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**DRAFT ENVIRONMENTAL MANAGEMENT  
PROGRAMME (EMPR): PROPOSED UPGRADE TO  
SUBLIME ACCESS ROAD AND NEW INTERSECTION WITH  
R580, EXARRO MATLA MINE, EMALAHLENI LOCAL  
MUNICIPALITY, MPUMALANGA PROVINCE**

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# DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPR): PROPOSED UPGRADE TO SUBLIME ACCESS ROAD AND NEW INTERSECTION WITH R580, EXARRO MATLA MINE, EMALAHLENI LOCAL MUNICIPALITY, MPUMALANGA PROVINCE

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### Acronyms

AEL	Air Emissions License
BA	Basic Assessment
BAR	Basic Assessment Report
CA	Competent Authority
CE	Consulting Engineer
CBA	Critical Biodiversity Area
DEA	Department of Environmental Affairs
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EDTEA	Economic Development, Tourism and Environmental Affairs
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
GA	General Authorisation
HDI	Historically Disadvantaged Individuals
LED	Local economic Development (LED)
MBSP	Mpumalanga Biodiversity Sector Plan
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEM:BA	National Environmental Management: Biodiversity Act, 2004 (Act no. 10 of 2004)
NEMPAA	National Environmental Management: Protected Areas Act
NEM:WA	National Environmental Management: Waste Act, 2008 (Act no. 59 of 2008)
NWA	National Water Act, 1998 (Act no. 36 of 1998)
OHSA	Occupational Health and Safety Act, 1993 (Act no. 85 of 1993)
ONA	Other Natural Areas
PM	Project Manager
SF	Site Forman
SAP	South African Police
SIZ	Social Impact Zone
SMMEs	Small, Medium & Micro Enterprise Businesses
WULA	Water Use Licence Application

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## CONTACT DETAILS OF RESPONSIBLE PERSONS

### Applicant Details

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**Table 1: Alignment to NEMA 2014 EIA Regulations Appendix 4 (as amended)**

Sub Section Content	Reference in the EMPr
<p>1. (1) An EMPr must comply with section 24N of the Act and include-</p> <p>(a) details of –</p> <ul style="list-style-type: none"> <li>(i) the EAP who prepared the EMPr; and</li> <li>(ii) the expertise of that EAP to prepare an EMPr, including curriculum vitae;</li> </ul>	<p><b>Refer to Table above and further details in Appendix F</b></p>
<p>(b) a detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description;</p>	<p><b>Section 1.1</b></p>
<p>(c) a map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers;</p>	<p><b>Figure 1-1 and 1-2 in Section 1.1</b></p>
<p>(d) a description of the impact management outcomes, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development including-</p> <ul style="list-style-type: none"> <li>—</li> <li>(i). planning and design;</li> <li>(ii). pre-construction activities;</li> <li>(iii) construction activities;</li> <li>(iv). rehabilitation of the environment after construction and where applicable post closure; and</li> <li>(v). where relevant, operation activities;</li> </ul>	<p><b>Section 1.2 and Section 3</b></p>
<p>(f) A description of proposed impact management actions, identifying the manner in which the impact management outcomes contemplated in paragraphs (d) will be achieved, and must, where applicable, include actions to –</p> <ul style="list-style-type: none"> <li>i. Avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation;</li> <li>ii. Comply with any prescribed environmental management standards and practices;</li> <li>iii. Comply with any applicable provisions of the Act regarding closure, where applicable; and</li> <li>iv. Comply with any provisions of the Act regarding financial provisions for rehabilitation, where applicable;</li> </ul>	<p><b>Section 3</b></p>
<p>(g) The method of monitoring the implementation of the impact management actions contemplated in paragraph (f);</p>	<p><b>Section 3</b></p>
<p>(h) The frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f);</p>	<p><b>Section 3</b></p>
<p>(i) An indication of the persons who will be responsible for the implementation of the impact management actions ;</p>	<p><b>Section 2 and 3</b></p>
<p>(j) The time periods within which the impact management actions contemplated in paragraph (f) must be implemented;</p>	<p><b>Section 3</b></p>

(k) The mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);	<b>Section 3</b>
(l) A program for reporting on compliance, taking into account the requirements as prescribed by the Regulations;	<b>Section 3.3.8</b>
(m) An environmental awareness plan describing the manner in which – <ul style="list-style-type: none"> <li>i. The applicant intends to inform his or her employees of any environmental risk which may result from their work; and</li> <li>ii. Risks must be dealt with in order to avoid pollution or the degradation of the environment; and</li> </ul>	<b>Section 2.2 and Section 3.1.1 and 3.1.7</b>
(n) Any specific information that may be required by the competent authority.	<b>Refer to table of Contents</b>
(2) Where a government notice gazetted by the Minister provides for a generic EMPr, such generic EMPr as indicated in such notice will apply.	<b>N/A</b>

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# 1 Introduction

## 1.1 Project Description

The project involves the proposed upgrade of the Sublime Access Road (of the R580 Provincial Road) which is currently gravel. A new intersection off the R580 to link with the Sublime Access Road will be constructed to the Exarro Coal Mine located approximately 12.5km west of Kriel. The study area is located within the Emalahleni Local Municipality and the Nkangala District Municipality in the Mpumalanga Province.

At present, the Matla Coal Mine is accessed via the R580 intersection with Sublime Access Road. However, there has been increased traffic from coal imports to sustain the Matla Power Station burn rate, due to decreased production from Matla Colliery. Therefore, to accommodate the increased traffic, road infrastructure improvements are proposed (new intersection off R580 and the upgrade of the existing Sublime Access Road) to the existing stockpile exit road. Sublime Access Road requires the upgrading of the current pavement layers, which will need to be surfaced as well as widened. The upgrading of the intersection to accommodate the slow turning traffic onto the R580 provincial road is also required in order to comply with relevant road safety standards.

There will be a new alignment (approximately 180m) connecting Sublime Access Road with the R580. The road alignment will then follow along the existing gravel road. The road will be designed with an average road width of 12m.

The project aims to upgrade the existing Sublime Access Road, to accommodate the current and expected traffic loading to and from Matla Stockpile.

The design criteria for the Sublime Access Road are as follows:

**Table 2: Design Criteria**

Description	Criteria
Design Life	20 years
Design Traffic	600 vehicles/day; 7 days/week for the first 10 years thereafter 300 vehicles/day; 7 days/week
Vehicle Gross Weight IN/OUT	56 tonnes – 7 axles / 56 tonnes – 7 axles
Length of Road	Approximately 1.82km
Construction Period	Construction is expected to commence in July 2018 and the duration of construction of the upgrade of Sublime Road is expected to be five (5) months.  An additional three (3) months of construction will be required should the proposed intersection off the R580 be constructed.



Description	Criteria
	Thus totalling to a period of eight (8) months to carry out the construction works associated with the road upgrades and intersection at the R580.

During the construction phase, a construction corridor of 20m on either side of the proposed road upgrade along Sublime Access Road would be required. This will be rehabilitated once construction of the road has been finalized.

In terms of stormwater drainage requirements, culverts must be designed for a 1:10 year return period. The capacity of the current pipes are not adequate to handle the design flood and will be removed and replaced by a series of box culverts.

The existing pipe culverts (900mm diameter) along the road have become silt laden and will be replaced with other culverts (see below) to allow for sufficient drainage along the road:

- At km0.76 1 x (2 400 x 900) box culvert
- At km0.89 (New 1 x 600 Pipe Culvert Class loop)
- At km 0.99 (New 1 x (2 400 x 900) box culvert
- At km1.140 1 x (800 x 900) box culvert
- At km 1.5 1 x (1 500 x 600) box culvert

Refer to the design drawings (refer to Drawing No. MAT-GIB-CL-0003 in Appendix C of the Basic Assessment Report for the location of the proposed culverts and design of the road upgrade). Refer to the Layout Plan and Longitudinal Section of Sublime Road from km 0 to km1.8 in Drawing No. ECG in Appendix C of the Basic Assessment Report).

This Environmental Management Programme (EMPr) has been compiled as part of the Environmental Authorisation Process, required by the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA). The EMPr will look at the potential environmental impacts the proposed road upgrade project could have on the environment and which mitigation and monitoring procedures will need to be put in place to manage these impacts with the smallest environmental footprint possible.

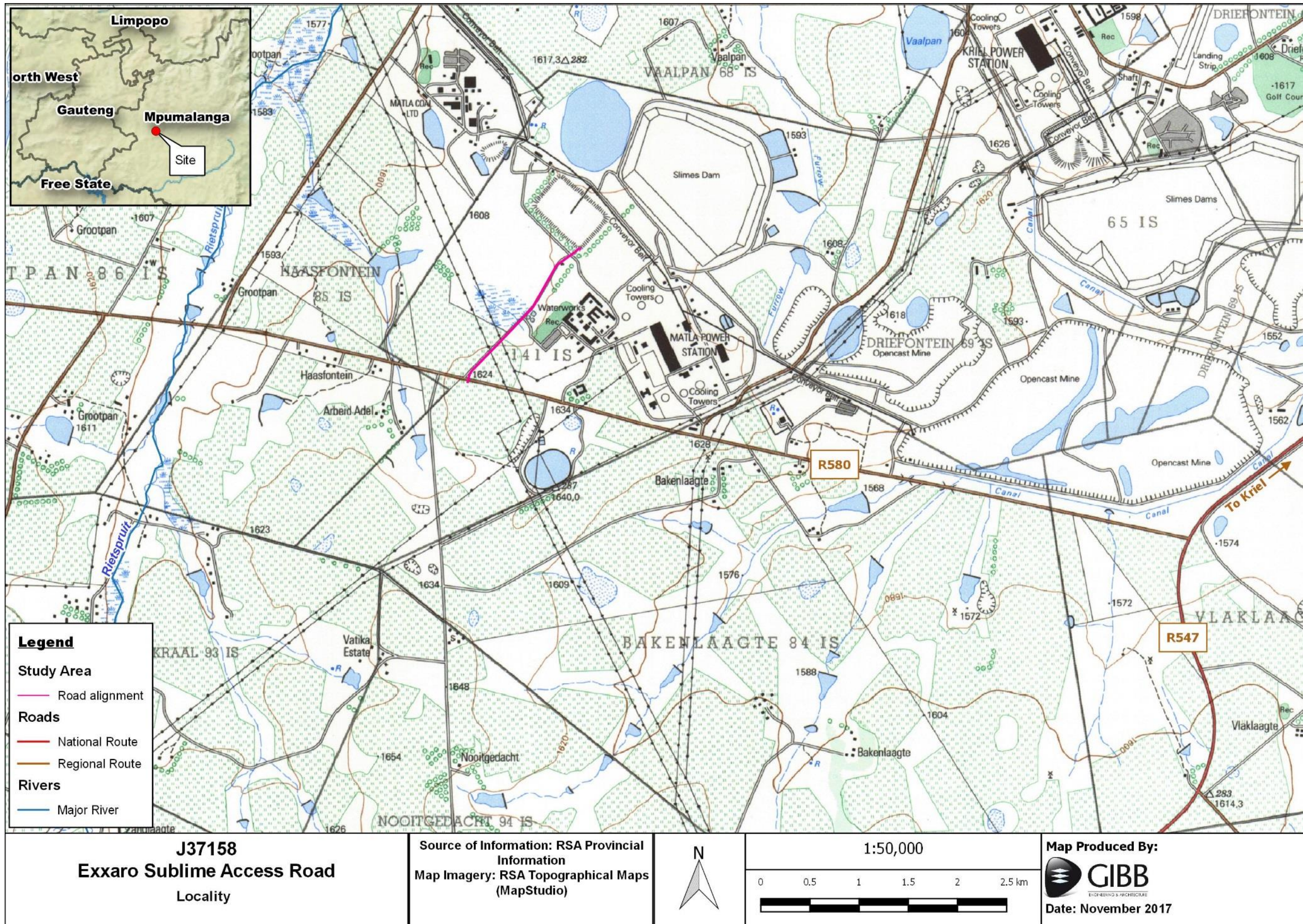


Figure 1-1: Locality map of the proposed infrastructure

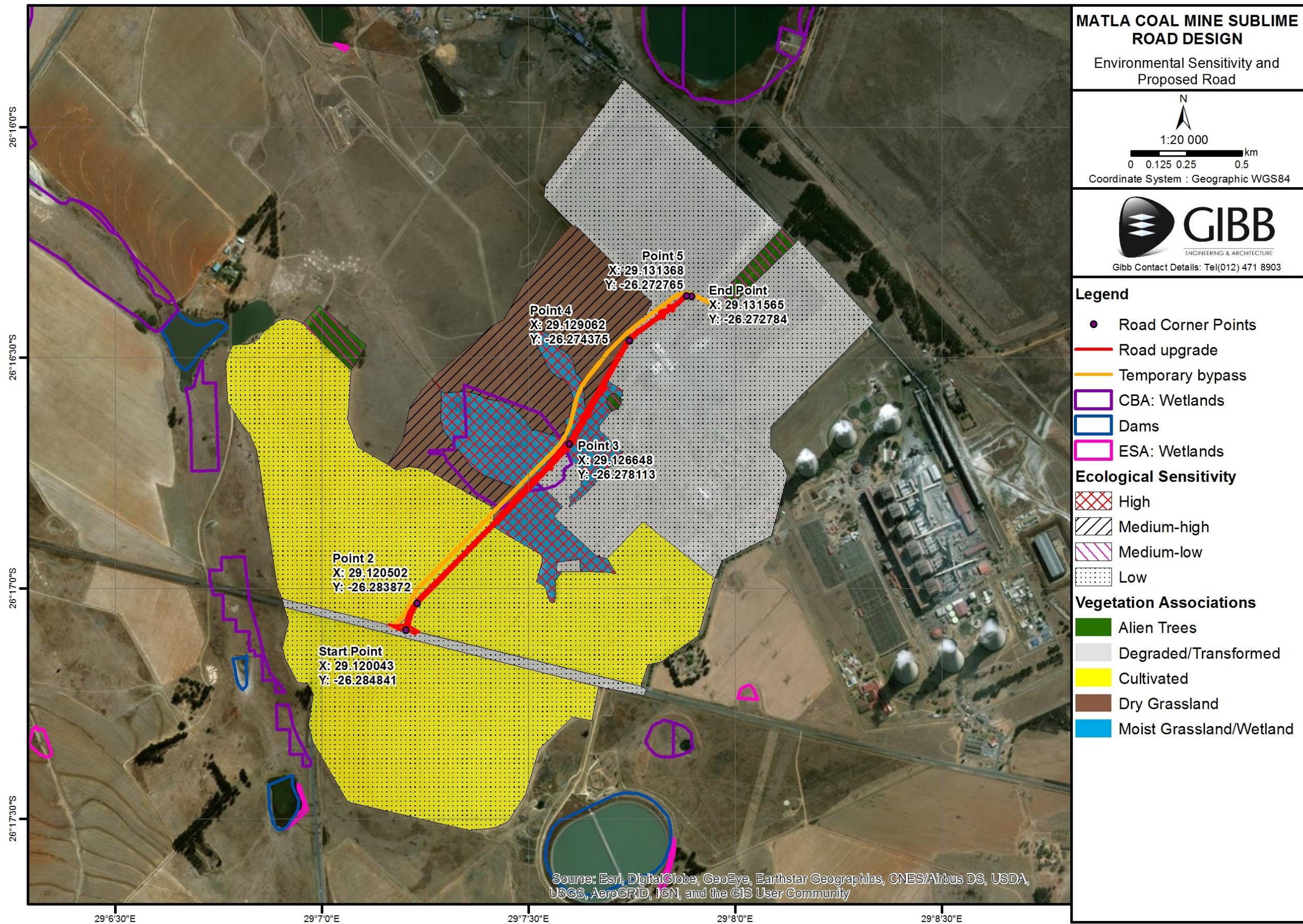


Figure 1-2: Sensitivity Map

Based on the above information, the following listed activities in terms of the Environmental Impact Assessment Regulations, 2014 as amended 2017 have been applied for:

**Table 3: Listed activities in terms of NEMA EIA Regulations (2014), as amended - which are triggered by the Project**

LISTED ACTIVITY	DESCRIPTION OF PROJECT ACTIVITY
<p>Government Notice R. 327 (Listing Notice 1): Listed Activity No. 19</p> <p>The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from (i) a watercourse.</p>	<p>As a result of the proposed road upgrade, there may be removal of more than 10m<sup>3</sup> of soil from the surrounding unchannelled valley bottom wetlands.</p>
<p>Government Notice R. 327 (Listing Notice 1): Listed Activity No. 56</p> <p>The widening of a road by more than 6 metres, or the lengthening of a road by more than 1 kilometre— (i) where the existing reserve is wider than 13,5 meters; or (ii) where no reserve exists, where the existing road is wider than 8 metres; but excluding a road-  excluding where widening or lengthening occurs inside an urban area.</p>	<p>There is no road reserve along the Sublime Access Road. The existing road width varies between 7 m to 8.2m. The road will be widened by 1.5m on either side of the road. The length of the existing Sublime Road is 1.82km and will remain at this length even with the road upgrade. The existing road reserve for the R580 intersection varies between 32m to 40m. The Provincial Road R580 will be widened by approximately 12m.</p>
<p>Government Notice R.324 (Listing Notice 3): Listed Activity No. 12</p> <p>The clearance of an area of 300 square metres or more of indigenous vegetation, except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.</p> <p>(f) In Mpumalanga, (ii) within the Critical Biodiversity Areas identified in bioregional plans.</p>	<p>The proposed road widening and installation of culverts may require the clearance of more than 300m<sup>2</sup> of indigenous vegetation and the project site occurs within the Mpumalanga Biodiversity Sector Plan (MBSP) of Critical Biodiversity Area (CBA) for wetlands.</p>

LISTED ACTIVITY	DESCRIPTION OF PROJECT ACTIVITY
<p>Government Notice R.324 (Listing Notice 3): Activity No. 14</p> <p>The development of— (xii) infrastructure or structures with a physical footprint of 10 square metres or more, where such development occurs— (a) within a watercourse;</p> <p>(f) In Mpumalanga, outside urban areas, in: (ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the Competent Authority (CA) or in bioregional plans.</p>	<p>In terms of the Mpumalanga Biodiversity Sector Plan (MBSP, 2013), the study area falls within the MBSP CBA for Wetlands. The proposed road upgrade and installation of culverts along the road will exceed 10m<sup>2</sup>. The construction of the road upgrade falls within wetlands.</p>
<p>Government Notice R.324 (Listing Notice 3): Activity No. 18</p> <p>The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre. (f) In Mpumalanga, i. Outside urban areas: (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the CA or in bioregional plans;</p>	<p>There is no road reserve along the Sublime Access Road. The existing road width varies between 7 m to 8.2m. The road will be widened by 1.5m on either side of the road (therefore 3m widening in total). The length of the existing Sublime Road is 1.82km and will remain at this length even with the road upgrade. The existing road reserve for the R580 intersection varies between 32m to 40m. The Provincial Road R580 will be widened by approximately 12m.</p>

## 1.2 Environmental Impacts (as identified in the Draft Basic Assessment Report - BAR)

Three activity alternatives were considered as follows:

Activity Alternative 1: Construction in half widths

Activity Alternative 2: Constructing a temporary bypass

Activity Alternative 3: Rerouting of traffic for short periods

A description of each activity alternative is provided in the following paragraphs:

### **Activity Alternative 1: Construction in half widths**

Involves the development of Sublime Access road with the implementation of construction of the road in half widths, using Stop Go traffic control to control the traffic. One half of the road will be constructed, while traffic is accommodated on the other half. Once construction has been completed the completed half is opened to traffic and the other half constructed. Only single lane traffic can be accommodated traffic and controlled by Stop Go signage at the end

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points of the section to be constructed. Waiting queues have to be cleared before opposing traffic are allowed to pass.

**Activity Alternative 2: Constructing a temporary bypass**

This options involves the development of a two lane, two way 7 m wide temporary bypass to accommodate the traffic whilst allowing the road to be constructed unhindered. This allows the contractor to achieve improved production rates and shorter turnaround timeframe.

For the first 150 m from the R580 the proposed alignment deviates from the existing alignment and a temporary bypass will not be required as traffic will still utilize the existing road.

Upon completion the gravel of the temporary bypass will have to be removed and spoiled in the mine area for possible future re-use.

**Alternative 3: Rerouting of traffic for short periods**

This option involves rerouting the outgoing trucks, so that the road can be closed to allow the drainage crossings to be constructed. The roads cannot be closed for more than 2 or 3 days at a time.

This option will be incorporated in both other options. This is the preferred option.

An impact summary of the identified and assessed impacts associated with the proposed activity (Activity Alternative 1) after the management and mitigation of impacts have been provided in Table 4.

It has been illustrated that with the implementation of the mitigation measures and Environmental Management Programme, all the identified impacts can be mitigated to acceptable levels.

Table 4: Impact Summary

<b>Activity Alternative 1</b>		
<b>Impact</b>	<b>Significance before mitigation</b>	<b>Significance after mitigation</b>
<b>Construction Phase</b>		
Destruction of sensitive vegetation and disturbance of floral and faunal habitats	low - negative	very low negative
Increased potential of spread of alien invasive vegetation	low - negative	very low negative
Decreased wetland functioning	low - negative	very low negative
Increase in erosion potential	low - negative	very low negative
Pollution of watercourse	low - negative	very low negative
Disturbance to heritage and archaeological resources	very low - negative	very low negative
Disturbance to paleontological resources	very low - negative	very low negative
Increased noise on surrounding community during construction	low - negative	very low - negative
Increased environmental pollution (noise, dust, air) on workers	very low - negative	very low - negative
Change of visual character of the site	low - negative	very low - negative
Increased traffic on surrounding road network	low- negative	very low - negative
Employment creation and skills transfer	low positive	moderate positive
<b>Operational Phase</b>		
Disturbance to fauna	very low negative	very low - negative
Pollution of downstream watercourses	low - negative	very low – negative
<b>Decommissioning</b>		
Please note that it is not envisaged that the proposed road and intersection will be decommissioned in the nearby future. However should this occur, then an impact assessment will need to be undertaken at that stage to confirm the status quo of the receiving environment and potential impacts on these conditions. <u>At this stage it is assumed that the nature of the impacts that will be experienced during decommissioning activities will be strongly related to the impacts during the construction phase of the project.</u>		

**Activity Alternative 2: Constructing a temporary bypass**

Please note that the environmental impacts associated with the implementation of Activity Alternative 2 is similar to the impacts outlined and assessed as part of Activity Alternative 1 above, with the exception of the following:

Reduced traffic congestion during construction activities, as a temporary by-pass lane would be constructed to carry the traffic, whilst allowing the road to be constructed unhindered.

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### **Activity Alternative 3: Rerouting of traffic for short periods (preferred alternative)**

Please note that the environmental impacts associated with the implementation of Activity Alternative 1 is similar to the impacts outlined and assessed as part of Activity Alternative 1 above, with the exception of the following:

Reduced traffic congestion during construction activities, as a temporary by-pass lane would be constructed to carry the traffic, whilst allowing the road to be constructed unhindered.

#### **1.2.1 Comparative summary of the findings for Activity Alternative 1, 2 and 3**

Please note that the impacts associated with Activity Alternative 1, 2 and 3 are very similar and as such, no significant difference in terms of impact significance can be used as motivation in selecting one of them as the preferred option. When comparing the alternatives with one another, **Activity Alternative 1** will only allow single lane of traffic to be accommodated and traffic is controlled by Stop-Go signage at the end points of the section to be constructed. This alternative impacts negatively on traffic movement as waiting queues must be cleared before opposing traffic are allowed to pass. Therefore, this increases traffic congestion, interrupts mine operations and reduces productivity in the road construction activities.

When comparing the alternatives with one another, **Activity Alternative 2** is better than Alternative 1 because it involves construction of a 7m wide temporary bypass lane that allows traffic to flow unhindered whilst undertaking the road works.

However, when comparing Activity Alternative 3 with the other two alternatives, it is important to note that this alternative incorporates both Alternative 1 and 2. Therefore, this alternative allows possible rerouting of the outgoing trucks so that the road can be closed to allow the drainage crossings to be constructed.

From a practical and convenience point of view, **Alternative 3 is therefore preferred** as it combines both alternative 1 and 2 in constructing the road to achieve productivity in road works construction, allows for continued mining activities and minimises the impacts on the environment.

Therefore, Activity Alternative 3 is the preferred alternative from the EAP's point of view as it allows the development to occur in the most productive, efficient and practical way possible.



### 1.3 Applicable Documentation

The following environmental documentation is applicable for the project, and should be read in conjunction with this EMPr:

- Draft and Final Basic Assessment Report for the Proposed Sublime Road Upgrade and new intersection off the R580, Matla, Mpumalanga Province;
- Other Permits or licences that may need to be acquired (General Authorisation from the Department of Water and Sanitation); and
- All acts, ordinances and by-laws relevant to the proposed project.

### 1.4 Applicable Legislation

The following environmental legislation (Table 5) is applicable for the project, and should be read in conjunction with this EMPr:

Table 5: Applicable Legislation

LEGISLATION	APPLICABILITY TO THE PROJECT
<p>The Constitution of the Republic of South Africa, Section 24 and 26 (Environmental Right):</p>	<p>1) Everyone has the right</p> <p>a) to an environment that is not harmful to their health or well-being; and</p> <p>b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that:</p> <p style="padding-left: 40px;">i) prevent pollution and ecological degradation;</p> <p style="padding-left: 40px;">ii) promote conservation; and</p> <p style="padding-left: 40px;">iii) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.”</p> <p>The provisions of the constitution need to be supported. By undertaking an EA for the proposed project, these provisions will be addressed.</p>
<p>National Environmental Management Act, 1998 (Act no. 107 of 1998) (NEMA) and EIA Regulations, 2014 as amended.</p>	<p>NEMA is the key environmental management legislation and states in section 2(4)(k) that “the environment is held in public trust for the people, the beneficial use of resources must serve the public interest and the environment must be protected as the people’s common heritage” thereby paving the way for an EIA process to assess developments that may have a harmful impact on the environment.</p>

LEGISLATION	APPLICABILITY TO THE PROJECT
	<p>Section 28 of NEMA ensures that environmental screening is incorporated into each activity, although it is not formally termed as such. Section 28 (1) imposes a duty which requires that:</p> <p>“Every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment”.</p> <p>The EIA regulations describe the EIA process to be followed including the public participation process, and the listed activities that may have a harmful impact on the environment and must be assessed. For the purpose of this project a BA and associated specialist studies will be undertaken.</p> <p>The Department of Environmental Affairs (DEA) is the Competent Authority (CA) and will issue a decision on the Environmental Authorisation (EA) (which could grant/refuse the EA).</p>
<p>National Environmental Management: Waste Act, 2008 (Act no. 59 of 2008) (NEM:WA)</p>	<p>This Act provides for regulating waste management in order to protect health and the environment by providing reasonable measures for the prevention of pollution and ecological degradation. Also to provide for national norms and standards for regulating the management of waste by all spheres of government; to provide for specific waste management measures; to provide for the licensing and control of waste management activities.</p> <p>Although none of the proposed activities are likely to trigger activities in terms of the Waste Act, waste will still be generated on site and needs to be managed accordingly. By undertaking this BA and associated EMPr, certain mitigation measures will be implemented to reduce potential impacts of waste generation in all its forms.</p>
<p>National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004); (NEM:AQA)</p>	<p>Crucially, in terms of section 21 of the NEM: AQA the relevant authority may promulgate a list of activities which result in atmospheric emissions which are reasonably believed to have a significant detrimental effect on the environment. No person</p>

LEGISLATION	APPLICABILITY TO THE PROJECT
	<p>may conduct an activity so listed without a provisional atmospheric emission licence (AEL).</p> <p>An AEL will not be required for the project.</p>
<p>National Water Act, 1998 (Act no. 36 of 1998) (NWA)</p>	<p>This Act provides for the protection and management of water resources. A Water Use License Application (WULA) or General Authorisation (GA) is made to authorise water use activities pertaining to the altering of the bed, bank, course and characteristics of the watercourse and for impeding and diverting the flow of water in a watercourse (where applicable).</p> <p>For the purpose of this project, a General Authorisation will need to be commissioned for the project.</p>
<p>Promotion of Access to Information Act, 2000 (Act No. 2 of 2000)</p>	<p>The Draft BAR will be made available for public review through the Public Participation Process to ensure that Interested and Affected Parties (I&amp;APs) have access to information that enables them to exercise and protect their rights, through an open and transparent process.</p>
<p>National Heritage Resources Act, 1999 (Act No. 25 of 1999); (NHRA)</p>	<p>The NHRA serves to introduce an integrated and interactive system for the identification, assessment and management of the heritage resources of South Africa. The NHRA promotes good governance and the empowerment of civil society to preserve their heritage for future generations, and states the principles of heritage resource management while making provision for legislation protecting national heritage</p> <p>The potential impact to heritage resources through implementation of the proposed Project is very low. A Phase 1 Archaeological/Heritage Impact Assessment (HIA) has been conducted to determine the associated impacts.</p> <p>The findings revealed that that the proposed road servitude is located within a degraded area, and has reduced sensitivity for the presence of high significance physical cultural site remains, be they archaeological, historical or burial sites, due to previous disturbances resulting from mainly agriculture activities in the area.</p> <p>The region is known for its fossiliferous mudstones and sandstones and it is highly probable that fossils will be</p>

LEGISLATION	APPLICABILITY TO THE PROJECT
	<p>encountered during construction if the intact bedrock under the soil cover and layer of eroded rock is exposed.</p> <p>It is recommended that the road upgrade is approved, due to the unlikelihood that fossiliferous rocks containing high quality fossils would be exposed in the study area if the road works are limited to the surface as seems to be the case. However, the procedure for chance palaeontological finds must be considered in the event that previously unknown fossils or fossil sites are exposed or found during the life of the project.</p>
<p>National Environmental Management: Biodiversity Act, 2004 (Act no. 10 of 2004) (NEM:BA)</p>	<p>The Biodiversity Act provides for the management and protection of the country's biodiversity within the framework established by NEMA. It provides for the protection of species and ecosystems in need of protection, sustainable use of indigenous biological resources, and equity in bio-prospecting.</p> <p>A Faunal and Floral Assessment has been undertaken for this project to determine the impacts associated with such. There were no confirmed findings of any Provincially or Nationally Protected Plant species that occurs in the study area.</p>
<p>Occupational Health and Safety Act (OHSA) No. 85 of 1993 Department of Labour 1993</p>	<p>Construction-related activities must be carried out with circumspection to provide for the health and safety of persons at work and for the health and safety of the general public in close proximity to the construction site.</p> <p>The OHS Act imposes various duties on employers to ensure the health and safety of their employees, including taking steps as may be reasonably practicable to eliminate or mitigate any hazard or potential hazard to the health and safety of their employees, providing the necessary information, instructions, training and supervision, as well as not permitting any employee to do any work or to produce, process, use, store, handle or transport any article or substance or to operate any plant or machinery unless the precautionary measures have been taken. In addition, there is a veritable myriad of regulations promulgated under the OHS Act which may have relevance to the depot project, in regard to safe working conditions in that context. They include the General Administrative Regulations, General Safety Regulations, Construction Regulations and the Environmental Regulations for Workplaces.</p>

LEGISLATION	APPLICABILITY TO THE PROJECT
	<p>Exarro has a stringent Health and Safety Policy in place for all activities on their mining property (including access roads). The construction crew therefore needs to consider general duties of their employees with regards to Health and Safety on site during construction.</p>
<p>Mpumalanga Biodiversity Sector Plan (MBSP)</p>	<p>According to the MBSP, 2014, the road alignment falls across areas classified as Other Natural Areas (ONAs), Moderately Modified and Heavily Modified areas. However, in terms of the MBSP, the study area falls within the Critical Biodiversity Area (CBA) for wetlands.</p>
<p>Municipal Bylaws</p>	<p>The Emahlaleni Local Municipality may have certain requirements in terms of bylaws and trade permits, and a few of these may be applicable to this project, namely the following:</p> <ul style="list-style-type: none"> <li>• Noise and Control By-laws</li> <li>• Fire Brigade Services By-laws</li> <li>• Nuisance Bylaws</li> <li>• Public Health Bylaws</li> <li>• Spatial Planning and land use management By-law</li> <li>• Solid Waste and Sanitary Bylaws</li> </ul> <p>The proposed project needs to consider the above during the implementation of the project.</p> <p>The Emalahleni Local Municipality has requested that the following By-laws specifically be adhered to:</p> <ul style="list-style-type: none"> <li>• Public Open Spaces By-laws; and</li> <li>• Waste Management By-laws</li> </ul>

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## 1.5 Structure of the Environmental Management Programme

The EMPr provides mitigation and management measures for the following phases of the project:

### **Construction Phase**

This section of the EMPr provides management principles for the construction phase of the project. Environmental actions, procedures and responsibilities as required within the construction phase are specified. These specifications shall form part of the contract documentation and, therefore, the Contractor will be required to comply with the specifications to the satisfaction of the Project Co-ordinator and Environmental Control Officer, in terms of the construction contract.

### **Operation Phase**

This section of the EMPr provides management principles for the operation phase of the project. Environmental actions, procedures and responsibilities as required for the operation phase of the Sublime Access Road and Provincial Road R580 intersection with Sublime Road, are specified.

### **Decommissioning Phase**

Please note that it is not envisaged that the proposed road and intersection will be decommissioned in the nearby future. However should this occur, then an impact assessment will need to be undertaken at that stage to confirm the status quo of the receiving environment and potential impacts on these conditions. At this stage it is assumed that the nature of the impacts that will be experienced during decommissioning activities will be strongly related to the impacts during the construction phase of the project.

It should be noted that this EMPr is a dynamic document which should be updated as and when required. Any amendments made must be submitted to the Environmental Control Officer, the Proponent/ Applicant and the Department of Environmental Affairs for approval prior to implementation.

## 1.6 Objectives of the EMPr

This EMPr has the following objectives:

- To outline functions and responsibilities of responsible persons;
- To state standards and guidelines which are required to be achieved in terms of environmental legislation;
- To outline mitigation measures and environmental specifications which are required to be implemented for all phases of the project in order to minimise the extent of environmental impacts, and to manage environmental impacts; and
- To prevent long-term or permanent environmental degradation.

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## 2 *Functions and Responsibilities*

Formal responsibilities are necessary to ensure that key procedures are executed. Specific responsibilities of the various personnel for this project are detailed below.

### **The Applicant**

- The applicant (Eskom SOC Ltd) is ultimately accountable for ensuring compliance to the EMPr and conditions contained in the Environmental Authorisation (EA). The ECO must be contracted by the applicant as an independent appointment to objectively monitor implementation of relevant environmental legislation, conditions of the EA, and the EMPr for the project.
- The applicant is further responsible for providing and giving a mandate to enable the ECO to perform responsibilities, and must ensure that the ECO is integrated as part of the project team.

### **The Consulting Engineer (CE)**

- The Consulting Engineer (CE) is contracted by the applicant to design and specify the project engineering aspects of the project. Generally the engineer runs the works contract. The CE may also fulfil the role of Project Manager on the applicant's behalf.

### **Project Manager (PM)**

- The PM has overall responsibility for managing the project, contractors, and consultants and for ensuring that the environmental management requirements are met. All decisions regarding environmental procedures must be approved by the PM. The PM has the authority to stop any operational activity in contravention of the EMPr in accordance with an agreed warning procedure.

### **Site Foreman (SF)**

- The SF is the project manager's representative on site. The SF has the power/mandate to issue site instructions, following request by an ECO or instructions from the PM. The SF oversees site works.

### **The Environmental Control Officer (ECO)**

- The ECO is an independent appointment to objectively monitor implementation of relevant environmental legislation, conditions of the EA, and the EMPr for the project. The ECO must be on site prior to any site establishment and must endeavour to form an integral part of the project team.
- The ECO must be proactive and have access to specialist expertise as and when required, these include wetland and heritage specialists, etc.
- The ECO must conduct audits on compliance to relevant environmental legislation, conditions of the EA, and the EMPr for the project. The size and sensitivity of the development, based on the findings of the Basic Assessment, and the EA will determine

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the frequency at which the ECO will be required to conduct audits. (Based on the nature of this project it is recommended that audits be undertaken once a month).

- The ECO must be the liaison between the relevant authorities and the project team. The ECO must communicate and inform the applicant and project manager of any changes to environmental conditions as required by relevant authoritative bodies. The ECO must ensure that the registration and updating of all relevant EMPr documentation is carried out.
- The ECO must be suitably experienced with the relevant environmental management qualifications and preferably competent in environmental related methods and practices.
- The ECO must handle information received from 'whistle blowers' as confidential and must address and report these incidences to the relevant Authority as soon as possible.

### **The Contractor**

- The Contractor is to ensure that the environmental specifications of this document (including any revisions, additions or amendments) are effectively implemented. This includes the on-site implementation of steps to mitigate environmental impacts.
- Will ensure that all Employees and co-contractors employed comply with the requirements and provisions of the EMPr.
- Prepares environmental method statements.
- Monitors environmental performance and conformance with the specifications contained in this document during daily site inspections.
- Discusses implementation of and compliance with this document with staff at routine site meetings;
- Reports progress towards implementation of and non-conformances with this document at site meetings with ECO.
- Will notify the ECO of the anticipated programme of works and fully disclose all details of activities involved.
- Will ensure that suitable records are kept and that the appropriate documentation is available to the ECO.
- Will notify the ECO of all incidents, accidents and transgressions on site with respect to environmental management as well as requirements of the EMPr and corrective actions/remedial action taken.
- Reports and record all accidents and incidents resulting in injury or death.
- Informs the ECO of problems arising when implementing the EMPr and ways of improving the EMPr.
- Informs the ECO of any complaints received from the public.



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## 2.1 General Guidelines

The following measures provide guideline solutions to frequently anticipated issues on most development activities:

- The prevention of any site degradation due to non-compliance, administrative or financial problems, and inactivity during the operation phase, illegal activities, delays caused by archaeological finds etc. is ultimately the responsibility of the applicant.
- The study area must be clearly defined according to the project authorisation. All the project workforce and other construction personnel are not to go beyond the designated footprint and must avoid all the demarcated no-go areas.
- The site staff must adhere to agreed and approved access points and roads.
- No camping is allowed on any private property.
- Damage to private or public property such as fences, gates and other infrastructure may occur at any time. All damage to be repaired immediately and to the satisfaction of the owner.
- The Project Manager must adhere to all conditions of the contract including this EMPr.
- Proper planning of the construction process must be undertaken to allow for disruptions due to rain and very wet conditions.
- All private and public manmade structures near the project site must be protected against damage at all times and any damage must be rectified immediately.
- Proper site management and regular monitoring of site works must be undertaken.
- Proper documentation and record keeping of all complaints and actions must be taken.
- Regular site inspections and good control over the construction process throughout the construction period must be maintained.
- A positive attitude towards Environmental Management by all site personnel must be motivated through regular and effective awareness and training sessions.
- An ECO is to be appointed to implement this EMPr. The ECO is to deal with any landowner related matters.
- Environmental Audits to be carried out during construction operations and upon completion of decommissioning of the project.

## 2.2 Awareness Training

The ECO is responsible for ensuring everyone on site is given an environmental awareness induction session. This induction session should clearly define what the environment is, provide specifics on the local environment and outline the requirements of the EMPr as a management tool to protect the environment.

Refresher courses must be conducted as and when required. The PM must ensure regular toolbox talks as and when required, including alerting the workforce to particular environmental concerns and risks associated with tasks or the area/habitat in which they are working. Awareness posters and a hand out must be produced to create awareness throughout the site (as needed).

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## 2.3 Environmental Method Statements

Method Statements are written submissions to the ECO by the PM, in response to a request by the ECO. The Method Statements set out the plant, materials, labour and method that the PM proposes using to carry out an activity, identified by the ECO. The Method Statements contain the appropriate detail such that the ECO is able to assess whether the PM's proposal is in accordance with the requirements of the EMPr. The PM must sign each Method Statement along with the ECO to formalise the approved Method Statement.

All Method Statements including those which may be required as ad hoc or emergency construction method statements must be submitted to the ECO for approval prior to the commencement of the activity.

Any changes to the method of works must be reflected by amendments to the original approved Method Statement. Any changes in this regard must be approved by the ECO on the understanding that such changes are environmentally acceptable and in line with the requirements of this EMPr.

The pro forma Method Statements attached (amongst others) must be used and method statements for the following activities must be submitted to the ECO for approval as soon as construction of the Project occurs:

- Solid waste management and handling;
- Crew camps and operation lay down areas;
- Dust control;
- Hydrocarbon and emergency spills procedures; and
- Fire.

## 2.4 Site Documentation

The following is a list of documentation amongst others, which must be held on site and must be made available to the ECO and/or Approving Authority on request.

- Site daily diary /instruction book/ Incident reports;
- Records of all remediation / rehabilitation activities;
- Copies of ECO reports (management and monitoring);
- Environmental Management Programme (EMPr);
- Complaints register;
- Method statements; and
- Environmental Authorisation and GA.

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### 2.4.1 Pro forma Documentation

(a) Prior to the commencement of construction activities

The following attached pro forma documentation is to be filled out and is binding to the EMPr and project contract and includes, but is not limited to the following:

- Declaration of understanding by the Applicant;
- Declaration of understanding by the Project Manager;
- Declaration of understanding by the Contractor;
- Method statements; and
- ECO approval for method statements.

(b) During construction activities

The following attached pro forma documentation is to be filled out and maintained. These are binding to the EMPr and project contract. They include, but are not limited to, the following:

- Amended Method Statements;
- ECO approval for amended method statements;
- Environmental incidents; and
- Records of all remediation / rehabilitation activities.

### 3 Environmental Management Requirements

#### 3.1 Section A: Planning and Pre-construction Phase Activities

Activity Description	Mitigation Measure	Responsibility	Frequency	Notes
<p>Prior to the construction phase, preference should be given to local skilled and unskilled labour.</p> <p>Recruitment of labour should be guided by Eskom's recruitment policies which should promote the employment of local labour by any appointed contractors.</p>	<p><b>3.1.1 Labour Force</b></p> <p>(a) Employ local labour as far as possible within Social Impact Zone (SIZ);</p> <p>(b) Unskilled and unemployed labour should be sourced from the surrounding local communities as far as possible;</p> <p>(c) Skills development opportunities should be granted to community members and local job seekers, where needed;</p> <p>(d) Applicant to work in liaison with the Emahlaleni Local Municipality to identify suitable local labour for the project;</p> <p>(e) Project contracts between the applicant and the appointed sub-contractors should stipulate the use of local labour for unskilled and semi-skilled positions and tasks;</p> <p>(f) Ensure that local businesses, especially those of Historically Disadvantaged Individuals (HDI), women and of Small, Medium &amp; Micro Enterprise Businesses (SMMEs) get allocated an appropriate share of project related business opportunities; and</p> <p>(g) Emphasise the use of local service providers and SMMEs and focus on the development of Local economic Development (LED) programmes.</p> <p>(h) Ensure that the Labour Relations Amendment Act, 2002 (Act No. 12 of 2002) as well as the necessary policies and procedures are taken into consideration to ensure the correct procurement procedures.</p>	Applicant/PM/ Contractor	Prior to Construction	

Activity Description	Mitigation Measure	Responsibility	Frequency	Notes
	<ul style="list-style-type: none"> <li>(i) In liaison with the Emahlaleni Local Municipality's goals, recruit local residents to supply unskilled labour during the construction phase;</li> <li>(j) Stakeholders (Eskom's and the appointed contractor) should be mutually accountable for increased opportunities regarding skills and competency development (general education and technical training);</li> <li>(k) Training should be concentrated on skills that can be readily transferred to other employment opportunities;</li> <li>(l) Ensure that the employment and training of Historically Disadvantaged South Africans (HDSA) and women are implemented;</li> <li>(m) Eskom, through the Emahlaleni Local Municipality should, where feasible, stimulate community awareness of the marine environment through education programmes or awareness raising;</li> <li>(n) Women must have equal employment opportunities.</li> <li>(o) Training and skills development opportunities should be provided equally for men and women.</li> <li>(p) Remuneration of women should be equal to that of men when undertaking the same job.</li> <li>(q) Require from the contractor a well-designed gender equality strategy for the project. If none is available.</li> </ul>			
<p>Construction Camp Set up and laydown areas. Careful planning of the construction camp can ensure that the time and costs associated with environmental</p>	<p><b>3.1.2 Site layout and set up</b></p> <ul style="list-style-type: none"> <li>(a) Develop and provide a Site Layout Plan for the construction phase, which takes the environmental specifications into account by showing overall site layout, including but not limited to: <ul style="list-style-type: none"> <li>• Site Boundaries with access points</li> </ul> </li> </ul>	<p>PM/Contractor and ECO</p>	<p>Prior to moving on site</p>	

Activity Description	Mitigation Measure	Responsibility	Frequency	Notes
management and rehabilitation are reduced.	<ul style="list-style-type: none"> <li>• Existing infrastructure (telecommunication, electrical, sewer, water mains)</li> <li>• Contractor yard site allocations</li> <li>• On site “No-go” area, that are to remain undisturbed. The site camp and storage area must be sited away from wetlands.</li> <li>• Footprint of the entire road upgrade area and new intersection.</li> <li>• Material and equipment storage laydown areas.</li> <li>• Areas earmarked for central construction service facilities, e.g. water system and facilities, waste handling facilities, construction offices, ablutions, food areas, first aid area, fuel storage areas, soil and soil stockpiles etc.</li> </ul> <p>(b) The choice of the Contractor’s camp requires the Project Manager’s permission and must ensure that the camp is located in an area that will ensure a minimum impact on the environment and surrounding landowners, as well as be in line with the Approved Site Layout Plan (see above).</p> <p>(c) Avoid the establishment of camps, hostels or temporary accommodation for workers.</p> <p>(d) The location of any existing infrastructure lines must be surveyed and demarcated prior to construction commencing. The layout plans should reflect the proposed camp’s location in relation to any existing infrastructure (water mains, electricity cables, sewage mains, telecommunication cables etc.) on site.</p> <p>(e) Access to the construction camp must be through the existing access point at the Matla Stockpile.</p>			

Activity Description	Mitigation Measure	Responsibility	Frequency	Notes
	<p><b>3.1.3 Site Demarcation, Signage, Fencing and “No-go” Control</b></p> <p>(a) Dedicate and demarcate on-site “No-go” areas, working areas and off-site “No-go” areas that are at risk by suitable fences where reasonably practical; and if not with danger tape and/or “No-go” sign boards.</p> <p>(b) Working areas are those areas required by the construction staff for their site works.</p> <p>(c) No-go’ areas are generally those large areas outside the designated working areas, and may include, but not be limited to:</p> <ul style="list-style-type: none"> <li>• Existing services and infrastructure</li> <li>• Privately owned land and farming areas</li> <li>• Wetlands adjacent to the site</li> </ul> <p>(d) All construction activities (viz. material stockpiles, laydown areas and movement of vehicles must remain within the existing construction servitude and must not encroach onto the adjacent agricultural lands and wetlands.</p>	PM/Contractor and ECO	Prior to moving on site.	
Establishing storage areas can be unsightly and can also cause environmental pollution if not designed and managed properly.	<p><b>3.1.4 General Substances and Materials</b></p> <p>(a) All stockpiles must be planned to be located away from sensitive ecosystems and protected from the prevailing winds.</p> <p>(b) Stockpiles must NOT exceed a height of 2m at any time on-site.</p> <p>(c) Bins and skips must be provided at convenient intervals for disposal of waste within the construction camp / site prior to construction.</p> <p>(d) Storage areas must be designated, demarcated and fenced if necessary.</p>	ECO approval	During site set up.	

Activity Description	Mitigation Measure	Responsibility	Frequency	Notes
	<p><b>3.1.5 Hazardous Substances and Materials</b></p> <p>The following must be considered when planning for Hazardous Substances and Materials Storage:</p> <p>(a) Fuel stored on site must be stored in a bunded area with at least a volume of 110% of the largest tank.</p> <p>(b) Hazardous chemical areas must be bunded with an impermeable liner and located in designated areas.</p> <p>(c) Ensure that there is always a supply of absorbent material readily available to absorb/break down any hydrocarbon spillage.</p> <p>(d) The Contractor must devise a procedure for dealing with accidental spills, which has to be approved by the ECO.</p> <p>(e) The following must be considered when locating ablution facilities on site:</p> <ul style="list-style-type: none"> <li>• Provide for a suitable ratio of toilets per number of employees (usually at least 1 toilet per 15 employees)</li> <li>• Locate toilets (porta loos) (where applicable) outside sensitive areas (viz. the quay wall), hidden from public roads, residential areas and other public places</li> <li>• Secure toilets (porta loos) firmly to prevent them from toppling over due to wind or any other cause.</li> </ul>	Contractor with ECO approval	During site set up	
To achieve effective environmental management and ensure continued environmental due diligence and on-going minimisation of environmental harm, it is	<p><b>3.1.6 Environmental Education and Awareness</b></p> <p>(a) Ensure that all site personnel have a basic level of environmental awareness training and competence to ensure environmental due diligence and on-going minimisation of environmental harm. Topics covered should include:</p>	ECO	During staff induction	



Activity Description	Mitigation Measure	Responsibility	Frequency	Notes
<p>necessary to ensure that all personnel have the appropriate level of environmental awareness and competence.</p> <p>Awareness training will be undertaken by an Independent Environmental Control Officer (ECO) to be appointed by the Applicant. A suitably qualified and experienced ECO must be appointed to oversee the construction activities.</p> <p>Awareness will take place at Induction (prior to commencement of construction) with the construction crew, and negative impacts of construction activities on the delineated wetlands will be communicated to the construction crew. They will be made aware of the frequency of audits, submission of audit reports to the authorities and</p>	<ul style="list-style-type: none"> <li>• What is meant by 'Environment' in the context of the project?</li> <li>• Details about sensitive marine habitats and other No-go areas.</li> <li>• How construction activities can impact on the environment.</li> <li>• The requirements of the EMP and associated environmental specifications as they apply to the project</li> <li>• Awareness of emergency and spills response provisions.</li> <li>• Social responsibility during construction e.g. being considerate to local residents, staying out of 'no-go' areas etc.</li> </ul> <p>(b) Ensure that any new staff, at all levels of responsibility that are to work on site undergo a compulsory ECO-accepted initial / induction environmental awareness training session on the above topics.</p> <p>(c) Ensure that all visitors to the site are made aware of and adhere to the environmental requirements of the EMPr.</p> <p>(d) Ensure that all site staff remain appropriately trained, aware of and understand the contents and conditions of the EMPr, the key environmental issues and the consequences of non-compliance that are relevant to the activities in which they are or will be involved, including but not limited to the following:</p> <ul style="list-style-type: none"> <li>• Inspect work regularly to ensure that environmental requirements are appropriately implemented, maintained and adhered to and address staff to</li> </ul>			

Activity Description	Mitigation Measure	Responsibility	Frequency	Notes
timeframes for distribution of the audit report.	<p>encourage good and discourage poor environmental management practices</p> <ul style="list-style-type: none"> <li>• Maintain ‘environmental compliance’ as a standing topic on routine site management meetings</li> <li>• Hold regular ‘tool-box’ talks to train and raise environmental awareness amongst staff</li> <li>• Discipline staff for serious and/or repeat offences.</li> </ul> <p>(e) Ensure that records are kept of all staff members that attend training sign an attendance register or form; and retain the associated attendance records during the construction period. (A training certificate may also be issued.).</p> <p>(f) Translators are to be used where necessary.</p> <p>(g) The use of pictures and real-life examples is encouraged.</p> <p>(h) The need for a ‘clean site’ policy also needs to be explained to the construction workers.</p>			
A general regard for the social and ecological well-being of the site and adjacent areas is expected of site staff.	<p><b>3.1.7 Worker Conduct on Site</b></p> <p>(a) Establish a code of conduct for workers with strict control measures.</p> <p>(b) Workers need to be made aware of the following general rules:</p> <ul style="list-style-type: none"> <li>• No alcohol/drugs to be present on site.</li> <li>• No trespassing onto adjacent properties</li> <li>• No poaching of animals</li> <li>• No fire arms or other weapons allowed on site</li> <li>• No ablution in open areas or surrounding bush</li> </ul> <p>(c) Demarcated “No-go” areas are restricted areas</p> <p>(d) Any staff disputes are to be resolved by the Contractor</p>	PM/Contractor	During staff induction, followed by on-going monitoring.	

Activity Description	Mitigation Measure	Responsibility	Frequency	Notes
	<ul style="list-style-type: none"> <li>(e) Construction staff are to make use of facilities provided for them, as opposed to ad hoc alternatives.</li> <li>(f) Require personnel to wear identification badges to distinguish them from trespassers or unwanted loiterers.</li> <li>(g) Life orientation programmes, explaining the dangers of drug and alcohol abuse should be organised for workers by appointed contractor.</li> <li>(h) Educate employees of the detrimental effects of drug and alcohol abuse</li> <li>(i) Require the contractor to conduct random drug testing of all employees</li> <li>(j) Require the contractor to perform mandatory testing of all persons involved in accidents</li> <li>(k) Require the contractor to conduct tests for reasonable suspicion of substance abuse</li> <li>(l) Require the contractor to provide workers with organisation policies and procedures concerning substance abuse.</li> <li>(m) Require the contractor to provide materials that educate workers about what constitutes substance abuse.</li> <li>(n) Require contractor to liaise with the South African Police (SAP) in order to implement effective crime prevention strategies.</li> </ul>			

### 3.2 Section B: Construction Phase Activities

Activity Description	Mitigation Measure	Responsibility	Frequency	Notes
<p>Consideration needs to be given to duties of employers to their employees with regards to Health and Safety on site during construction. Consideration also needs to be given to general duties of employers and self-employed persons to persons other than their employees.</p>	<p><b>3.2.1 Health and Safety</b></p> <p>(a) Ensure that during the project construction process and the operational phase of the project, employees receive adequate (I.e. meet the minimum requirements of the OHS Act) health support from the project team for work-related health problems;</p> <p>(b) Eskom (or its appointed contractor) should develop a Health and Safety Policy for all construction and operational staff, detailing their HIV/AIDS policy and any awareness training that they will provide as part of the general employment contract with contract or permanent staff.</p> <p>(c) The necessary safety precautions should be taken and first aid supplies should be made available on site;</p> <p>(d) Environmental pollution (noise, dust, etc.) must be limited as far as possible.</p> <p>(e) All project employees (including contractors) should undergo health and safety training on induction and thereafter on a regular basis;</p> <p>(f) Instruct contractors on how to work in line with the health and safety document and site rules; and</p> <p>(g) Appoint a Health and Safety representative who must:</p> <ul style="list-style-type: none"> <li>• Inspect and take samples after an accident or dangerous occurrence;</li> <li>• Carry out an inspection of every part of the project at monthly intervals;</li> <li>• Have a good understanding of all the applicable health and safety documents for the site;</li> </ul>	<p>PM/Contractor</p>	<p>On-going</p>	

Activity Description	Mitigation Measure	Responsibility	Frequency	Notes
	<ul style="list-style-type: none"> <li>• Review any risk assessments which form part of the health and safety document and suggest improvements;</li> <li>• Make a written report on any health and safety problems found during their inspections.</li> </ul>			
Throughout the various phases of the construction phase, there will be working areas and no-go sensitive areas which need to be flagged and demarcated accordingly.	<p><b>3.2.2 Working Areas and No-go Areas</b></p> <p>(a) The Site must be divided into working areas and ‘no-go’ areas and shall be marked on appropriate plans for reference.</p> <p>(b) Ensure that all “no go” areas are demarcated and that no unauthorised entry, litter, stockpiling, dumping or storage of equipment or materials shall be allowed within the demarcated “no go” areas.</p> <p>(c) In the event that any damage is caused to the ‘no-go’ areas, the PM will be required to repair, restore, reinstate and/or rehabilitate these areas at their own cost.</p>	PM/ Contractor and SF	On-going throughout the Construction Phase of the project	
Maintenance of the construction camp. A potential for contamination of soils and ground and surface water resources during the construction phase may occur as a result of poor or improper management of the construction camp.	<p><b>3.2.3 Ablution</b></p> <p>(a) Appoint a service provider to remove sewage from the chemical toilets at regular intervals (Bi – monthly) and ensure that sewage is disposed of legally</p> <p>(b) Ensure that no spillage occurs when the toilets are cleaned or emptied and that the contents is properly stored and removed from site</p> <p>(c) Prohibit staff from performing ablutions anywhere other than in toilets provided.</p> <p>(d) Keep toilets locked after working hours.</p>	PM/SF and Contractor  ECO	Weekly inspection and as per mitigation requirements listed.  Bi-monthly	
	<p><b>3.2.4 Housekeeping</b></p> <p>(a) Adhere to and practice good housekeeping to ensure that construction camps and sites are well organised, material is neatly stacked and all waste and litter is regularly removed/ disposed of.</p>	Contractor	Weekly inspection	

Activity Description	Mitigation Measure	Responsibility	Frequency	Notes
	(b) Eating areas (if applicable) must be serviced and cleaned regularly to ensure the highest possible standards of hygiene and cleanliness.	ECO	Bi-monthly	
<p>Activities in the construction site such as office work, usage of construction materials, etc., generate different types of waste that requires proper management. These wastes could result in environmental pollution such as soil contamination/pollution of water environments or health hazards to employees working on-site, if not managed properly.</p> <p>Waste is grouped into “general” or “hazardous”, depending on its characteristics. The classification determines the handling methods and the ultimate disposal of the material.</p>	<p><b>3.2.5 On-site waste management</b></p> <p>(a) Develop and implement an on-site Waste Management Plan, prior to the relevant waste generating activities commencing.</p> <p>(b) Waste must be placed in the designated or marked skips/bins which must be emptied on a regular basis by a contracted waste collector. These should remain within the demarcated areas and should be designed to prevent refuse from being blown out by wind.</p> <p>(c) Ensure correct handling, storage and disposal procedures followed (e.g. bunded storage areas to contain 110% of volume).</p> <p>(d) Ensure that all conventional waste is properly disposed of and removed from the site to a permitted landfill site, or where applicable to an appropriately licensed waste recycling facility.</p> <p>(e) Separation of waste and recycling of waste must be considered prior to disposal. The disposal at the landfill site should be considered as the last option.</p> <p>(f) Hazardous waste that require disposal (oily rags, used fuel/oil, etc.) must be placed in a suitable skip or wheelie bin for disposal at an approved hazardous waste disposal facility.</p> <p>(g) The contractor is responsible for arranging the removal of all waste from site generated through construction activities.</p> <p>(h) Obtain safe waste disposal certificates for all wastes disposed and retain and keep these certificates on record for proof of appropriate disposal for at least 3 years (or alternatively in accordance with any other Municipal requirements).</p> <p>(i) No burning and littering of waste on site should be allowed.</p> <p>(j) Should the applicant wish to utilise private commercial services for transportation and disposal of a waste, section 5</p>	Contractor/ECO /PM	During the start-up of construction on site and on-going thereafter (Bi monthly monitoring by the ECO).	<p>ECO and PM needs to ensure that all construction staff are educated on waste management</p> <p>Refer to Method Statement on Solid Waste Management and Handling.</p>

Activity Description	Mitigation Measure	Responsibility	Frequency	Notes
	of the Emalahleni Local Municipality's System for Certificate of Approval for Persons Collecting Waste for Gain or Commercial Waste Collectors Policy, (no. 40 of 2017) as announced by the Provincial Gazette dated 19 May 2017 must be adhered to.			
Engine machines such as compressors, pumps, etc. can have small leaks (usually oil) that can accumulate to become spills, which require clean-up. These leaks become more evident if the equipment remains in the same place for an extended period of time. Damaged fuel tanks, fuel hoses, and fuel pumps can be sources of significant fuel leaks.	<p><b>3.2.6 Construction vehicles/equipment</b></p> <p>(a) Vehicles and machinery are to be kept in good working order.</p> <p>(b) Maintain vehicles and equipment-no leaking vehicles or equipment to be permitted on site.</p> <p>(c) Should excessive emissions be observed, the project manager needs to implement an effective vehicle and equipment service and maintenance plan.</p> <p>(d) Vehicle parking and equipment storage must be done on a hardened and sealed surface area such that oil, fuel and other fluid leaks do not pollute soil or ground water sources.</p>	Contractor / ECO	On going	Contractor must follow a detailed checklist for machinery and equipment maintenance
This section aims to provide measures to manage spillages from equipment used on site and measures for other construction materials handled on site.	<p><b>3.2.7 Emergency Response to spillages</b></p> <p>(a) The contractor must have its own spill prevention and management plan (spill kits etc.) in the event of any spills (oil, fuel, hazardous materials) from his machinery or equipment used on site.</p> <p>(b) Take reasonable measure to prevent the spills or leaks. A penalty should be issued and the 'polluter pays' principle applied for clean-up operations and rehabilitation.</p> <p>(c) In the case of emergencies, the following should be undertaken as a minimum:</p> <ul style="list-style-type: none"> <li>• Immediately repair all leaks of hydrocarbons, oil, etc.</li> <li>• Dispose contaminated materials to a location designated thereto.</li> </ul>	Contractor	During spillages	The ECO and contractor must ensure that the Emergency response procedure is well understood by all workers on site and that a summary is available for site visitors.

Activity Description	Mitigation Measure	Responsibility	Frequency	Notes
<p>During construction, especially in areas where culverts will be installed, vegetation and faunal habitat may be destroyed and/or disturbed. The vegetation that may be impacted on includes moist grassland/wetland habitat, which is considered to have a high ecological importance.</p>	<p><b>3.2.8 Mitigation measures against impacts on Terrestrial Flora and Fauna</b></p> <ul style="list-style-type: none"> <li>(a) Minimize disturbance of animals on and within close vicinity of the site.</li> <li>(b) No wild animal (including birds) may under any circumstance be handled, removed or be interfered with by construction workers.</li> <li>(c) No domesticated animals may be allowed on site.</li> <li>(d) All refuse generated by construction workers and/or operational staff on site must be disposed of in an appropriate manner and removed from site in a regular basis. Bins that are impenetrable to fauna such as monkeys must be used on site.</li> <li>(e) The removal of indigenous vegetation must be limited.</li> <li>(f) Construction activities must remain within the footprint of the road reserve.</li> <li>(g) Following construction, all remaining areas that have been cleared of indigenous vegetation must be rehabilitated with appropriate indigenous plant species found in the area. A site specific rehabilitation plan must be compiled by a suitable qualified ecologist and implemented by a suitably qualified rehabilitation specialist.</li> <li>(h) The ecologist must develop the vegetation species list as well as identify the areas constituting indigenous vegetation where removal should be limited.</li> <li>(i) If possible, construction should commence in the dry winter months to avoid disturbance to breeding fauna.</li> <li>(j) No wild animal (including birds) may under any circumstance be handled, removed or be interfered with by construction workers.</li> <li>(k) No wild animal may under any circumstance be hunted, snared, captured, injured or killed. Regular checks of the</li> </ul>	<p>Contractor ECO</p>	<p>On-going Bi-monthly</p>	



Activity Description	Mitigation Measure	Responsibility	Frequency	Notes
	<p>surrounding natural areas for snares and traps must be undertaken by the ECO.</p> <p>(l) No wild animal may be fed on site and all food stuffs must be contained and not left unattended so that fauna are not attracted to the site during construction.</p>			
<p>Disturbance to the soil and indigenous vegetation will increase the likelihood of invasion by alien plant species. Alien species establish easily and quickly on bare soil by colonisation or from seeds existing in the seed bank of the soil. Infestation by alien and invasive species will lead to degradation of the surrounding natural habitat and will increase the potential of spread into the greater landscape due to propagules being released into downstream watercourses.</p>	<p><b>3.2.9 Mitigation measures against impacts of spread of alien invasive vegetation</b></p> <p>(a) The removal of indigenous vegetation must be limited.</p> <p>(b) Following construction, all remaining areas that have been cleared of indigenous vegetation must be rehabilitated with appropriate indigenous plant species found in the area. A site specific rehabilitation plan must be compiled by a suitable qualified ecologist and implemented by a suitably qualified rehabilitation specialist.</p> <p>(c) An alien invasive species removal and management plan must be compiled by a suitably qualified ecologist;</p> <p>(d) All alien seedlings and saplings must be removed as they become evident for the duration of construction. Unless chemical control is necessary, manual or mechanical removal is preferred to chemical control.</p> <p>(e) All construction vehicles and equipment, as well as construction material must be free of plant material. Equipment and vehicles must be thoroughly cleaned prior to access on to the construction site.</p> <p>(f) Construction activities must remain within the footprint of the road reserve. Camps must remain outside of wetland areas.</p>	<p>Contractor ECO</p>	<p>On-going Bi-monthly</p>	
<p>During construction, there could be negative impacts on the wetland functioning such as decreased surface</p>	<p><b>3.2.10 Mitigation measures against impacts on wetlands</b></p> <p>(a) The removal of indigenous vegetation must be limited.</p> <p>(b) Construction activities must remain within the footprint of the road reserve.</p>	<p>Contractor ECO</p>	<p>On-going Bi-monthly</p>	

Activity Description	Mitigation Measure	Responsibility	Frequency	Notes
<p>roughness, increase in run off, decrease in infiltration, soil and alien invasive dispersal, caused by vegetation clearance in the wetland.</p>	<p>(c) Following construction, all remaining areas that have been cleared of indigenous vegetation must be rehabilitated with appropriate indigenous plant species found in the area.</p> <p>(d) A site specific rehabilitation plan must be compiled by a suitable qualified ecologist and implemented by a suitably qualified rehabilitation specialist.</p> <p>(e) An alien invasive species removal and management plan must be compiled by a suitably qualified ecologist.</p> <p>(f) All alien seedlings and saplings must be removed as they become evident for the duration of construction.</p> <p>(g) Unless chemical control is necessary, manual or mechanical removal is preferred to chemical control.</p> <p>(h) All construction vehicles and equipment, as well as construction material must be free of plant material. Equipment and vehicles must be thoroughly cleaned prior to access on to the construction site.</p> <p>(i) In cases where natural vegetation were cleared/removed due to the movement of people or stockpiling of building materials, re-vegetation should take place. Prior to re-vegetation efforts taking place in cleared and degraded wetlands, it is imperative that all solid wastes are removed from individual HGM units and their immediate surrounding regions. Post solid waste removal, a mixture of indigenous species should be introduced (Peters et al., 2012). The re-establishment of vegetation will increase these systems' ability to maintain biodiversity, the reduction in velocity and quantity of runoff waters into wetlands, the slowing down of water movement through a wetland thus aiding in trapping sediment and improving the overall quality of water (Mullins, 2012).</p> <p>(j) Construction Vehicles should stand overnight and when being refuelled only on impervious surfaces.</p>			

Activity Description	Mitigation Measure	Responsibility	Frequency	Notes
	<ul style="list-style-type: none"> <li>(k) Materials should not be stockpiled within the buffer area.</li> <li>(l) All materials should strictly be kept 30m away from the watercourses on site.</li> <li>(m) In the event of unexpected damage occurring, this damage should be immediately reported to the relevant authority.</li> </ul>			
<p>During construction, exposed soil will be susceptible to erosion especially if indigenous vegetation is cleared. The negative impacts for construction within the wetland may lead to increase in erosion potential, compaction of soil, impeding the flow of water through a watercourse and siltation, caused by construction activities such as storage of material, movement of people/ machinery through the site, filling in and clearing of land.</p>	<p><b>3.2.11 Storm Water, Soil Erosion and Sedimentation Control</b></p> <ul style="list-style-type: none"> <li>(a) A Stormwater Management System must be implemented.</li> <li>(b) The contractor will check weather forecasts to mitigate potential storm damage.</li> <li>(c) After every rainfall event, the contractor must check the site for erosion damage and rehabilitate this damage immediately.</li> <li>(d) The area to be cleared will be kept to a minimum and indigenous vegetation will be retained as far as possible.</li> <li>(e) The length of open trench excavations must be limited.</li> <li>(f) The amount of vegetation removed must be limited to the least amount possible.</li> <li>(g) Following construction, all remaining areas that have been cleared of indigenous vegetation must be rehabilitated with appropriate indigenous plant species found in the area. Grass species are recommended to limit erosion potential.</li> <li>(h) Steep slopes must be stabilised using the most appropriate approved method and technology.</li> <li>(i) The impact may be reduced if construction takes place in the winter months or outside of the rainy season.</li> <li>(j) Formalised stormwater channels and drains fitted with silt traps must be included in the road design.</li> <li>(k) Storm water management reduces the negative effects of storm water runoff. Management of storm water comprises of controlling flooding, reducing erosion and improving water quality. This can be achieved by implementing measures known as Best Management Practices (BMPs).</li> </ul>	<p><b>Contractor</b></p> <p><b>ECO</b></p>	<p>Weekly</p> <p>Bi-Monthly</p>	

Activity Description	Mitigation Measure	Responsibility	Frequency	Notes
	<ul style="list-style-type: none"> <li>(l) In addition there are vegetative BMPs which include a number of landscaping practices. Grassed swales, or ditches, can be placed in residential areas or in highway medians. This BMP helps lessen the peak runoff downstream through processes of infiltration and storage. Filter strips are designed to direct storm water from impervious areas into a stone trench, which evenly distributes the runoff over a grass strip. Particular attention should be given to HGM units 3 and 4 when considering storm water management infrastructure, as these HGM units run in close proximity to the road which could cause an accumulation of water, and consequential flooding of the road if proper storm water management systems are not implemented.</li> <li>(m) No-go areas will be suitably demarcated.</li> <li>(n) The construction camp (and laydown areas) will be located outside of any sensitive no-go areas.</li> <li>(o) Soil and sand stockpiles will be kept outside the 1 in 100 year flood lines</li> <li>(p) Stockpiles will NOT exceed a height of 2m on-site.</li> <li>(q) Clean oil spills immediately. The plant must be equipped with an oil spill kit. Large spills must be cleaned by a professional organization, such as Drizit or Spilltech.</li> <li>(r) Wind screening must be employed to prevent excessive wind-blown sand and light-weight solid waste (e.g. litter) entering the harbour channel.</li> <li>(s) The construction site camp must be adequately protected (e.g. sand bags, bund walls etc.) to prevent erosion and run-off of contaminants into the harbour channel</li> </ul>			
<p>During construction and operation, stormwater runoff will carry pollution from the road to the</p>	<p><b>3.2.12 Surface water contamination</b></p> <ul style="list-style-type: none"> <li>(a) Formalised stormwater channels, culverts and drains fitted with silt traps must be included in the road design.</li> </ul>	<p><b>Contractor</b></p> <p><b>ECO</b></p>	<p>Daily during excavations</p> <p>Bi-Monthly</p>	

Activity Description	Mitigation Measure	Responsibility	Frequency	Notes
<p>surrounding natural areas. This may result in the contamination of the wetland areas (impacting on sensitive vegetation and faunal habitat) as well as watercourses further downstream.</p>	<p>(b) Pollution from the road must be prevented from entering the surrounding wetlands and other natural areas. Stormwater channels must be designed carefully and all drains must be fitted with stilt and any other appropriate pollution traps.</p> <p>(c) Silt and litter traps must be checked and cleared regularly.</p> <p>(d) Litter thrown from trucks must be prohibited.</p> <p>(e) Oil or fuel spills must be avoided with regular vehicle checks. Any spills must be attended to immediately.</p> <p>(f) During periods of construction there should be minimal human disturbances by minimising activities that would lead to excessive pollution and run off into the drainage line (Kotze et al., 2008). During the construction phase all measures should be taken in order to prevent contamination of wetland areas by vehicles utilised. If any spills of diesel, petrol, oil, or corrosive fluid occur a spill kit should be kept on site to immediately address this. All vehicles and machinery should therefore be kept off site in a bunded, platformed location in order to avoid such contamination in the watercourses.</p> <p>(g) During the construction phase, all measures should be taken in order to prevent contamination of wetland areas by vehicles utilised. If any spills of diesel, petrol, oil, or corrosive fluid occur a spill kit should be kept on site to immediately address this. All machinery should therefore be kept off site in a bunded, platformed location in order to avoid such contamination in the watercourses.</p> <p>(h) During construction periods, vehicles should only be allowed to stand overnight and be refuelled only on impervious surfaces.</p> <p>(i) Additionally, materials not to be stockpiled within the buffer area; all materials should strictly be kept 30 m away from the watercourses on site.</p>			

Activity Description	Mitigation Measure	Responsibility	Frequency	Notes
	(j) In the event of unexpected damage occurring, this damage should be immediately reported to the relevant authority.			
<p>The potential negative impacts on the affected landscape are activities related to excavations, and movement of construction equipment along the proposed road servitude. However, because the existing route is already significantly impacted on, the potential impacts are insignificant. However, sub-surface materials may still be lying hidden from surface surveys and may become uncovered during construction.</p>	<p><b>3.2.13 Disturbance of heritage and archaeological resources</b></p> <p>The following monitoring and reporting procedures must be followed in the event of a chance find, in order to ensure compliance with heritage laws and policies for best-practice. This procedure applies to the developer’s permanent employees, its subsidiaries, contractors and subcontractors, and service providers. Accordingly, all construction teams must be properly inducted to ensure they are fully aware of the procedures regarding chance finds.</p> <p>(a) The chance finds process will be implemented when necessary especially when archaeological materials and burials are encountered during subsurface construction activities.</p> <p>(b) If archaeological materials are uncovered, work should cease immediately and the SAHRA be notified and activity should not resume until appropriate management provisions are in place.</p> <p>(c) If during the construction or operations phases of this project, any person employed by the developer, any of its subsidiaries, contractors and subcontractors, or service provider, finds any artefacts of cultural significance, work must cease at the site of the find and this person must report this find to their immediate supervisor, and through their supervisor to the senior on-site manager.</p> <p>(d) The senior-site manager must then make an initial assessment of the extent of the find, and confirm the extent of the work stoppage in that area before informing SAHRA/PHRA.</p> <p>(e) If a human grave/burial is encountered, the remains must be left as undisturbed as possible before the local police and SAHRA or PHRA are informed. If the burial is deemed to be over 60 years old and no foul play is suspected, an emergency</p>	<p><b>Contractor</b></p> <p><b>ECO</b></p>	<p>As and when necessary</p>	

Activity Description	Mitigation Measure	Responsibility	Frequency	Notes
	<p>rescue permit may be issued by SAHRA for an archaeologist to exhume the remains.</p> <p>(f) The foot print impact of the proposed road development should be kept to minimal to limit the possibility of encountering chance finds within servitude.</p>			
<p>No fossils were found in situ during the field survey by the Palaeontologist. There is however a high probability that fossiliferous sandstone could be uncovered in the study area during construction, when the soil and weathered rock are cleared and the bedrock is exposed.</p>	<p><b>3.2.14 Disturbance of palaeontological resources</b></p> <p>The following procedure must be considered in the event that previously unknown fossils or fossil sites are exposed or found during the life of the project:</p> <p>(a) Surface excavations should continuously be monitored by the ECO and any fossil material be unearthed the excavation must be halted.</p> <p>(b) If fossiliferous material has been disturbed during the excavation process it should be put aside to prevent it from being destroyed.</p> <p>(c) The ECO then has to take a GPS reading of the site and take digital pictures of the fossil material and the site from which it came.</p> <p>(d) The ECO then should contact a palaeontologist and supply the palaeontologist with the information (locality and pictures) so that the palaeontologist can assess the importance of the find and make recommendations.</p> <p>(e) If the palaeontologist is convinced that this is a major find an inspection of the site must be scheduled as soon as possible in order to minimise delays to the development.</p> <p>(f) From the photographs and/or the site visit the palaeontologist will make one of the following recommendations:</p> <ul style="list-style-type: none"> <li>• The material is of no value so development can proceed, or:</li> <li>• Fossil material is of some interest and a representative sample should be collected and put aside for further</li> </ul>	<p><b>Contractor</b></p> <p><b>ECO</b></p>	<p>As and when necessary</p>	

Activity Description	Mitigation Measure	Responsibility	Frequency	Notes
	<p>study and to be incorporated into a recognised fossil repository after a permit was obtained from SAHRA for the removal of the fossils, after which the development may proceed, or:</p> <ul style="list-style-type: none"> <li>• The fossils are scientifically important and the palaeontologist must obtain a SAHRA permit to excavate the fossils and take them to a recognised fossil repository, after which the development may proceed.</li> </ul> <p>(g) If any fossils are found then a schedule of monitoring will be set up between the developer and palaeontologist in case of further discoveries.</p>			
<p>Noise may result from the movement of vehicles, trucks and other associated machinery used during the construction phase. However, the noise associated with construction activities will be of short term, localised and will only last during the construction phase of the project.</p>	<p><b>3.2.15 Noise Control</b></p> <p>(a) Where reasonable and feasible, the proponent will apply best practice noise mitigation measures including:</p> <ul style="list-style-type: none"> <li>• Minimising consecutive works in the same locality.</li> <li>• Orienting equipment away from noise sensitive receptors.</li> </ul> <p>(b) As far as reasonably practicable, sources of significant noise should be enclosed. The extent to which this can be done depends on the nature of the machines to be enclosed and their ventilations requirements;</p> <p>(c) Minimise reversing of equipment to prevent nuisance caused by reversing alarms;</p> <p>(d) Driver practices when approaching and leaving the site should minimise noise emissions created through activities such as unnecessary acceleration and breaking squeal, especially on the access road to the construction site;</p> <p>(e) Site inductions should cover the importance of noise control and available noise reduction measures;</p>	<p><b>PM/ECO and Contractor</b></p>	<p>Daily</p>	



Activity Description	Mitigation Measure	Responsibility	Frequency	Notes
	<ul style="list-style-type: none"> <li>(f) Construction contractors should be required to use equipment that is in good working order and that meets current best practice noise emission levels. This should be achieved by making it a component of contractual agreements with the construction contracts;</li> <li>(g) The use of noise-producing signals, including horns, whistles, alarms, and bells shall be for safety warning purposes only;</li> <li>(h) The on-site construction supervisor shall have the responsibility and authority to receive and resolve noise complaints. A clear appeal process to the Owner shall be established prior to construction commencement that will allow for resolution of noise problems that cannot be immediately solved by the site supervisor.</li> <li>(i) Stockpile areas will be decided and approved by the Project Manager and appointed ECO before construction commences on site.</li> <li>(j) Construction vehicles, plant and machinery maintained and fitted with silencers.</li> <li>(k) Regular maintenance on vehicle and equipment to be done.</li> </ul>			
Minimal dust and vehicle emissions will be generated during the construction phase.	<p><b>3.2.16 Air Emissions Control</b></p> <ul style="list-style-type: none"> <li>(a) Minimise the surface area of exposed soil and fine construction materials to wind erosion.</li> <li>(b) Appropriate dust suppression measures must be applied at all times, particularly during winter (e.g. cover exposed areas or soil stockpiles as and when dust problems arise.</li> <li>(c) Maintain vehicles and other driven machinery regularly to ensure that no smoke is emitted from exhausts.</li> <li>(d) Prevent any uncontrolled fires.</li> <li>(e) Prohibit burning of wastes/refuse.</li> <li>(f) Re-vegetate the exposed ground as soon as possible in line with rehabilitation recommendations.</li> </ul>	<b>PM/ECO and Contractor</b>	Daily	

Activity Description	Mitigation Measure	Responsibility	Frequency	Notes
<p>The addition of construction activities, construction crew, vehicles, equipment and camps may alter the current visual character of the area. The adjacent landowners, mainly the farmers may have direct views of the site.</p>	<p><b>3.2.17 Aesthetics and visual character of the site</b></p> <ul style="list-style-type: none"> <li>(a) The construction area must at all times be neat and tidy.</li> <li>(b) All litter must be collected and removed (daily) and disposed of appropriately.</li> <li>(c) Equipment and construction vehicles must be stored or parked in designated areas.</li> <li>(d) The construction camp must be screened with shade cloth.</li> <li>(e) If construction is necessary during night-time, light sources should be directed inwards and downwards to prevent obtrusive lighting and light pollution.</li> <li>(f) Dust suppression techniques should be implemented especially on windy days. Exposed soil stockpiles shall be covered, kept damp or protected using organic binding agents or alternative techniques that are not water intensive.</li> </ul>	<p><b>Contractor</b></p> <p><b>ECO</b></p>	<p>Daily</p>	
<p>Due to construction activities (including construction of the new intersection off the R580 with Sublime Access Road) and associated machinery movement, the traffic patterns of the affected road (R580) and surrounding roads network may be affected.</p>	<p><b>3.2.18 Traffic control</b></p> <ul style="list-style-type: none"> <li>(a) Avoid movement of construction vehicles and machinery on main access roads during peak times (7:00 – 9:00) &amp; (16:00 – 18:00).</li> <li>(b) If the above is unavoidable – implement traffic control measures such as points men at the intersection.</li> </ul>	<p>Applicant/PM</p>	<p>Refer to specific conditions (weekly or monthly). On-going throughout the Construction Phase of the project</p>	

### 3.3 Section C: Operation Phase Activities

Activity Description	Mitigation Measure	Responsibility	Frequency	Notes
Roads generally have a negative impact on fauna as many animals are killed by collisions with vehicles while trying to cross busy roadways. Increasing the width of the road not only increases the distance over which crossing fauna need to travel, but will also lead to an increase in traffic volume as well as an overall increase in speed of the vehicles.	<p><b>3.3.1 Disturbance to fauna</b></p> <p>(a) During operation, a strict speed limit of 30km/h must be adhered to. Truck drivers must remain vigilant to fauna attempting to cross the road, and must slow down or stop to avoid collisions with animals.</p>	Applicant/PM	On-going throughout the Operational Phase of the project	
During the operational phase, stormwater runoff may carry pollution from the road to the surrounding natural areas. This may result in the contamination of the wetland areas (impacting on sensitive vegetation and faunal habitat) as well as watercourses further downstream.	<p><b>3.3.2 Pollution of downstream watercourses</b></p> <p>(a) Formalised stormwater channels, culverts and drains fitted with silt traps must be included in the road design.</p> <p>(b) Pollution from the road must be prevented from entering the surrounding wetlands and other natural areas. Stormwater channels must be designed carefully and all drains must be fitted with silt and any other appropriate pollution traps.</p> <p>(c) Silt and litter traps must be checked and cleared regularly.</p> <p>(d) Litter thrown from trucks must be prohibited. Appropriate signage must be erected.</p> <p>(e) Oil or fuel spills must be avoided with regular vehicle checks. Any spills must be attended to immediately.</p>	Applicant	On-going throughout the Operational Phase of the project	

Activity Description	Mitigation Measure	Responsibility	Frequency	Notes
No discernible impact is anticipated during the operation phase of the Project.	<b>3.3.3 Air Quality Control</b> <b>(a)</b> Ensure that all maintenance vehicles are maintained in good working order to help reduce air emissions.	Applicant/PM	On-going throughout the Operational Phase of the project	
Once in operation, extensive care must be afforded to ensure alien invasive do not establish in previous rehabilitated areas.	<b>3.3.4 Alien Plant Species Control</b> <b>(a)</b> Areas which have been disturbed during construction should be rehabilitated with species naturally occurring in the study area, and the disturbed areas should be monitored throughout the operational phase to detect any alien plant species. <b>(b)</b> An alien invasive plant species management and monitoring plan must be implemented during the operational phase.	Applicant/PM	On-going throughout the Operational Phase of the project	

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## Appendix A

### Declaration of understanding by the Proponent/Applicant

I, \_\_\_\_\_

Representing \_\_\_\_\_

Declare that I have read and understood the contents of the Environmental Management Programme for:

Contract \_\_\_\_\_

I also declare that I understand my responsibilities in terms of enforcing and implementing the Environmental Specifications for the aforementioned Contract.

Signed: \_\_\_\_\_

Place: \_\_\_\_\_

Date: \_\_\_\_\_

Witness 1: \_\_\_\_\_

Witness2: \_\_\_\_\_

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## Appendix B

### Declaration of understanding by the Project Manager

I, \_\_\_\_\_

Representing \_\_\_\_\_

Declare that I have read and understood the contents of the Environmental Management Programme for:

Contract \_\_\_\_\_

I also declare that I understand my responsibilities in terms of enforcing and implementing the Environmental Specifications for the aforementioned Contract.

Signed: \_\_\_\_\_

Place: \_\_\_\_\_

Date: \_\_\_\_\_

Witness 1: \_\_\_\_\_

Witness2: \_\_\_\_\_

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## Appendix C

### Declaration of understanding by the Contractor

I, \_\_\_\_\_

Representing \_\_\_\_\_

Declare that I have read and understood the contents of the Environmental Management Programme for:

Contract \_\_\_\_\_

I also declare that I understand my responsibilities in terms of enforcing and implementing the Environmental Specifications for the aforementioned Contract.

Signed: \_\_\_\_\_

Place: \_\_\_\_\_

Date: \_\_\_\_\_

Witness 1: \_\_\_\_\_

Witness2:

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## Appendix D

### Method Statements

#### **METHOD STATEMENT: Solid Waste Management and Handling**

**CONTRACT:**.....**DATE:**.....

**WHAT WORK IS TO BE UNDERTAKEN?** [Give a brief description of the works to be undertaken on site that will generate waste (hazardous and non-hazardous wastes)]: \* Note: please attach extra pages if more space is required.

**\*Insert additional pages as required**

**WHERE ARE THE WORKS TO BE UNDERTAKEN?** (Where possible, provide an annotated plan and a full description of the extent of the works): \* Note: please attach extra pages if more space is required

**\*Insert additional pages as required**



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**METHOD STATEMENT: Solid Waste Management (contd.)**

**START AND END DATE OF THE WORKS FOR WHICH THE METHOD STATEMENT IS REQUIRED:**

**Start Date:**.....**End Date:**.....

**HOW IS WASTE TO BE MANAGED ON SITE?** (Provide as much detail as possible, including annotated sketches and plans where possible): \* Note: please attach extra pages if more space is required

**\*Insert additional pages as required**

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**DECLARATIONS for Method Statement : Solid Waste Management (contd.)**

**1) PROJECT MANAGER**

The work described in this Method Statement, if carried out according to the methodology described, is satisfactory to prevent or control environmental harm and is thus approved:

\_\_\_\_\_  
(Signed)

\_\_\_\_\_  
(Print name)

Dated: \_\_\_\_\_

**2) ECO**

The work described in this Method Statement, if carried out according to the methodology described, is satisfactory to prevent or control environmental harm and is thus approved:

\_\_\_\_\_  
(Signed)

\_\_\_\_\_  
(Print name)

Dated: \_\_\_\_\_

---

**METHOD STATEMENT: Crew Camps and Operation Lay Down Areas**

**CONTRACT:**.....**DATE:**.....

**WHAT CREW CAMPS AND OPERATION LAY DOWN AREAS ARE REQUIRED ON SITE DURING OPERATION?** (Give a brief description of these): \* Note: please attach extra pages if more space is required

**\*Insert additional pages as required**

**WHERE ARE THE CREW CAMPS AND OPERATION LAY DOWN AREAS TO BE LOCATED?** (Where possible, provide an annotated plan and a full description of the extent of the works): \* Note: please attach extra pages if more space is required

**\*Insert additional pages as required**

---

**METHOD STATEMENT: Crew Camps and Operation Lay Down Areas (contd.)**

**START AND END DATE OF THE WORKS FOR WHICH THE METHOD STATEMENT IS REQUIRED:**

**Start Date:**.....**End Date:**.....

**HOW ARE CREW CAMPS AND OPERATION LAY DOWN AREAS TO BE MANAGED?** (Provide as much detail as possible, including annotated sketches and plans where possible): \* Note: please attach extra pages if more space is required

**\*Insert additional pages as required**

---

**DECLARATIONS for Method Statement**

**Crew Camps and Operation Lay Down Areas (contd.)**

**1) PROJECT MANAGER**

The work described in this Method Statement, if carried out according to the methodology described, is satisfactory to prevent or control environmental harm and is thus approved:

\_\_\_\_\_  
(Signed)

\_\_\_\_\_  
(Print name)

Dated: \_\_\_\_\_

**2) ECO**

The work described in this Method Statement, if carried out according to the methodology described, is satisfactory to prevent or control environmental harm and is thus approved:

\_\_\_\_\_  
(Signed)

\_\_\_\_\_  
(Print name)

Dated: \_\_\_\_\_

---

**METHOD STATEMENT: Dust Control**

**CONTRACT:**.....**DATE:**.....

**WHAT WORK IS TO BE UNDERTAKEN ON SITE THAT COULD GENERATE DUST?** (Give a brief description of the works): \* Note: please attach extra pages if more space is required

**\*Insert additional pages as required**

**WHERE ARE THE WORKS TO BE UNDERTAKEN** (where possible, provide an annotated plan and a full description of the extent of the works): \* Note: please attach extra pages if more space is required

**\*Insert additional pages as required**

---

**METHOD STATEMENT: Dust Control (contd.)**

**START AND END DATE OF THE WORKS FOR WHICH THE METHOD STATEMENT IS REQUIRED:**

**Start Date:**.....**End Date:**.....

**HOW ARE THE WORKS TO BE UNDERTAKEN SO AS TO MINIMISE AND CONTROL DUST GENERATION ON SITE?** (Provide as much detail as possible, including annotated sketches and plans where possible): \* Note: please attach extra pages if more space is required

\*Insert additional pages as required

---

**DECLARATIONS for Method Statement: Dust Control (contd.)**

**1) PROJECT MANAGER**

The work described in this Method Statement, if carried out according to the methodology described, is satisfactory to prevent or control environmental harm and is thus approved:

\_\_\_\_\_  
(Signed)

\_\_\_\_\_  
(Print name)

Dated: \_\_\_\_\_

**2) ECO**

The work described in this Method Statement, if carried out according to the methodology described, is satisfactory to prevent or control environmental harm and is thus approved:

\_\_\_\_\_  
(Signed)

\_\_\_\_\_  
(Print name)

Dated: \_\_\_\_\_



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**METHOD STATEMENT: Hydrocarbon and Emergency Spill Procedures**

**CONTRACT:**.....**DATE:**.....

**WHAT HAZARDOUS SUBSTANCES (INCL. FUELS) ARE TO BE STORED ON SITE?** (Give a brief description of the works): \* Note: please attach extra pages if more space is required

**\*Insert additional pages as required**

**WHERE ARE THE THESE SUBSTANCES TO BE STORED ON SITE?** (Where possible, provide an annotated plan and a full description of the extent of the works): \* Note: please attach extra pages if more space is required

**\*Insert additional pages as required**

---

**METHOD STATEMENT: Hydrocarbon and Emergency Spill Procedures (contd.)**

**START AND END DATE OF THE WORKS FOR WHICH THE METHOD STATEMENT IS REQUIRED:**

**Start Date:**.....**End Date:**.....

**HOW ARE HAZARDOUS SUBSTANCES TO BE MANAGED TO AVOID SPILLAGES AND WHAT EMERGENCY PROCEDURES ARE TO BE IMPLEMENTED IN CASE OF A SPILLAGE?** (Provide as much detail as possible, including annotated sketches and plans where possible): \* Note: please attach extra pages if more space is required

**\*Insert additional pages as required**

---

***DECLARATIONS for Method Statement***

**Hydrocarbon and Emergency Spill Procedures (contd.)**

**1) PROJECT MANAGER**

The work described in this Method Statement, if carried out according to the methodology described, is satisfactory to prevent or control environmental harm and is thus approved:

\_\_\_\_\_  
(Signed)

\_\_\_\_\_  
(Print name)

Dated:\_\_\_\_\_

**2) ECO**

The work described in this Method Statement, if carried out according to the methodology described, is satisfactory to prevent or control environmental harm and is thus approved:

\_\_\_\_\_  
(Signed)

\_\_\_\_\_  
(Print name)

Dated:\_\_\_\_\_

---

**METHOD STATEMENT: Fire Management**

**CONTRACT:**.....**DATE:**.....

**WHAT WORK IS TO BE UNDERTAKEN?** (Give a brief description of the works): \* Note: please attach extra pages if more space is required

**\*Insert additional pages as required**

**WHERE ARE THE WORKS TO BE UNDERTAKEN?** (Where possible, provide an annotated plan and a full description of the extent of the works): \* Note: please attach extra pages if more space is required

**\*Insert additional pages as required**

---

**METHOD STATEMENT: Fire Management (contd.)**

**START AND END DATE OF THE WORKS FOR WHICH THE METHOD STATEMENT IS REQUIRED:**

**Start Date:**.....**End Date:**.....

**HOW ARE THE WORKS TO BE UNDERTAKEN?** (Provide as much detail as possible, including annotated sketches and plans where possible): \* Note: please attach extra pages if more space is required

**\*Insert additional pages as required**

---

***DECLARATIONS for Method Statement***

**Fire Management (contd.)**

**1) PROJECT MANAGER**

The work described in this Method Statement, if carried out according to the methodology described, is satisfactory to prevent or control environmental harm and is thus approved:

\_\_\_\_\_  
(Signed)

\_\_\_\_\_  
(Print name)

Dated: \_\_\_\_\_

**2) ECO**

The work described in this Method Statement, if carried out according to the methodology described, is satisfactory to prevent or control environmental harm and is thus approved:

\_\_\_\_\_  
(Signed)

\_\_\_\_\_  
(Print name)

Dated: \_\_\_\_\_



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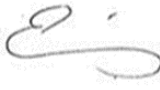




**CLIENT** : Eskom SOC Ltd

**PROJECT NAME** : Proposed Upgrade of Sublime Access Road and new intersection of the R580 **PROJECT No.** : J37158

**TITLE OF DOCUMENT** : Draft EMPr

**ELECTRONIC LOCATION** : \\PRETORIA-5\projects\J37158 EXXARO Sublime Road Design\08\_Design\01.Environmental\Reports\J37158\_Exarro Sublime Road\_Draft EMPr\_V3\_2018.02.01.docx

	Approved By	Reviewed By	Prepared By
<b>Draft 1</b>	NAME <b>Elisabeth Nortje</b>	NAME <b>Alecia Barnard</b>	NAME <b>Richard Myburgh</b>
DATE <b>2018/06/12</b>	SIGNATURE 	SIGNATURE 	SIGNATURE 

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