</p>
<p>Conservation of Agricultural Resources Act (Act No. 43 1983)</p>	<p>The Conservation of Agricultural Resources Act (Act No. 43 of 1983) (CARA) aims to provide for control over the utilisation of natural agricultural resources in order to promote the conservation soil, water resources and vegetation and to combat weeds and invader</p>



	<p>plants. The CARA makes provision for control measures to be applied in order to achieve the objectives of the CARA. The applicant should take cognisance of the requirements of the Act.</p>
<p>Mpumalanga Conservation Act (Act No. 10 of 1998)</p>	<p>The Mpumalanga Conservation Act (Act No. 10 of 1998) aims to consolidate and amend the laws relating to nature conservation within the Province and to provide for matters connected thereof. Chapter 2 (hunting of wild animals), Chapter 6 (picking of indigenous plants) and Chapter 7 (removal of endangered of rare species from the Province) of this act could be applicable if these activities take place by employees, contractors or sub-contractors employed by Puleng Resources during the construction, operational and decommissioning phase of the Broodsnierplaas Coal Siding.</p>
<p>Guidelines</p>	<p>Mpumalanga Biodiversity Conservation Plan, 2007;  Nkangala Integrated Development Plan (IDP);  Nkangala Spatial Development Framework (SDF);  Steve Tshwete SDF;  Emakhazeni SDF;  Mpumalanga Environmental Implementation Plan, 2001;  Mpumalanga State of the Environment Report. 2003;  Department of Environmental Affairs and Tourism (DEAT). 2002. Integrated Environmental Management, Information series 2: Scoping.  Department of Environmental Affairs and Tourism (DEAT. 2002);  Department of Environmental Affairs (DEA). 2012. Companion to the EIA Regulations 2010, Integrated Environmental Management Guideline Series 5, Companion to the NEMA EIA Regulations of 2010, Department of Environmental Affairs;  DEA 2012. Companion to the EIA Regulations 2010, Integrated Environmental Management Guideline Series 7, Public Participation, Department of Environmental Affairs;  DEAT. 2002. Integrated Environmental Management, Information Series 12: Environmental Management Programmes. Department of Environmental Affairs and Tourism</p>



	(DEAT. 2002); DEA. 2012. Draft guideline on need and desirability in terms of the environmental impact assessment (EIA) regulations, 2010.
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## **7. ITEM 3(f): NEED AND DESIRABILITY OF THE PROPOSED ACTIVITIES**

### **7.1 Economic Consideration**

Coal is valued for its energy content, and, has been widely used to generate electricity. Coal mining has had many developments over the recent years, from the early days of men tunnelling, digging and manually extracting the coal on carts, to large open cut and long wall mines. Mining at this scale requires the use of draglines, trucks, conveyors, jacks and shearers. It is therefore important that these coal reserves are in regular supply at affordable prices, close to the point of consumption. The Broodsniersplaas Siding Project will fulfil the need to transport the coal by rail to the markets where needed. By utilizing the railway network the congestion of heavy haul trucks on the national road grid will be reduced.

### **7.2 Social Consideration**

The social benefits for the Broodsniersplaas Siding project include positive contribution towards the creation of job opportunities within the Municipality. Therefore, the local economy will benefit through provision/creation of employment opportunities for the local community. These opportunities will have a positive effect on the broader value chain extending to suppliers of goods and services from nearby towns

### **7.3 Environmental Consideration**

The current project is not one directly related to protection or conservation and as such does not directly related to environmental desirability. Rather the monitoring programmes recommended for the project could fill a need of the regulatory authorities by providing long term data on the surrounding environment, while the specific mitigation measures will promoted environmental sustainability.

## **8. ITEM 3(g): MOTIVATION FOR THE PREFERRED DEVELOPMENT FOOTPRINT**

### **8.1 Item 3(g)(i): Details of the Development Footprint Alternatives Considered**

#### **8.1.1 Design and Layout of the Project**

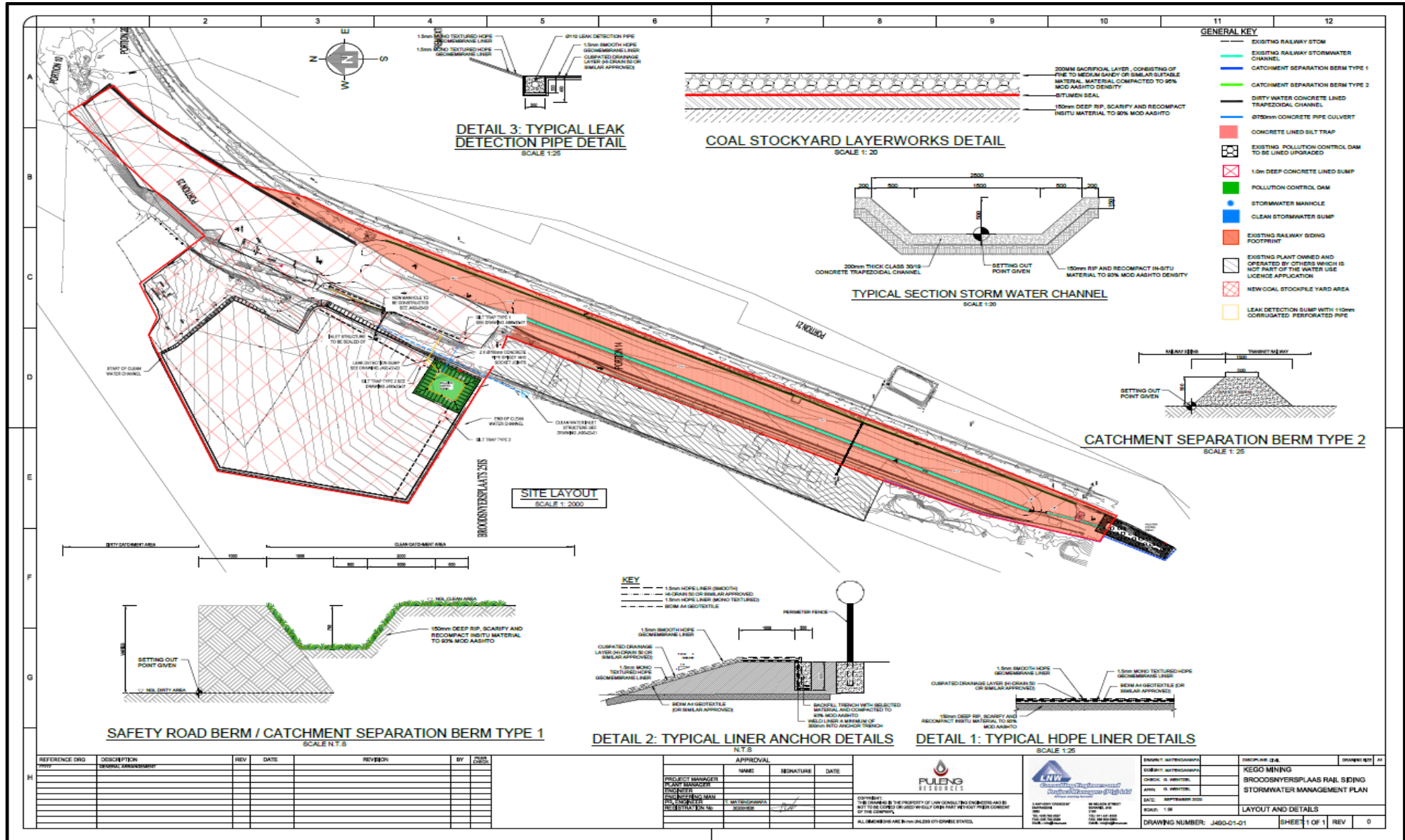


Figure 8-1: Design layout of the Project



### 8.1.2 Mining Method Alternatives

As the project is none mining related, no alternative mining methods had been considered.

### 8.1.3 Transportation of Coal

The coal siding at Broodsniersplaas is an existing siding that is currently being enlarged to cater for the increased demand for coal transportation.

### 8.1.4 Routing Alternatives

No routing alternatives were considered for the current project.

### 8.1.5 "No-Go" Alternative

The "No-Go" option was not considered for this project as there is an already existing infrastructure to be utilised.

## 9. ITEM 3(g)(ii): DETAILS OF PUBLIC PARTICIPATION PROCESS

### 9.1 Stakeholder Identification

The stakeholders were identified by means of the placement of a legal notice in the Local Newspaper on the 24<sup>th</sup> of February 2023. All IAP's who responded to the advertisement received a Background Information Document (BID). In addition pre-determined IAPs were send a letter including a BID and comment sheet informing them about the proposed project as well as inviting them to register.

Please refer to Appendix B for the PPP followed.

### 9.2 Consultation with Stakeholders during Scoping Phase

At the time of completing this Final Scoping Report, the following comments on the draft Scoping Report have been received and incorporated:

I&AP	Comment	Response
Mpumalanga Department: Agriculture, Rural Development, Land and Environmental Affairs (MDARDLEA)	<p>You may proceed with the submission of the Final Scoping Report in accordance to Regulation 21 of NEMA.</p> <p>Please take note of the following:</p> <ul style="list-style-type: none"> <li>Inclusion of lease agreement between the applicant as well as the land owners Transnet Freight Rail and the Farm owner;</li> <li>Inclusion of comments from all identified I&amp;AP's including MPTA as well;</li> <li>Detailed Stormwater Management Plan considering the nature of the</li> </ul>	<p>Thank you for your comments. Please refer to the below response:</p> <ul style="list-style-type: none"> <li>Lease agreements between all the relevant parties have been included in the Final Scoping Report and will form part of the EIA, EMP as well as the Water Use License Application which is running in parallel to the current application.</li> <li>All comments have been included and MPTA has been</li> </ul>



	<p>activity, the Hydrology study attached on page 13-14 of the report that indicated (pH, turbidity and water quality of the Koring Spruit) being impacted already due to evident pollution;</p> <ul style="list-style-type: none"> <li>• Accuracy of the co-ordinates for weather station located in Witbank;</li> <li>• Appendix 4, paragraph 1(1)(c) with respect to the requirements for the inclusion of a map in the EMPr.</li> </ul> <p>Please refer to <b>Section A1</b> for the comment received from MDARDLEA.</p>	<p>contacted for input.</p> <ul style="list-style-type: none"> <li>• Final SWMP has been included.</li> <li>• Weather station information has been checked and verified.</li> <li>• A Master Layout Plan complying with the specifications mentioned has been included in the EIR and EMPr.</li> </ul> <p>Please refer to <b>Section A2</b> for the Response Letter sent to MDARDLEA.</p>
<p>Department of Water and Sanitation  (DWS)</p>	<p>The Department acknowledges the receipt of the abovementioned report and the comments are as follows:</p> <ol style="list-style-type: none"> <li>1. Stockpile: It is stated in the report that the siding receives coal product by truck over a weighbridge from multiple customers and stockpile the siding prior to dispatch on rail. The applicant should note that the activity constitutes a water use in terms of section 21 of the National Water Act, (Act No 36 of 1998), an application should be lodged on ewulaas.</li> <li>2. Dust Suppression: It is also stated in the report that dust suppression is conducted on site. The applicant should note that the activity constitutes a water use in terms of section 21 of the National Water Act, (Act No 36 of 1998).</li> <li>3. It is further stated in the report that the proposed project is within the Olifants River Catchment, surrounded by wetlands and drained by the Koring Spruit. The applicant should note that activities within 500m from a watercourse constitute a water use in terms of section 21 of the National Water Act, (Act No 36 of 1998).</li> <li>4. The applicant shall conduct a preliminary legal assessment to</li> </ol>	<p>Thank you for your comments. Please refer to the below responses:</p> <ol style="list-style-type: none"> <li>1. All stockpile areas have been included in the water use license application that is being run in parallel.</li> <li>2. Dust suppression has been included in the water use license application that is being run in parallel.</li> <li>3. Section 21 (c&amp;i) water uses have been included in the water use license application that is being run in parallel.</li> <li>4. All pre-application procedural processes have been complied with in terms of the water use license application.</li> <li>5. A full SWMP has been compiled and signed off by an ECSA Accredited Civil Engineer.</li> <li>6. As part of the Water Use License Application, an independent Public Participation Process has been undertaken during which no previously identified I&amp;AP provided comments.</li> </ol>



	<p>identify all the water use activities associated with the proposed project that will require authorisation by the DWS and the applicant is hereby referred to Section 22(1) of the National Water Act, (Act No 36 of 1998).</p> <p>5. Stormwater Management: The applicant is advised to refer to best practice guidelines G1: Stormwater Management available on <a href="http://www.dws.gov.za">www.dws.gov.za</a>.</p> <p>6. Public Participation: The applicant should note that this is one of the critical requirements when processing a water use authorisation application and it shall be done as per "Regulations Regarding Procedural Requirements for Water Use Licence Applications and Appeals".</p> <p>7. The applicant is referred to Section 19(1) of the National Water Act and to report any pollution incidents originating from the proposed project to the Provincial Office of DWS within 24 hours.</p> <p>8. The applicant is advised not to commence with any water use activities before obtaining a Water Use Authorisation. Commencement with water use activities without authorisation is the contravention of section 151 of the National Water Act.</p> <p>Please refer to <b>Section A3</b> for the comment received from DWS.</p>	<p>7. Noted.</p> <p>8. Noted.</p> <p>Please refer to <b>Section A4</b> for the Response Letter sent to DWS.</p>
<p>Nkangala District Municipality</p>	<p>The Nkangala District Municipality's role with regards to Basic Assessments and Environmental Impact Assessments has both the geographic jurisdiction in the area and has an interest in respect of amongst other certain powers and functions in terms of inter alia, the Municipal Systems Act 117 of 1998, National Health Act 61 of 2003, National Environmental Management Act 107 of 1998 and National Environmental</p>	<p>a) Dust control measures and mitigation as included in the EIA and EMP reports are aligned with the said act.</p> <p>b) Dust monitoring and control has been included in the EIA and EMP as well as the parallel Water Use License Application report (WULAR).</p> <p>c) Same as above.</p> <p>d) Dust fallout report will be</p>





	<p>Management Act 39 of 2004. Municipality has a reasonability to comment on applications or even object to the development with valid reasons.</p> <p>This District has no objection to the approval of the above-mentioned project. However, the following must be considered.</p> <p>a) According to dust control regulations promulgated in terms of Section 32 of the NEM:AQA, 2004 (Act No. 39 of 2004);</p> <p>b) The owner/lessee of the proposed project must take all reasonable measures to monitor and control dust from all operations to mitigate against the risk of harm to human health and the environment;</p> <p>c) The owner/lessee must monitor the dust fall out monitoring and report monthly to the Authority as per the National Dust Control Regulations, 2013;</p> <p>d) A schedule for dust fall monitoring reports should be submitted to the Air Quality Officer, on a monthly basis;</p> <p>e) All mitigation measures must be implemented and adhered to i.e. Dust suppression by watering on the surface during operational phase to avoid fugitive particulate matter emissions.</p> <p><b>Dust fall standards</b></p> <p>1. Prescribed dust fall rates for residential and non-residential areas are set out in table –</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Restriction Areas</th> <th style="text-align: center;">Dust fall rate (D) (mg/m<sup>2</sup>/day, 30-days average)</th> <th style="text-align: center;">Permitted frequency of exceeding dust fall rate*</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Residential area</td> <td style="text-align: center;">D &lt; 600</td> <td style="text-align: center;">Twice within a year, however not occurring on sequential months.</td> </tr> <tr> <td style="text-align: center;">Non-residential area</td> <td style="text-align: center;">D ≤ 1200</td> <td style="text-align: center;">Twice within a year, however not occurring on sequential months.</td> </tr> </tbody> </table> <p>*Applicable only to activities implementing annual dust fall monitoring programmes.</p>	Restriction Areas	Dust fall rate (D) (mg/m <sup>2</sup> /day, 30-days average)	Permitted frequency of exceeding dust fall rate*	Residential area	D < 600	Twice within a year, however not occurring on sequential months.	Non-residential area	D ≤ 1200	Twice within a year, however not occurring on sequential months.	<p>submitted accordingly and has been included as such in the monitoring programme, EIA and EMP as well as the WULAR.</p> <p>e) Noted and included as per above.</p> <p><b>Dust fall standards</b></p> <p>1. Noted. Comparative monitoring will be done on these standards.</p> <p><b>Implementation of a dust management plan</b></p> <p>2. Noted.</p> <p><b>Concerns:</b></p> <p>Please note that there are coal stockpiles stored on the siding area. The application is merely for a coal siding with the potential for a coal wash plant in the future. No mining activities are present on site or relevant to the application.</p> <p>Between Jan 2021 to end July 2021, Puleng Resources (Pty) Ltd have railed 787 760 tons, which amount to approximately 120 000 tons per month which is 3 530 trucks per month (34 tons per truck) so 118 trucks per day (30 days per month), overall 3.5 trains per week.</p> <p>Please note that the current application is for an EIA, not a Basic Assessment. The Draft EIA will be provided to you as part of the application process.</p> <p>Please refer to <b>Section A6</b> for the Response Letter sent to Nkangala District Municipality.</p>
Restriction Areas	Dust fall rate (D) (mg/m <sup>2</sup> /day, 30-days average)	Permitted frequency of exceeding dust fall rate*									
Residential area	D < 600	Twice within a year, however not occurring on sequential months.									
Non-residential area	D ≤ 1200	Twice within a year, however not occurring on sequential months.									



	<p><b>Implementation of a dust management plan</b></p> <p>2. Any person who has exceeded the prescribed dust fall rates set out above must–</p> <p>(1) Implement a dust management plan</p> <p>(2) Within three months after submission of a first dust fall monitoring report, submit a dust management plan to an Air Quality Officer.</p> <p>Our concerns are as follows:</p> <ul style="list-style-type: none"> <li>• We note that the above proposed project provide for;</li> <li>• Mineral processing, storage and handling of coal;</li> <li>• We need to know that the storage and handling of coal it is situated on the premises of a mine or not; and</li> <li>• Please provide the total storage capacity of coal per month that will be stored and handled on-site.</li> </ul> <p>As soon as the Basic Assessment Report is available, kindly share with the Local and District Municipality as well.</p> <p>Please refer to <b>Section A5</b> for the comment received from the Nkangala District Municipality.</p>	
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### **9.2.1 Landowner One-on-One Meeting**

In-house meetings and engagements with the relevant landowner took place prior to commencement with the application process. The lease agreement between the parties refers to the consent given. No additional requirements or conditions were imposed by the landowner on the development.

### **9.2.2 Community Meeting**

During the Scoping Phase of the application process no I&AP registered formally or informally and as such no meeting was held.

### **9.2.3 Public Meeting**

During the Scoping Phase of the application process no I&AP registered formally or informally and as such no meeting was held.

## **9.3 Consultation with Stakeholders during EIA Phase**

This process is underway and as such this EIA report should be regarded as a draft report.



#### 9.4 Item 3(g)(iv): Summary of Issues Raised by I&Aps

Please refer to **Table 9-1** for a summary of the issues and concerns raised by Interested and Affected Parties during the Public Participation Process. Please note that the comments raised to date were during the Scoping Phase and that the EIA Public Participation Process is still underway. The table below will reflect all comments received in the final EIA Report.



Table 9-1: Summary of issues raised by I&APs

Interested and Affected Parties		Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated
<b><u>AFFECTED PARTIES</u></b>					
<b>Landowner/s</b>	<input type="checkbox"/>				
	<input type="checkbox"/>				
<b>Lawful occupier/s of the land</b>	<input type="checkbox"/>				
	<input type="checkbox"/>				
<b>Landowners or lawful occupiers on adjacent properties</b>	<input type="checkbox"/>				
	<input type="checkbox"/>				
	<input type="checkbox"/>				
<b>Municipal councillor</b>	<input type="checkbox"/>				
<b>Municipality</b>	<input checked="" type="checkbox"/>		The Nkangala District Municipality's role with regards to Basic Assessments and Environmental Impact Assessments has both the geographic jurisdiction in the area and has an interest in respect of amongst other certain powers and functions in terms of inter alia, the Municipal Systems Act 117 of 1998, National Health Act 61 of 2003, National Environmental Management Act 107 of 1998 and National Environmental Management Act 39 of 2004. Municipality has a reasonability to comment on applications or even object	a) Dust control measures and mitigation as included in the EIA and EMP reports are aligned with the said act. b) Dust monitoring and control has been included in the EIA and EMP as well as the parallel Water Use License Application report (WULAr). c) Same as above. d) Dust fallout report will be submitted accordingly and has been included as such in the monitoring programme, EIA	



		<p>to the development with valid reasons.</p> <p>This District has no objection to the approval of the above-mentioned project. However, the following must be considered.</p> <p>f) According to dust control regulations promulgated in terms of Section 32 of the NEM:AQA, 2004 (Act No. 39 of 2004);</p> <p>g) The owner/lessee of the proposed project must take all reasonable measures to monitor and control dust from all operations to mitigate against the risk of harm to human health and the environment;</p> <p>h) The owner/lessee must monitor the dust fall out monitoring and report monthly to the Authority as per the National Dust Control Regulations, 2013;</p> <p>i) A schedule for dust fall monitoring reports should be submitted to the Air Quality Officer, on a monthly basis;</p> <p>j) All mitigation measures must be implemented and adhered to i.e. Dust suppression by watering on the surface during operational phase to avoid fugitive particulate matter emissions.</p> <p><b>Dust fall standards</b></p> <p>3. Prescribed dust fall rates for residential and non-residential areas are set out in table -</p> <table border="1" data-bbox="898 1406 1406 1441"> <thead> <tr> <th>Restric</th> <th>Dust</th> <th>fall</th> <th>Permitted</th> </tr> </thead> </table>	Restric	Dust	fall	Permitted	<p>and EMP as well as the WULAR.</p> <p>e) Noted and included as per above.</p> <p><b>Dust fall standards</b></p> <p>3. Noted. Comparative monitoring will be done on these standards.</p> <p><b>Implementation of a dust management plan</b></p> <p>4. Noted.</p> <p><b>Concerns:</b></p> <p>Please note that there are coal stockpiles stored on the siding area. The application is merely for a coal siding with the potential for a coal wash plant in the future. No mining activities are present on site or relevant to the application.</p> <p>Between Jan 2021 to end July 2021, Puleng Resources (Pty) Ltd have railed 787 760 tons, which amount to approximately 120 000 tons per month which is 3 530 trucks per month (34 tons per truck) so 118 trucks per day (30 days per month), overall 3.5 trains per week.</p> <p>Please note that the current application is for an EIA, not a Basic Assessment. The Draft EIA will be provided to you as part of the application process.</p>	
Restric	Dust	fall	Permitted					



Location Areas	Dust rate (D) (mg/m <sup>2</sup> /day, 30-days average)	Frequency of exceeding dust fall rate*
Residential area	D < 600	Twice within a year, however not occurring on sequential months.
Non-residential area	D ≤ 1200	Twice within a year, however not occurring on sequential months.
*Applicable only to activities implementing annual dust fall monitoring programmes.		
<p><b>Implementation of a dust management plan</b></p> <p>4. Any person who has exceeded the prescribed dust fall rates set out above must-</p> <ul style="list-style-type: none"> <li>(3) Implement a dust management plan</li> <li>(4) Within three months after submission of a first dust fall monitoring report, submit a dust management plan to an Air Quality Officer.</li> </ul> <p>Our concerns are as follows:</p> <ul style="list-style-type: none"> <li>• We note that the above proposed project provide for;</li> <li>• Mineral processing, storage and handling of coal;</li> <li>• We need to know that the storage</li> </ul>		



			<p>and handling of coal it is situated on the premises of a mine or not; and</p> <ul style="list-style-type: none"> <li>Please provide the total storage capacity of coal per month that will be stored and handled on-site.</li> </ul> <p>As soon as the Basic Assessment Report is available, kindly share with the Local and District Municipality as well.</p> <p>Please refer to <b>Section A5</b> for the comment received from the Nkangala District Municipality.</p>		
<b>Organs of state</b>					
Department of Water and Sanitation	<input checked="" type="checkbox"/>		<p>The Department acknowledges the receipt of the abovementioned report and the comments are as follows:</p> <ol style="list-style-type: none"> <li>Stockpile: It is stated in the report that the siding receives coal product by truck over a weighbridge from multiple customers and stockpile the siding prior to dispatch on rail. The applicant should note that the activity constitutes a water use in terms of section 21 of the National Water Act, (Act No 36 of 1998), an application should be lodged on ewulaas.</li> <li>Dust Suppression: It is also stated in the report that dust suppression is conducted on site. The applicant should note that the activity constitutes a water use in terms of section 21 of the</li> </ol>	<p>Thank you for your comments. Please refer to the below responses:</p> <ol style="list-style-type: none"> <li>All stockpile areas have been included in the water use license application that is being run in parallel.</li> <li>Dust suppression has been included in the water use license application that is being run in parallel.</li> <li>Section 21 (c&amp;i) water uses have been included in the water use license application that is being run in parallel.</li> <li>All pre-application procedural processes have been complied with in terms of the water use license application.</li> </ol>	



			<p>National Water Act, (Act No 36 of 1998).</p> <p>3. It is further stated in the report that the proposed project is within the Olifants River Catchment, surrounded by wetlands and drained by the Koring Spruit. The applicant should note that activities within 500m from a watercourse constitute a water use in terms of section 21 of the National Water Act, (Act No 36 of 1998).</p> <p>4. The applicant shall conduct a preliminary legal assessment to identify all the water use activities associated with the proposed project that will require authorisation by the DWS and the applicant is hereby referred to Section 22(1) of the National Water Act, (Act No 36 of 1998).</p> <p>5. Stormwater Management: The applicant is advised to refer to best practice guidelines G1: Stormwater Management available on <a href="http://www.dws.gov.za">www.dws.gov.za</a>.</p> <p>6. Public Participation: The applicant should note that this is one of the critical requirements when processing a water use authorisation application and it shall be done as per "Regulations Regarding Procedural Requirements for Water Use</p>	<p>5. A full SWMP has been compiled and signed off by an ECSA Accredited Civil Engineer.</p> <p>6. As part of the Water Use License Application, an independent Public Participation Process has been undertaken during which no previously identified I&amp;AP provided comments.</p> <p>7. Noted.</p> <p>8. Noted.</p>	
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			<p>Licence Applications and Appeals”.</p> <p>7. The applicant is referred to Section 19(1) of the National Water Act and to report any pollution incidents originating from the proposed project to the Provincial Office of DWS within 24 hours.</p> <p>The applicant is advised not to commence with any water use activities before obtaining a Water Use Authorisation. Commencement with water use activities without authorisation is the contravention of section 151 of the National Water Act.</p>		
	<input type="checkbox"/>				
	<input type="checkbox"/>				
	<input type="checkbox"/>				
<b>Communities</b>					
	<input type="checkbox"/>				
	<input type="checkbox"/>				
	<input type="checkbox"/>				
	<input type="checkbox"/>				
<b>Dept. Land Affairs</b>					
	<input type="checkbox"/>				
<b>Traditional Leaders</b>					
	<input type="checkbox"/>				
	<input type="checkbox"/>				
<b>Dept. Environmental Affairs</b>					
MDARDLEA	<input checked="" type="checkbox"/>		<p>You may proceed with the submission of the Final Scoping Report in accordance to Regulation 21 of NEMA.</p> <p>Please take note of the following:</p>	<p>Thank you for your comments. Please refer to the below response:</p> <ul style="list-style-type: none"> <li>Lease agreements between all the relevant parties have</li> </ul>	



			<ul style="list-style-type: none"> <li>Inclusion of lease agreement between the applicant as well as the land owners Transnet Freight Rail and the Farm owner;</li> <li>Inclusion of comments from all identified I&amp;AP's including MPTA as well;</li> <li>Detailed Stormwater Management Plan considering the nature of the activity, the Hydrology study attached on page 13-14 of the report that indicated (pH, turbidity and water quality of the Koring Spruit) being impacted already due to evident pollution;</li> <li>Accuracy of the co-ordinates for weather station located in Witbank;</li> </ul> <p>Appendix 4, paragraph 1(1)(c) with respect to the requirements for the inclusion of a map in the EMPr.</p>	<p>been included in the Final Scoping Report and will form part of the EIA, EMP as well as the Water Use License Application which is running in parallel to the current application.</p> <ul style="list-style-type: none"> <li>All comments have been included and MPTA has been contacted for input.</li> <li>Final SWMP has been included.</li> <li>Weather station information has been checked and verified.</li> </ul> <p>A Master Layout Plan complying with the specifications mentioned has been included in the EIR and EMPr.</p>	
<b>Other Competent Authorities affected</b>					
	<input type="checkbox"/>				
	<input type="checkbox"/>				
	<input type="checkbox"/>				
<b><u>OTHER AFFECTED PARTIES</u></b>					
<b><u>INTERESTED PARTIES</u></b>					



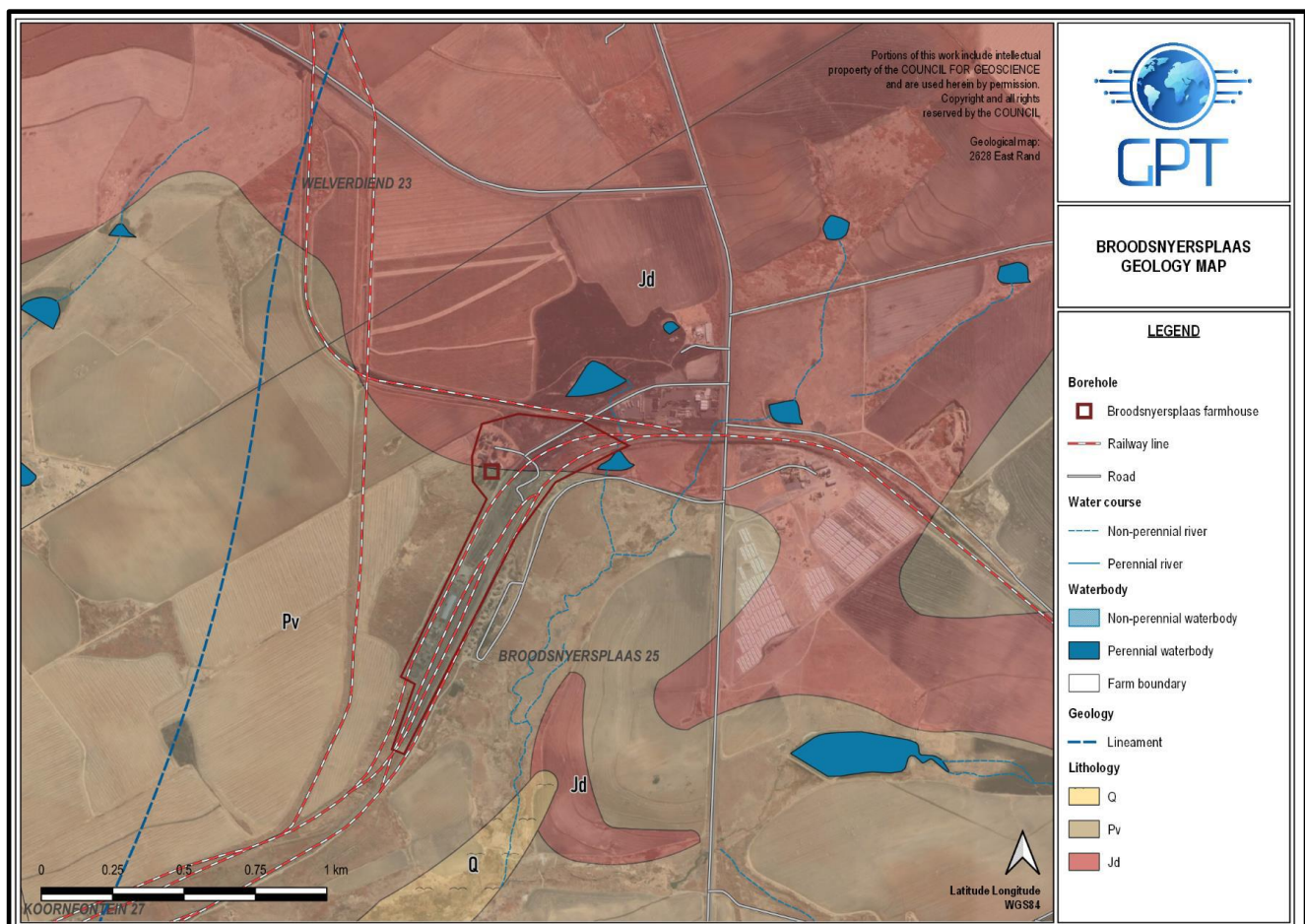



## 10. ITEM 3(g)(iv): ENVIRONMENTAL ATTRIBUTES ASSOCIATED WITH THE DEVELOPMENT

### 10.1 Type of Environment Affected by Proposed Activity

#### 10.1.1 Regional Geology

The investigated area falls within the 2628 East Rand 1:250 000 geology series maps. An extract of these maps is shown in **Figure 10-1**.



**Figure 10-1: Regional Geology Map (1:250 000)**

The study area falls within the Vryheid Formation of the Ecca Group as well as a dolerite sill towards the north of the study area. The rocks of the Vryheid Formation consist mainly of sandstone, shale and coal beds.

According to the 1:500 000 Hydrogeological Map, the Vryheid Formation comprising predominantly of thick beds of yellowish to white cross-bedded sandstone and grit alternating with beds of soft sandy shale, this unit also contains the coal seams that underpin the coal mining activities in the eastern and southern portions of the map area. The sedimentary rocks are, however, so extensively and widely intruded by dolerite sheets and dykes that the two lithologies are considered to represent a single groundwater system. Vegter et al (1968) list six different modes of groundwater occurrence associated with these formations. These are (a) weathered and fractured sedimentary rocks not associated with dolerite intrusions, (b) indurated and jointed sedimentary rocks alongside dykes, (c) narrow weathered and fractured dolerite dykes, (d) basins of weathering in dolerite sills and highly jointed sedimentary rocks enclosed by dolerite sills and (f) weathered and fractured lower contact-zones of dolerite sills. Minor



groundwater strikes are also often encountered in association with the coal seams (Visser et al 1949).

### 10.1.2 Regional Climate

Regional climatic data was obtained from the weather station situated in Emalahleni. The proposed siding site is located in the summer rainfall region of Southern Africa with precipitation usually occurring in the form of convectional thunderstorms. The average annual rainfall (measured over a period of 70 years) is approximately 697.3 mm, with the high rainfall months between November and April. Recharge is estimated at an average of 3.5% of annual rainfall, i.e. 25 mm/a. The climatic data for the project area is presented in **Table 10-1**.

**Table 10-1: Climatic data for Broodsniersplaas**

Month	Average monthly rainfall (mm)	Mean Monthly Evaporation (mm)
January	127.5	166.3
February	92.1	139.4
March	73.1	130.6
April	40.4	97.6
May	14.1	79.9
June	6.0	65.7
July	3.0	72.2
August	8.3	98.6
September	21.2	136.7
October	76.3	163.2
November	120.4	158.7
December	115.5	164.2
<b>Annual</b>	<b>697.3</b>	<b>1476.7</b>

### 10.1.3 Soil, Land Use and Land Capability

The fertility status of the soils in the project area is generally considered moderate to high. The site had low soil pH and there is a possibility that the soils could further acidify due to the acidic nature of the coal material to be stockpiled on site. Need to add lime to remedy soil acidity. All of the soil samples collected on the site show the profile of Ca>Mg>K>>Na concentrations as expected. Soils had low organic carbon levels. Agricultural activities in the region of the project area are dominant with coal mining and processing also present within the greater areas. The area earmarked for expansion has very limited agricultural potential and at this point is unusable land for the property owner. As such, the land use of the expansion area will not be negatively affected.

### 10.1.4 Surface Water

#### 10.1.4.1 Affected River Basin

The surface water assessment was conducted during September 2021 by Menco and forms part of EIA phase of the project. The surface water assessment study is attached as **Appendix C**. The project area falls within the Olifant River catchment upstream of the Witbank Dam with a mean annual flow of 10,780 Mm<sup>3</sup> (Midgeley et al. 1994). The delineation and drivers of ecological change of the Upper Olifants River basin is contained in **Table 10-2**.

**Table 10-2: Olifants River Basin**

Water Management Region	Secondary Catchment	Tertiary Catchment	Quaternary Catchment	Description of Tertiary Catchment
Upper Olifants River	B1	1	A to L (11)	Olifants upstream of Loskop
		2	A to E (5)	Klein Olifants
	B2	0	A to J (9)	Wilge River

**Table 10-3: Total annual water demand in the Olifants River Catchment in 1995 (source, DWAF, 2002)**

Sector	Water Demand (Mm <sup>3</sup> )	
	Mm <sup>3</sup>	% of total
Irrigation	540.3	54
Power Generation	160.2+	16
Urban Water Supply	117.8	12
Mining/Industrial	94.3	9
Afforestation	55.4	6
Stock Watering	27.8	3
Total	<b>995.8</b>	

#### 10.1.4.2 Resource Classification and Reserve

Water quality in the Olifant River Basin is considered to be in a crisis, both in terms of quantity as well as quality. The Department of Water Affairs has conducted a comprehensive Reserve determination (DWAF, 2001) for the Upper Olifants River. The study has revealed that the Olifants River has an overall Ecological Class C classification (refer to **Table 10-4**).

As part of the resource characterization for the project area a Bio-monitoring assessment was done incorporating the indices of SASS5 and IHAS to support the classification as contained in **Table 10-5**. The Bio-monitoring report is included as **Appendix D**.

**Table 10-4: River characterization of water resources within study area**

Component	Koringspruit	Olifants River
River order	1	3
Quaternary catchment	B11B	B12B
Class	Perennial	Perennial
PES (NSBA)	D	D
PES (DWA)	C	C
EIS (DWA)	Moderate	Moderate
Conservation status (NSBA)	Critically endangered	Critically endangered

The Resource Quality Objectives (RQO) applicable for an Ecological Class C system is depicted in **Table 10-5**. The RQOs is set for achievement at compliance point B1H010Q01 located at the weir just downstream of the Witbank Dam.

**Table 10-5: Resource Quality Objectives for Upper Olifant River**

Water Quality Constituent	Class	Resource Quality Objective
TDS in mg/l	C	<520
pH		6.5 – 9.0
Temperature in °C	B	13°±3 (winter) - 21°C±3 (summer)
Dissolved Oxygen (% DO saturation)	B	> 80% saturation
Total Suspended Solids TSS in mg/l	B	Less than 20% change from change in upstream and downstream weir
Ammonia as N in mg/l	A	<0.007
Ortho-phosphate as P in mg/l	C	<0.007



Water Quality Constituent	Class	Resource Quality Objective
Total Inorganic Nitrogen: Total P ratio	C	>5:1
Ortho Phosphate: Total p ratio	C	<40%
Toxics	B	95% ≤ CEV <sup>1</sup> 99% ≤ AEV <sup>2</sup>

10.1.4.3 Quaternary Catchment

The siding project site is located in the headwaters of quaternary drainage area B11B which drains the Koringspruit. The site is also adjacent to quaternary drainage areas B11H and B12B. Only the northern corner of the project site intersects B11H as indicated in Figure 10-2. Considering the layout of the siding facility no surface water impact is expected for drainage areas B11H and B12B.

Quaternary drainage area B11H drains the Blesboklaagtespruit that has its confluence with the Spookspruit prior to merging with the Olifants River below Witbank Dam. Quaternary drainage B12B drains the Woestalleen Spruit that is a major tributary of the Klein Olifants River.

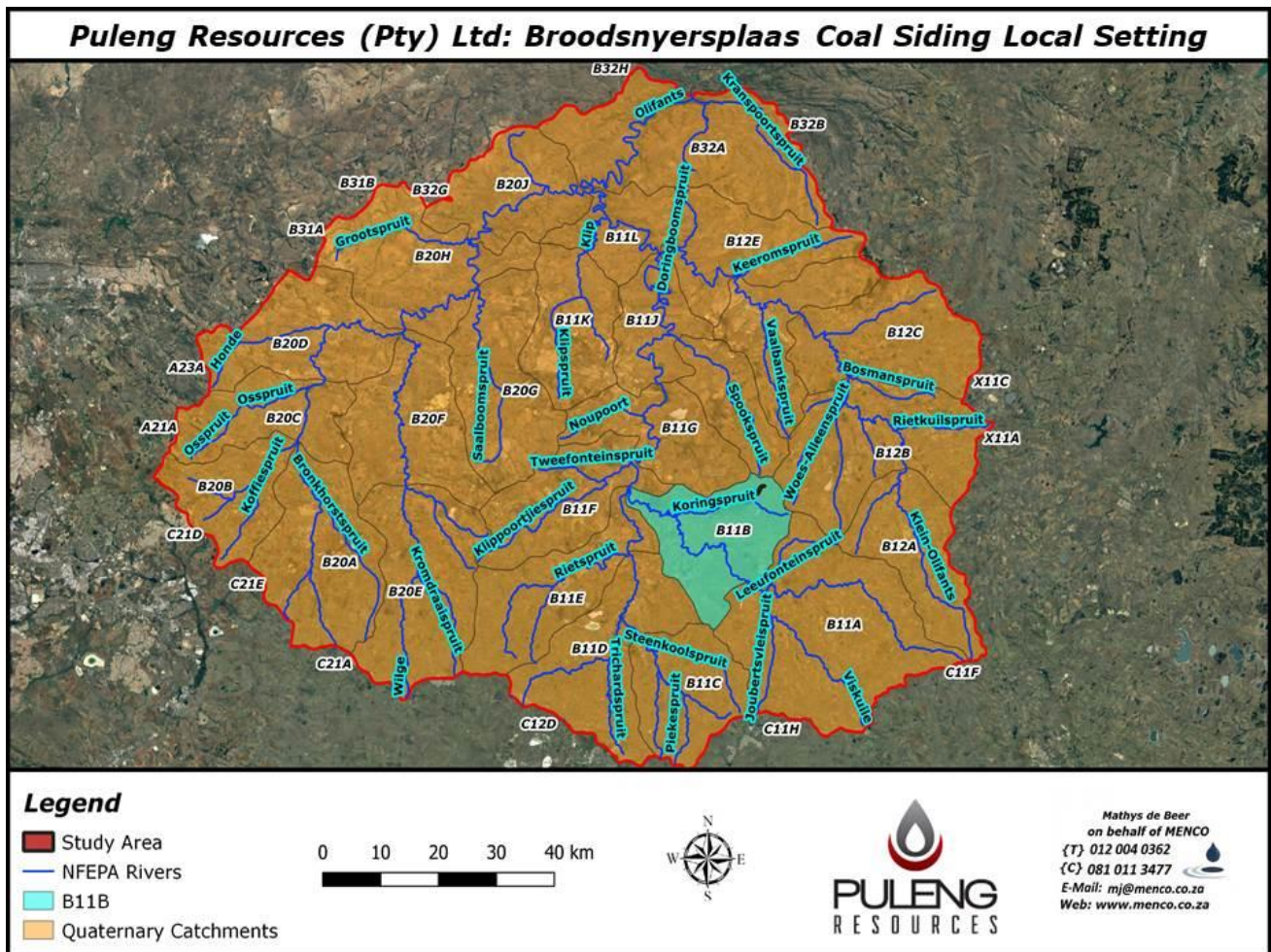


Figure 10-2: Project site in relation to the quaternary catchment

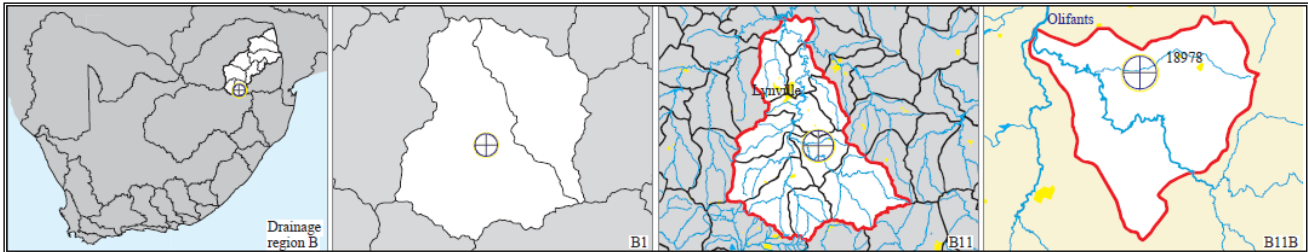
<sup>1</sup> CEV is the Chronic Effect Value

<sup>2</sup> AEV is the Acute Effect Value as defined in SA Water Quality Guideline: Volume 7: Aquatic Ecosystems



10.1.4.4 Surface Water Quality

Background water quality was obtained from the DWA departmental database as managed by the D: RQS at Roodeplaat. **Figure 10-3** provides for an illustration of the site in relation to B11B (Koringspruit).



**Figure 10-3: Locality of DWS monitoring point in relation to Koringspruit (B11B)**

10.1.4.5 Background Water Quality

An analysis of surface water samples was obtained for monitoring point B11\_188426 in sufficient detail to characterize the water quality in the Koringspruit as the affected water course. The monitoring data is contained in Error! Reference source not found. and represents a database stemming from Jan 1972 to date.

**Table 10-6: Background surface water quality for Koringspruit**

Variable	Unit	TWQR <sup>3</sup>	Maximum	Minimum	Average
TDS	mg/l	0-450	906	439	599
EC	mS/m	0-70	151	45	84.4
pH		6.0-9.0	9	6.7	7.9
Sodium	mg/l	0-100	110	30.7	54.4
Potassium	mg/l		11.9	5.41	8.31
Calcium	mg/l	0-32	58.9	5.41	11.9
Mg	mg/l	0-30	44.4	19.5	34.7
Cl	mg/l	0-100	76	20.9	45
SO <sub>4</sub>	mg/l	0-200	630	31	197
TAL	mg/l		227	121	167
F	mg/l	0-1.0	0.601	0.427	0.5
PO <sub>3</sub> (P)	mg/l	0-1.0	4.8	0.05	0.3
NO <sub>2</sub> + NO <sub>3</sub> (N)	mg/l	0-6.0	1.3	0.04	0.081
NH <sub>4</sub> (N)	mg/l		0.134	0.02	0.05
SiO <sub>2</sub>	mg/l		6.15	1.11	4.81

Water quality in the Koringspruit is moderately impacted by mining activities with several parameters exceeding the Target Water Quality Range (TWQR) for domestic use. Shaded cells in **Table 10-6** are indicative of exceeding the TWQR. The variables of concern are TDS, EC, Mg with sulphate (SO<sub>4</sub>) bordering the allowable limit of 200 mg/l. Sulphate is a key performance indicator (KPI) for mining related pollution.

**Table 10-7: Applicable RQO for the Koringspruit**

Variable	Unit	Objective
Alkalinity	mg CaCO <sub>3</sub> /l	50
Calcium	mg/l as Ca	32
Chloride	mg/l as Cl	100
Fluoride	mg/l as F	70
Magnesium	mg/l as Mg	30
Nitrate & Nitrite	mg/l N	6

<sup>3</sup> Standard as obtained from SA Water Quality Guideline: Domestic Water Use (DWAf:1996)





Variable	Unit	Objective
Soluble ortho-phosphate	mg/l as P	0.007
Sodium	mg/l as Na	70
Potassium	mg/l as K	50
Sulphate	mg/l as SO <sub>4</sub>	200
Aluminium	mg/l as Al	0.15
Arsenic	mg/l as As	0.01
Cadmium	mg/l as Cd	0.005
Copper	mg/l as Cu	0.2
Iron	mg/l as Fe	0.1
Manganese	mg/l as Mn	0.02
Mercury	mg/l as Hg	0.001
Zinc	mg/l as Zn	0.1
TDS	mg/l	520

#### 10.1.4.6 Surface Water Quantity

The catchment in which the site for the coal terminal development located should be described as water stressed. **Table 10-8** provides more detail on the reconciliation of water requirements and availability for the various sub-areas in the Olifants River WMA based on the year 2000 scenario (DWA, 2004). Based on the information there is already a deficit experienced in terms of water availability for the Upper Olifants River.

**Table 10-8: Water requirements and availability in Olifants WMA**

Sub-area	Million m <sup>3</sup> /annum					
	MAR	Local yield	Transfer In	Transfer Out	Local Requirement	Deficit
Upper Olifant	465	238	171	96	314	1
Middle Olifant	481	210	91	3	392	94
Steelpoort	396	61	0	0	95	34
Lower Olifants	698	100	1	0	104	63

#### 10.1.4.7 Mean Annual Runoff

The hydrology study of the Upper Olifants River was included as part of the comprehensive Reserve determination process during 2001 to set the In-stream Flow Requirements for the river system. As provided in Table 10-9 the Upper Olifants site for IFR determination was done at IFR1 located downstream of the Witbank Dam at Olifants River Lodge.

The river at this cross section consisted of three separate channels at different elevations used in the determination of magnitude of floods and freshets for both maintenance flow and drought flow conditions. The Koringspruit has its confluence with the Olifants River upstream of site IFR1 and contributes marginally towards the hydrology of the system.

**Table 10-9: Mean Annual Runoff (MAR) for the four WMA Sub-Areas in the South African portion of the Olifants Basin**

Area	Sub-Areas of Olifants WMA	Natural MAR
OLIFANTS WMA (SOUTH AFRICA) (DWA 2010B)	Upper Olifants	465
	Middle Olifants	841
	Steelpoort	396
	Lower Olifants	698
	Total for SA Portion	2040



#### 10.1.4.8 Normal Dry Weather Flow

The normal dry weather flow (NDWF) for the catchment as calculated for the three driest months of the year is indicated in **Table 10-10**. The calculations are based on rainfall data for the months of June to August as contained in **Table 10-1**.

**Table 10-10: Normal dry weather flow for the unnamed tributary**

Site	Area (km <sup>2</sup> )	Rainfall (mm) for 3 dry months	Normal Run-off factor	NDWF (m <sup>3</sup> /month)
Broosnyersplaas	1.38	15.8	0.30	2.18

#### Drainage Density

The drainage density area (**Table 10-11**) for the project area was determined using the areas as indicated in **Figure 8-1**. The proposed project area has a moderate drainage density determined at 1.63 km/km<sup>2</sup>.

**Table 10-11: Drainage density for project area**

Criteria	Project area
Total area in km <sup>2</sup> (Broodsnyersplaas)	1.38
Total drainage lines length (km) (1.3 km + 0.950 km)	2.25
Drainage density (km/km <sup>2</sup> )	1.63
<b>Sub-catchment A</b>	
Total area in km <sup>2</sup>	0.96
Total drainage lines length (km)	1.3
Drainage density (km/km <sup>2</sup> )	1.35
<b>Sub-catchment B</b>	
Total area in km <sup>2</sup>	0.3
Total drainage lines length (km)	0.95
Drainage density (km/km <sup>2</sup> )	3.16

#### 10.1.5 Groundwater

The geohydrological study was conducted by GPT (Pty) Ltd and is included as Appendix G.

#### 10.1.6 Fauna and Flora

MENCO conducted a Fauna and Flora study as part of the EIA phase. The study was conducted during January 2021 and is included in the EIA report as Appendix F.

##### 10.1.6.1 Description of Area and conservational importance

The project area falls within the warm and temperate zone, receiving a mean annual precipitation of 500 mm/year mainly in the summer months, with annual evaporation of 1500-1600mm per year. A National List of Threatened Ecosystems for South Africa was gazetted on 9 December 2011, considering the data, it was found that the site is situated within the Eastern Highveld Grassland vegetation unit (Mucina & Rutherford, 2006), which is classed as Vulnerable.

When considering the Terrestrial Biodiversity Assessment of the Mpumalanga Biodiversity Conservation Plan (**Figure 10-4**), it is found that the coal siding falls within a larger area classified as *No Natural Habitat Remaining*. This corroborates the data as described under Section 5.2, 5.3, 5.4 and 5.5, indicating that no species of conservation concern is expected within the project area. The area directly east of the siding has been classed as *Highly Significant*, meaning that Dryland Crop Production, Intensive Animal Farming, Irrigated Crop, Timber Production, Urban Development, Major Development Projects and Surface Mining are not



permitted. The area directly south-east of the siding has been classed as *Least Concern*, indicating that all land use forms are permitted, but that most as restricted (i.e. Rural Settlement, Timber Production, Urban Development, Major Development Projects. Linear Engineering Structures, Water Transfer Projects and Surface Mining)

In terms of protected areas, the nearest nature reserve of concern is the Heyns Private Nature Reserve, approximately 11 km to the north-north-west.

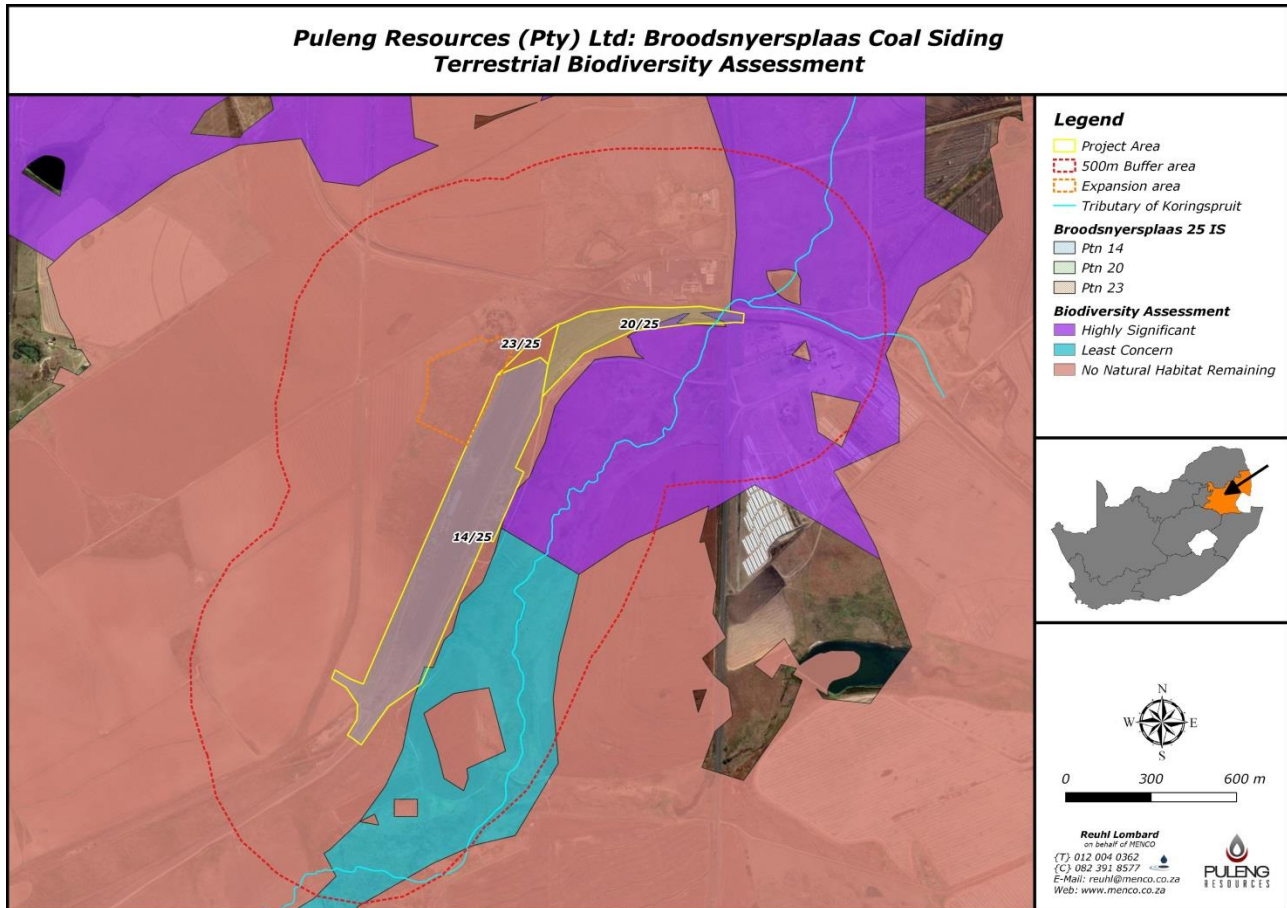


Figure 10-4: Terrestrial Biodiversity Assessment in terms of MPCP

10.1.6.2 Sensitive areas

When considering SANBI’s National Freshwater Ecosystem Priority Areas (NFEPA), it is found that some wetlands are present within 500m of the project area (Figure 10-5).

The main wetland feature within the 500m buffer zone surrounding the project area is classified as a Seep wetland, with three Flat wetlands associated with the origin of the main wetland feature (outside the 500m buffer zone). This Seep wetland follows the general meandering of the unnamed tributary to the east of the site, and eventually forms a Channel valley-bottom wetland to the south east of the siding, still within the 500m buffer zone. However, as the project area is completely devoid of vegetation, and the fact that all surface water flow is directed around or under the siding, it is fair to assume that the delineation of the Seep wetland as indicated in **Figure 10-5** is historic in nature and therefore an over estimation of the extent of the wetland.

For this reason, further descriptions of the wetlands/sensitive receptors in the area falls beyond the scope of this report. Nevertheless, please refer to the stand-alone Wetland Delineation



Report as compiled by Menco in 2020 and submitted in support of the environmental authorisation and water use licence application for the coal siding.

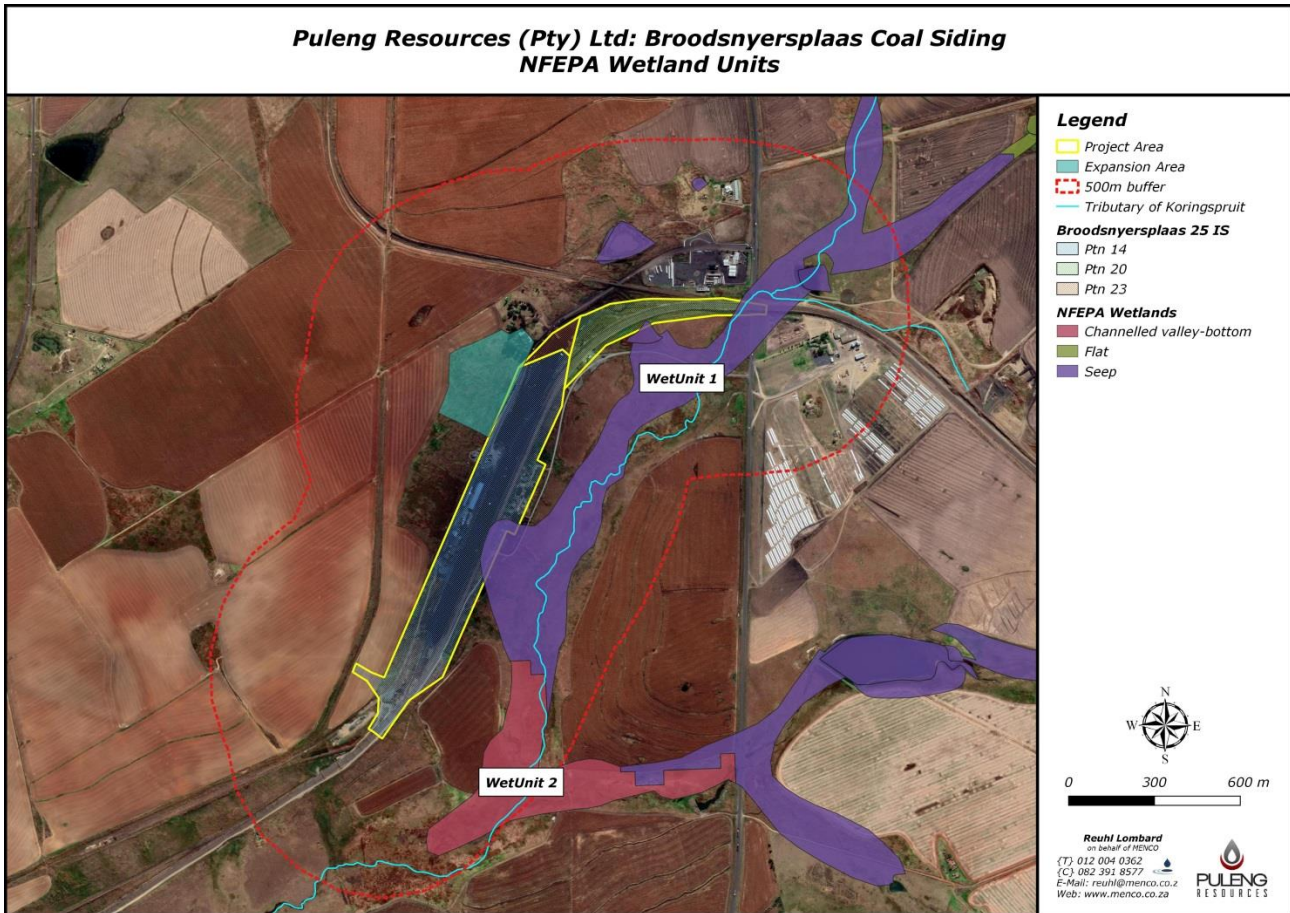


Figure 10-5: NFEPA features in relation to the Broodsniersplaas Coal Siding

10.1.6.3 Vegetation

The study area is situated within the Grassland Biome of South Africa (Rutherford & Westfall, 1994). High summer rainfall characteristic of the Grassland Biome combined with dry winters with night frost and marked diurnal temperature variations are unfavourable to tree growth. The Grassland Biome therefore comprises mainly of 'sweet' and 'sour' grasses and plants with perennial underground storage organs, for example tubers and rhizomes, while trees are restricted to specialised habitats such as rocky outcrops or kloofs. The majority of Rare and Threatened plant species in the summer rainfall regions of South Africa are restricted to high-rainfall grasslands, making this the biome in most urgent need of conservation. It is not generally acknowledged that the majority of plant species in grasslands are non-grassy herbs (forbs), most of which are perennial plants with large underground storage structures. The highveld and montane grasslands of Mpumalanga are an important habitat for several threatened plant and animal taxa (Emery *et al.*, 2002).

The Grassland Biome can be divided into smaller units known as vegetation units. According to Mucina & Rutherford (2006), the study area is situated within the Eastern Highveld Grassland vegetation unit (**Figure 10-6**). The Eastern Temperate Freshwater wetland vegetation units to the east of the project area likely not to correspond to the wetlands as described in the Wetland Delineation Study conducted by Menco during 2020. The reason being that these units are approximately 5 km east of the project area and due to the topography, will not be affected by



the project in question. According to the draft National list of threatened ecosystems both mentioned vegetation units are listed as vulnerable (Government Gazette No. 32689, 2009).

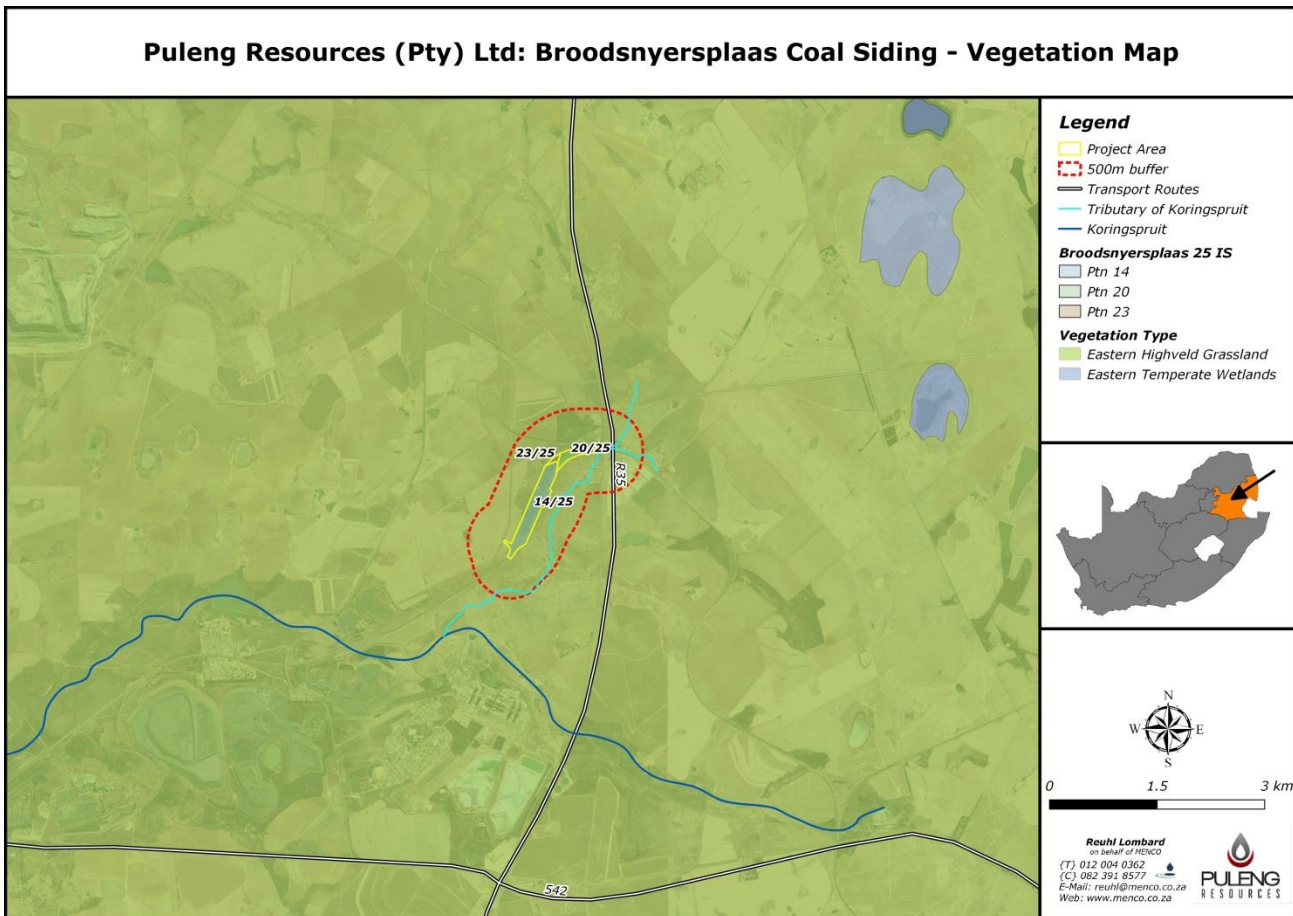


Figure 10-6: Vegetation types in the immediate vicinity of Broodsniersplaas Coal Siding

A list of 129 plant species that have been recorded in the quarter degree squares 2629AB (POSA, <http://newposa.sanbi.org/>) is presented in **Appendix F**. Of these only one species is of conservation concern (**Table 10-12**:).

*Khadia carolinensis* is known to occur within the Highveld Grasslands on well-drained, sandy loam soils among rocky outcrops, or at the edges of sandstone sheets (Lötter *et al.* 2007). During the field investigations, this species was not recorded on site nor are the habitat requirements for this species met within the vicinity of the project area. As this species is expected to be very rare and in some cases cryptic and very difficult to identify correctly, it is suggested that the images in **Appendix F** be kept on site. Should any of these species be identified on site or in close proximity to the site, this should be brought to the attention of the author of this report, for identification. Any activity that could possibly have a deleterious impact on these species should be halted until further mitigation measures are presented to the site manager.

Table 10-12: Vulnerable plant species recorded in the quarter degree square 2629AB

Common name	Scientific name	Status
n/a	<i>Khadia carolinensis</i> (L.Bolus) L.Bolus	Vulnerable – A3c



#### 10.1.6.4 Mammals

Due to the low level of historic sampling done in QDG 2629AB, data from the three adjoining grids (2529CD, 2529DC and 2629BA) were also extracted for mammalian species.

In total, 60 mammal species have been recorded in the quarter degree grid cells encompassing the project site (**Appendix F**). Of the species, only four have conservation statuses of Vulnerable (**Table 10-13**); however, due to the proximity of the site to surrounding mining activities, as well as the density of the local community and impacts related to these, *Felis nigripes* and *Panthera pardus* are not expected to be present within the vicinity of the project area. *Miniopterus schreibersii*, Schreibers's Long-fingered Bat is known to roost in caves, rock clefts, culverts, caverns, and galleries, none of which are present within the immediate surroundings of the project area. It is therefore not expected that the activities of the siding will have any detrimental impacts on this species.

*Myosorex cafer*, Dark-footed Mouse Shrew, was originally thought to occur in South Africa, Mozambique and Zimbabwe, but recent molecular work has confirmed it as endemic to the assessment region of South Africa (Willows-Munro 2008; Taylor et al. 2013). It is now thought not to occur within Limpopo or Mpumalanga provinces, where these specimens may instead refer *Myosorex cf. tenuis* (Taylor et al. 2013). It is therefore accepted that the presence of this species in the quarter degree grids surrounding the project area, is merely a miss-identification, and that the species in fact does not occur within the area of concern.

**Table 10-13: Sensitive mammal species known to be present in QDG 2529CD, 2529DC, 2629AB and 2629BA**

Scientific Name	Common name	Status
<i>Felis nigripes</i>	Black-footed Cat	Vulnerable - C2a(i)
<i>Miniopterus schreibersii</i>	Schreibers's Long-fingered Bat	Vulnerable - A2c
<i>Myosorex cafer</i>	Dark-footed Mouse Shrew	Vulnerable - B2ab(i,ii,iii,iv)
<i>Panthera pardus</i>	Leopard	Vulnerable - A2cd

#### 10.1.6.5 Avifauna

According to data collected during 2017 of SABAP2, a total of 102 bird species have been recorded in the 2600\_2925 pentad encompassing the project site (**Appendix F**). These data also indicate that none of the listed species are of conservational concern in terms of their IUCN Conservation Status.

Since much of the surrounding grasslands have been transformed to agricultural land or coal mining activities, it elevates the importance of proper avifaunal management and mitigation within the area. Despite the abundance of wetland systems and large numbers of waterfowl in the region, the area does not qualify as an Important Bird Area (Barnes, 1998) although The Amersfoort-Bethal-Carolina Important Bird Area (IBA) is situated approximately 30 km south-east of the project area.

#### 10.1.6.6 Reptiles and Amphibians (Desktop Study)

A list of 50 reptile and 16 amphibian species found in the quarter degree squares 2529CD, 2529DC, 2629AB and 2629BA is presented **Appendix F**. Of these species, only two reptile species has conservation statuses other than Least Concern (**Table 10-14**).



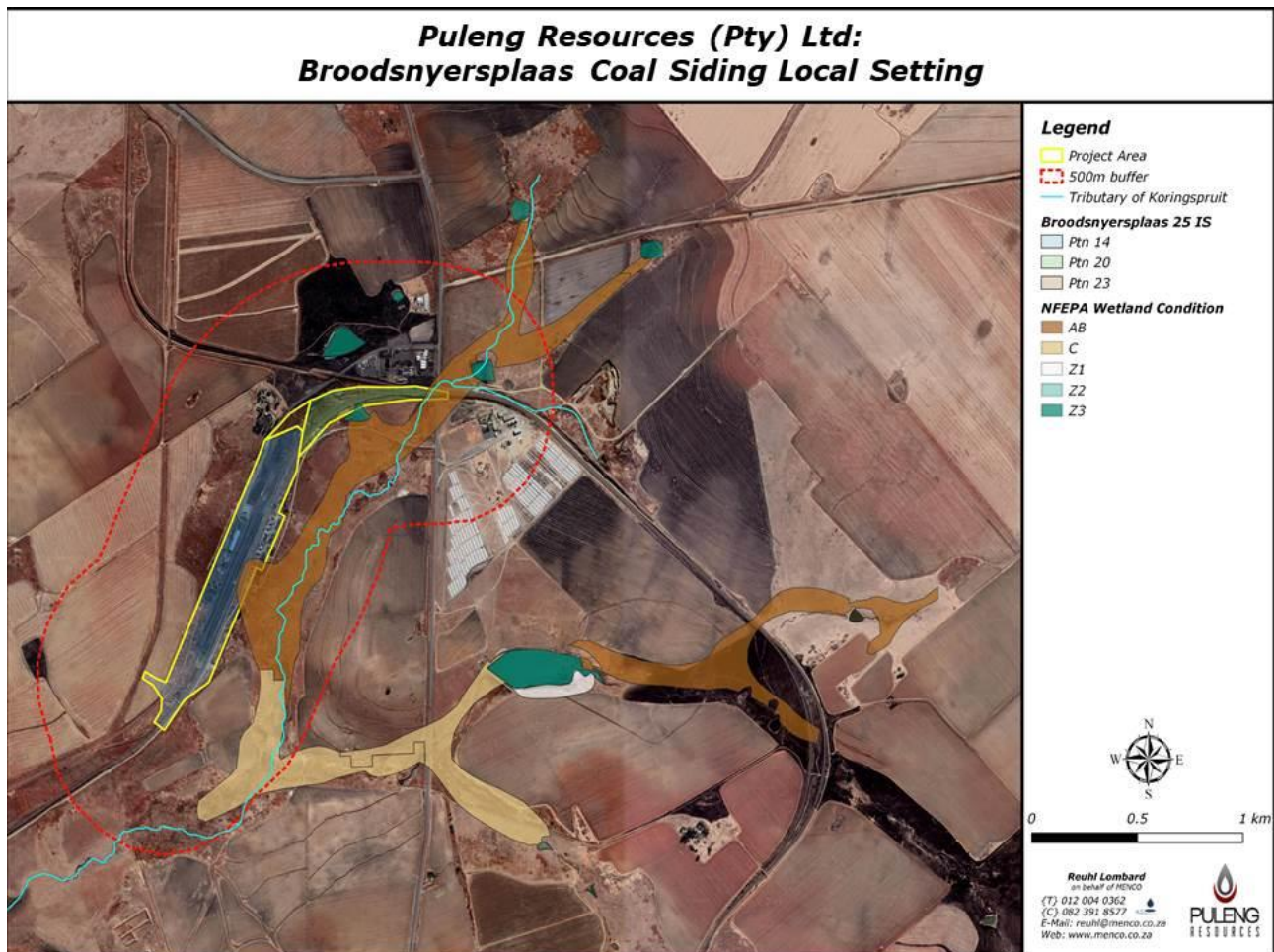
Even though *Chamaesaura aenea* and *Homoroselaps dorsalis* are thought to be present in the vicinity of the project area, both species prefer undisturbed tall grassland areas with *H. dorsalis* in particular inhabiting abandoned termitaria, of which none were observed in close proximity to the project area. Due to the overgrazed nature of the environment surrounding the project area, these species are not expected to occur in close relationship to the siding. The presence of informal settlements and the associated impacts thereof, further reduce the possible presence of these species in the area.

**Table 10-14: Sensitive reptile species known to be present in QDG 2529CD, 2529DC, 2629AB and 2629BA**

Scientific Name	Common name	Status
<i>Chamaesaura aenea</i>	Coppery Grass Lizard	Near Threatened (SARCA 2014). IUCN Least Concern
<i>Homoroselaps dorsalis</i>	Striped Harlequin Snake	Near Threatened (SARCA 2014). IUCN Least Concern

**10.1.7 Wetlands**

A Wetland Delineation Study was conducted during October 2021 in support of a Water Use License Application (refer Menco, 2021). **Figure 10-7** provides for an illustration of wetlands within the project area.



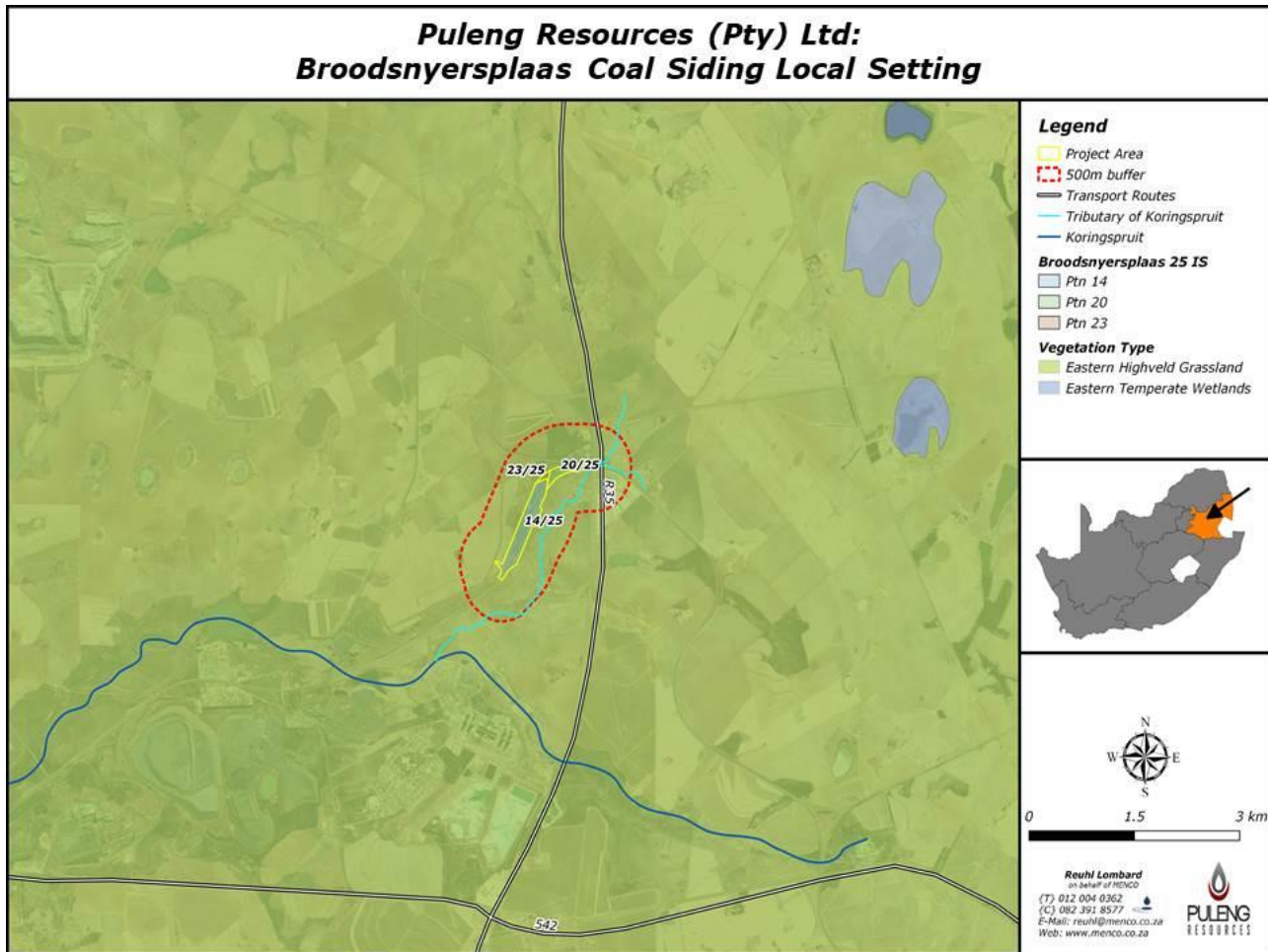
**Figure 10-7: SANBI and NFEPA wetland systems in the vicinity of the project**



10.1.7.1 Regional Wetland Vegetation

The Broodsnierplaas Siding Project is situated within the Eastern Highveld Grassland (Gm12) vegetation unit (Kleynhans *et al* 2005). This vegetation type occurs on slightly too moderately undulating planes, including some low hills and pan depressions. The vegetation is a short dense grass land dominated by the usual highveld grass composition (*Arsitida*, *Digitaria*, *Erafrostsis*, *Themeda*, *Tristachya* etc.) with small scattered rocky outcrops with, wiry sour grasses and some woody species. Some 44% transformed primarily by cultivation, plantations, mines, urbanisation and by building of dams. No serious alien invasions are reported.

Please refer to **Figure 10-8** for an illustration of the vegetation types.



**Figure 10-8: Vegetation types in relation to project area**

The aquatic vegetation associated with the wetland system has the following dominant species: *Agrostis lachnantha*, *Carex acutiformis*, *Elocharis palustris*, *Imperata cylindrical*, *Typha capensis*, *Cyperus immensus* and *Phragmites australis*. Refer to **Table 10-15** and **Table 10-16** for a list of vegetation species encountered within the project area.

**Table 10-15: Information on vegetation types found in the Project Area**

Biome	Bioregion	Protection Status	Threatened Status
Highveld Grassland	Eastern Highveld	<3%	Vulnerable
	Mesic Highveld Grasslands	2%	Threatened





Table 10-16: Identified terrestrial and wetland vegetation at Kego Siding

Family	Common Name	Scientific Name	Category
<b>Grasses</b>			
Poaceae	Cogon grass	<i>Imperata cylindrical</i>	Grass
Poaceae	Southern cut grass	<i>Leersia hexandra</i>	Grass
Poaceae	Dallis grass	<i>Paspalum dilatatum</i>	Grass
Poaceae	Lovegrass	<i>Eragrostis plana</i>	Grass
Poaceae	Small Oat Grass	<i>Helictotrichon turgidulum</i>	Grass
Poaceae	Limpo Grass	<i>Hamarthria altissima</i>	Grass
Poaceae	Bent grass	<i>Agrostis lachnanta</i>	Grass
Poaceae	Gongoni grass	<i>Aristida junciformis</i>	Grass
Poaceae	Red grass	<i>Themeda triandra</i>	Grass
Poaceae	Snowflake grass	<i>Andropogon eucomus</i>	Grass
Poaceae	Fountain grass	<i>Pennisetum thunbergii</i>	
Poaceae	Kikuyu Grass	<i>Pennisetum clandestinum</i>	Grass
<b>Sedges</b>			
Cyperaceae	Clustered flat sedge	<i>Cyperus congestus</i>	Sedge
Cyperaceae	Lesser pond sedge	<i>Carex acutiformis</i>	Sedge
Cyperaceae	Spike rush	<i>Eleocharis palustris</i>	Sedge
Cyperaceae		<i>Fuirena pubescens</i>	Sedge
Cyperaceae		<i>Schoenoplectus sphacelata</i>	Sedge
<b>Reeds</b>			
Prioniaceae	Palmiet	<i>Prionum serratum</i>	Reeds
Typhaceae	Bullrush	<i>Typha capensis</i>	Reeds
Poaceae	Common reed	<i>Phragmites australis</i>	Reeds
<b>Trees</b>			
Myrtaceae	Gum trees	<i>Eucalyptus spp.</i>	Tree
Salicaceae	Weeping willow	<i>Salix babylonica</i>	Tree
<b>Herbs</b>			
Apiaceae	Pennywort	<i>Centella asiatica</i>	Medicinal Herb
Crassulaceae		<i>Crassula tuberella</i>	Herb
<b>Other</b>			
Ranunculaceae	Buttercup	<i>Ranunculus multifidus</i>	Wildflower
Brassicaceae	Waterkerwel	<i>Rorippa fluviatilis</i>	
Orchidaceae	Wild orchid	<i>Disa zuluensis</i>	Wildflower
Amaryllidaceae	Lily	<i>Nerine platypetala</i>	Wildflower
<b>Invasive plants</b>			
Asteraceae	Common dandelion	<i>Taraxacum officinale</i>	Spreading or flat-growing herb
Asteraceae	Marotole	<i>Helichrysum rugulosum</i>	Perennial herb
Asteraceae	Blackjack	<i>Bidens spp.</i>	Herb (not woody)
Asteraceae	Cosmos	<i>Cosmos bipinnatus</i>	Herb (not woody)
Asteraceae	Tickseed	<i>Coreopsis lanceolata</i>	Herb (not woody)
Asteraceae	Tall khakiweed	<i>Tagetes minuta</i>	Herb (not woody)
Asteraceae	Dwarf marigold	<i>Schkuhria pinnata</i>	Herb (not woody)
Malvaceae	Bladder hibiscus	<i>Hibiscus trionum</i>	Herb (not woody)
Verbenaceae	Purple top	<i>Verbena bonariensis</i>	Herb (not woody)
Fabaceae	Red sesbania	<i>Sesbania punicea</i>	Shrub



Family	Common Name	Scientific Name	Category
Aizoaceae	Khakiweed	<i>Alternanthera pungens</i>	Spreading or flat-growing herb
Brassicaceae	Carrot weed	<i>Coronopus didymus</i>	Spreading or flat-growing herb
Fabaceae	Silver wattle	<i>Acacia dealbata</i>	Tree

#### 10.1.7.2 Wetland Soils

The permanent zone of a wetland will always have either Champagne, Katspruit, Willowbrook or Rensburg soil forms present, as defined by the Soil Classification Working Group (1991). Based on the departmental guidelines (DWAF,2005) the seasonal and temporary zones of the wetlands will have one or more of the following soil forms present, (signs of wetness incorporated at the form level): Kroonstad, Longlands, Wasbank, Lamotte, Escourt, Klapmuts, Vilafontes, Kinkelbos, Cartref, Fernwood, Westleigh, Dresden, Avalon, Glencoe, Pinedene, Bainsvlei, Bloemdal, Witfontein, Sepane, Tukululu, or Montagu. Alternatively, the seasonal and temporary zones will have one or more of the following soil forms present (signs of wetness incorporated at the family level): Inhoek, Tsitsikamma, Houwhoek, Molopo, Kimberley, Jonkersberg, Groenkop, Etosha, Addo, Brandvlei, Glenrosa, or Dundee (DWAF, 2005).

For an area to be considered a wetland, redoximorphic features must be present within the upper 500mm of the soil profile (Collins, 2005). Redoximorphic features are the result of the reduction, translocation and oxidation (precipitation) of iron and manganese oxides that occur when soils are saturated for sufficiently long periods of time to become anaerobic. Only when soils within 500mm of the surface display these redoximorphic features, can the soils be considered to be hydric (wetland) soils. Redoximorphic features typically occur in three types (Collins, 2005):

- **A reduced matrix** - i.e. an *in situ* low chroma (soil colour), resulting from the absence of Fe<sup>3+</sup> ions which are characterised by "grey" colours of the soil matrix.
- **Redox depletions** - the "grey" (low chroma) bodies within the soil where Fe- Mn oxides have been stripped out, or where both Fe-Mn oxides and clay have been stripped. Iron depletions and clay depletions can occur.
- **Redox concentrations** - Accumulation of iron and manganese oxides (also called mottles). These can occur as:
  - Concretions - harder, regular shaped bodies;
  - Mottles - soft bodies of varying size, mostly within the matrix, with variable shape appearing as blotches or spots of high chroma colours; and,
  - Pore linings - zones of accumulation that may be either coatings on a pore surface, or impregnations of the matrix adjacent to the pore. They are recognized as high chroma colours that follow the route of plant roots, and are also referred to as oxidised rhizospheres.

**Table 10-17** and **Figure 10-9** below lists the soil forms and series found within the project area as illustrated in the Soil Zone Map compiled by Schulze *et al.* (1997). The soils encountered within the region are characterised by hard Ecca and Beaufort mudrocks when unweathered but upon exposure the rock fragments slake into smaller pieces that is susceptible to erosion.

**Table 10-17: Wetland soil forms encountered within project area**

Class	Location	Soil Form and Series (1991 SA Taxonomic Classification)	Notes
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Class	Location	Soil Form and Series (1991 SA Taxonomic Classification)	Notes
B	Moderate and gentle slopes away from escarpment	Dominant Soil: Clovelly Twyfelaar 1100 Glenrosa Tsende 1211	Sandy loam, high silt low in cations Na, K, Ca and Mg
		Other: Avalon Blackmoor 1100	Lower slopes
		Griffin Woodstock 1100 Hutton Liliebum 1100	Near dolorite intrusions
D	Gully linings	Dominant: Katspruit Lammemoor 1000	Erodible
E	Seepage areas on lower slopes, tributaries and watercourses	Dominant: Willowbrook Otta wa 1000 Katspruit Lammemoor 1000	Impeded subsoil drainage, shallow, perched water table
		Other: Kroonstad Grabouw 2000	

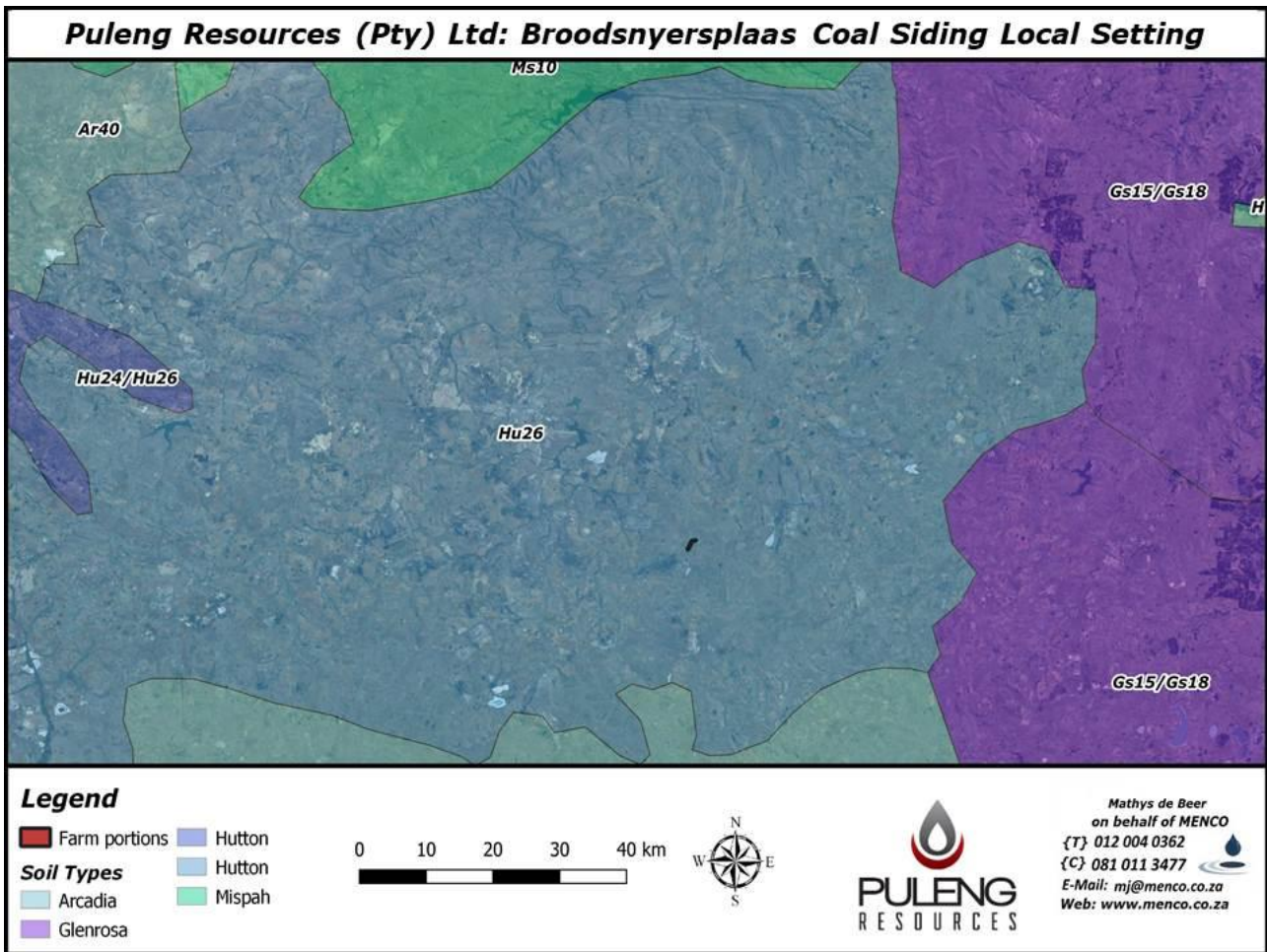


Figure 10-9: General soil distribution

**10.1.8 Aquatic Ecology**

An aquatic ecological study was conducted by Menco during January 2021. The report forms part of the EIA phase of the project and is attached as **Appendix D**.



#### 10.1.8.1 Background Reference Data

Reference data for the applicable quaternary catchments and associated rivers were obtained from the RWQO 4.1 (DWA, 2006) and the National Freshwater Ecosystem Priority Areas Atlas (Nel, et al., 2011). The results obtained for all the bio-monitoring sites were evaluated according to the reference scores applicable to the Highveld Eco-region.

The referenced data is captured in **Table 10-18**. Considering the data obtained the catchment is already degraded to a Class D – Largely Modified.

**Table 10-18: Reference and background data applicable to the rivers and quaternaries associated with the water user**

Reference/Source	Licensee Results
Water User	Kego (Pty) Ltd
River	Koringspruit
Quaternary	B11B
DWA RQO EISC	Moderate
<b>DWA RQO PES</b>	<b>Class C (Moderately Modified)</b>
<b>Rec. Ecological Category</b>	<b>Class C (Moderately Modified)</b>
<b>SANBI 1999 PES</b>	<b>Class D (Largely Modified)</b>
SANBI NFEPA Status	Medium Priority

#### 10.1.8.2 Monitoring Points

Bio-monitoring was conducted on the property on the 27<sup>th</sup> of December 2021 at two monitoring points. The monitoring sites include 2 sites in an unnamed tributary of the Koringspruit, one upstream of the siding and one downstream (refer **Table 10-19**).

Both of these sites were assessed for bio-monitoring purposes. Surface water samples were also obtained during a previous surface water assessment. The Bio-monitoring assessments were done through the SASS5 protocol as per the River Health Programme and the IHAS of each monitoring point was determined to obtain a Present Ecological Status (PES). These results portray the spatial variability from the upstream point to the downstream point in the Koringspruit with regards to:

- *Water Quality*
- *Habitat availability and suitability for aquatic macro invertebrates during wet periods,*
- *The wet/summer season aquatic macro invertebrate diversity*

**Table 10-19: Selected Bio-Monitoring/Monitoring Sites**

Monitoring Site	Description	Latitude	Longitude
BSP1	This site is situated in the unnamed tributary of the Koringspruit approximately 100m upstream of the siding. The site is situated at a road crossing next to a culvert.	26° 3'39.60"S	29°29'7.64"E
BSP2	This site is also located within the tributary system approximately 1km downstream of BSP1 and just downstream of the siding.	26° 4'8.30"S	29°28'46.60"E



### **10.1.9 Air Quality**

Sensitive receptors are areas surrounding the Broodsniersplaas Coal Siding that are more likely to be impacted by the siding's activities. Areas affected by coal haulage operations are typically within a 10 km radius and may include farm houses, residential areas, school or any infrastructure that houses people (Komati Village). For the current project the closest residential areas are Komati Village and the residential areas of Blikpan and Koorfontein Mines. These areas will be used as the sensitive receptors for the health impact screening study.

According to Nkangala District Municipality Air Quality Management Plan (AQMP) there is monitoring being within the Emalahleni Region which is mainly around major industrial and urban centres. The main pollutant identified in the Ngangala District Municipality AQMP as part of their baseline assessment is particulates. No measured or simulated PM10 or dust fallout data for the Broodsniersplaas Coal Siding Project are available.

There is ample available air quality data for this region due to the high concentration of ESKOM Power Stations in the region. The area around the siding is largely used for mining purposes, farming activities, power generation and various fugitive dust sources such as roads and contributing vehicle tailpipe emissions.

It could be reported that the Ambient Air Quality impact stemming from the main sources are likely to contribute to cumulative PM10, SO2, CO and VOC increases due to vehicle entrainment on unpaved road surfaces as well as during loading and off-loading of coal at the site.

Air quality in the local region is foreseen to improve following decommissioning and successful rehabilitation as coal dust will no longer be released. Decommissioning will also result in less vehicle emissions.

### **10.1.10 Noise**

There will be noise from the increased traffic along R35 road used by the trucks from various operations that share the entrance to the Broodsniersplaas Siding. The R35 road is also used by taxis and private cars towards Middelburg and Bethal.

The vehicular movement of heavy machinery during construction of site infrastructure will contribute towards increased noise levels. During the construction phase noise impacts from the front-end graders, trucks offloading construction material and loading construction rubble for disposal is expected as well as noise from the construction workers and site personnel.

Noise impacts during the operational phase include trucks offloading coal at the stockpile area and the loading into train wagons by front-end caterpillar with weight cells. The shunting of the train in and out of the loading zone is another on-going source of noise impacts. It is anticipated that the noise levels will increase during the operational phase.

The rural nature of Komati Village, Blikpan and Koorfontein communities and other surrounding villages in general implies the ambient noise levels are medium to low. The typical day time noise levels range between:

- 60 – 80 dBA during daytime, and
- 40 - 50 dBA during night.

Noise levels will significantly reduce following recommissioning as coal loading and unloading will no longer take place. Noise emanating from the washing plant will also no longer form part of the spectrum and it is expected that the ambient noise level will drop to rural/natural levels.



### **10.1.11 Visual**

The local area has a very low sense of place as a result of the majority of the area is disturbed by opencast coal mining. The overall landscape is considered to be of low visual sensitivity, primarily due to the location of a number of power stations in the vicinity of the project area. Visually the area has already been established and the expansion area will not stand out from the surrounding land uses (i.e. new washplant will be between the office/equipment area and an industrial/mining complex directly west). Visually the area can be rehabilitated to resemble pre-construction habitats although it is expected that the Transnet railway line will remain.

### **10.1.12 Blasting and Vibration**

Not applicable as no blasting will take place on site.

### **10.1.13 Cultural Heritage Assessment**

APelser Archaeological Consulting (APAC) was appointed by M2 Environmental Consultants (Pty) Ltd to conduct a Phase 1 HIA for the proposed development of an additional coal siding at the existing Broodsniersplaas Coal Siding. The study & development area is located approximately 32km south of Middelburg (Nkangla) in the province of Mpumalanga. One area earmarked for the addition was assessed as part of the fieldwork.

Background research indicates that there are some cultural heritage sites and features in the larger geographical area within which the study area falls. No sites, features or material of cultural heritage (archaeological and/or historical) origin or significance were identified in the study area during the physical assessment. If any did exist here in the past it would have been extensively disturbed or destroyed as a result of recent historical developments & activities related to the existing Broodsniersplaas Coal Siding and Railway Line, as well as past agricultural activities that include ploughing, crop growing and irrigation (water pipelines).

Aerial images (Google Earth) of the area dating to between 2009 and 2021 also shows how the existing Broodsniersplaas Siding and related activities, as well as past & current agricultural activities, have impacted on the study and larger area around it. From these images there is also no evidence of any earlier archaeological and/or historical sites or features being present in the study area.

It should be noted that although all efforts are made to locate, identify and record all possible cultural heritage sites and features (including archaeological remains) there is always a possibility that some might have been missed as a result of grass cover and other factors. The subterranean nature of these resources (including low stone-packed or unmarked graves) should also be taken into consideration. Should any previously unknown or invisible sites, features or material be uncovered during any development actions then an expert should be contacted to investigate and provide recommendations on the way forward.

Finally it can be concluded - from a Cultural Heritage point of view - that the proposed addition to the existing Broodsniersplaas Coal Siding should be allowed to continue taking into consideration the recommendations provided above.

### **10.1.14 Social and Economic**

The construction phase of the project could be seen as having positive impacts in terms of socio-economy through the availability of additional temporary job opportunities. Very limited negative social impacts are foreseen during the construction phase.

The social benefits for the Broodsniersplaas Siding project include positive contribution towards the creation of job opportunities within the Municipality. Therefore, the local economy will benefit through provision/creation of employment opportunities for the local community. These



opportunities will have a positive effect on the broader value chain extending to suppliers of goods and services from nearby towns.

The positive social aspects related to the operational phase of the project will convert to job opportunities in the form of decommissioning and rehabilitation tenders and jobs. Following successful rehabilitation, local sustainable farming could potentially commence resulting in local positive socio-economic impacts.

#### **10.1.15 Traffic**

As the siding has been operation for many years, the possible impacts related to traffic influx would have been already established and settled. During the construction phase of the project, no significant increase in traffic is expected as all machinery and personnel are already on site. It is however expected that following decommissioning any traffic related impacts will be significantly reduced as no haul trucks or personnel will be entering the site anymore.

## **11. ITEM 3(g)(v): IMPACTS AND RISKS IDENTIFIED**

### **11.1 Potential Impacts**

The potential impacts identified in this section are a result of both the environment in which the project activity takes place, as well as the activity itself. The identification of potential impacts is performed by determining the potential source, possible pathways and receptors. In essence, the potential for any change to a resource or receptor (i.e. environmental aspect) brought about by the presence of a Project component or by a Project-related activity has been identified as a potential impact. The project activities are included in **Table 11-1** below.

**Table 11-1: Activities and potential impacts to be assessed**

<b>Phase</b>	<b>Potential Project Activity</b>
Construction	<ul style="list-style-type: none"> <li>Establishment of the site</li> <li>Site clearance</li> <li>Construction of siding's wash plant related infrastructure</li> </ul>
Operational	<ul style="list-style-type: none"> <li>Washing and screening of coal</li> <li>Loading and hauling of washed coal</li> <li>Use and maintenance of siding</li> <li>Use and maintenance of infrastructure (haul road, washing plant, stock pile and PCD)</li> <li>Water use and management</li> </ul>
Decommissioning	<ul style="list-style-type: none"> <li>Demolition of washing plant</li> <li>Rehabilitation of disturb footprint</li> <li>Environmental monitoring</li> </ul>

#### **11.1.1 Soil, Land Use and Land Capability**

<b>Nature:</b> Expansion of project area to allow for additional coal storage and handling space.		
	<b>Without mitigation</b>	<b>With mitigation</b>
<b>Extent</b>	Site (2)	Site (2)
<b>Duration</b>	Long term (4)	Long term (4)
<b>Magnitude</b>	High (8)	High (8)
<b>Probability</b>	Definite (5)	Likely (3)
<b>Significance</b>	<b>High (70)</b>	<b>Medium (42)</b>
<b>Status (positive or negative)</b>	Negative	Negative
<b>Reversibility</b>	Low	High



<b>Irreplaceable loss of resources</b>	No	No
<b>Can impacts be mitigated?</b>		Yes
<b>Mitigation:</b>		
<ul style="list-style-type: none"> <li>When stripping machinery is used for stripping, stockpiling and 'topsoiling' operations, it should operate when the soil moisture content is below approximately 8 % (during the dry winter months) in order to limit soil compaction and machinery getting stuck.</li> <li>For use on site, tracked vehicles are more desirable than wheeled vehicles due to their lower point loading and slip, while vehicle speed should be maintained in order to reduce the duration of applied pressure, thereby minimizing compaction.</li> <li>The width of the levelled or disturbed area for haul roads must be minimized as much as possible. Unnecessary dirt tracks (outside of the area to be disturbed) should be avoided during the construction of the haul road.</li> <li>Impact beyond the site boundary can be reduced by using existing roads and reducing new roads to a minimum.</li> </ul>		
<b>Cumulative Impacts:</b> If the abovementioned mitigation measures are implemented and monitored correctly, no cumulative impacts are expected within the footprint area.		
<b>Residual Impacts:</b> Following mitigation and rehabilitation of the area, a possible residual impact could be reduced carrying capacity of the soil over the short-medium term. However as the earmarked area is below and between cultivated fields and of a size not usable to the local farmers, this impact is insignificant.		

### 11.1.2 Fauna and Flora impact Assessment

<b>Nature:</b> Expansion of project area to allow for additional coal storage and handling space.		
	<b>Without mitigation</b>	<b>With mitigation</b>
<b>Extent</b>	Site (2)	Footprint (1)
<b>Duration</b>	Long term (4)	Medium term (3)
<b>Magnitude</b>	High (8)	Moderate (6)
<b>Probability</b>	Highly likely (4)	Likely (3)
<b>Significance</b>	<b>Medium (56)</b>	<b>Low (30)</b>
<b>Status (positive or negative)</b>	Negative	Negative
<b>Reversibility</b>	Low	Medium
<b>Irreplaceable loss of resources</b>	No	No
<b>Can impacts be mitigated?</b>		Yes
<b>Mitigation:</b>		
<ul style="list-style-type: none"> <li>All soils compacted as a result of construction activities falling outside of development footprint areas should be ripped and profiled. Special attention should be paid to alien and invasive control within these areas. Alien and invasive vegetation control should take place throughout all development phases including rehabilitation phases to prevent loss of floral habitat in surrounding areas.</li> <li>If any threatened species, or nationally or provincially protected fauna or flora will be disturbed, ensure effective relocation of individuals to suitable similar habitat. Arrangement with the relevant authorities needs to take place to rescue and relocate the species.</li> <li>In the event of a breakdown, maintenance of vehicles must take place with care and the recollection of spillage should be practiced near the surface area to prevent ingress of hydrocarbons into topsoil.</li> <li>Vehicles should be restricted to travelling only on designated roadways to limit encroachment in the study area and onto adjacent habitats.</li> <li>No trapping/hunting or collecting of fauna or flora is to take place.</li> </ul>		
<b>Cumulative Impacts:</b> If the abovementioned mitigation measures are implemented and monitored correctly, no cumulative impacts are expected within the footprint area.		
<b>Residual Impacts:</b> No residual impacts are expected over the medium-long term.		





**11.1.3 Surface Water Impact Assessment**

<b>Nature:</b> Interception of watercourse and drainage areas by the infrastructure associated with the Broodsniersplaas Siding. Increased stormwater runoff from the affected footprint area due to hardened surfaces, roads, and areas of cleared vegetation. Potential for accidental spillage or discharge from pollution control facilities.			
	<b>Without mitigation</b>	<b>With mitigation</b>	
<b>Extent</b>	Regional (3)	Regional (3)	
<b>Duration</b>	Long term (4)	Short term (2)	
<b>Magnitude</b>	High (8)	Moderate (6)	
<b>Probability</b>	Highly likely (4)	Possible (2)	
<b>Significance</b>	<b>High (60)</b>	<b>Low (22)</b>	
<b>Status (positive or negative)</b>	Negative	Negative	
<b>Reversibility</b>	Medium	High	
<b>Irreplaceable loss of resources</b>	Yes	No	
<b>Can impacts be mitigated?</b>		Yes	
<b>Mitigation:</b> <ul style="list-style-type: none"> <li>• Clean and dirty water separation through the implementation of the recommended Stormwater Management Plan.</li> <li>• Prevent the release of contaminated water by ensuring compliance with GN 704 requirements.</li> <li>• Storage of hazardous chemical substances in bunded and roofed areas. Hazardous chemicals spilled and chemicals used for clean-up not to be disposed into the environment but to be removed by authorized agent for disposal at sites such as Holfontein.</li> <li>• Prevent the sedimentation and erosion of local streams by implementing erosion control measures and bunding around the site. Remedial action to be taken to reduce water flow speed.</li> <li>• Ensure area of impact on shoreline vegetation is kept to minimum as only footprint area of terminal will be cleared. No activities to commence within riparian zone of stream without the required authorization.</li> <li>• Implement a water quality monitoring program to monitor surface water qualities downstream of the site for changes in water chemistry.</li> <li>• All polluted water to be contained in PCD designed in accordance with GN 704 specifications (appropriate liner, 0.8 m freeboard with sufficient storage capacity to accommodate 1:50 year flood).</li> </ul>			
<b>Cumulative Impacts:</b> No significant change is to be expected but the water quality in the stream will be further stressed should appropriate water management measures not be implemented.			
Environmental Impact	Current	Cumulative	Discussion
Change in natural topography	Low	Low	No change in natural topography.
Loss of land capability	Low	Moderate	Agricultural land use for crop production to be lost.
Contamination of surface water	Moderate	Moderate to High	Upstream impact from coal mine has rendered water quality in Koringspruit to the tolerable range.
Contamination of groundwater	Moderate	Moderate	The adjacent & immediate surroundings have several activities that may cause groundwater degradation. The proposed activity will not result in an increase in the groundwater



			pollution.
Decrease in Mean Annual Runoff	Low	Low	Site will be operated to have separate clean and dirty water systems. Site is situated in the headwaters of Koringspruit and the contained runoff is considered insignificant in relation to the MAR of the catchment.
Loss of biodiversity	Low	Low	Site is currently impacted by agricultural land use. On project site there is limited biological diversity. The receiving environment has no sensitive species.
Loss of water resource to local water users	Low	Low	Water resource classed as non-perennial with limited utilization capacity. The water storage facility in the project area will be used for pollution control purposes.

**Residual Impacts:** Upstream impact from coal mining has rendered water quality in Koringspruit to the tolerable range. This is expected to continue following decommissioning and rehabilitation.

**11.1.4 Groundwater Impact Assessment**

<b>Nature:</b> Contamination of groundwater in the region due to the operation of the siding caused by contaminated rainwater stemming from point sources and infiltration into the aquifer through the fault zones.		
	<b>Without mitigation</b>	<b>With mitigation</b>
<b>Extent</b>	Site (2)	Site (2)
<b>Duration</b>	Permanent (5)	Long term (4)
<b>Magnitude</b>	Very High (10)	High (8)
<b>Probability</b>	Definite (5)	highly Likely (4)
<b>Significance</b>	<b>85 (High)</b>	<b>56 (Medium)</b>
<b>Status (positive or negative)</b>	Negative	Negative
<b>Reversibility</b>	Low	Low
<b>Irreplaceable loss of resources</b>	No	No
<b>Can impacts be mitigated?</b>		Yes
<b>Mitigation:</b> Implementation of water pollution control facilities such as adequate lining of waste facilities, cease abstraction from boreholes downstream of waste facilities, quarterly groundwater sampling and analyses.		
<b>Cumulative Impacts:</b> Only after integration of all groundwater models in the area could the accumulative be calculated. At this stage it is assumed that only the local aquifer will be impacted.		
<b>Residual Impacts:</b> Long-term pollution plume with high concentration of salts rendering groundwater use less suitable.		

**11.1.5 Wetland Impact Assessment**

**Nature:** Interception of watercourse and drainage areas by the infrastructure associated with



the Broodsniersplaas Siding. Increased stormwater runoff from the affected footprint area due to hardened surfaces, roads, and areas of cleared vegetation. Potential for accidental spillage or discharge from pollution control facilities.

	<b>Without mitigation</b>	<b>With mitigation</b>
<b>Extent</b>	Site (2)	Site (2)
<b>Duration</b>	Medium term (3)	Short term (2)
<b>Magnitude</b>	Very High (10)	High (8)
<b>Probability</b>	Highly likely (4)	Likely (3)
<b>Significance</b>	<b>High (60)</b>	<b>Medium (36)</b>
<b>Status (positive or negative)</b>	Negative	Negative
<b>Reversibility</b>	Medium	High
<b>Irreplaceable loss of resources</b>	No	No
<b>Can impacts be mitigated?</b>		Yes

**Mitigation:**

- Topsoil and subsoil must be stockpiled separately in low heaps.
- Coal product stockpiles or any overburden material must be stockpiled at least a 50m from the outer boundary of the wetlands.
- Develop soil management measures for the entire surface area of the siding footprint which will prevent runoff of sediment into the associated watercourses.
- A wetland monitoring process must be in place to pro-actively detect threats to wetlands before it can cause damage, e.g. the initiation of new concentrated drainage pathways and erosion processes.
- Adherence with GN704 Regulations in terms of pollution control and management measures to ensure separation of clean and dirty water systems.
- Implementation of the required wetland protective buffers.
- Containment of all coal residue on site.
- Avoid construction activities in wetlands at all cost through proper planning, demarcation and appropriate environmental awareness training. Appropriate wetland buffer zones (minimum of 32m) and no-go areas must be assigned to all wetlands.
- The appointment of a wetland specialist to be involved during the design of the terminal in order to avoid, minimise and mitigate the associated impacts of the proposed activity on wetlands.
- The design of drainage systems must ensure there is no contamination, eutrophication or increased erosion of the wetland areas. Drainage systems should be maintained regularly in order to minimize the runoff of harmful chemical substances into the wetland areas;
- The construction of surface stormwater drainage systems during the construction phase must be done in a manner that would protect the quality and quantity of the downstream system. Where applicable, the use of swales, which could then be grassed for the operational phase, is recommended as the swales would attenuate run-off water.
- All stockpiles must be protected from erosion, stored on flat areas where run-off will be minimized, and be surrounded by bunds. It should also only be stored for the minimum amount of time necessary.
- Erosion control of all banks must take place so as to reduce erosion and sedimentation into river channels or wetland areas.
- All construction materials including fuels and oil should be stored in a demarcated area that is contained within a bunded impermeable surface to avoid spread of any contamination (outside of wetlands or wetland buffer zones).

**Cumulative Impacts:** If the abovementioned mitigation measures are implemented successfully the cumulative impacts of the project should not result in an impact larger than was assessed initially.

**Residual Impacts:** Possible reduction in wetland functionality. Continuous monitoring will allow for early detection allowing for management initiatives to be implemented ultimately reducing the potential for a residual impact.



### 11.1.6 Aquatic Ecology Impact Assessment

**Nature:** The Broodsniersplaas Siding is in close proximity to watercourses and drainage areas, that could result in increased stormwater run-off from the Siding due to on-going activities taking place on site. The possibility of environmental spillages or accidental discharges from the pollution control facilities could have a detrimental impact on the overall aquatic biodiversity causing erosion and increased sedimentation in the nearby river.

	Without mitigation	With mitigation
<b>Extent</b>	Regional (3)	Site (2)
<b>Duration</b>	Long term (4)	Short term (2)
<b>Magnitude</b>	High (8)	Moderate (6)
<b>Probability</b>	Highly likely (4)	Possible (2)
<b>Significance</b>	<b>High (60)</b>	<b>Low (22)</b>
<b>Status (positive or negative)</b>	Negative	Negative
<b>Reversibility</b>	Medium	High
<b>Irreplaceable loss of resources</b>	No	No
<b>Can impacts be mitigated?</b>		Yes

**Mitigation:**

- Effective stormwater management practices should be implemented, such as sediment and erosion control measures can reduce the amount of run-off that will prevent pollutants from entering the river system.
- Strategic surface water, groundwater and bio-monitoring sites must be established in order to detect any pollution source that may stem from the Siding.
- Continuous environmental compliance monitoring is required to establish a comprehensive database for the Siding.
- Topsoil and subsoil must be stockpiled separately in low heaps.
- Coal product stockpiles or any overburden material must be stockpiled at least a 32m from the outer boundary of the riparian zone.
- Raising awareness amongst workers in protecting the river and the functionality of the water source.
- Avoid any heavy vehicles and mining related activities within the regulated buffer zone.
- Ensure the involvement of an accredited SASS5 practitioner to undertake the necessary aquatic assessments as this will aid in providing more accurate mitigation measures to be implemented during the operation phase of the Siding.
- All construction materials including fuels and oil should be stored in a demarcated area that is contained within a bunded impermeable surface to avoid spread of any contamination.
- Stormwater trench on the eastern side of the Siding must be maintained and cleared of any product at all times.
- Culvert that transects the Siding must be inspected on a regular basis to allow clean water to drain freely toward the receiving environment. Any coal product must be cleared from these areas.
- Ensure no riparian vegetation is cleared or destroyed by activities taking place on site.
- A designated area needs to be demarcated for construction material as well as a designated area for trucks and heavy machinery to avoid any hydrocarbon spillages that may occur.

**Cumulative Impacts:** If the abovementioned mitigation measures are implemented successfully the cumulative impacts of the project should not result in an impact larger than was assessed initially.

**Residual Impacts:** Possible reduction in the health class of the river. This will impact the



aquatic invertebrate community composition by lowering the overall score, and may cause some sensitive forms to be lower than expected. Continuous monitoring will allow for early detection allowing for management initiatives to be implemented ultimately reducing the potential for a residual impact.

**11.1.7 Air Quality Impact Assessment**

<b>Nature:</b> Expansion of project area to allow for additional coal storage and handling space. Vehicle movement and coal handling.		
	<b>Without mitigation</b>	<b>With mitigation</b>
<b>Extent</b>	Local (2)	Footprint (1)
<b>Duration</b>	Long term (4)	Short term (2)
<b>Magnitude</b>	Moderate (6)	Low (2)
<b>Probability</b>	Definite (5)	Possible (2)
<b>Significance</b>	<b>High (60)</b>	<b>Low (10)</b>
<b>Status (positive or negative)</b>	Negative	Negative
<b>Reversibility</b>	Medium	High
<b>Irreplaceable loss of resources</b>	No	No
<b>Can impacts be mitigated?</b>		Yes
<b>Mitigation:</b>		
<ul style="list-style-type: none"> <li>In places of high vehicular traffic, dust suppression measures on the roads may be implemented to reduce dust levels from the entrainment of dust. These measures will range from watering of roads, application of a chemical dust suppressant and/or paving of roads.</li> <li>Reduce vehicle speeds on roads to less than 40 km/hr within the project area.</li> <li>If possible a chemical dust suppressant should be used to suppress dust emissions on the coal stockpiles if 12% moisture content cannot be maintained over a long period of time to lower dust emissions.</li> </ul>		
<b>Cumulative Impacts:</b> If the abovementioned mitigation measures are implemented successfully the cumulative impacts of the project should not result in an impact larger than was assessed initially.		
<b>Residual Impacts:</b> None		

**11.1.8 Noise Impact Assessment**

<b>Nature:</b> Vehicle movement and coal handling.		
	<b>Without mitigation</b>	<b>With mitigation</b>
<b>Extent</b>	Local (2)	Local (2)
<b>Duration</b>	Short term (2)	Short term (2)
<b>Magnitude</b>	Moderate (6)	Moderate (6)
<b>Probability</b>	Improbable (1)	Improbable (1)
<b>Significance</b>	<b>Low (10)</b>	<b>Low (10)</b>
<b>Status (positive or negative)</b>	Negative	Negative
<b>Reversibility</b>	High	High
<b>Irreplaceable loss of resources</b>	No	No
<b>Can impacts be mitigated?</b>		Yes
<b>Mitigation:</b> Construction activities on the expansion area should be limited to normal operating hours of the siding and all construction vehicles and equipment should be maintained in a sound state. Operating hours of the washplant should also be limited to siding operating hours.		
<b>Cumulative Impacts:</b> Potential impacts of noise on the environment and local community is low and no formal mitigation is required or recommended.		
<b>Residual Impacts:</b> Potential impacts of noise on the environment and local community is low and no formal mitigation is required or recommended.		



### 11.1.9 Visual Impact Assessment

<b>Nature:</b> Based on the latest information on SANBI and NFEPA spatial layers the project is located in close proximity to a wetland and water resource. Some of these natural areas will be transformed from agricultural activities to industrial. The accumulation of mining and industrial activities in the region has contributed to a visually unappealing environment. There are no residential areas nearby or any farm dwelling surrounding the site which could contribute towards a visual disturbance.		
	<b>Without mitigation</b>	<b>With mitigation</b>
<b>Extent</b>	Regional (3)	Local (2)
<b>Duration</b>	Long term (4)	Long term (4)
<b>Magnitude</b>	Moderate (6)	Low (4)
<b>Probability</b>	Likely (3)	Possible (2)
<b>Significance</b>	<b>Moderate (39)</b>	<b>Low (20)</b>
<b>Status (positive or negative)</b>	Negative	Negative
<b>Reversibility</b>	Not reversible	Partial reversible
<b>Irreplaceable loss of resources</b>	N/A	N/A
<b>Can impacts be mitigated?</b>	Yes	Yes
<b>Mitigation:</b> Coal not to be stockpiled in dumps higher than 5 meters. All embankments to be grassed in order to blend with the natural vegetation of the area.		
<b>Cumulative Impacts:</b> It has been established that the study area presents a relatively weak sense of place dominated by mining and industrial activities. The visual exposure brought on by the physical presence of the activity will increasingly change the sensitivity of the viewers		
<b>Residual Impacts:</b> Not applicable		

### 11.1.10 Blasting and Vibration Impact Assessment

<b>Nature:</b>		
	<b>Without mitigation</b>	<b>With mitigation</b>
<b>Extent</b>	n/a	n/a
<b>Duration</b>	n/a	n/a
<b>Magnitude</b>	n/a	n/a
<b>Probability</b>	n/a	n/a
<b>Significance</b>	n/a	n/a
<b>Status (positive or negative)</b>	n/a	n/a
<b>Reversibility</b>	n/a	n/a
<b>Irreplaceable loss of resources</b>	n/a	n/a
<b>Can impacts be mitigated?</b>	n/a	n/a
<b>Mitigation:</b> n/a		
<b>Cumulative Impacts:</b> n/a		
<b>Residual Impacts:</b> n/a		

### 11.1.11 Cultural Heritage Impact Assessment

<b>Nature:</b> Expansion of project area to allow for additional coal storage and handling space.		
	<b>Without mitigation</b>	<b>With mitigation</b>
<b>Extent</b>	Footprint (1)	Footprint (1)



<b>Duration</b>	Short term (2)	Short term (2)
<b>Magnitude</b>	Low (4)	Insignificant (2)
<b>Probability</b>	Possible (2)	Improbable (1)
<b>Significance</b>	<b>Low (14)</b>	<b>Low (5)</b>
<b>Status (positive or negative)</b>	Negative	Negative
<b>Reversibility</b>	Low	Low
<b>Irreplaceable loss of resources</b>	Possible	Possible
<b>Can impacts be mitigated?</b>		Yes
<b>Mitigation:</b> Should any previously unknown or invisible sites, features or material be uncovered during any development actions then an expert should be contacted to investigate and provide recommendations on the way forward.		
<b>Cumulative Impacts:</b> None		
<b>Residual Impacts:</b> None		

### 11.1.12 Social and Economic Impact Assessment

<b>Nature:</b> A baseline socio-economic desktop study for the project area was undertaken taking cognisance of the current employees of the applicant in relation to the surrounding communities and labour seeking areas. The Emalahleni Local Municipality's IDP revealed a high un-employment rate in the area. It needed to be determined whether the socio-economic benefit of the project outweighs the environmental impacts with the emphasis on ensuring sustainable development. Influx of foreigners to the area as well as job seekers could increase the crime rate. More jobs however could increase the disposable income for the region		
	<b>Without mitigation</b>	<b>With mitigation</b>
<b>Extent</b>	Local (2)	Local (2)
<b>Duration</b>	Long term (4)	Long term (4)
<b>Magnitude</b>	Moderate (6)	Moderate (6)
<b>Probability</b>	Likely (3)	Highly likely (4)
<b>Significance</b>	<b>Moderate (36)</b>	<b>High (48)</b>
<b>Status (positive or negative)</b>	Negative	Positive
<b>Reversibility</b>	Yes	Yes
<b>Irreplaceable loss of resources</b>	N/A	N/A
<b>Can impacts be mitigated?</b>	Yes	Yes
<b>Mitigation:</b> Additional employment opportunities will be created through the implementation of the SLP. Set targets for local procurement, employment and enterprise development. Maximise the number of locals sourced for employment. Assess the need for retraining of employees and end of life of project and implement the findings		
<b>Cumulative Impacts:</b> Increase in crimes such as theft and negative social impacts including alcoholism and potential prostitution in and around the project site. This would result in a moderate negative impact to the neighbouring communities. Influx of job seekers increases the risk of the establishment of informal settlements. With the proper implementation of the SLP the project would create a positive spin off due to increased job opportunities, skills development through training and the increase of disposable income for the region.		
<b>Residual Impacts:</b> Not applicable		

### 11.1.13 Traffic Impact Assessment

<b>Nature:</b> Expansion of project area to allow for additional coal storage and handling space.		
	<b>Without mitigation</b>	<b>With mitigation</b>



<b>Extent</b>	Local (2)	Footprint (1)
<b>Duration</b>	Short term (2)	Short term (2)
<b>Magnitude</b>	Low (4)	Insignificant (2)
<b>Probability</b>	Likely (3)	Possible (2)
<b>Significance</b>	<b>Low (24)</b>	<b>Low (10)</b>
<b>Status (positive or negative)</b>	Negative	Negative
<b>Reversibility</b>	High	High
<b>Irreplaceable loss of resources</b>	No	No
<b>Can impacts be mitigated?</b>		yes
<b>Mitigation:</b> Implement traffic management plan to control all vehicles on site and remain on the designated roads. Ensure all road users adhere to all road signs erected on site. Single direction traffic shall be controlled through stop-go system.		
<b>Cumulative Impacts:</b> Increased traffic due to construction activities could potentially lead to increased dust generation.		
<b>Residual Impacts:</b> There are no residual impacts associated with traffic.		

## 11.2 Unplanned Events and Low Risks

All attempts have been made to fully incorporate all possible impacts and related events into the EIA and Risk Assessment. However it is still possible that unplanned events or impacts could occur. It is recommended that Puleng Resources, internal management and independent contractors (working and monitoring) liaise on a monthly to bi-monthly basis to assess and discuss "close-calls", management, avoidance, mitigation and other plans in place to manage unplanned events. When and if needed, an action plan would need to be compiled allowing for the coverage of a unplanned event. Such an action plan would need to be to the satisfaction of the regulatory authority related to the vent.

## 11.3 Cumulative Impacts

### 11.3.1 Soil, Land Use and Land Capability

If the abovementioned mitigation measures are implemented and monitored correctly, no cumulative impacts are expected within the footprint area.

### 11.3.2 Fauna and Flora

If the abovementioned mitigation measures are implemented and monitored correctly, no cumulative impacts are expected within the footprint area.

### 11.3.3 Surface Water

No significant change is to be expected but the water quality in the stream will be further stressed should appropriate water management measures not be implemented.

<b>Environmental Impact</b>	<b>Current</b>	<b>Cumulative</b>	<b>Discussion</b>
Change in natural topography	Low	Low	No change in natural topography.
Loss of land capability	Low	Moderate	Agricultural land use for crop production to be lost.
Contamination of surface water	Moderate	Moderate to High	Upstream impact from coal mine has rendered water quality in Koringspruit to the tolerable range.
Contamination of groundwater	Moderate	Moderate	The adjacent & immediate surroundings have several activities that may cause groundwater degradation. The proposed activity will not result in an increase in the groundwater pollution.





Decrease in Mean Annual Runoff	Low	Low	Site will be operated to have separate clean and dirty water systems. Site is situated in the headwaters of Koringspruit and the contained runoff is considered insignificant in relation to the MAR of the catchment.
Loss of biodiversity	Low	Low	Site is currently impacted by agricultural land use. On project site there is limited biological diversity. The receiving environment has no sensitive species.
Loss of water resource to local water users	Low	Low	Water resource classed as non-perennial with limited utilization capacity. The water storage facility in the project area will be used for pollution control purposes.

#### **11.3.4 Groundwater**

Only after integration of all groundwater models in the area could the accumulative be calculated. At this stage it is assumed that only the local aquifer will be impacted.

#### **11.3.5 Wetlands**

If the abovementioned mitigation measures are implemented successfully the cumulative impacts of the project should not result in an impact larger than was assessed initially.

#### **11.3.6 Aquatic Ecology**

If the abovementioned mitigation measures are implemented successfully the cumulative impacts of the project should not result in an impact larger than was assessed initially.

#### **11.3.7 Air Quality**

If the abovementioned mitigation measures are implemented successfully the cumulative impacts of the project should not result in an impact larger than was assessed initially.

#### **11.3.8 Noise**

Potential impacts of noise on the environment and local community is low and no formal mitigation is required or recommended.

#### **11.3.9 Visual**

It has been established that the study area presents a relatively weak sense of place dominated by mining and industrial activities. The visual exposure brought on by the physical presence of the activity will increasingly change the sensitivity of the viewers.

#### **11.3.10 Cultural Heritage**

None.

#### **11.3.11 Social**

Increase in crimes such as theft and negative social impacts including alcoholism and potential prostitution in and around the project site. This would result in a moderate negative impact to the neighbouring communities. Influx of job seekers increases the risk of the establishment of informal settlements. With the proper implementation of the SLP the project would create a positive spin off due to increased job opportunities, skills development through training and the increase of disposable income for the region.



### 11.3.12 Traffic

Increased traffic due to construction activities could potentially lead to increased dust generation.

## 12. ITEM 3(g)(vi): METHODOLOGY USED

The criteria for the description and assessment of environmental impacts were drawn from the EIA Regulations, published by the Department of Environmental Affairs and Tourism (April 1998) in terms of the NEMA.

The level of detail as depicted in the EIA regulations was fine-tuned by assigning specific values to each impact. In order to establish a coherent framework within which all impacts could be objectively assessed, it was necessary to establish a rating system, which was applied consistently to all the criteria. For such purposes each aspect was assigned a value, ranging from one (1) to five (5), depending on its definition. This assessment is a relative evaluation within the context of all the activities and the other impacts within the framework of the project. An explanation of the impact assessment criteria is defined below in **Table 12-1**.

**Table 12-1: Explanation of the EIA criteria**

<b>Extent</b>	
<b>Classification of the physical and spatial scale of the impact</b>	
Footprint (F)	The impacted area extends only as far as the activity, such as footprint occurring within the total site area.
Site (S)	The impact could affect the whole, or a significant portion of the site.
Regional (R)	The impact could affect the area including the neighbouring farms, the transport routes and the adjoining towns.
National (N)	The impact could have an effect that expands throughout the country (South Africa).
International (I)	Where the impact has international ramifications that extend beyond the boundaries of South Africa.
<b>Duration</b>	
<b>The lifetime of the impact that is measured in relation to the lifetime of the development.</b>	
Short (ST)	The impact will either disappear with mitigation or will be mitigated through a natural process in a period shorter than that of the construction phase.
Short to Medium (S-M)	The impact will be relevant through to the end of a construction phase (1.5 years)
Medium (M)	The impact will last up to the end of the development phases, where after it will be entirely negated.
Long (LT)	The impact will continue or last for the entire operational lifetime i.e. exceed 30 years of the development but will be mitigated by direct human action or by natural processes thereafter.
Permanent (P)	This is the only class of impact, which will be non-transitory. Mitigation either by man or natural process will not occur in such a way or in such a time span that the impact can be considered transient.
<b>Intensity</b>	
<b>The intensity of the impact is considered by examining whether the impact is destructive or benign, whether it destroys the impacted environment, alters its functioning, or slightly alters the environment itself. The intensity is rated as</b>	



Low (L)	The impact alters the affected environment in such a way that the natural processes or functions are not affected.
Medium (M)	The affected environment is altered, but functions and processes continue, albeit in a modified way.
High (H)	Function or process of the affected environment is disturbed to the extent where it temporarily or permanently ceases.
<b>Probability</b>	
<b>This describes the likelihood of the impacts actually occurring. The impact may occur for any length of time during the life cycle of the activity, and not at any given time. The classes are rated as follows:</b>	
Probable (Pr)	The possibility of the impact occurring is none, due either to the circumstances, design or experience. The chance of this impact occurring is zero (0 %).
Possible (Po)	The possibility of the impact occurring is very low, due either to the circumstances, design or experience. The chances of this impact occurring is defined as 25 %.
Likely (L)	There is a possibility that the impact will occur to the extent that provisions must therefore be made. The chances of this impact occurring is defined as 50 %.
Highly Likely (HL)	It is most likely that the impacts will occur at some stage of the development. Plans must be drawn up before carrying out the activity. The chances of this impact occurring is defined as 75 %.
Definite (D)	The impact will take place regardless of any prevention plans, and only mitigation actions or contingency plans to contain the effect can be relied on. The chance of this impact occurring is defined as 100 %.

In order to assess each of these factors for each impact, the following ranking scales will be used (**Table 12-2**).

**Table 12-2: Assessment Criteria – Ranking Scales**

<b>PROBABILITY</b>		<b>MAGNITUDE / INTENSITY</b>	
Description / Meaning	Score	Description / Meaning	Score
Definite/don't know	5	Very high/don't know	10
Highly likely	4	High	8
Likely	3	Moderate	6
Possible	2	Low	4
Improbable	1	Insignificant	2
<b>DURATION</b>		<b>SPATIAL SCALE / EXTEND</b>	
Description / Meaning	Score	Description / Meaning	Score
Permanent	5	International	5
Long Term	4	National	4
Medium Term	3	Regional	3
Short term	2	Local	2
Temporary	1	Footprint	1/0

### **Determination of Significance**

Determination of significance refers to the foreseeable significance of the impact after the successful implementation of the necessary mitigation measures. The Significance Rating (SR) is determined as follows:



**Equation 1:**

$$\text{Significance Rating (SR)} = (\text{Extent} + \text{Intensity} + \text{Duration}) \times \text{Probability}$$

Other aspects to take into consideration in the specialist studies are:

- Impacts should be described both before and after the mitigation and management measures have been implemented.
- All impacts should be evaluated for the full-lifecycle of the development, including construction, operation and decommissioning.
- The impact evaluation should take into consideration the cumulative effects associated with this and other facilities which are either developed or in the process of being developed in the region.
- The specialist studies must attempt to quantify the magnitude of potential impacts (direct and cumulative effects) and outline the rationale used. (Where appropriate, national standards are to be used as a measure of the level of impact).

**Identifying the Potential Impacts Without Mitigation Measures (WOM)**

Following the assignment of the necessary weights to the respective aspects, criteria are summed and multiplied by their assigned probabilities, resulting in a value for each impact (prior to the implementation of mitigation measures). Significance without mitigation is rated on the following scale:

**Table 12-3: Significance Rating Scales without Mitigation**

SR < 30	<b>Low (L)</b>	Impacts with little real effect and which should not have an influence on or require modification of the project design or alternative mitigation. No mitigation is required.
30 < SR < 60	<b>Medium (M)</b>	Where it could have an influence on the decision unless it is mitigated. An impact or benefit which is sufficiently important to require management. Of moderate significance - could influence the decisions about the project if left unmanaged.
SR > 60	<b>High (H)</b>	Impact is significant, mitigation is critical to reduce impact or risk. Resulting impact could influence the decision depending on the possible mitigation. An impact which could influence the decision about whether or not to proceed with the project.

**Identifying the Potential Impacts with Mitigation Measures (WM)**

In order to gain a comprehensive understanding of the overall significance of the impact, after implementation of the mitigation measures, it will be necessary to re-evaluate the impact. Significance with mitigation is rated on the following scale as contemplated in **Table 12-4:**

**Table 12-4: Significance Rating Scales with Mitigation**

SR < 30	<b>Low (L)</b>	The impact is mitigated to the point where it is of limited importance.
30 < SR < 60	<b>Medium (M)</b>	Notwithstanding the successful implementation of the mitigation measures, to reduce the negative impacts to acceptable levels, the negative impact will remain of significance. However, taken within the overall context of the project, the persistent impact does not constitute a fatal flaw.



SR > 60	<b>High (H)</b>	The impact is of major importance. Mitigation of the impact is not possible on a cost-effective basis. The impact is regarded as high importance and taken within the overall context of the project, is regarded as a fatal flaw. An impact regarded as high significance, after mitigation could render the entire development option or entire project proposal unacceptable.
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**12.1 Item 3(g)(vii): Positive and Negative Impacts that the Proposed Activity and Alternatives will have on the Environment**

Please refer to Section 11 for a full list of potential impacts related to the project.

**12.2 Item 3(g)(viii): Possible Mitigation Measures that could be Applied and Level of Risk**

Please refer to Section 11 for a full list of mitigation measures related to the project.

**12.3 Item 3(g)(ix): Motivation where no Alternative Sites were Considered**

The Broodsnyersplaas Coal Siding is an exciting siding with the majority of the infrastructure and related impacts already being in-place. In terms of the expansion of the coal stockyard area, no alternatives were formally considered as none were possible. To the east and south of the existing project area, the existing railway line would make expansion impossible in addition to the proximity to sensitive wetland features in that specific direction/area. By placing the expansion area to the north-west of the existing siding, this allows for the use of unused land with a natural slope assisting the implementation of the Stormwater Management Plan.

**12.4 Item 3(g)(x): Statement Motivating Alternative Development Location**

As mentioned before, no alternative development locations were possible or considered.

**13. ITEM 3(h): FULL DESCRIPTION OF PROCESS UNDERTAKEN TO IDENTIFY, ASSESS AND RANK IMPACTS**

Please refer to Section 12 for a full description of the methodology followed to undertake to impacts assessment. This was done in conjunction and integration of specialist inputs.

**14. ITEM 3(i): ASSESSMENT OF EACH IDENTIFIED POTENTIALLY SIGNIFICANT IMPACT AND RISK**



**Table 14-1: Assessment of each identified potentially significant impact and risk**

<b>ACTIVITY</b> Whether listed or not listed	<b>POTENTIAL IMPACT</b>	<b>ASPECTS AFFECTED</b>	<b>PHASE</b> In which impact is anticipated	<b>SIGNIFICANCE</b> if not mitigated	<b>MITIGATION TYPE</b>	<b>SIGNIFICANCE</b> if mitigated
<b>Listing Notice 1 (GNR 327), Activity 27:</b> <i>"The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation"</i>	Impact on the bio-physical environment	Fauna and Flora <ul style="list-style-type: none"> <li>• Loss/fragmentation of natural vegetation</li> <li>• loss of sensitive species</li> <li>• Loss of habitat</li> </ul>	C	Moderate – short term	<ul style="list-style-type: none"> <li>• Continuous monitoring of the environment;</li> <li>• Limiting the footprint of disturbance;</li> <li>• Recommendations as stipulated in the Fauna and Flora Report.</li> </ul>	Low
		Soil <ul style="list-style-type: none"> <li>• Soil degradation</li> <li>• Increased soil erosion</li> <li>• Loss of topsoil</li> </ul>	C, O, D	Moderate	<ul style="list-style-type: none"> <li>• Topsoil to be stored and reused during rehabilitation;</li> <li>• Sacrificial soil layer to be established;</li> <li>• Compacted areas outside of expansion footprint to be ripped and re-seeded.</li> </ul>	Low - Moderate
	Impact on the aquatic environment	Surface water <ul style="list-style-type: none"> <li>• Increased stormwater runoff</li> <li>• Water quality deterioration due to soil erosion</li> <li>• Destruction of drainage pathways</li> </ul>	C, O, D	High	<ul style="list-style-type: none"> <li>• Implementation of Stormwater management in the form of dirty water capture and treatment;</li> <li>• Limiting runoff through reuse of stormwater from PCDs;</li> <li>• Implementation of monitoring programme.</li> </ul>	Low - Moderate



<b>ACTIVITY</b> Whether listed or not listed	<b>POTENTIAL IMPACT</b>	<b>ASPECTS AFFECTED</b>	<b>PHASE</b> In which impact is anticipated	<b>SIGNIFICANCE</b> if not mitigated	<b>MITIGATION TYPE</b>	<b>SIGNIFICANCE</b> if mitigated
		Wetlands <ul style="list-style-type: none"> <li>• Riparian vegetation</li> <li>• Pollution – siltation</li> <li>• Reduced runoff impact on recharge of wetland</li> <li>• Stormwater</li> </ul>	C, O, D	Moderate	<ul style="list-style-type: none"> <li>• Topsoil and subsoil must be stockpiled separately in low heaps;</li> <li>• Coal product stockpiles or any overburden material must be stockpiled at least a 50m from the outer boundary of the wetlands;</li> <li>• Develop soil management measures for the entire surface area of the siding footprint which will prevent runoff of sediment into the associated watercourses; and</li> <li>• A wetland monitoring process must be in place to pro-actively detect threats to wetlands before it can cause damage, e.g. the initiation of new</li> </ul>	Low



<b>ACTIVITY</b> Whether listed or not listed	<b>POTENTIAL IMPACT</b>	<b>ASPECTS AFFECTED</b>	<b>PHASE</b> In which impact is anticipated	<b>SIGNIFICANCE</b> if not mitigated	<b>MITIGATION TYPE</b>	<b>SIGNIFICANCE</b> if mitigated
	Impact on the socio-economic environment	Local employment • Job creation • skills development	C, O, D	High (Positive)	concentrated drainage pathways and erosion processes • Implementation of a SLP and use of local community for jobs.	High (positive)
		Traffic • Increased heavy vehicle traffic on R35	C, O	High	• No mitigation possible apart from adhering to rules of the road.	Moderate
		Health and Safety • Air and dust pollution • Road safety	C, O	High	• Dust monitoring for PM10 and PM2.5 • Perform dust suppression	Moderate
		Noise • Increased noise levels during operational phase	O	Moderate	• Noise and complaint monitoring; • Restricting work to specific daytime hours	Low
		Heritage • No impact on heritage	C	Low	No mitigation required	Low
GN R.325, Listed Activity 6 <i>The development of facilities or infrastructure for any process or activity which requires a permit</i>	Impact on the aquatic environment.	Aquatic ecology • PES and EIS of the receiving resource to be altered • Aquatic biodiversity	C, O, D	Moderate	• Determine PES and EIS as benchmark for development of the Water Management Plan • Conduct bio-monitoring bi-	Low





<b>ACTIVITY</b> Whether listed or not listed	<b>POTENTIAL IMPACT</b>	<b>ASPECTS AFFECTED</b>	<b>PHASE</b> In which impact is anticipated	<b>SIGNIFICANCE</b> if not mitigated	<b>MITIGATION TYPE</b>	<b>SIGNIFICANCE</b> if mitigated
<i>or licence or an amended permit or licence in terms of national or provincial legislation governing the generation or release of emissions, pollution or effluent, excluding—</i> (i) activities which are identified and included in Listing Notice 1 of 2014; (ii) activities which are included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case the National Environmental Management: Waste Act, 2008 applies; (iii) the development of facilities or infrastructure for the treatment of effluent, polluted water, wastewater or sewage where such facilities have a daily throughput capacity of 2 000 cubic metres or less; or (iv) where the		reduced • Impact on NFEPA water resource			annually • Compliance with the Ecological Reserve requirements of NFEPA	
		Surface Water • Water quality deterioration • Impact on downstream water users • Impact on the Reserve and BHN requirements • Altering the natural hydrology of the catchment	C, O, D	High	Regulatory control in terms of section 40 of NWA incorporating: • Set RQO's to be complied with • Containment of dirty water • Separation of clean and dirty water system • Water management infrastructure to be designed to comply with GN704 Regulations • Monitoring and Audits to indicate compliance with WUL conditions	Moderate
		Groundwater • Groundwater pollution due to infiltration from point sources • pollution plume migration towards wetland and Koring	C, O, D	High	IWWMP containing: • Groundwater management plan; • ABA of coal stockpile to determine AMD leachate potential • Implement appropriate HDPE liners at PCD's	Moderate



<b>ACTIVITY</b> Whether listed or not listed	<b>POTENTIAL IMPACT</b>	<b>ASPECTS AFFECTED</b>	<b>PHASE</b> In which impact is anticipated	<b>SIGNIFICANCE</b> if not mitigated	<b>MITIGATION TYPE</b>	<b>SIGNIFICANCE</b> if mitigated
<i>development is directly related to aquaculture facilities or infrastructure where the wastewater discharge capacity will not exceed 50 cubic metres per day</i>		Spruit <ul style="list-style-type: none"> <li>Groundwater abstraction and impact on groundwater supply</li> <li>Potential lowering of groundwater levels</li> </ul>			<ul style="list-style-type: none"> <li>Groundwater monitoring</li> <li>Bi-annual numerical model calibration to refine pollution plume migration</li> <li>Free draining rehabilitation of disturbed areas to prevent ponding</li> </ul>	
		Wetlands <ul style="list-style-type: none"> <li>Impact on wetland biodiversity</li> <li>Impact of wetland eco-services</li> <li>potential erosion and siltation of the system</li> <li>Wetland recharge reduced due altering of drainage pathways</li> </ul>	C, O, D	Moderate	Regulatory control by means of section 21(c) and (i) WUL <ul style="list-style-type: none"> <li>Submit Wetland Rehab plan</li> <li>Wetland Monitoring Plan</li> <li>Work Method Statement</li> </ul>	Low



## 15. ITEM 3(j): SUMMARY OF SPECIALIST REPORTS

Please refer to **Table 15-1** which contains a summary of the Specialist Studies conducted for the Broodsniersplaas Siding Project.



Table 15-1: Specialist studies

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
Terrestrial Biodiversity Assessment	<p>Recommendation to be included in the EMP:</p> <ul style="list-style-type: none"> <li>• it is recommended that the applicant not deviate from the final plans or mitigation measures proposed in the Stormwater Management Plan and the Wetland Delineation Study;</li> <li>• it is recommended that a more extensive ecological determination be done five years prior to closure, and that all recommendations made be included in the Rehabilitation Plan;</li> <li>• it is recommended that construction material be stored directly on site and that no vehicles, equipment or material be allowed to enter the natural environment surrounding the project area. It is further recommended that construction/upgrading activities be scheduled during winter/dry months, to minimise impacts on the fauna and flora community;</li> <li>• it is recommended that the upgrade and construction of the new PCD precede the vegetation clearance for the expansion area. This could potential reduce stormwater runoff related impacts to the environment;</li> <li>• it is recommended that a pre-emptive Small-scale Invasive Species Management Plan be implemented on site; and</li> <li>• it is recommended that monthly surface water monitoring, as well as quarterly groundwater monitoring, be conducted to allow for early identification of pollution events</li> </ul>	Yes	Section 10.1.6; Section 11.1.6; Section 11.3.2; Section 14.
Surface Water Assessment	<p>In terms of the surface water assessment as part of the EIA, the construction and operation of the Broodsniersplaas Siding project is not subject to any fatal flaws. The majority of the impacts that may affect the site or local receptors are of medium to low significance. Impacts of high significance include water quality degradation which could be mitigated to low significance with the implementation of appropriate</p>	Yes.	Section 10.1.4; Section 11.1.3; Section 11.3.3; Section 14.



	<p>water pollution control facilities such as storm water management measures and construction of a pollution control dam.</p> <p>Water quality of the Koringspruit based on the Department of Water and Sanitation's database is evident of degradation that has occurred due to mining and power generation activities. The water quality in the receiving water resource (Koringspruit) can be classed as tolerable with variables such as TDS, Ec and SO4 exceeding the Target Water Quality Range for potable use.</p> <p>Anticipated impacts stemming from the development and operation of the coal terminal has identified that effluent from the coal terminal could contribute towards further water resource degradation should appropriate water management measures not be implemented. These measures include the implementation of storm water management systems and a containment facility for impoundment of polluted water. This water needs to be contained for recycling purposes as the consumptive water use for a coal terminal is calculated at approximately 88 000 m3 per annum. As the catchment is a water stressed area, the applicant needs to apply for a water use authorisation for the taking of water from a resource.</p> <p>M2 Environmental Connections (Pty) Ltd as independent environmental practitioners, conclude that there is no reason why the development of the coal siding with associated railway connections should not be granted authorization by the relevant competent authority in terms of the NEMA as the project does not worsen the current environmental status of the receiving environment. Furthermore, the project does not contribute significantly to current levels of degradation associated with coal mining and power generation as the main activities in the catchment. The recommendations as set out in the draft EMP should be included as a condition of project implementation.</p> <p>The owners of the project are also subject to the requirements of the NWA. The additional conditions of a water use authorization will ensure that water management on site will curb any potential impact on the water resource.</p>		
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	<p>In addition, the Surface Water Specialist recommended the following Monitoring Programme:</p> <table border="1"> <thead> <tr> <th data-bbox="521 244 723 316">Monitoring Site</th> <th data-bbox="723 244 1021 316">Description</th> <th data-bbox="1021 244 1218 316">GPS</th> <th data-bbox="1218 244 1397 316">Aspect</th> </tr> </thead> <tbody> <tr> <td data-bbox="521 316 723 560">BSP1</td> <td data-bbox="723 316 1021 560">This site is situated in the unnamed tributary of the Koringspruit approximately 100m upstream of the siding. The site is situated at a road crossing next to a culvert.</td> <td data-bbox="1021 316 1218 560">26° 3'39.60"S 29°29'7.64"E</td> <td data-bbox="1218 316 1397 560">Surface Water and Bio-monitoring</td> </tr> <tr> <td data-bbox="521 560 723 770">BSP2</td> <td data-bbox="723 560 1021 770">This site is also located within the tributary system approximately 1km downstream of BSP1 and just downstream of the siding.</td> <td data-bbox="1021 560 1218 770">26° 4'8.30"S 29°28'46.60"E</td> <td data-bbox="1218 560 1397 770">Surface Water and Bio-monitoring</td> </tr> <tr> <td data-bbox="521 770 723 863">PCD1</td> <td data-bbox="723 770 1021 863">Existing PCD in the southern most corner of the project area.</td> <td data-bbox="1021 770 1218 863">26° 4'12.66"S 29°28'32.08"E</td> <td data-bbox="1218 770 1397 863">Surface Water</td> </tr> <tr> <td data-bbox="521 863 723 959">PCD2</td> <td data-bbox="723 863 1021 959">Newly proposed PCD to be constructed in the new expansion area.</td> <td data-bbox="1021 863 1218 959">26° 3'46.60"S 29°28'39.60"E</td> <td data-bbox="1218 863 1397 959">Surface Water</td> </tr> </tbody> </table>	Monitoring Site	Description	GPS	Aspect	BSP1	This site is situated in the unnamed tributary of the Koringspruit approximately 100m upstream of the siding. The site is situated at a road crossing next to a culvert.	26° 3'39.60"S 29°29'7.64"E	Surface Water and Bio-monitoring	BSP2	This site is also located within the tributary system approximately 1km downstream of BSP1 and just downstream of the siding.	26° 4'8.30"S 29°28'46.60"E	Surface Water and Bio-monitoring	PCD1	Existing PCD in the southern most corner of the project area.	26° 4'12.66"S 29°28'32.08"E	Surface Water	PCD2	Newly proposed PCD to be constructed in the new expansion area.	26° 3'46.60"S 29°28'39.60"E	Surface Water		
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Groundwater Assessment	<p>The following actions have been recommended by the Geohydrological Specialist:</p> <ul style="list-style-type: none"> <li>• Update the numerical model against monitored data during operations.</li> <li>• Water quantity and quality data should be collected on a regular, ongoing basis during operations. These data will be used to recalibrate and update the water management model, to prepare monitoring and audit reports, to report to the regulatory authorities against the requirements of the IWMP and other authorisations and as feedback to stakeholders in the catchment, perhaps via the CMA.</li> <li>• The monitoring as recommended in the report should be established.</li> <li>• The hydrocensus and risk assessment should at least be repeated once before closure to evaluate any impacts.</li> <li>• The management recommendations made within the report should be</li> </ul>	Yes	Section 10.1.5; Section 11.1.4; Section 11.3.5; Section 14.																				



	<p>implemented during each phase.</p>		
<p>Wetland Assessment</p>	<p><b>Activity 1: Clearing of vegetation altering FEPA wetlands</b>                  The removal of topsoil and vegetation as part of the operational activities at the siding will result in the encroachment of infrastructure to impact on the wetland. There is a risk that vegetation clearance will result in a low to moderate risk on loss of wetland biodiversity. As construction and operational activities infringe on wetland habitat, the hydrophilic vegetation and hydric soils are likely to be impacted rendering the supporting hydrological sources less effective. This will contribute towards the degradation of the regional importance of the wetlands as Present Ecological Status of the system will be lowered. If unmanaged, this would eventually lead to the alteration and modification of wetland functionality.</p> <p>The destruction of wetland habitat and prevention of loss of wetland functionality could be mitigated to a low significance by implementing the following measures:</p> <ul style="list-style-type: none"> <li>• Topsoil and subsoil must be stockpiled separately in low heaps;</li> <li>• Coal product stockpiles or any overburden material must be stockpiled at least a 50m from the outer boundary of the wetlands;</li> <li>• Develop soil management measures for the entire surface area of the siding footprint which will prevent runoff of sediment into the associated watercourses; and</li> <li>• A wetland monitoring process must be in place to pro-actively detect threats to wetlands before it can cause damage, e.g. the initiation of new concentrated drainage pathways and erosion processes.</li> </ul> <p><b>Activity 2: Coal hauling and loading</b>                  The continual hauling and loading of the stockpiled coal has a definite risk of pollution due to coal dust fall out and spilling of coal residue during the loading activities. Coal particles will impact negatively on the sensitive wetland receptors which in turn will cause disturbance of riparian vegetation and wetland soils as a result of the increased silt</p>	<p>Yes</p>	<p>Section 10.1.7;                  Section 11.1.5;                  Section 11.3.5;                  Section 14.</p>



	<p>load. Similarly, the construction of water management infrastructure could lead to increased and concentrated water discharges that may result in the altering of the wetland characteristics. The significance of the activity is regarded as moderate to high without mitigation, as increased sedimentation will result in potential negative changes to wetland functionality.</p> <p>The significance of the impact could be mitigated to low with the implementation of the following mitigatory measures:</p> <ul style="list-style-type: none"> <li>• Adherence with GN704 Regulations in terms of pollution control and management measures to ensure separation of clean and dirty water systems;</li> <li>• Implementation of the required wetland protective buffers;</li> <li>• Containment of all coal residue on site</li> </ul> <p><b>Activity 3: Erosion Control</b></p> <p>The channelled valley bottom wetland system is dependent on surface and groundwater recharge as it is predominantly be fed by precipitation. As the wetland is situated upstream of the siding and run alongside the stream that bounds the project area, continuation of development towards the wetland and stream riparian areas could cause an increased runoff that has the potential to cause wetland incisions.</p> <p>In addition the aquifer classification for Broodsnyersplaas Siding is rated as a minor aquifer system. These systems are important for local supplying of base flow for rivers. Both wetland units within the project area are all dependent on base flow associated with the variable permeability of the minor aquifer. Disruption of the minor aquifer system could have the potential to cause a moderate impact on aquifer recharge. Fortunately, the geohydrological study did not indicate a cone of depression or draw down of the water table and therefore it could be stated that the impact of reduction in recharge of base flow for the various wetland units are low.</p> <p>The implementation of the following mitigation measures will ensure that the operation of the siding will have a low significance impact</p>		
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	<p>wetland functions:</p> <ul style="list-style-type: none"> <li>• Avoid construction activities in wetlands at all cost through proper planning, demarcation and appropriate environmental awareness training. Appropriate wetland buffer zones (minimum of 32m) and no-go areas must be assigned to all wetlands;</li> <li>• The appointment of a wetland specialist to be involved during the design of the terminal in order to avoid, minimise and mitigate the associated impacts of the proposed activity on wetlands</li> </ul> <p><b>Activity 4: Stormwater Management</b></p> <p>The valley bottom wetland appears to be driven by surface water flow inputs as well as groundwater or subterranean flow input. The wetland is therefore directly dependant on the water flows from the immediate catchment for seasonal inundation. The soils around the wetland appears to be prone to erodible and storm water discharges to the wetland area may cause head gullies and channelization of the wetland coupled with sedimentation and siltation of the system. There is however a constant threat to the wetland regarding stormwater ingress as the runoff from the siding development has an increased risk of high volumes of affected stormwater being discharged into the wetland during rainy conditions. The impact significance is rated as moderate and could be mitigated to a low significance rating by implementation of the following measures:</p> <ul style="list-style-type: none"> <li>• The design of drainage systems must ensure there is no contamination, eutrophication or increased erosion of the wetland areas. Drainage systems should be maintained regularly in order to minimize the runoff of harmful chemical substances into the wetland areas;</li> <li>• The construction of surface stormwater drainage systems during the construction phase must be done in a manner that would protect the quality and quantity of the downstream system. Where applicable, the use of swales, which could then be grassed for the operational phase, is recommended as the</li> </ul>		
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	<p>swales would attenuate run-off water.</p> <ul style="list-style-type: none"> <li>• All stockpiles must be protected from erosion, stored on flat areas where run-off will be minimized, and be surrounded by bunds. It should also only be stored for the minimum amount of time necessary.</li> <li>• Erosion control of all banks must take place so as to reduce erosion and sedimentation into river channels or wetland areas.</li> </ul> <p>All construction materials including fuels and oil should be stored in a demarcated area that is contained within a bunded impermeable surface to avoid spread of any contamination (outside of wetlands or wetland buffer zones).</p> <p>The following management measures and actions must be implemented as illustrated in the table below:</p> <ul style="list-style-type: none"> <li>• Improve understanding of freshwater wetlands and their functioning;</li> <li>• Remove alien vegetation in freshwater wetland areas;</li> <li>• Prevent or minimise development within freshwater wetlands;</li> <li>• Establish the distribution and density of invasive species;</li> <li>• Prioritise areas for alien removal focusing on biodiversity restoration;</li> <li>• Implement removal programs for priority species and areas (alien plants);</li> <li>• Investigate options for the control of alien species (e.g. biological control);</li> <li>• Encourage and facilitate natural recovery of transformed areas;</li> <li>• Rehabilitate siding, decommissioned roads and unused infrastructure;</li> <li>• Reconciling biodiversity with external threats:             <ul style="list-style-type: none"> <li>○ Engage with regional land management authorities, with respect to Integrated Development Plans (IDPs) and Spatial Development Frameworks (SDFs) at local and regional level.</li> <li>○ Encourage eco-friendly resource use and land management practices on Puleng Resources properties.</li> <li>○ Encourage reserve determination for wetland systems.</li> </ul> </li> </ul>		
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Objective	Mitigation	Action Plan		
Limit or prevent erosion stemming from exposed areas related to the operation of the siding and associated infrastructure	Design the surface and storm water infrastructure to be within the footprint of the project area, separate clean from dirty water and allow discharge of water to designated areas. Vegetate disturbed areas to limit erosion	Limit the loss of the channelled valley bottom wetland not to allow any activity within the 500 meter buffer zone		
Limit the alteration of the wetland catchment area	Delineate the sub-catchments and ensure that no dirty run-off from the project area transverse the wetland	Implement berms, trenches and storm water management measures in accordance with GN 704 Regulations to ensure no discharge of affected storm water into the catchment of the wetland		
Limit wetland soil compaction caused by road construction and fencing	Access servitudes should avoid wetland area and no activity allowed in the wetland area	Compacted soil areas in and around the periphery of the wetland will be ripped to break up compacted soil and vegetated with indigenous seed mix		
Coal terminal siding development activities will be planned and managed to ensure no degradation of the wetland below Class C	The wetland and associated catchment will be regarded as a sensitive environment to be protected by an appropriate buffer zone in which no coal stockpiling and haulage related activity should be allowed.	Apply for a section 21(c) and (i) water use authorisation and develop a Wetland Rehabilitation Plan to maintain the system at REC C/B.		
Prevent surface water contamination that could impact on the	All potential pollution risk areas need to be isolated and enclosed	Pollution Control Dams to be designed to cater for the required storage		



	functionality of the wetland	within the dirty footprint of the mine	capacity		
Hydropedological Assessment	<p>The following monitoring recommendations were put forward by the Specialist:</p> <ul style="list-style-type: none"> <li>• The water flow and quality in the wetland system should be measured upstream and downstream of mining and on a quarterly basis for the following variables:                             <ul style="list-style-type: none"> <li>o Flow (m3/day)</li> <li>o pH (pH units)</li> <li>o TDS (mg/l)</li> <li>o SO4 (mg/l)</li> <li>o Full metals by ICP-OES (mg/l)</li> </ul> </li> </ul>			Yes	These monitoring recommendations have been included as part of the Water Use License Application and will reflect in the issued Water Use License.
Aquatic Ecological Assessment	<p>The following recommendations were put forward by the Specialist:</p> <ul style="list-style-type: none"> <li>•It is recommended that Broodsniersplaas implement the Bio-Monitoring Program as described in the Specialist Report;</li> <li>•The bio-monitoring shall be conducted twice a year, once during the wet season and once during the dry season;</li> <li>•It is recommended that Puleng Resources take the management actions and mitigation measures as described in the report into account as these measures will ensure that some of the requirements in the WUL will already be compliant once the WUL is obtained.</li> <li>•It is recommended that Puleng Resources put in place a monthly surface water monitoring programme which will assist in clarifying the extent to where mine run-off water has potentially influenced surface water. Monthly surface water analyses will also be beneficial to identify any sudden chemical spikes in water levels.</li> </ul> <p>It is recommended that bi-annual aquatic ecological assessments (Bio-monitoring) are conducted as this will help detect any potential impacts that may have occurred. The data will establish a comprehensive database that will assist in making more informed recommendations towards activities.</p> <p>Ensure that compliance to Environmental Authorisation and Law be practiced at all times and that all aspects be reported, which may in any way potentially compromise the integrity of the aquatic (Wetland, rivers, and tributaries) system of Broodsniersplaas.</p>			Yes	Section 10.1.8; Section 11.1.6; Section 11.3.6; Section 14.
Heritage Assessment	Should any previously unknown or invisible sites, features or material			Yes	Section 10.1.13;



	<p>be uncovered during any development actions then an expert should be contacted to investigate and provide recommendations on the way forward.</p> <p>Finally it can be concluded - from a Cultural Heritage point of view - that the proposed addition to the existing Broodsniersplaas Coal Siding should be allowed to continue taking into consideration the recommendations provided above.</p>		<p>Section 11.1.11; Section 11.3.11; Section 14.</p>
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## **16. ITEM 3(k): ENVIRONMENTAL IMPACT STATEMENT**

The impacts of a coal siding in the Mpumalanga province of South Africa can be considered medium to high, but they can be mitigated effectively with appropriate measures. These measures include the use of advanced dust suppression systems, implementing environmental management plans, and monitoring air and water quality to ensure compliance with regulatory standards. By implementing such measures, it is possible to minimize the environmental impacts of the coal siding expansion while still meeting the operational needs of the facility.

### **16.1 Item 3(k)(i): Summary of the Key Findings of the EIA**

The construction and operation of a coal siding project in the Mpumalanga province of South Africa, including the expansion of the stockpile area by 7ha, is expected to have significant impacts on the environment. The impacts can be broadly classified into six categories: soil and land-use capability, surface water, groundwater, sensitive areas such as wetlands, aquatic ecology, and air quality.

During the construction phase, soil disturbance and land-use changes can affect the natural balance of ecosystems in the area, leading to soil erosion and loss of biodiversity. Surface water can also be affected due to changes in the topography of the area, leading to increased runoff and soil erosion. Similarly, the excavation and construction activities can impact groundwater levels and quality, potentially leading to contamination and reduced availability.

Sensitive areas such as wetlands can also be impacted, leading to damage or loss of valuable ecosystems and the species that depend on them. The aquatic ecology can also be affected by changes in water quality and flow regimes, leading to impacts on fish and other aquatic species. Lastly, air quality can be impacted due to dust generated during the handling and transportation of coal.

However, with the implementation of appropriate mitigation measures, all of these high-level impacts can be effectively reduced to low or medium-level impacts. For instance, measures such as the use of advanced dust suppression systems, stormwater management plans, and environmental management plans can be employed to mitigate air quality, surface water, and soil and land-use impacts.

Similarly, sensitive areas can be protected through the implementation of buffer zones and avoiding construction activities during sensitive times of the year. Monitoring programs can be established to ensure that groundwater and aquatic ecology impacts are minimized.

Therefore, it is possible to minimize the environmental impacts of the coal siding project by effectively implementing appropriate mitigation measures. All medium and low-level impacts can also be mitigated to low-level impacts, resulting in minimal environmental damage while still meeting the operational needs of the facility.

In addition to the high-level impacts, the construction and operation of the coal siding is also expected to have medium to low-level impacts on the environment. These impacts include the loss of terrestrial biodiversity due to land-use changes and habitat destruction, increased noise levels due to construction and operation activities, visual impacts due to changes in the landscape, increased traffic in the area and no impacts on cultural heritage sites.



However, these medium to low-level impacts can also be mitigated effectively with the implementation of appropriate measures. For example, habitat restoration and the establishment of buffer zones can help minimize the impact on terrestrial biodiversity. Noise barriers and the use of quieter machinery can reduce noise levels, and visual impacts can be minimized through the use of landscaping and other design features. Lastly, traffic impacts can be minimized through traffic management plans, road improvements, and the use of alternative transportation modes.

Moreover, the coal siding project is expected to have positive impacts on local socio-economies, such as job creation, increased economic activity, and improved access to energy resources. These benefits can have a significant positive impact on the local communities, provided that the project is implemented in a sustainable and responsible manner.

In conclusion, while the construction and operation of the coal siding project is expected to have significant impacts on the environment, with appropriate mitigation measures, it is possible to minimize these impacts to a low level. Moreover, the project's positive impacts on local socio-economies should also be taken into account while making decisions about the project.

### 16.2 Item 3(k)(ii): Final Site Map

The final site map has been developed considering all specialist inputs and have been drawn up by LNW Engineering and signed off by an ECSA accredited Civil Engineer. Please refer to the Civil Engineering Report and Stormwater Management Plan for more details on the site layout.

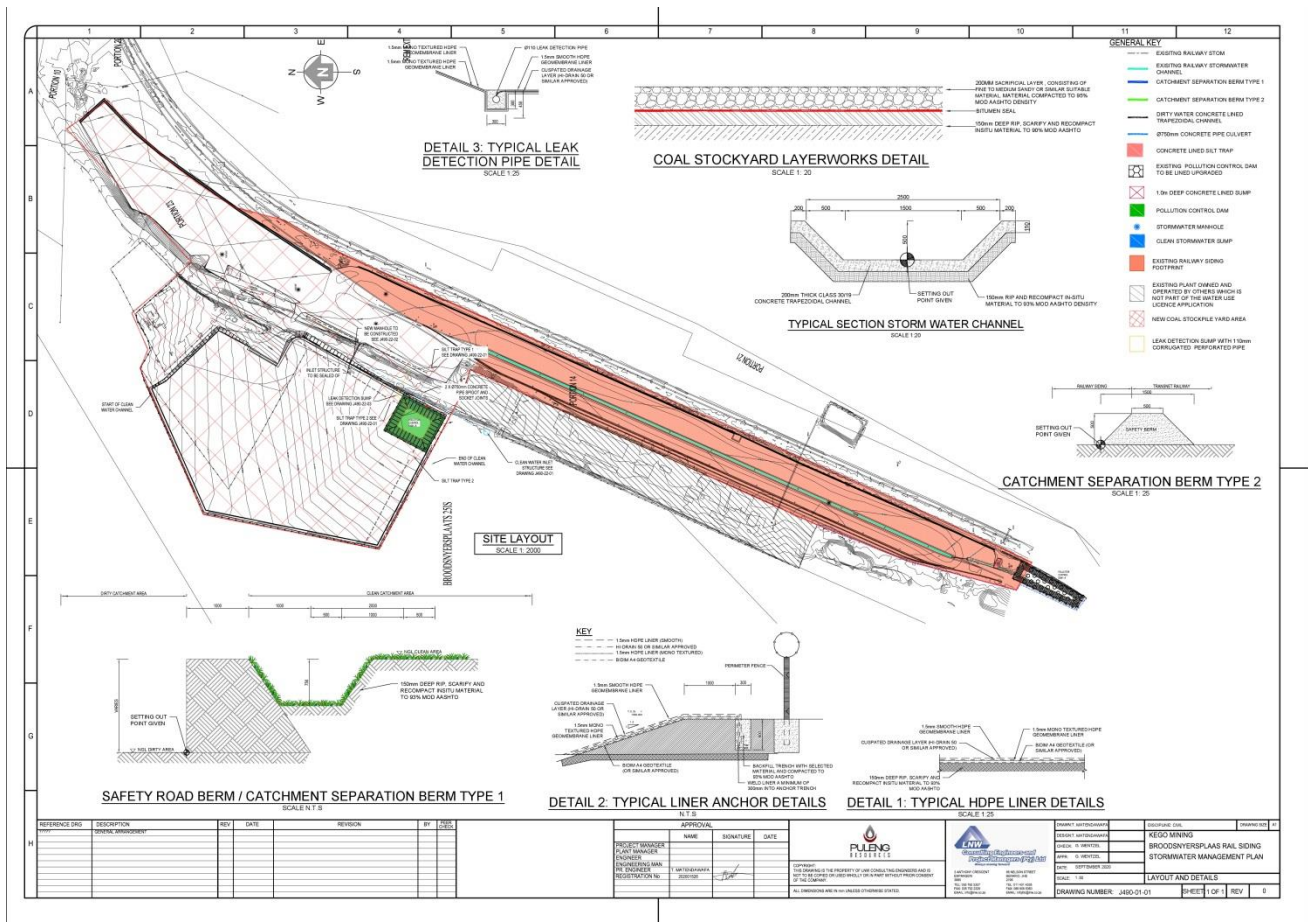


Figure 15-1: Site layout



### **16.3 Item 3(k)(iii): Summary of the positive and Negative Implications and Risks per phase**

The construction, operation, and decommissioning phases of the coal siding project are expected to have various impacts on the environment.

During the construction phase, the project is likely to have impacts on soil and land-use capability, surface water, groundwater, sensitive areas, terrestrial biodiversity, noise, visual, cultural heritage, and traffic. The expansion of the stockpile area will be a one-off event during the construction phase.

During the operational phase, the project is expected to have impacts on air quality, terrestrial biodiversity, noise, visual, cultural heritage, and traffic. These impacts can be effectively mitigated with appropriate measures such as the use of advanced dust suppression systems, habitat restoration, noise barriers, and traffic management plans.

Lastly, during the decommissioning phase, the project is expected to have impacts on soil and land-use capability, surface water, groundwater, and sensitive areas. It is important to ensure proper closure and rehabilitation measures are implemented during this phase to minimize the long-term impacts on the environment.

Positive impacts are likely to be present throughout the various phases of the project, including the construction, operation, and decommissioning phases.

During the construction phase, the project is likely to create jobs in various sectors, such as construction, engineering, and transportation. These jobs will be temporary but can have a significant positive impact on the local economy by providing employment opportunities and increasing economic activity in the region.

During the operational phase, the project will continue to provide employment opportunities in various sectors such as operations, maintenance, and administration. The employment opportunities provided during this phase are likely to be long-term, providing sustained benefits to the local economy and communities.

Finally, during the decommissioning phase, the project may create jobs related to site closure and rehabilitation activities. These jobs will be temporary but can provide a much-needed boost to the local economy during the project's winding-down phase.

In conclusion, the coal siding project is likely to have positive impacts on local socio-economies, particularly in terms of job creation. These positive impacts are likely to be present throughout the various phases of the project and can provide sustained benefits to the local communities and economy. It is important to ensure that the project is implemented in a sustainable and responsible manner to maximize these positive impacts and minimize negative impacts on the environment and local communities.

## **17. ITEM 3(l): PROPOSED IMPACT MANAGEMENT OBJECTIVES AND IMPACT MANAGEMENT OUTCOMES**

In the context of a coal siding in South Africa, closure objectives play a crucial role in ensuring that the site is rehabilitated in a manner that minimizes the negative impacts on the





environment and communities. The final impact management objectives and outcomes are essential components of the closure criteria.

One of the primary objectives is to restore the land to its previous state as much as possible, ensuring that the management level required for its rehabilitation is within the means of the final land user. This objective aims to restore the land's productivity and ensure that it can be utilized for agricultural or other purposes that are beneficial to the environment and the community.

The removal of infrastructures that cannot be utilized by subsequent landowners or third parties is another critical objective. For structures that can be repurposed, arrangements must be made to ensure their long-term sustainable use. The objective is to leave the land as clear and free from any structures that may pose a danger to the environment or the community.

Coal stockpiles pose a severe environmental hazard if left unattended, and cleaning them up is a priority. The objective is to rehabilitate the land to a state that is as close as possible to its original state before siding activities, reducing any harmful impacts on the environment.

A progressive and integrated closure process is essential, ensuring that the closure impacts are assessed proactively at regular intervals throughout the project life. This objective aims to minimize negative impacts on the environment and communities by identifying any issues and addressing them promptly.

Progressive rehabilitation measures, starting from the construction phase, are also necessary to minimize negative impacts on the environment. This objective aims to ensure that any environmental damage is minimized during the project's life cycle.

The objective is to leave a safe and stable environment for both humans and animals and make their condition sustainable. This objective aims to ensure that the site is rehabilitated in a manner that minimizes the impact on the environment, reducing any risks to humans or animals.

To prevent soil and surface/groundwater contamination, managing all water on site is a crucial objective. This objective aims to minimize the negative impacts on the environment by preventing contamination and ensuring that the water resources are used sustainably.

Compliance with local and national regulatory requirements is necessary to ensure that the site is rehabilitated to the required standards. This objective aims to ensure that all applicable regulations are met, minimizing any negative impacts on the environment or the community.

Active partnerships with local communities are essential for the successful management of the land. This objective aims to ensure that the community is involved in the management of the land, reducing any negative impacts on the community and fostering a positive relationship between the community and the project.

The objective is to maintain and monitor all rehabilitated areas following re-vegetation and, if monitoring shows that the objectives have been met, making an application for closure. This objective aims to ensure that the site is rehabilitated to the required standards and that any ongoing maintenance is carried out to ensure the site remains in the desired state.

## **18. ITEM 3(m): FINAL PROPOSED ALTERNATIVES**

No alternatives were considered for the layout of the project and as such, the layout depicted in Section 16.2 is the final layout as agreed upon by all relevant parties.



## **19. ITEM 3(n): ASPECTS FOR INCLUSION AS CONDITIONS OF AUTHORISATION**

In authorising the proposed expansion project, the following conditions should form part of the environmental authorisation:

- Puleng Resources (Pty) Limited may not alter the location of any of the project activities included in this environmental impact assessment without obtaining the required environmental authorisation to do so under NEMA.
- Puleng Resources (Pty) Limited will not undertake any new activity that was not part of this environmental impact assessment and that will trigger a need for an environmental authorisation without proper authorisation.
- Puleng Resources (Pty) Limited must, where possible, update the specialists reports, management procedures and method statement included in the EIR and EMPr. Frequency of updates must be informed by suitably qualified persons or the competent authority.
- The EMPr must be implemented fully at all stages of the proposed expansion project.
- Puleng Resources (Pty) Limited must implement and comply with all conditions enforced by the Department of Water and Sanitation.

## **20. ITEM 3(o): DESCRIPTION OF ASSUMPTIONS, UNCERTAINTIES AND KNOWLEDGE GAPS**

The EIA Regulations, 2014 require a description of any assumptions, uncertainties, and gaps in knowledge relating to the assessment and mitigation measures to be provided in the EIR. The specialist assessments undertaken are based on conservative methodologies and may underestimate the benefits of the project while overestimating its negative impacts. The report outlines limitations to the specialist studies and the adequacy of predictive methods used for the assessment. The studies cover prevailing conditions of the environmental aspects, but there are limitations in determining the future state, particularly for vegetation, animal life, and stream health. Modelling was used to estimate impacts where data was limited, but this may lead to errors, and it is recommended that the modelling exercise be repeated with more extensive data acquisition. The adequacy of the methods has been proven, and these estimations will improve with the acquisition of more data. Overall, the information provided in the EIR is considered sufficient for decision-making purposes, and it is recommended that available information at the site be updated from time to time.

## **21. ITEM 3(p): REASONED OPINION AS TO WHETHER THE PROPOSED ACTIVITY SHOULD OR SHOULD NOT BE AUTHORISED**

### **21.1 Item 3(p)(i): Reasons why the activity should be authorised**

The conclusion of the impact assessment is that there are no fatal flaws identified in the current project, based on inputs from specialists and engagement with competent authorities, and following the prescribed impact assessment methodology. All potential negative impacts have been identified and can be effectively and sufficiently mitigated to lower impact classes. Moreover, the project will have positive impacts on local socio-economies.

It is important to note that the expansion of the project area and possible future coal crushing/screening will enable Puleng Resources to continue running the coal siding efficiently, thereby allowing for the successful transport of coal to required areas.

As Puleng Resources is also applying for a Water Use License, which is a requirement for the EIA, a successful environmental authorisation will result in the issuance of a Water Use License



with set conditions that the company must comply with. These conditions will include the need for monitoring and dissemination of data, which will allow for improved regional management of water sources. Therefore, overall, the project can be considered to be environmentally responsible and sustainable, and it can bring significant benefits to the local economy while minimizing negative environmental impacts.

**21.2 Item 3(p)(ii): Conditions that must be included in the Authorisation**

Please refer to **Section 19**.

**22. ITEM 3(q): PERIOD FOR WHICH ENVIRONMENTAL AUTHORISATION REQUIRED**

With the current coal requirements in South Africa, the extent of supply in the surrounding area and the long term nature of sidings, the maximum period of Environmental Authorisation is requested from the department.

**23. ITEM 3(r): UNDERTAKING**

The EAP herewith confirms

- a) the correctness of the information provided in the reports
- b) the inclusion of comments and inputs from stakeholders and I&APs
- c) the inclusion of inputs and recommendations from the specialist reports where relevant; and
- d) the acceptability of the project in relation to the finding of the assessment and level of mitigation proposed

Signature of the environmental assessment practitioner:

Biosphere Enviro Solutions (Pty) Ltd

Name of company:

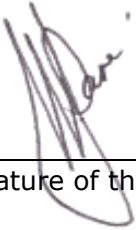
24/04/2023

Date:



the co-author herewith confirms

- e) the correctness of the information provided in the reports
- f) the inclusion of comments and inputs from stakeholders and I&APs
- g) the inclusion of inputs and recommendations from the specialist reports where relevant; and
- h) the acceptability of the project in relation to the finding of the assessment and level of mitigation proposed



Signature of the environmental assessment practitioner:

M2 Environmental Connections (Pty) Ltd

Name of company:

24/04/2023

Date:



## **24. ITEM 3(s): FINANCIAL PROVISION**

The following has been taken directly from the Puleng Resources Financial Provisioning Letter:

Puleng Resources (Pty) Ltd's insurance policy includes third party liability cover for any sudden, unintended and unexpected incidents (which would include any WULA related pollution and emergency incidents).

The current financial provision as required by all mining right holders and as approved by the DMR is inclusive of not only decommissioning and rehabilitation activities, but also caters for storm water management activities too.

Puleng Resources (Pty) Ltd is at all times guided by the commitments made in the Puleng Resources (Pty) Ltd Environmental Policy on prevention of pollution, as well as the minimization of environmental degradation, and reaffirms these commitments insofar as the communities surrounding our operations and their environmental and other stakeholders are concerned. To meet these commitments that Puleng Resources (Pty) Ltd abides by, any related pollution or emergency incidents that may occur are covered under the site's operational costs. Puleng Resources (Pty) Ltd's Broodsniersplaas Rail Siding would be able to utilise R600 000 of its operational costs for the 2023 year towards such an incident.

## **25. ITEM 3(t): DEVIATIONS FROM THE APPROVED SCOPING REPORT AND PLAN OF STUDY**

No deviations from the approved Scoping Report.

## **26. ITEM 3(u): OTHER INFORMATION REQUIRED**

Apart from the Environmental Impact Assessment Report (this document inclusive of requirements listed in the Draft Scoping Report approval letter) and the Environmental Management Plan Report (below) no other information has been requested by the competent authority.

## **27. ITEM 3(v): OTHER MATTERS REQUIRED IN TERMS OF SECTIONS 24(a)(b) OF THE ACT**

Any matter required in terms of the above section of the Act will be complied with by Puleng Resources (Pty) Limited.





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# **Appendix A**

## **EAP Information (CV, Work Experience)**



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# **Appendix B**

## **Public Participation Process**





# Appendix C

## Surface Water Assessment



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# **Appendix D**

## **Aquatic Ecology Study**



# Appendix E

## Geohydrology



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# **Appendix F**

## **Fauna and Flora**



# Appendix G

## Wetland Delineation Study



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# **Appendix H**

## **Heritage Assessment Study**



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## **PART B: ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT**

### **2) Draft environmental management programme.**

#### **a) Details of the EAP**

The details and expertise of the EAP are already included in PART A, Section 2.

#### **b) Description of the Aspects of the Activity**

The requirements to describe the aspects of the activity are covered by the draft environmental management programme and are already included in PART A of the document under Section 5.

#### **c) Composite Map**

For ease of reference, please refer to the Master Layout Plans below. These maps have also been included as Appendix I as per legal request.

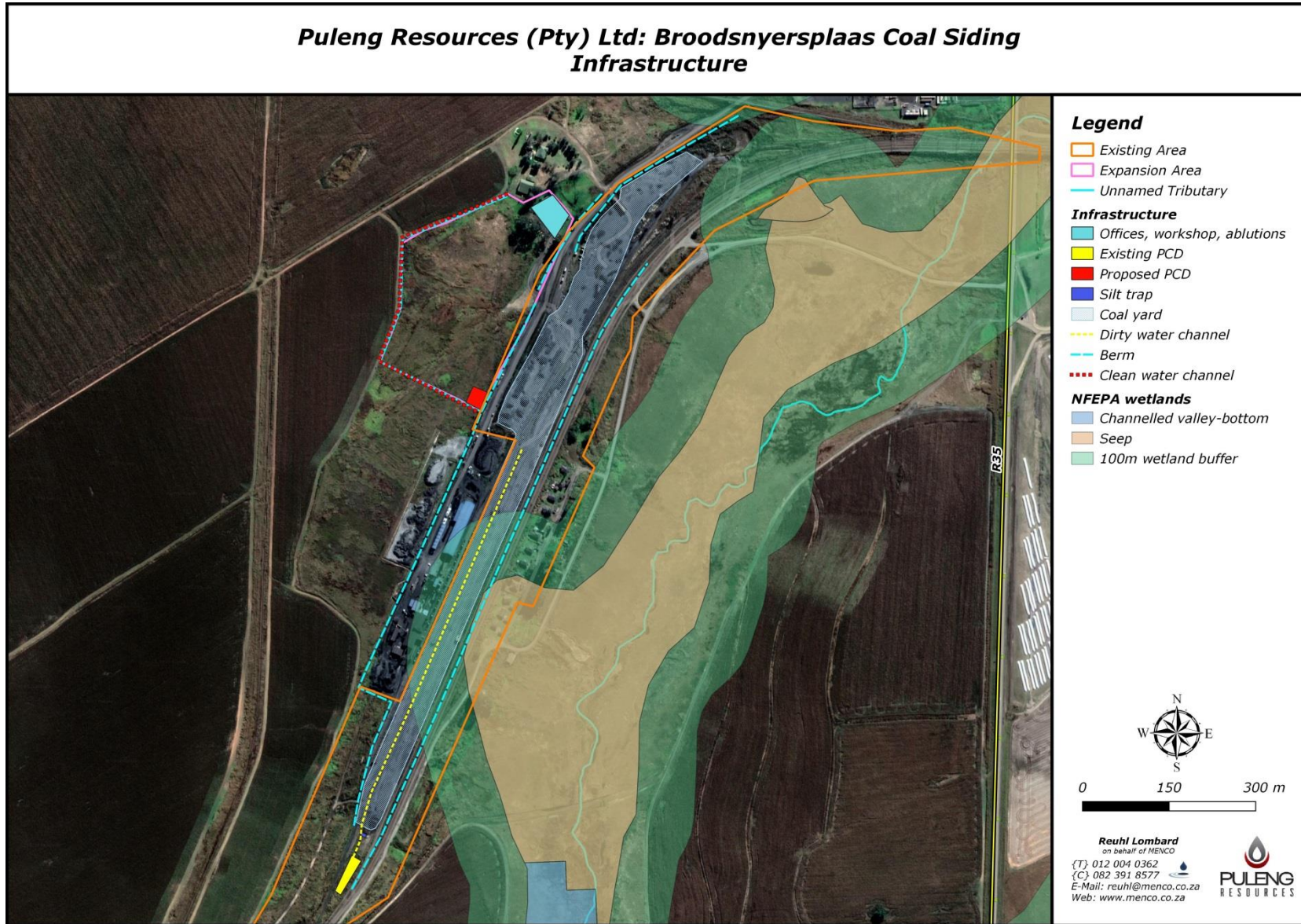


Figure B-1: Associated structures and infrastructure



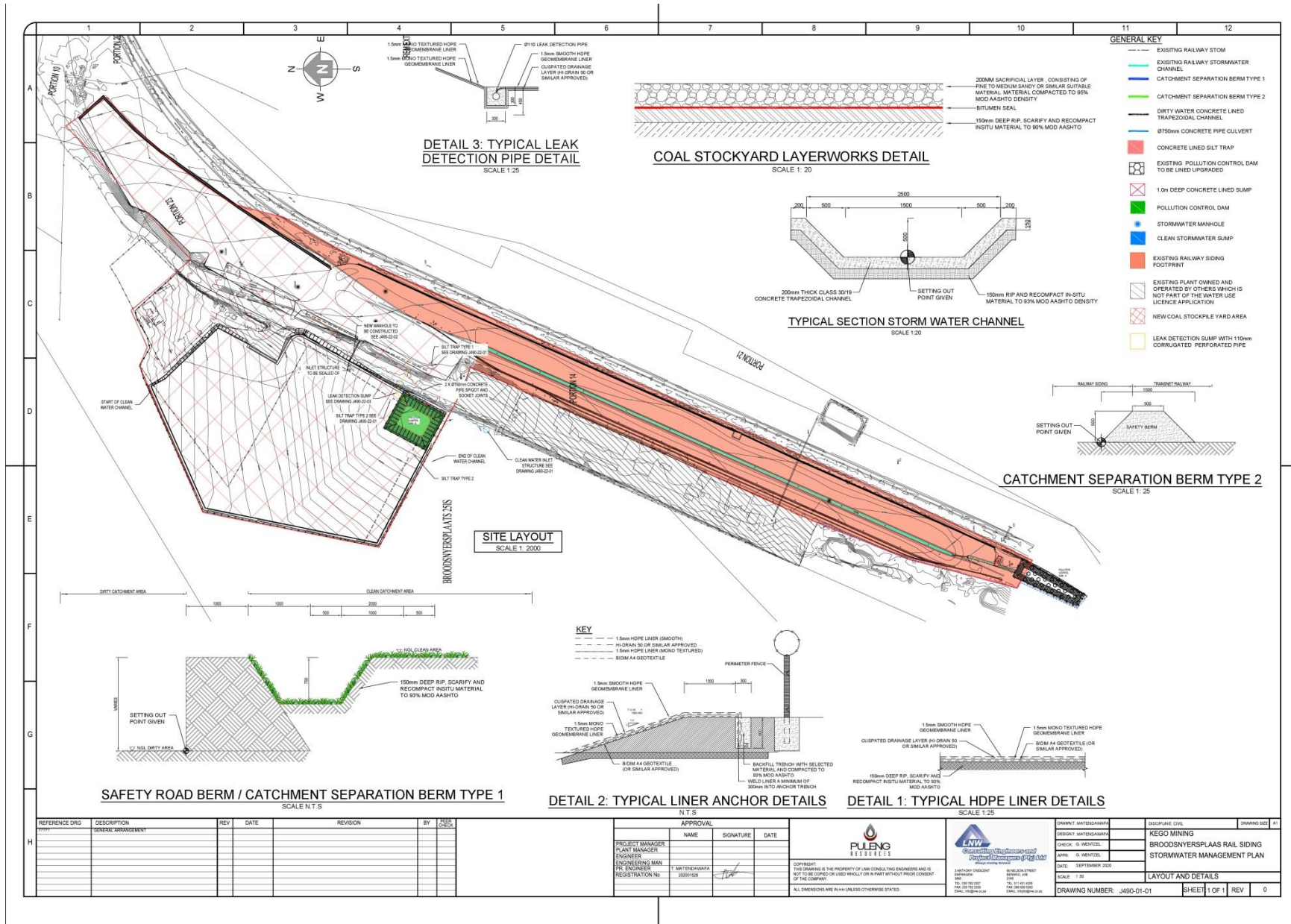


Figure B-2: Civil infrastructure

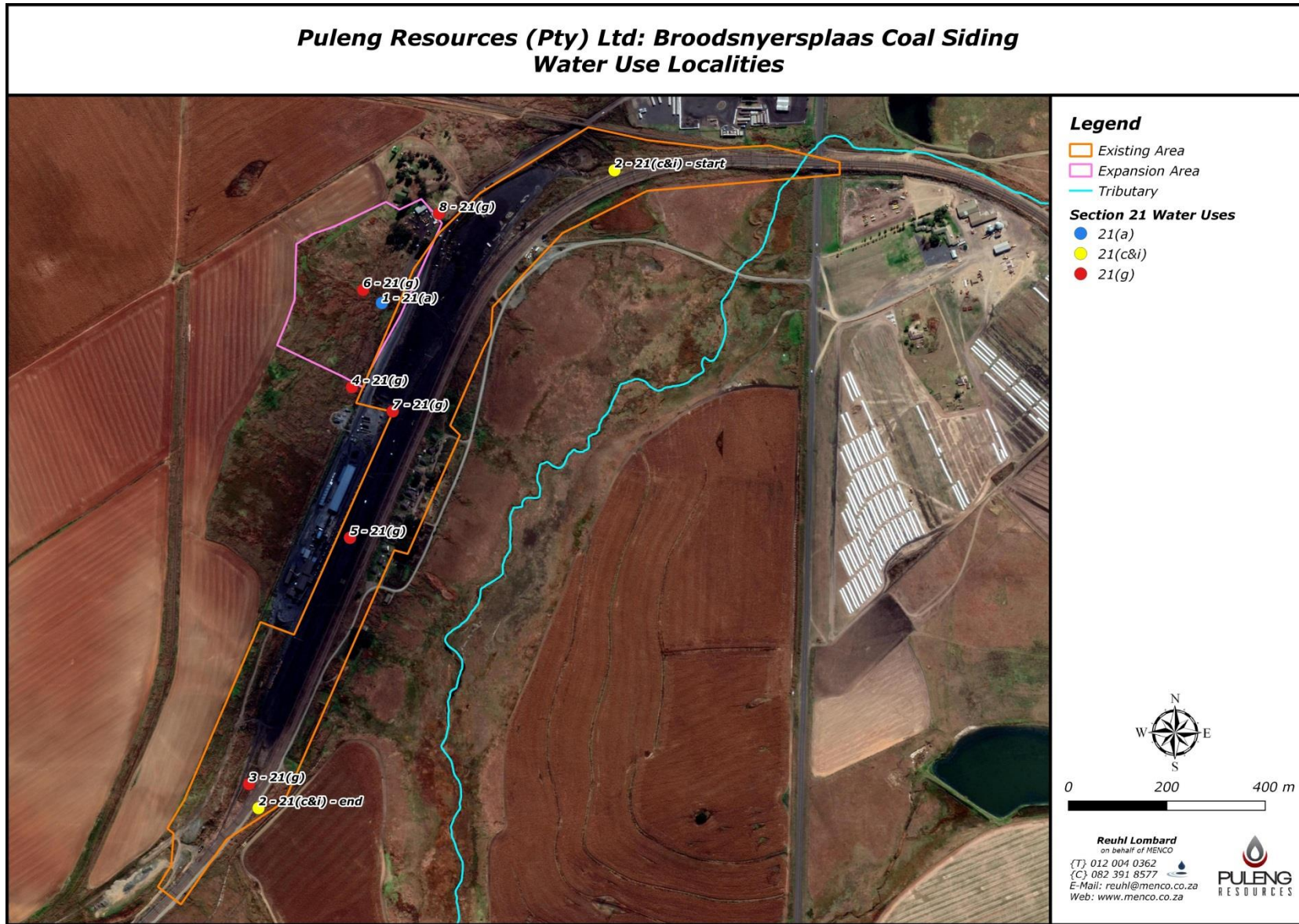


Figure B-3: Section 21 water uses applied for



### Puleng Resources (Pty) Ltd: Broodsnyersplaas Coal Siding Monitoring



Figure B-4: Proposed water and aquatic monitoring points

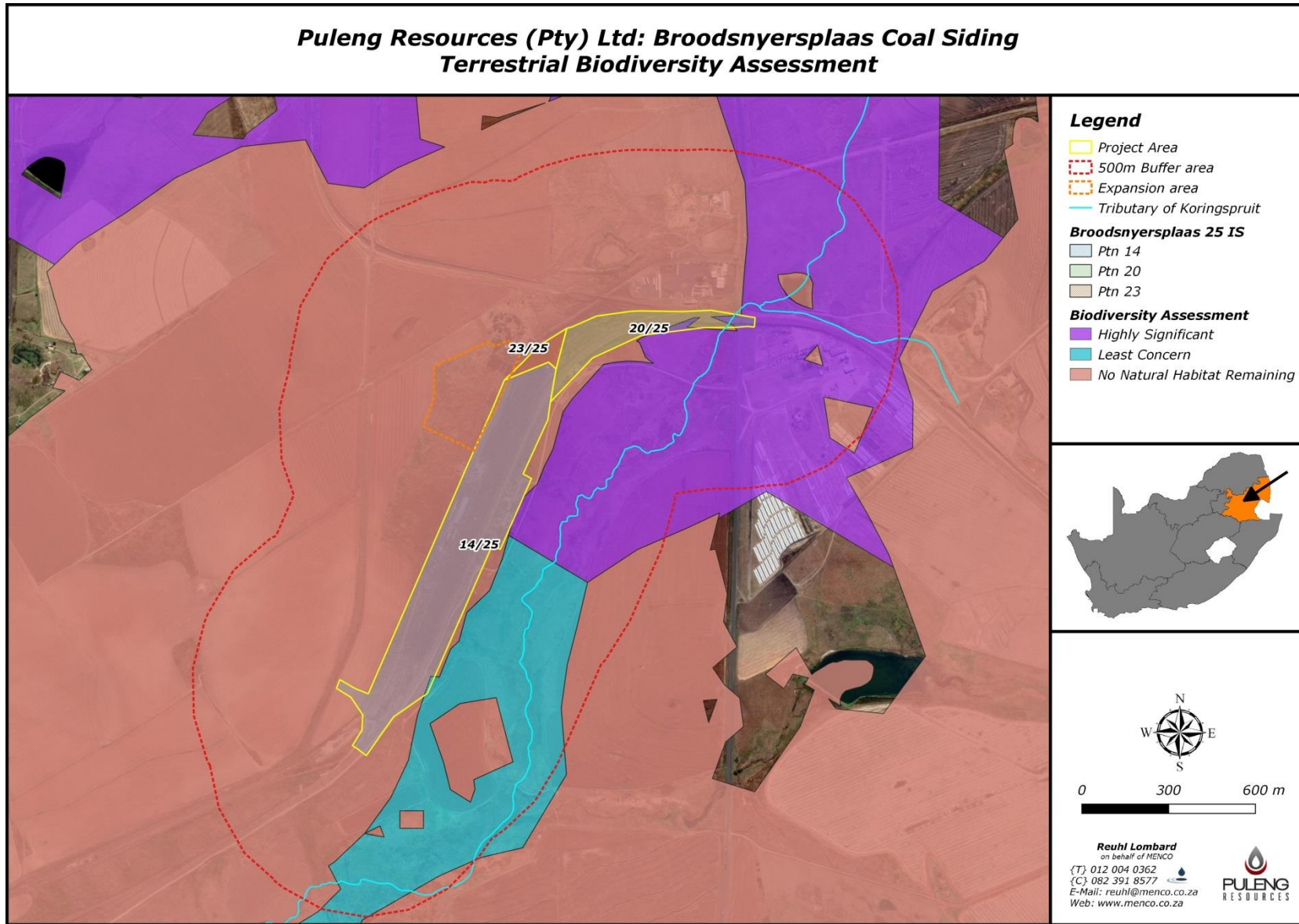


Figure B-5: Terrestrial sensitivities



**Puleng Resources (Pty) Ltd: Broodsniersplaas Coal Siding  
NFEPA Wetland Units**

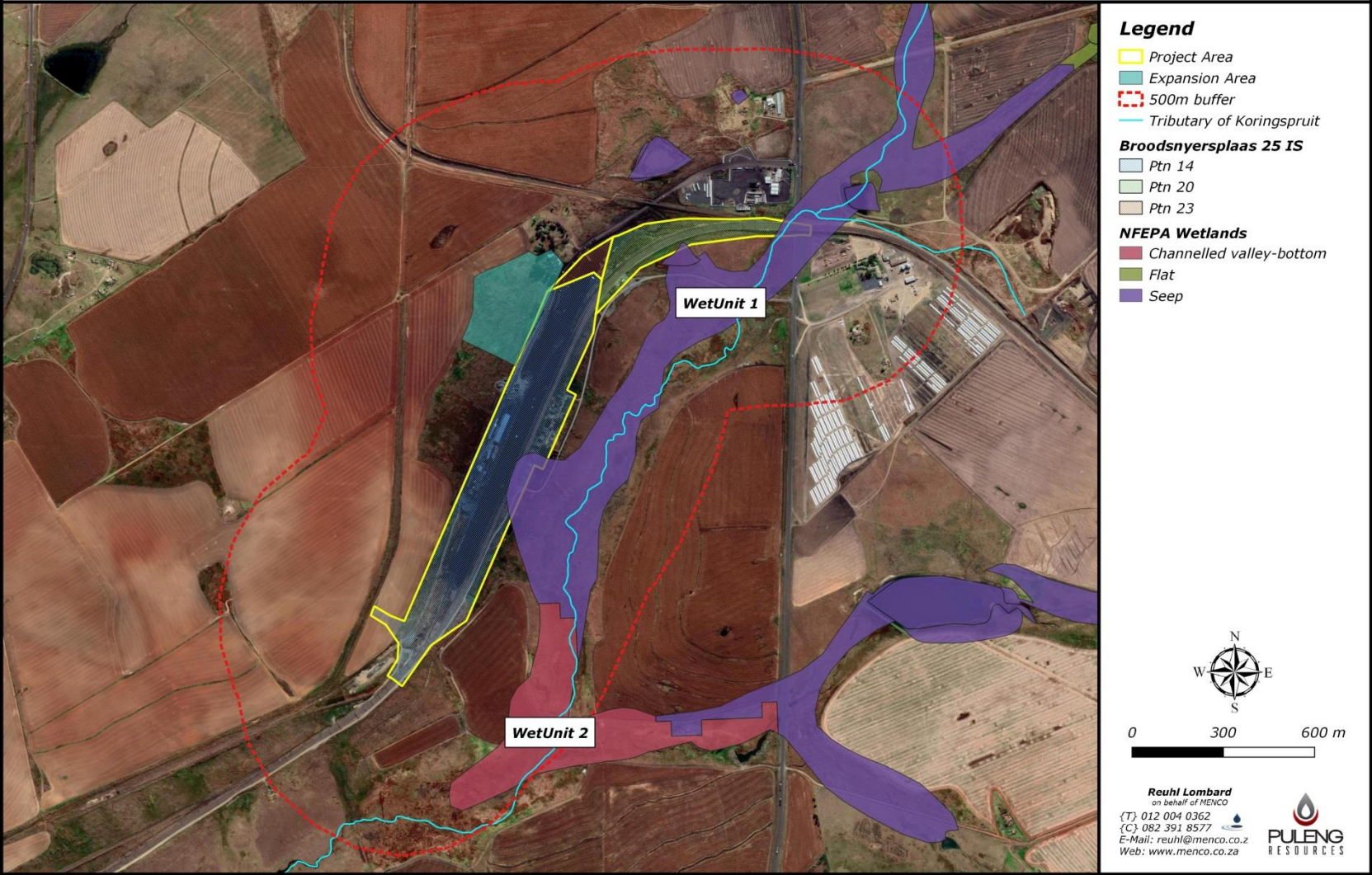


Figure B-6: NFEPA wetlands



d) **Description of Impact management objectives including management statements**

i) **Determination of closure objectives.**

Aspect	Closure Objective
Offices and associated infrastructural areas	Demolish all buildings and return the area to arable land.
Plant infrastructure	Demolish all concrete foundations, remove all steel works and associated and remove material off site as scrap or a third-party transfer
Water infrastructure (including the water management infrastructure: PCD, sump, stormwater berms, silt traps)	Demolish all channels, unlined PCD and silt trap at the point of aftercare. Alternatively, reconstruct the lined PCD to serve as a pollution control facility for polluted stormwater runoff at the siding
ROM and product storage areas	Areas to be rehabilitated to support cultivation and arable land use, including total removal of sacrificial layers and creation of a free draining landscape.
Topsoil Stockpiles and temporary berms	Total removal of topsoil stockpiles, incorporated with the rehabilitation programme. Placement of berms, pending the content in as overburden (hard and most likely with high AMD potential) in at lower levels followed by surface shaping and placement of soft material and topsoil's sequentially.
Linear infrastructure, roads, electricity lines, railway lines and fencing	The main access road and coal stockpile area will be rehabilitated to arable land, partial removal of access road. All other roads and linear removals (railway lines) not required by end users will be removed as scrap metal, rehabilitated to cultivation land status, free draining.
Coal loading and haulage areas	The landform in general will be free draining, rehabilitated to secure a land use status compatible with arability, safe for human access and visually non-intrusive.
Post-closure monitoring aspects	To follow a 5 year post closure monitoring and modelling programme to report on physical and biophysical stability prior to the formal closure application
Cost of closure risks and the cost of Regulatory Aspects, including wetlands rehabilitation associated with a closure application	To annually re-assess closure risk, particular associated with landform and land use, as well as shallow and deep ground water aquifer pollution due to any source of pollution.

ii) **The process for managing any environmental damage, pollution, pumping and treatment of extraneous water or ecological degradation as a result of undertaking a listed activity.**

The Environmental Response Plan is designed to provide a rapid and effective response to emergency situations that may occur at the Siding. The plan must achieve the following objectives:

- Identify and categorize emergency situations by conducting hazard identification and developing response procedures;
- Assign responsibilities for responding to emergency situations;
- Establish an effective system for receiving, recording, and communicating reports of environmental incidents and emergencies; and
- Investigate all environmental incidents or emergencies and implement the necessary procedures to prevent a recurrence of the incident.

The Emergency Preparedness and Response Code of Practice will adhere to the following:



- Occupational Health and Safety OHSAS 18001;
- The Mine Health and Safety Act, 1996 (Act No. 29 of 1996).

In the event of an emergency, the Emergency Response Plan/Procedure will be consulted, and necessary actions will be implemented. To ensure effective implementation of the procedures, copies of the Emergency Response Plan will be available in accessible and visible locations around the site.

iii) **Potential risk of Acid Mine Drainage.**

There is always the possibility for the formation of acid mine drainage (AMD) when dealing with coal that has a high sulphur concentration. The acid generation capacity of coal needs to be determined by Acid Base Accounting (ABA) in order to determine the potential risk of AMD.

The generation of AMD is caused when water infiltrates sulphur bearing materials forming solutions of net acidity containing high concentrations of heavy metals. As a result of AMD generation a range of toxic metals could be released to the environment creating a high risk for water quality deterioration.

iv) **Steps taken to investigate, assess, and evaluate the impact of acid mine drainage.**

Coal samples need to be taken for Material Type Classification. Considering the results of the ABA analysis, the Rock Type could be determined based on Total Sulphur(%), Acid Potential (AP) (kg/t), Neutralisation Potential (NP) and the Neutralisation Potential Ratio (NPR) (NP:AP) as indicated in **Table B-1**.

**Table B-1: Material Classification**

<b>TYPE I</b>	Potentially Acid Forming	Total S(%) > 0.25% and NP:AP ratio 1:1 or less
<b>TYPE II</b>	Intermediate	Total S(%) > 0.25% and NP:AP ratio 1:3 or less
<b>TYPE III</b>	Non-acid Forming	Total S(%) < 0.25% and NP:AP ratio 1:# or greater

v) **Engineering or mine design solutions to be implemented to avoid or remedy acid mine drainage.**

Various methods could be applied to treat AMD of which the following are most common:

- Adding lime or other alkaline materials to neutralize acidity;
- adding uncontaminated top soil, planting vegetation and modifying slopes to stabilize slopes in order to reduce the infiltration of surface water into the underlying contaminated materials;

vi) **Measures that will be put in place to remedy any residual or cumulative impact that may result from acid mine drainage.**

The siding will be used for the temporarily storage of coal product prior to loading. The coal product has a better quality than overburden and coal waste material often associated with coal mining. The risk of generation of AMD stemming from the coal product stock pile is minimised although coal fines could accumulate on site causing AMD generation. The coal stock piles need



to be on a hardened surface such as concrete with storm water drains leading to a HDPE lined Pollution Control Dam

vii) **Volumes and rate of water use required.**

The planning and presentation of predicted water usage and stormwater management are of utmost importance in South Africa when designing mining infrastructure. This is due to the scarcity of the resource and the present misuse thereof at various mines across the country. The management of water revolves around the following aspects:

- Water supply;
- Dirty and clean stormwater management; and
- Process water management.

The objective of this water balance can be summarized as follows:

- Determining the water requirements throughout the project area and for the duration of the project;
- Assessing water supply strategies to identify minimal pollution options and the required changes during the various phases of the project (construction, operation, closure);
- Providing the environmentalist with the required water usage to determine the impact on the surrounding environment and possible prevention thereof; and
- Allocation of funds for the purchasing of water for the operation.

The water balance will be carried out for both the wet and dry seasons to account for the effect of stormwater attenuation. The two scenarios will be analysed to ensure that all possible water balances are accounted for and all the water demands on the site are met. The water balance for the site will be made up of the following areas:

- Stockpile area;
- Pollution control dams; and
- Rail siding.

The areas identified above will also be considered as the water boundaries which will be further subdivided into “clean water” and “dirty water” sections. As per the requirements set out in GN 704 regulations, in each section contaminated water will be separated from clean water.

The water balance will be used by the facility in support of a WUL application as well as a water management tool to achieve the following key principles:

- Understand the water circuit at the Inland Coal Terminal;
- Estimate make up volumes required during periods of deficit;
- Estimate volumes of excess water during periods of surplus; and
- Assess areas within the Inland Coal Terminal water circuit, where opportunities to conserve and reuse water can be implemented.

Please refer to the Stormwater Management Plan for a full description of the input parameters for the calculation of the water balance as well as the assumptions made in the generation of said balance.

**Conceptual Annul Water Balance (LNW, 2021)**

<b>Annual Water Balance</b>				
<b>Facility Name</b>	<b>Water In</b>		<b>Water Out</b>	
	<b>Water</b>	<b>Quantity</b>	<b>Water</b>	<b>Quantity</b>





	<b>Circuit/Stream</b>	<b>(m<sup>3</sup>/year)</b>	<b>Circuit/Stream</b>	<b>(m<sup>3</sup>/year)</b>
PCD 1 (existing PCD)	Direct rainfall	1 468	Evaporation	393
	Runoff	26 590	Dust suppression	27665
	PCD Storage	2462	PCD Storage	2462
	<b>Total</b>	<b>28 058</b>	<b>Total</b>	<b>28 058</b>
PCD 2 (new PCD)	Direct rainfall	2 233	Evaporation	1 788
	Runoff	60 143	Dust suppression	60 588
	PCD Storage	4713	PCD Storage	4713
	<b>Total</b>	<b>62 376</b>	<b>Total</b>	<b>62 376</b>
Borehole	Groundwater abstraction	1000	Domestic use	1000
	<b>Total</b>	<b>1000</b>	<b>Total</b>	<b>1000</b>
<b>Grand Total</b>		<b>91433</b>	<b>Grand Total</b>	<b>91433</b>

### Average Wet Season Water Balance (LNW, 2021)

<b>Average Wet Season</b>				
<b>Facility Name</b>	<b>Water In</b>		<b>Water Out</b>	
	<b>Water Circuit/Stream</b>	<b>Quantity (m<sup>3</sup>/month)</b>	<b>Water Circuit/Stream</b>	<b>Quantity (m<sup>3</sup>/month)</b>
PCD 1 (existing PCD)	Direct rainfall	122	Evaporation	393
	Runoff	2216	Dust suppression	2500
	PCD Storage	2462	PCD Storage	1907
	<b>Total</b>	<b>4800</b>	<b>Total</b>	<b>4800</b>
PCD 2 (new PCD)	Direct rainfall	186	Evaporation	393
	Runoff	9596	Dust suppression	9403
	PCD Storage	4713	PCD Storage	4700
	<b>Total</b>	<b>14495</b>	<b>Total</b>	<b>14495</b>
Borehole	Groundwater abstraction	83	Domestic use	83
	<b>Total</b>	<b>83</b>	<b>Total</b>	<b>83</b>
<b>Grand Total</b>		<b>19378</b>	<b>Grand Total</b>	<b>19378</b>

### Average Dry Season Water Balance (LNW, 2021)

<b>Average Dry Season</b>				
<b>Facility Name</b>	<b>Water In</b>		<b>Water Out</b>	
	<b>Water Circuit/Stream</b>	<b>Quantity (m<sup>3</sup>/month)</b>	<b>Water Circuit/Stream</b>	<b>Quantity (m<sup>3</sup>/month)</b>
PCD 1 (existing PCD)	Direct rainfall	33	Evaporation	193
	Runoff	591	Dust suppression	2892
	PCD Storage	2462	PCD Storage	800
	<b>Total</b>	<b>3085</b>	<b>Total</b>	<b>3085</b>
PCD 2 (new PCD)	Direct rainfall	50	Evaporation	294
	Runoff	2 58	Dust suppression	5274
	PCD Storage	4701	PCD Storage	1741
	<b>Total</b>	<b>7308</b>	<b>Total</b>	<b>7308</b>
Borehole	Groundwater abstraction	83	Domestic use	83
	<b>Total</b>	<b>83</b>	<b>Total</b>	<b>83</b>
<b>Grand Total</b>		<b>10477</b>	<b>Grand Total</b>	<b>10477</b>

viii) **Has a water use licence has been applied for?**

A Water Use License has been applied for and covers the following water uses:

No.	Water Use	Activity	Farm Portion	Volumes/Length	Coordinates
1	21(a)	Taking of water from a borehole for domestic use	Broodsniersplaas 25 IS, Ptn 16	1 000 m <sup>3</sup> per annum	26° 3'41.07"S 29°28'41.79"E
2	21(c, i)	Existing Siding Project situated within 500m from a wetland	Broodsniersplaas 25 IS, Ptn 14, Ptn 20	1.5km	Start 26° 3'32.36"S 29°28'58.80"E Mid 26° 3'48.64"S 29°28'44.68"E End 26° 4'14.24"S 29°28'32.77"E
3	21(g)	PCD 1 (Existing)	Broodsniersplaas 25 IS, Ptn 14	L = 89.5 m W = 17 m D = 3.5m Capacity: 2462 m <sup>3</sup> Volume per annum: 28058 m <sup>3</sup>	26° 4'12.66"S 29°28'32.08"E
4	21(g)	PCD 2 (New)	Broodsniersplaas 25 IS, Ptn 16	L = 56.5 m W = 47 m D = 4.5 m Capacity: 4713 m <sup>3</sup> Volume per annum: 62376 m <sup>3</sup>	26° 3'46.60"S 29°28'39.60"E
5	21(g)	Coal Stockyard ("Dirty Area") serviced by PCD 1	Broodsniersplaas 25 IS, Ptn 14	5.5 ha	26° 3'56.49"S 29°28'39.46"E
6	21(g)	New Stockpile area ("Dirty Area") serviced by PCD 2	Broodsniersplaas 25 IS, Ptn 16	12.7 ha	26° 3'40.21"S 29°28'40.42"E
7	21(g)	Dust Suppression	Broodsniersplaas 25 IS, Ptn 14, 16, 20, 23	88 388 m <sup>3</sup> per annum	26° 3'48.19"S 29°28'42.58"E
8	21 (g)	Septic Tank	Broodsniersplaas 25 IS, Ptn 16	Capacity: 10 m <sup>3</sup> Volume per annum: 365 m <sup>3</sup>	26° 3'35.20"S 29°28'45.97"E



ix) **Impacts to be mitigated in their respective phases;  
Measures to rehabilitate the environment affected by the undertaking of any listed activity  
Impact management actions**

ACTIVITIES	PHASE	SIZE AND SCALE of disturbance	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
<b>Soil, Land Use and Land Capability:</b> Expansion of project area to allow for additional coal storage and handling space.	C, O, D	7.4 ha	<ul style="list-style-type: none"> <li>When stripping machinery is used for stripping, stockpiling and 'topsoiling' operations, it should operate when the soil moisture content is below approximately 8 % (during the dry winter months) in order to limit soil compaction and machinery getting stuck.</li> <li>For use on site, tracked vehicles are more desirable than wheeled vehicles due to their lower point loading and slip, while vehicle speed should be maintained in</li> </ul>	Conservation of Agricultural Resources Act (Act No. 43 1983)	Ongoing as part of construction and operational activities. In the event of closure, refer to the Rehabilitation Plan.



			<p>order to reduce the duration of applied pressure, thereby minimizing compaction.</p> <ul style="list-style-type: none"> <li>The width of the levelled or disturbed area for haul roads must be minimized as much as possible. Unnecessary dirt tracks (outside of the area to be disturbed) should be avoided during the construction of the haul road.</li> <li>Impact beyond the site boundary can be reduced by using existing roads and reducing new roads to a minimum.</li> </ul>		
<p><b>Fauna and Flora:</b> Expansion of project area to allow for additional coal storage and handling space.</p>	C, O, D	7.4 ha	<ul style="list-style-type: none"> <li>All soils compacted as a result of construction activities falling outside of development footprint areas should be ripped and profiled.</li> </ul>	<p>National Environmental Management: Biodiversity Act (Act No. 10 of 2004)</p> <p>Conservation of Agricultural Resources Act (Act No. 43 1983)</p> <p>Mpumalanga Conservation Act (Act No. 10 of 1998)</p>	<p>Ongoing as part of construction and operational activities. In the event of closure, refer to the Rehabilitation Plan and Terrestrial Biodiversity Assessment.</p>



			<p>Special attention should be paid to alien and invasive control within these areas. Alien and invasive vegetation control should take place throughout all development phases including rehabilitation phases to prevent loss of floral habitat in surrounding areas.</p> <ul style="list-style-type: none"><li>• If any threatened species, or nationally or provincially protected fauna or flora will be disturbed, ensure effective relocation of individuals to suitable similar habitat. Arrangement with the relevant authorities needs to take place to rescue and relocate the species.</li><li>• In the event of a breakdown, maintenance of vehicles must take place with care and</li></ul>		
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			<p>the recollection of spillage should be practiced near the surface area to prevent ingress of hydrocarbons into topsoil.</p> <ul style="list-style-type: none"> <li>• Vehicles should be restricted to travelling only on designated roadways to limit encroachment in the study area and onto adjacent habitats.</li> <li>• No trapping/hunting or collecting of fauna or flora is to take place.</li> </ul>		
<p><b>Surface Water:</b> Interception of watercourse and drainage areas by the infrastructure associated with the Broodsnyersplaas Siding. Increased stormwater runoff from the affected footprint area due to hardened</p>	C, O, D	7.4 ha	<ul style="list-style-type: none"> <li>• Clean and dirty water separation through the implementation of the recommended Stormwater Management Plan.</li> <li>• Prevent the release of contaminated water by ensuring compliance with GN 704 requirements.</li> <li>• Storage of hazardous chemical substances in</li> </ul>	National Water Act (Act No. 36 of 1998)	Ongoing as part of construction and operational activities. In the event of closure, refer to the Rehabilitation Plan. Monitoring as per Monitoring Plan.



<p>surfaces, roads, and areas of cleared vegetation. Potential for accidental spillage or discharge from pollution control facilities.</p>			<p>bunded and roofed areas. Hazardous chemicals spilled and chemicals used for clean-up not to be disposed into the environment but to be removed by authorized agent for disposal at sites such as Holfontein.</p> <ul style="list-style-type: none"> <li>• Prevent the sedimentation and erosion of local streams by implementing erosion control measures and bunding around the site. Remedial action to be taken to reduce water flow speed.</li> <li>• Ensure area of impact on shoreline vegetation is kept to minimum as only footprint area of terminal will be cleared. No activities to commence within riparian zone of stream without the required authorization.</li> <li>• Implement a water</li> </ul>		
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			<p>quality monitoring program to monitor surface water qualities downstream of the site for changes in water chemistry.</p> <ul style="list-style-type: none"> <li>All polluted water to be contained in PCD designed in accordance with GN 704 specifications (appropriate liner, 0.8 m freeboard with sufficient storage capacity to accommodate 1:50 year flood).</li> </ul>		
<p><b>Groundwater:</b> Contamination of groundwater in the region due to the operation of the siding caused by contaminated rainwater stemming from point sources and infiltration into the aquifer through the fault zones.</p>	C, O, D	7.4 ha	<ul style="list-style-type: none"> <li>Implementation of water pollution control facilities such as adequate lining of waste facilities, cease abstraction from boreholes downstream of waste facilities, quarterly groundwater sampling and analyses.</li> </ul>	National Water Act (Act No. 36 of 1998)	Ongoing as part of construction and operational activities. In the event of closure, refer to the Rehabilitation Plan. Monitoring as per Monitoring Plan.
<p><b>Wetlands:</b> Interception of watercourse and</p>	C, O, D	7.4 ha 1.5 km of wetland	<ul style="list-style-type: none"> <li>Topsoil and subsoil must be stockpiled separately in low</li> </ul>	National Water Act (Act No. 36 of 1998)	Ongoing as part of construction and operational activities.





<p>drainage areas by the infrastructure associated with the Broodsniersplaas Siding. Increased stormwater runoff from the affected footprint area due to hardened surfaces, roads, and areas of cleared vegetation. Potential for accidental spillage or discharge from pollution control facilities.</p>			<p>heaps.</p> <ul style="list-style-type: none"> <li>• Coal product stockpiles or any overburden material must be stockpiled at least a 50m from the outer boundary of the wetlands.</li> <li>• Develop soil management measures for the entire surface area of the siding footprint which will prevent runoff of sediment into the associated watercourses.</li> <li>• A wetland monitoring process must be in place to pro-actively detect threats to wetlands before it can cause damage, e.g. the initiation of new concentrated drainage pathways and erosion processes.</li> <li>• Adherence with GN704 Regulations in terms of pollution control and management measures to ensure separation of clean and dirty</li> </ul>		<p>In the event of closure, refer to the Rehabilitation Plan and Wetland Assessment. Monitoring as per Monitoring Plan.</p>
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			<p>water systems.</p> <ul style="list-style-type: none"> <li>• Implementation of the required wetland protective buffers.</li> <li>• Containment of all coal residue on site.</li> <li>• Avoid construction activities in wetlands at all cost through proper planning, demarcation and appropriate environmental awareness training. Appropriate wetland buffer zones (minimum of 32m) and no-go areas must be assigned to all wetlands.</li> <li>• The appointment of a wetland specialist to be involved during the design of the terminal in order to avoid, minimise and mitigate the associated impacts of the proposed activity on wetlands.</li> <li>• The design of</li> </ul>		
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			<p>drainage systems must ensure there is no contamination, eutrophication or increased erosion of the wetland areas. Drainage systems should be maintained regularly in order to minimize the runoff of harmful chemical substances into the wetland areas;</p> <ul style="list-style-type: none"><li>• The construction of surface stormwater drainage systems during the construction phase must be done in a manner that would protect the quality and quantity of the downstream system. Where applicable, the use of swales, which could then be grassed for the operational phase, is recommended as the swales would attenuate run-off water.</li><li>• All stockpiles must be protected from erosion, stored on</li></ul>		
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			<p>flat areas where run-off will be minimized, and be surrounded by bunds. It should also only be stored for the minimum amount of time necessary.</p> <ul style="list-style-type: none"> <li>• Erosion control of all banks must take place so as to reduce erosion and sedimentation into river channels or wetland areas.</li> <li>• All construction materials including fuels and oil should be stored in a demarcated area that is contained within a bunded impermeable surface to avoid spread of any contamination (outside of wetlands or wetland buffer zones).</li> </ul>		
<p><b>Aquatic Ecology:</b> The Broodsniersplaas Siding is in close proximity to</p>	C, O, D	7.4 ha 1.5 km of wetland and river	<ul style="list-style-type: none"> <li>• Effective stormwater management practices should be implemented, such as sediment and</li> </ul>	<p>National Water Act (Act No. 36 of 1998)</p> <p>National Environmental Management: Biodiversity Act (Act No. 10 of 2004)</p>	<p>Ongoing as part of construction and operational activities. In the event of closure, refer to the Rehabilitation Plan and</p>



<p>watercourses and drainage areas, that could result in increased stormwater run-off from the Siding due to on-going activities taking place on site. The possibility of environmental spillages or accidental discharges from the pollution control facilities could have a detrimental impact on the overall aquatic biodiversity causing erosion and increased sedimentation in the nearby river.</p>			<p>erosion control measures can reduce the amount of run-off that will prevent pollutants from entering the river system.</p> <ul style="list-style-type: none"> <li>• Strategic surface water, groundwater and bio-monitoring sites must be established in order to detect any pollution source that may stem from the Siding.</li> <li>• Continuous environmental compliance monitoring is required to establish a comprehensive database for the Siding.</li> <li>• Topsoil and subsoil must be stockpiled separately in low heaps.</li> <li>• Coal product stockpiles or any overburden material must be</li> </ul>		<p>Aquatic Ecological Assessment. Monitoring as per Monitoring Plan.</p>
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			<p>stockpiled at least a 32m from the outer boundary of the riparian zone.</p> <ul style="list-style-type: none"> <li>• Raising awareness amongst workers in protecting the river and the functionality of the water source.</li> <li>• Avoid any heavy vehicles and mining related activities within the regulated buffer zone.</li> <li>• Ensure the involvement of an accredited SASS5 practitioner to undertake the necessary aquatic assessments as this will aid in providing more accurate mitigation measures to be implemented during the operation phase of the Siding.</li> <li>• All construction materials including</li> </ul>		
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			<p>fuels and oil should be stored in a demarcated area that is contained within a bunded impermeable surface to avoid spread of any contamination.</p> <ul style="list-style-type: none"><li>• Stormwater trench on the eastern side of the Siding must be maintained and cleared of any product at all times.</li><li>• Culvert that transects the Siding must be inspected on a regular basis to allow clean water to drain freely toward the receiving environment. Any coal product must be cleared from these areas.</li><li>• Ensure no riparian vegetation is cleared or destroyed by activities taking</li></ul>		
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			<p>place on site.</p> <ul style="list-style-type: none"> <li>A designated area needs to be demarcated for construction material as well as a designated area for trucks and heavy machinery to avoid any hydrocarbon spillages that may occur.</li> </ul>								
<p><b>Air Quality:</b> Expansion of project area to allow for additional coal storage and handling space. Vehicle movement and coal handling.</p>	C, O	7.4 ha	<ul style="list-style-type: none"> <li>In places of high vehicular traffic, dust suppression measures on the roads may be implemented to reduce dust levels from the entrainment of dust. These measures will range from watering of roads, application of a chemical dust suppressant and/or paving of roads.</li> <li>Reduce vehicle speeds on roads to less than 40 km/hr within the project area.</li> <li>If possible a</li> </ul>	<p>National Environmental Management: Air Quality Act (Act No. 39 of 2004)</p> <p>National Dust Control Regulations, 2013</p> <table border="1"> <thead> <tr> <th>Restriction Areas</th> <th>Dust fall rate (D) (mg/m<sup>2</sup>/day, 30-days average)</th> <th>Permitted frequency of exceeding dust fall rate*</th> </tr> </thead> <tbody> <tr> <td>Residential area</td> <td>D &lt; 600</td> <td>Twice within a year, however not occurring on</td> </tr> </tbody> </table>	Restriction Areas	Dust fall rate (D) (mg/m <sup>2</sup> /day, 30-days average)	Permitted frequency of exceeding dust fall rate*	Residential area	D < 600	Twice within a year, however not occurring on	<p>Ongoing as part of construction and operational activities. In the event of closure, refer to the Rehabilitation Plan. Dust suppression as per requirements.</p>
				Restriction Areas	Dust fall rate (D) (mg/m <sup>2</sup> /day, 30-days average)	Permitted frequency of exceeding dust fall rate*					
Residential area	D < 600	Twice within a year, however not occurring on									





			chemical dust suppressant should be used to suppress dust emissions on the coal stockpiles if 12% moisture content cannot be maintained over a long period of time to lower dust emissions.			sequential months.	
				Non-residential area	$D \leq 1200$	Twice within a year, however not occurring on sequential months.	
				*Applicable only to activities implementing annual dust fall monitoring programmes.			
<b>Noise:</b> Vehicle movement and coal handling.	C, O, D	7.4 ha	<ul style="list-style-type: none"> <li>Construction activities on the expansion area should be limited to normal operating hours of the siding and all construction vehicles and equipment should be maintained in a sound state. Operating hours of the washplant should also be limited to siding operating hours.</li> </ul>				Ongoing as part of construction and operational activities.
<b>Visual:</b>	C, O, D	7.4 ha	<ul style="list-style-type: none"> <li>Coal not to be</li> </ul>				Ongoing as part of



<p>Based on the latest information on SANBI and NFEPA spatial layers the project is located in close proximity to a wetland and water resource. Some of these natural areas will be transformed from agricultural activities to industrial. The accumulation of mining and industrial activities in the region has contributed to a visually unappealing environment. There are no residential areas nearby or any farm dwelling surrounding the site which could contribute towards a visual</p>			<p>stockpiled in dumps higher than 5 meters. All embankments to be grassed in order to blend with the natural vegetation of the area.</p>		<p>construction and operational activities.</p>
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disturbance.					
<p><b>Heritage:</b> Expansion of project area to allow for additional coal storage and handling space.</p>	C	7.4 ha	<ul style="list-style-type: none"> <li>Should any previously unknown or invisible sites, features or material be uncovered during any development actions then an expert should be contacted to investigate and provide recommendations on the way forward.</li> </ul>	National Heritage Resources Act (Act No. 25 of 1998)	Ongoing as part of construction and operational activities.
<p><b>Social and Economic:</b> A baseline socio-economic desktop study for the project area was undertaken taking cognisance of the current employees of the applicant in relation to the surrounding communities and labour seeking</p>	C, O, D	7.4 ha	<ul style="list-style-type: none"> <li>Additional employment opportunities will be created through the implementation of the SLP. Set targets for local procurement, employment and enterprise development. Maximise the number of locals sourced for employment.</li> </ul>		Ongoing as part of construction and operational activities.



<p>areas. The Emalahleni Local Municipality's IDP revealed a high un-employment rate in the area. It needed to be determined whether the socio-economic benefit of the project outweighs the environmental impacts with the emphasis on ensuring sustainable development. Influx of foreigners to the area as well as job seekers could increase the crime rate. More jobs however could increase the disposable income for the region.</p>			<p>Assess the need for retraining of employees and end of life of project and implement the findings</p>		
<p><b>Traffic:</b> Expansion of</p>	<p>C, O, D</p>	<p>7.4 ha</p>	<ul style="list-style-type: none"> <li>• Implement traffic management plan</li> </ul>		<p>Ongoing as part of construction and</p>



<p>project area to allow for additional coal storage and handling space.</p>			<p>to control all vehicles on site and remain on the designated roads. Ensure all road users adhere to all road signs erected on site. Single direction traffic shall be controlled through stop-go system.</p>		<p>operational activities.</p>
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**e) Impact Management Outcomes**

(A description of impact management outcomes, identifying the standard of impact management required for the aspects contemplated in paragraph (?):

ACTIVITY whether listed or not listed	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE In which impact is anticipated	MITIGATION TYPE	STANDARD TO BE ACHIEVED
Earthworks	<ul style="list-style-type: none"> <li>• Dust and air</li> <li>• Noise</li> <li>• Surface water</li> <li>• Groundwater</li> <li>• Biodiversity</li> </ul>	<ul style="list-style-type: none"> <li>• Particulate matter, dust deposition</li> <li>• Ambient noise level increase due to heavy machinery</li> <li>• Dirty water runoff if not contained, sedimentation and dust fallout</li> <li>• Changes in groundwater ingress following soil disturbance and final compaction</li> <li>• Vegetation clearance</li> </ul>	C, O, D	<ul style="list-style-type: none"> <li>• Control through management and monitoring;</li> <li>• Remedy through rehabilitation</li> </ul>	<ul style="list-style-type: none"> <li>• Noise and dust levels to be measured and remain within standards;</li> <li>• No decrease in water quality of PES;</li> <li>• No decrease in water quality or levels;</li> <li>• Rehabilitation in terms of terrestrial environment.</li> </ul>
Stockpiles	<ul style="list-style-type: none"> <li>• Dust and air</li> <li>• Surface water</li> <li>• Groundwater</li> <li>• Biodiversity</li> </ul>	<ul style="list-style-type: none"> <li>• Particulate matter, dust deposition</li> <li>• Runoff could lead to pollution if not contained</li> </ul>	O	<ul style="list-style-type: none"> <li>• Control through management and monitoring;</li> <li>• Remedy through rehabilitation</li> </ul>	<ul style="list-style-type: none"> <li>• Dust levels to be measured and remain within standards;</li> <li>• No decrease in water quality of</li> </ul>



		<ul style="list-style-type: none"> <li>Hydrocarbon ingress</li> <li>Runoff and dust could lead to pollution of surrounding natural areas</li> </ul>			<p>PES;</p> <ul style="list-style-type: none"> <li>No decrease in water quality or levels;</li> <li>Rehabilitation in terms of terrestrial environment.</li> </ul>
<p>Loading, hauling and transport</p>	<ul style="list-style-type: none"> <li>Dust and air</li> <li>Noise</li> <li>Biodiversity</li> </ul>	<ul style="list-style-type: none"> <li>Heavy vehicles increasing dust creation</li> <li>Heavy vehicles causing noise disturbance to faunal species and accidental road kills</li> </ul>	O	<ul style="list-style-type: none"> <li>Control through management and monitoring;</li> <li>Remedy through rehabilitation</li> </ul>	<ul style="list-style-type: none"> <li>Noise and dust levels to be measured and remain within standards;</li> <li>No decrease in water quality or levels;</li> <li>Rehabilitation in terms of terrestrial environment.</li> </ul>
<p>Water supply and boreholes</p>	<ul style="list-style-type: none"> <li>Surface water</li> <li>Groundwater</li> </ul>	<ul style="list-style-type: none"> <li>Contamination of surface water if runoff is not contained</li> <li>Boreholes abstraction volume insignificant in terms of aquifer supply</li> </ul>	C, O	<ul style="list-style-type: none"> <li>Control through management and monitoring;</li> <li>Remedy through rehabilitation</li> </ul>	<ul style="list-style-type: none"> <li>No decrease in water quality of PES;</li> <li>No decrease in water quality or levels;</li> </ul>
<p>Offices, ablution and workshop</p>	<ul style="list-style-type: none"> <li>Surface water</li> <li>Groundwater</li> </ul>	<ul style="list-style-type: none"> <li>General and hazardous waste</li> </ul>	O, D	<ul style="list-style-type: none"> <li>Control through management and</li> </ul>	<ul style="list-style-type: none"> <li>No decrease in water quality of</li> </ul>



		<ul style="list-style-type: none"> <li>Hydrocarbon ingress from workshop area and possible impact of septic tank if leaking</li> </ul>		monitoring; <ul style="list-style-type: none"> <li>Remedy through rehabilitation</li> </ul>	PES; <ul style="list-style-type: none"> <li>No decrease in water quality or levels;</li> </ul>
Stormwater control	<ul style="list-style-type: none"> <li>Surface water</li> <li>Groundwater</li> </ul>	<ul style="list-style-type: none"> <li>If SWM not implemented correctly, runoff could pollute surrounding and underlying water</li> </ul>	C, O, D	<ul style="list-style-type: none"> <li>Control through management and monitoring;</li> <li>Remedy through rehabilitation</li> </ul>	<ul style="list-style-type: none"> <li>No decrease in water quality of PES;</li> <li>No decrease in water quality or levels;</li> </ul>





i) **Financial Provision**

**(1) Determination of the amount of Financial Provision:**

**(a) Describe the closure objectives and the extent to which they have been aligned to the baseline environment described under Regulation 22 (2) (d) as described in 2.4 herein.**

The closure objectives that will guide the closure criteria include:

- Restore the land to its original capability as closely as possible prior to the establishment of Broodsnierplaas Siding, ensuring that the rehabilitated land can be effectively managed by the farmer who utilizes it.
- Remove all infrastructure that is unusable by future landowners or third parties. For buildings that can be utilized by third parties, arrangements will be made to ensure their long-term sustainable use.
- Clean up all coal stockpiles and rehabilitate the area to its previous land capability before siding activities commenced.
- Implement progressive rehabilitation measures, starting during the construction phase whenever feasible.
- Establish a safe and stable environment for both humans and animals, ensuring their sustainable well-being.
- Prevent any soil and surface/groundwater contamination by effectively managing all water on the site.
- Adhere to local and national regulatory requirements.
- Foster active partnerships with local communities to involve them in the land management process, wherever possible.
- Continuously maintain and monitor all rehabilitated areas after re-vegetation or capping. If monitoring confirms that the objectives have been achieved, an application for closure will be submitted.

**(b) Confirm specifically that the environmental objectives in relation to closure have been consulted with landowner and interested and affected parties.**

As final closure has not been investigated and the final land use remains underdetermined, closure as such could only be discussed in terms of the approach that is to be taken during determination. The information pertaining to this has been included in the EIA, this EMP as well as the Rehabilitation Plan submitted with this application. These documents have gone through the full Public Participation Process linked to the EIA application.

**(c) Provide a rehabilitation plan that describes and shows the scale and aerial extent of the main mining activities, including the anticipated mining area at the time of closure.**

This application although related to mining is not a mining application and merely for a coal siding. Nevertheless, please refer to Appendix II for the Rehabilitation Plan.

**(d) Explain why it can be confirmed that the rehabilitation plan is compatible with the closure objectives.**



It is evident that the proposed rehabilitation plan for the coal siding project aligns effectively with the closure objectives. The plan has been thoughtfully developed to ensure the accomplishment of each objective in a positive manner.

The rehabilitation plan demonstrates a clear commitment to restoring the land to its original condition as closely as possible. It outlines specific strategies for enhancing the land's capability, including soil improvement, vegetation restoration, and erosion control. These measures reflect a positive approach to environmental conservation.

Additionally, the plan addresses the removal of non-usable infrastructures and promotes the sustainable use of buildings by third parties. It emphasizes arrangements for long-term beneficial utilization, showcasing a positive perspective on maximizing existing resources.

The plan places importance on the cleanup and rehabilitation of coal stockpiles, aiming to restore these areas to a state similar to their pre-siding condition. This proactive step demonstrates a positive attitude towards mitigating environmental impacts.

During the construction phase, the plan integrates progressive rehabilitation measures where feasible, indicating a positive intention to minimize any negative effects and expedite the restoration process.

Creating a safe and stable environment for both humans and animals is a key focus of the plan. It incorporates measures to prevent contamination of soil and surface/groundwater, prioritizing the well-being of the ecosystem. This approach reflects a positive mindset towards environmental protection.

Furthermore, the plan emphasizes compliance with local and national regulatory requirements, ensuring adherence to established environmental standards. This commitment showcases a positive attitude towards fulfilling legal obligations.

The plan also highlights the importance of engaging local communities and involving them in the land management process, where possible. By fostering partnerships and encouraging community participation, the plan demonstrates a positive outlook on collaboration and shared responsibility.

Lastly, the plan includes a comprehensive monitoring and maintenance program to assess the success of the rehabilitation efforts. This commitment to continuous evaluation indicates a positive mindset towards ensuring the long-term sustainability of the rehabilitated areas.

In conclusion, the compatibility between the proposed rehabilitation plan and the closure objectives is evident. The plan showcases a positive approach to land restoration, infrastructure utilization, environmental protection, regulatory compliance, community engagement, and ongoing monitoring.



(e) Calculate and state the quantum of the financial provision required to manage and rehabilitate the environment in accordance with the applicable guideline.

CALCULATION OF THE MINE CLOSURE QUANTUM							
MINE: KEGO MINING - BROODSNYERSPLAAS SIDING				UPPER OLIFANTS: MPUMALANGA			
EVALUATORS: Menco (Pty) Ltd				DATE: MAY 2023			
COMPONENT NO	MAIN DESCRIPTION	[B] CPIX CUMULATIVE ESCALATED MASTER RATE 2022	[A] QUANTITY	UNITS	[C] MULTIPLICATION FACTOR	[D] WEIGHTING FACTOR 1 NATURE OF TERRAIN	SUB TOTALS [E = A*B*C*D]
		STEP 4.3	STEP 4.5		STEP 4.3	STEP 4.4	
1	Dismantling of processing plant and structures	R 17.63	0	m <sup>3</sup>	1.00	1.10	R 0.00
2(A)	Demolition of steel buildings	R 245.56	400	m <sup>2</sup>	1.00	1.10	R 108 047.55
2(B)	Demolition of reinforced concrete buildings and structures	R 361.88	400	m <sup>2</sup>	1.00	1.10	R 159 227.97
3	Rehabilitation of access roads	R 43.94	450	m <sup>2</sup>	1.00	1.10	R 21 751.68
4(A)	Demolition and rehabilitation of electrified railway lines	R 426.50	0	m	1.00	1.10	R 0.00
4(B)	Demolition and rehabilitation of non-electrified railway lines	R 232.64	1684	m	1.00	1.10	R 430 939.14
5	Demolition of housing and facilities	R 491.13	0	m <sup>2</sup>	1.00	1.10	R 0.00
6	Opencast rehabilitation including final voids and ramps	R 249 956.90	0	ha	0.52	1.10	R 0.00
7	Sealing of shafts, adits and inclines	R 131.83	0	m <sup>3</sup>	1.00	1.10	R 0.00
8(A)	Rehabilitation of overburden and spoils	R 171 635.35	0.1	ha	1.00	1.10	R 18 879.89
8(B)	Rehabilitation of processing waste deposits and evaporation ponds (basic salt producing waste)	R 213 768.72	0	ha	1.00	1.10	R 0.00
8(C)	Rehabilitation of processing waste deposits and evaporation ponds (acid, metal rich waste)	R 620 885.70	0.2	ha	0.80	1.10	R 109 275.88
9	Rehabilitation of subsided areas	R 143 718.76	0	ha	1.00	1.10	R 0.00
10	General surface rehabilitation, including grassing and denuded areas	R 135 964.15	7.4	ha	1.00	1.10	R 1 106 748.15
11	River diversions	R 135 964.15	0	ha	1.00	1.10	R 0.00



12	Fencing	R 155.09	1200	m	1.00	1.10	R 204 721.68
13	Water management (separating clean and dirty water, managing polluted water and managing the impact on groundwater, including treatment when required)	R 51 697.39	2	ha	0.67	1.10	R 76 201.96
14	2 - 3 years of maintenance and after care	R 18 094.09	4	ha	1.00	1.10	R 79 613.99
15	Specialist study/ engineering, geohydrology/wetland rehab	R 250 000.00	1	1	1.00	1.00	R 250 000.00
<b>SUB-TOTAL (1 TO 15 ABOVE)</b>							<b>R 2 565 407.90</b>



**(f) Confirm that the financial provision will be provided as determined.**

It is recommended that the final Financial Provision be determined following determination of closure objectives and final land use. The nature of the project, being that of an existing coal siding making use of existing TRANSNET infrastructure makes, makes final determination not viable at this point in time. It is not foreseen that in the event of closure that the entire footprint (including the removal of rail infrastructure) will be decommissioned and rehabilitated. The above described Financial Provision makes provision for total removal and rehabilitation even though this is not foreseen.

It can be confirmed that:

Puleng Resources (Pty) Ltd's insurance policy includes third party liability cover for any sudden, unintended and unexpected incidents (which would include any WULA related pollution and emergency incidents).

The current financial provision as required by all mining right holders and as approved by the DMR is inclusive of not only decommissioning and rehabilitation activities, but also caters for storm water management activities too.

Puleng Resources (Pty) Ltd is at all times guided by the commitments made in the Puleng Resources (Pty) Ltd Environmental Policy on prevention of pollution, as well as the minimization of environmental degradation, and reaffirms these commitments insofar as the communities surrounding our operations and their environmental and other stakeholders are concerned. To meet these commitments that Puleng Resources (Pty) Ltd abides by, any related pollution or emergency incidents that may occur are covered under the site's operational costs. Puleng Resources (Pty) Ltd's Broodsnyersplaas Rail Siding would be able to utilise R600 000 of its operational costs for the 2023 year towards such an incident.



**Mechanisms for monitoring compliance with and performance assessment against the environmental management programme and reporting thereon, including:**

**f) Mechanism for monitoring compliance**

<b>SOURCE ACTIVITY</b>	<b>IMPACTS REQUIRING MONITORING PROGRAMMES</b>	<b>FUNCTIONAL REQUIREMENTS FOR MONITORING</b>	<b>ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)</b>	<b>MONITORING AND REPORTING FREQUENCY AND TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS</b>
Wetlands	The removal of topsoil and vegetation as part of the operational activities at the siding will result in the encroachment of infrastructure to impact on the wetland. Sedimentation of pollution if runoff is not contained.	Ecological importance and sensitivity, hydrofunctional importance, direct human benefits, Eco services and PES. Subject to change based on WULA issuance.	Siding supervisor and Wetland Specialist	Wet and dry season monitoring for a minimum of two years. If no deterioration is observed, annual monitoring can be requested. This is subject to change based on outcome of WULA.
Biodiversity	Habitat disturbance, pollution and accidental roadkills.	Visual assessment of site to record species occurrence of terrestrial biodiversity including various plant communities, invasive alien species, fauna and other ecosystems occurring on the site. Recording of any animal species deaths on site.	Terrestrial Biodiversity Specialist	Ongoing and monthly internal site inspection reporting. Annual reporting and submission to Biodiversity section of provincial DEA and DMR.
Erosion	Soil erosion	Sedimentation of water	Siding supervisor and relevant	Monthly report to DMR and



	<p>resulting from heavy traffic flow of trucks offloading coal at stockpile areas. Soil erosion from heavy rainfall events. Road sides eroded and unstable for trucks to transport coal to stockpile and loading areas.</p>	<p>resources. Stability of the operational areas within the site. Flat surfaces to ensure stable transportation of coal to weighbridge; offloading at stockpile area; loading of coal into train wagons. Railway ground infrastructure stability to be monitored and inspected especially after heavy rainfall events. Repairs to be done timeously to prevent further damage and safety hazards to the personnel on site and neighbouring community. Topography to be inspected to ensure efficiency in the offloading at stockpile area and the loading at loading zone without incidents that could impact the environment.</p>	<p>specialist</p>	<p>DWS.  Every 6 months and following any heavy rainfall event that causes incident.</p>
<p>Alien invasive plants</p>	<p>Spread and establishment of alien invasive species</p>	<p>Monitor species activities and other activities taking place within or adjacent to the project area. Determine or map the ecological sensitivity of the Area and define management units for invasive species control.</p>	<p>Siding supervisor and Terrestrial Biodiversity Specialist</p>	<p>Once-off followed by annual update of Invasive Species Management Plan. Monthly internal record keeping of implemented measures.</p>
<p>Surface water and</p>	<p>Surface and ground</p>	<p>As per the final issued WUL.</p>	<p>Surface and Groundwater</p>	<p>Bio-monitoring to be</p>



<p>Groundwater</p>	<p>water pollution from surface runoff from the stockpile area and the pollution control dam. Changes in surface and groundwater quality will be monitored regularly. The change in hydrological characteristics of the area can affect surface runoff, soil moisture, and evapotranspiration and groundwater behaviour.</p>	<p>Recommendations have been included under Appendix III: Monitoring and Auditing Plan.</p>	<p>specialist</p>	<p>conducted bi-annually. Surface water monitoring to be done monthly. Groundwater monitoring to be done annually. These could change based on the outcome of the WULA.</p>
<p>Dust</p>	<p>Air quality deterioration due to coal dust in the air and potential low visibility and health impacts to personnel on site. Air Quality - dust fall out monitoring programme. Monitor changes within the dust fall out gravimetric weight and compliance against the set SANS 1929</p>	<p>Quality surveys conducted to measure the gravimetric dust fallout at the operation and cumulative impacts currently in effect causing poor air quality in the site. A minimum of four dust buckets recommended (North, South, East, West)</p>	<p>Siding supervisor and Air Quality Specialist</p>	<p>The owner/lessee must monitor the dust fall out monitoring and report monthly to the Authority as per the National Dust Control Regulations, 2013</p>





	standards and within or outside the DEA AQ target.			
Rehabilitation of all areas within the site	Potential disturbance to soil structure, increased biodiversity returning to site post operation, soil pollution from demolition and dismantling of PCD and workshop area.	Ensure implementation of Site Rehabilitation Plan in accordance with the Best Practice and Guidelines for the site and the EMP.	Siding supervisor	Survey and visual inspection. Six monthly.
Seepage and/or leakage	Potential contamination of surface water sources and groundwater from leakage and destruction from instable water storage facility. Instable water storage facility could lead to increased surface run off thus increasing soil erosion and sedimentation of water sources.	PCD and liner stability monitoring and annual leakage monitoring.	Siding supervisor and ECSA Engineer in terms of PCD leakage	Follow specifications in mandatory code of practice for water storage facilities. Regular physical inspections of the physical structural integrity of the infrastructure and liner. Inspect for crack, wear and tear and implement necessary mitigation measures. Follow Incident Reporting Protocol as and when required.
Storage and use of Hazardous	Potential contamination of	Monitoring of disposal of old oil, oil filters, old oil drums, oily	Siding supervisor	Record each load sent off the appropriate disposal



material on site during construction and operational phase	water and soil through seepage or spillage and leakage of stored material or hazardous material. Potential of a fire should materials not be stored properly on site. Potential Safety hazard should materials not be handled properly.	cloths, batteries, fluorescent tubes, tyres and contaminated soil. (Hazardous waste site).  Monitor implementation of Waste management Plan for site.		site. Ensure safe disposal certificates are obtained from suppliers if the materials are given back to them. Annual.
General and construction waste	Potential contamination of water resources from littering and improper waste management practices and disposal.	Monitoring of maintenance of general waste disposal.	Siding supervisor	Running total of loads of waste taken. Keeping records of waste taken to disposal site.
Ablution facility	Potential soil pollution, surface water and groundwater pollution due to lack of protective barrier, location and distance from sensitive areas. Poor use and maintenance of sanitation facilities.	Monitoring of condition of sewage facilities.	Siding supervisor	Visual inspection with record keeping.



Heritage	Disturbance of any existing heritage significant resources or sites during construction, operation and decommission phase.	Visual observation of heritage resources or sites. Record sites or resources Report the sites or resources observed to SAHRA.	Siding supervisor and Heritage Specialist	As and when discovered. Every Six months.
PCD water usage	Water use at the site. Water allocation for dust suppression to comply with licence condition	Monitoring of water usage and ensuring water flow meters are installed at the pollution control dam. Monitor volume of water from PCD used per month for dust suppression not to exceed the target set in the WUL conditions.	Siding supervisor and Surface water monitoring team	In accordance to issued WUL.
EMP compliance	All aspects listed within EMP that require monitoring	Refine and update the approved EMP and compile a site specific Operational EMP if required	Siding supervisor	Daily observations and monthly reporting



**g) Indicate the frequency of the submission of the performance assessment report**

It is recommended that the EMP Performance Assessment be conducted and submitted on a bi-annual basis (every two years)

**h) Environmental Awareness Plan**

The objectives of the Environmental Awareness Plan are centred around ensuring that all individuals involved in activities that may impact the environment are knowledgeable and competent in understanding the potential consequences of their actions. This includes identifying and training employees who may have a direct influence on the environment, assessing their level of expertise and training requirements, and raising awareness among all employees about the environmental impact of their activities.

To achieve these objectives, procedures are established and maintained to inform relevant employees about their environmental responsibilities. In the context of construction projects, the Siding Supervisor and SHE Officer take on the responsibility of adequately educating construction staff and subcontractors about the provisions outlined in the Environmental Management Plan (EMP) and promoting environmentally friendly practices in general.

Environmental awareness and the EMP form an integral part of the formal site induction process for contractors, subcontractors, and casual labourers. It is preferred that this induction training is conducted in their native language to ensure clear understanding. The training covers essential topics such as the importance of adhering to environmental policies, the actual or potential environmental impacts of their work activities, the benefits of improving personal performance for the environment, their roles and responsibilities in aligning with the environmental policy and procedures, and compliance with the consultant's Environmental Management Systems (EMS), including emergency preparedness and response requirements. Additionally, the training emphasizes the implementation of mitigation measures during their work activities.

As a confirmation of their understanding and commitment to environmental responsibilities, all contractors, subcontractors, and casual labourers are required to sign an induction attendance record acknowledging their comprehension of the EMP. Furthermore, the contractors are expected to conduct regular "toolbox" talks, in accordance with company policy, to address specific risks and trends associated with the project. Records of these talks will be maintained on-site to ensure compliance and accountability.

**i) Specific information required by the Competent Authority**

**(Among others, confirm that the financial provision will be reviewed annually)**

Specific requirements stipulated by the Competent Authority have been covered through their input during the public participation process and has been included in the EIA. It is also stated that the Financial Provisioning will be reviewed on an annual basis.



# Appendix I: Master Layout Plans



## **Appendix II: Rehabilitation Plan**



# Appendix III: Monitoring and Auditing Plan