



ENVIRONMENTAL & ENGINEERING

DRAFT REPORT

NATIONAL TREASURE MINERALS (PTY) LTD – AANGEWYS COAL MINE

DMR Reference Number: MP 30/5/1/2/2/10324 MR

INTEGRATED ENVIRONMENTAL AUTHORISATIONS – DRAFT SCOPING REPORT

REPORT REF: 21-1442 AUTH DRAFT SCOPING REPORT

(ENVIRONMENTAL AUTHORISATIONS FOR MINING OF COAL
ON PORTION 13 OF THE FARM AANGEWYS 81 IS)

5 July 2021

VERSION BB



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DECLARATION OF INDEPENDENCE

I, Riana Panaino, declare that;

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing:
 - o any decision to be taken with respect to the application by the competent authority; and
 - o the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- all the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms of section 24F of the Act.



05/07/2021

Signature

Mrs. Riana Panaino

BSc Hons Biodiversity and Conservation

IAIA Member

Pr.Sci.Nat

Date





mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

SCOPING REPORT

FOR LISTED ACTIVITIES ASSOCIATED WITH MINING RIGHT ACTIVITIES

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

NAME OF APPLICANT: **National Treasure Minerals (Pty) Ltd**

TEL NO: **0745489726**

FAX NO:

POSTAL ADDRESS: **42 Plumber Street, Witbank, 1035**

PHYSICAL ADDRESS: **213 Waterkloof , Pretoria, 0181**

FILE REFERENCE NUMBER SAMRAD: **MP 30/5/1/2/2/10324 MR**



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IMPORTANT NOTICE

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

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

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

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

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



OBJECTIVE OF THE SCOPING PROCESS

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



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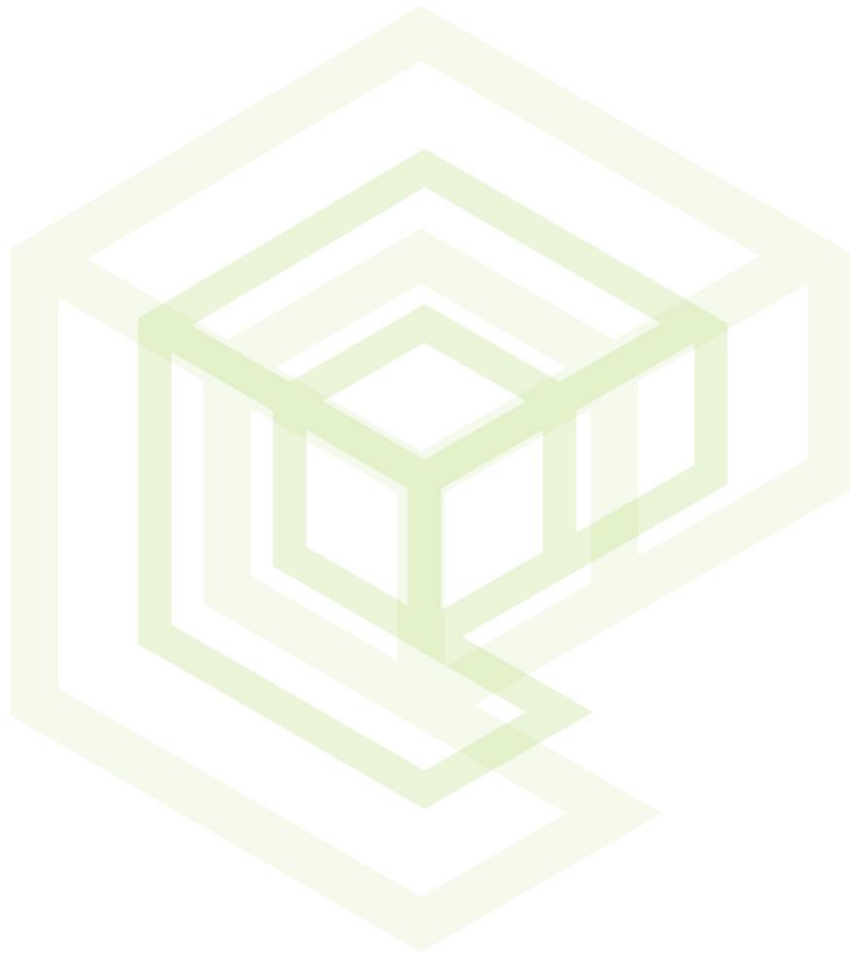


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SCOPING REPORT



2. CONTACT PERSON AND CORRESPONDENCE ADDRESS

2.a DETAILS OF:

2.a.i The EAP who prepared the report

Table 2.1: Contact details of EAP

Name of the practitioner	Riana Panaino
Tel Number	012 807 0383
Fax Number	086 714 5397
Email Address	riana@ecoe.co.za

2.a.ii Expertise of the EAP

2.a.ii.1 The qualification of the EAP

The EAP has an Honours degree in Biodiversity and Conservation, is SACNASP Registered, and has more than 10 years' experience in Environmental Consulting.

Refer to Annexure 2 for a CV of the EAP.

2.a.ii.2 Summary of the EAP's past experience

Refer to Annexure 2 for a CV of the EAP.

2.b DESCRIPTION OF THE PROPERTY

Table 2.2: Description of Property

Farm Name:	Aangewys 81 IS Portion 13						
Application area (Ha)	189 ha						
Magisterial district:	Nkangala District Municipality, eMalahleni Local Municipality						
Distance and direction from nearest town	<table border="0"> <tr> <td>Town</td> <td>Direction</td> <td>Approximate distance by road</td> </tr> <tr> <td>Kriel</td> <td>NW</td> <td>2.5km</td> </tr> </table>	Town	Direction	Approximate distance by road	Kriel	NW	2.5km
Town	Direction	Approximate distance by road					
Kriel	NW	2.5km					
21 digit Surveyor General Code for each farm portion	T0IS0000000008100013						



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2.c LOCALITY MAP

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

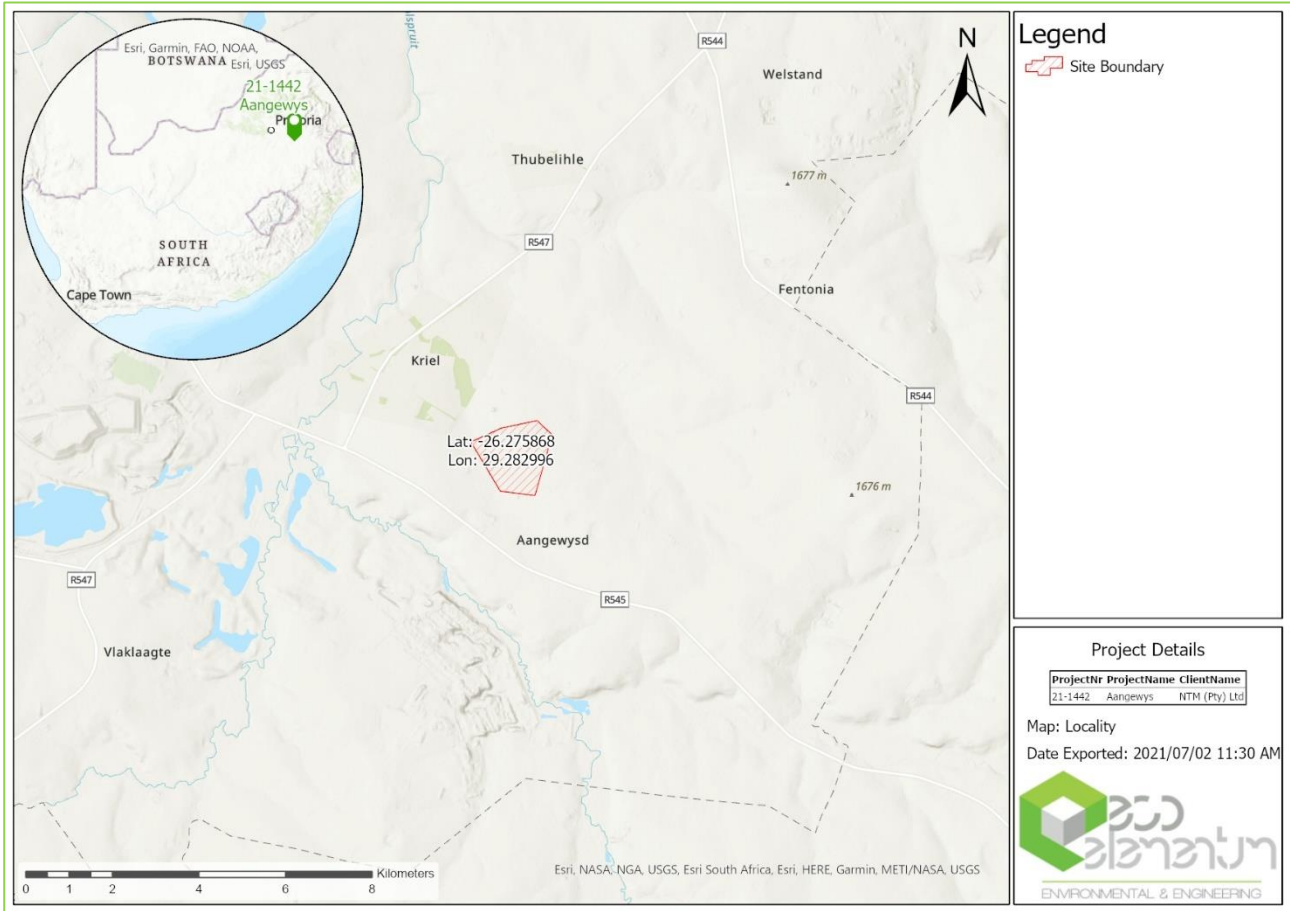


Figure 2.1: Aangewys Coal Mine Locality



2.d DESCRIPTION OF THE SCOPE OF THE PROPOSED OVERALL ACTIVITY.

2.d.i Listed and specified activities

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

Table 2.3: Listed and specified activities

Listing Notice	Activity number	Activity	Description of Activity	Waste Management Authorisation
NEMA Listing 1 (Basic Assessment)	9	The development of infrastructure exceeding 1 000 metres in length for the bulk transportation of water or storm water- (i) with an internal diameter of 0,36 metres or more; or (ii) with a peak throughput of 120 litres per second or more; excluding where- (a) such infrastructure is for bulk transportation of water or storm water or storm water drainage inside a road reserve or railway line reserve; or (b) where such development will occur within an urban area.	Stormwater diversion infrastructure	N/A
NEMA Listing 1 (Basic Assessment)	10	The development and related operation of infrastructure exceeding 1 000 metres in length for the bulk transportation of sewage, effluent, process water, waste water, return water, industrial discharge or slimes- (i) with an internal diameter of 0,36 metres or more; or (ii) with a peak throughput of 120 litres per second or more; excluding where- (a) such infrastructure is for the bulk transportation of sewage, effluent, process water, waste water, return water, industrial discharge or slimes inside a road reserve or railway line reserve; or (b) where such development will occur within an urban area.	Pipelines for Dirty Water to PCD	N/A
NEMA Listing 1 (Basic Assessment)	12	The development of- (i) dams or weirs, where the dam or weir, including infrastructure and water surface area, exceeds 100 square metres; or (ii) infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs-	The placement of stockpiles and construction of PCD's within 32 metres of a watercourse.	X



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Listing Notice	Activity number	Activity	Description of Activity	Waste Management Authorisation
		(a) within a watercourse; (b) in front of a development setback; or (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse;- excluding- (aa) the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour; (bb) where such development activities are related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies; (cc) activities listed in activity 14 in Listing Notice 2 of 2014 or activity 14 in Listing Notice 3 of 2014, in which case that activity applies; (dd) where such development occurs within an urban area; (ee) where such development occurs within existing roads, road reserves or railway line reserves; or (ff) the development of temporary infrastructure or structures where such infrastructure or structures will be removed within 6 weeks of the commencement of development and where indigenous vegetation will not be cleared.		
NEMA Listing 1 (Basic Assessment)	14	The development and related operation of facilities or infrastructure, for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 cubic metres or more but not exceeding 500 cubic metres.	Storage of hydrocarbons and fuel on site	N/A
NEMA Listing 1 (Basic Assessment)	19	The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse; but excluding where such infilling, depositing, dredging, excavation, removal or moving— (a) will occur behind a development setback; (b) is for maintenance purposes undertaken in accordance with a maintenance management plan; (c) falls within the ambit of activity 21 in this Notice, in which case that activity applies; (d) occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or (e) where such development is related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies.	Site clearing that could encroach into wetland boundaries	N/A
NEMA Listing 1	24	The development of a road-	Haul roads for the transport of Coal to the plant area	N/A



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Listing Notice	Activity number	Activity	Description of Activity	Waste Management Authorisation
(Basic Assessment)		(i) for which an environmental authorisation was obtained for the route determination in terms of activity 5 in Government Notice 387 of 2006 or activity 18 in Government Notice 545 of 2010; or (ii) with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 metres; but excluding a road- (a) which is identified and included in activity 27 in Listing Notice 2 of 2014; (b) where the entire road falls within an urban area; or (c) which is 1 kilometre or shorter.		
NEMA Listing 2 (Scoping and EIR)	4	The development and related operation of facilities or infrastructure, for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of more than 500 cubic metres.	Storage of hydrocarbons and fuel on site	N/A
NEMA Listing 2 (Scoping and EIR)	6	The development of facilities or infrastructure for any process or activity which requires a permit or licence or an amended permit or licence in terms of national or provincial legislation governing the generation or release of emissions, pollution or effluent, excluding- (i) activities which are identified and included in Listing Notice 1 of 2014; (ii) activities which are included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case the National Environmental Management: Waste Act, 2008 applies; (iii) the development of facilities or infrastructure for the treatment of effluent, polluted water, wastewater or sewage where such facilities have a daily throughput capacity of 2 000 cubic metres or less; or (iv) where the development is directly related to aquaculture facilities or infrastructure where the wastewater discharge capacity will not exceed 50 cubic metres per day.	Open pit mining activities will require a Section 21 (g) application in terms of the NWA, for backfilling of carbonaceous material, Stockpiling, and PCD implementation	X
NEMA Listing 2 (Scoping and EIR)	15	The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for- (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.	Vegetation clearance of the new open pit areas.	N/A
NEMA Listing 2 (Scoping and EIR)	17	Any activity including the operation of that activity which requires a mining right in terms Section 22 of the Mineral and Petroleum Resources Development Act, as well as any other applicable activity as contained in this Listing Notice, in Listing Notice 1 of 2014 or Listing Notice 3 of 2014, required to exercise the Mining Right..	Mining Right in terms of Section 22 of the MPRDA has been applied for.	N/A
NEMA Listing 3 (Basic Assessment)	4f	The development of a road wider than 4 metres with a reserve less than 13,5 metres. f. Mpumalanga i. Outside urban areas:	Haul roads for the transport of Coal to the plant area that could be cross over sensitive areas.	N/A



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Listing Notice	Activity number	Activity	Description of Activity	Waste Management Authorisation
		(aa) A protected area identified in terms of NEMPAA, excluding disturbed areas; (bb) National Protected Area Expansion Strategy Focus areas; (cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (dd) Sites or areas identified in terms of an international convention; (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (ff) Core areas in biosphere reserves; or (gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve, excluding disturbed areas, where such areas comprise indigenous vegetation; or ii. Inside urban areas: (aa) Areas zoned for use as public open space; or (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose.		
NEMA Listing 3 (Basic Assessment)	10f	The development and related operation of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic metres. f. Mpumalanga i. Outside urban areas: (aa) A protected area identified in terms of NEMPAA, excluding conservancies; (bb) National Protected Area Expansion Strategy Focus areas; (cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (dd) Sites or areas identified in terms of an international convention; (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (ff) Core areas in biosphere reserves; (gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve, where such areas comprise indigenous vegetation; or	Storage of hydrocarbons and fuel on site than could possibly be within 100m of a wetland.	N/A



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Listing Notice	Activity number	Activity	Description of Activity	Waste Management Authorisation
		(hh) Areas within a watercourse or wetland, or within 100 metres of a watercourse or wetland; or ii. Inside urban areas: (aa) Areas zoned for use as public open space; or (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose.		
NEMWA Government Notice No. R921	Category B Activity 10	The construction of a facility for a waste management activity listed in Category B of this Schedule (not in isolation to associated waste management activity)	Establishment of Overburden Stockpiles	X
NEMWA Government Notice No. R921	Category B Activity 11	The establishment or reclamation of a residue stockpile or residue deposit resulting from activities which require a mining right, exploration right or production right in terms of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002).	Waste Management Licence required for Overburden and residue Stockpiles.	X



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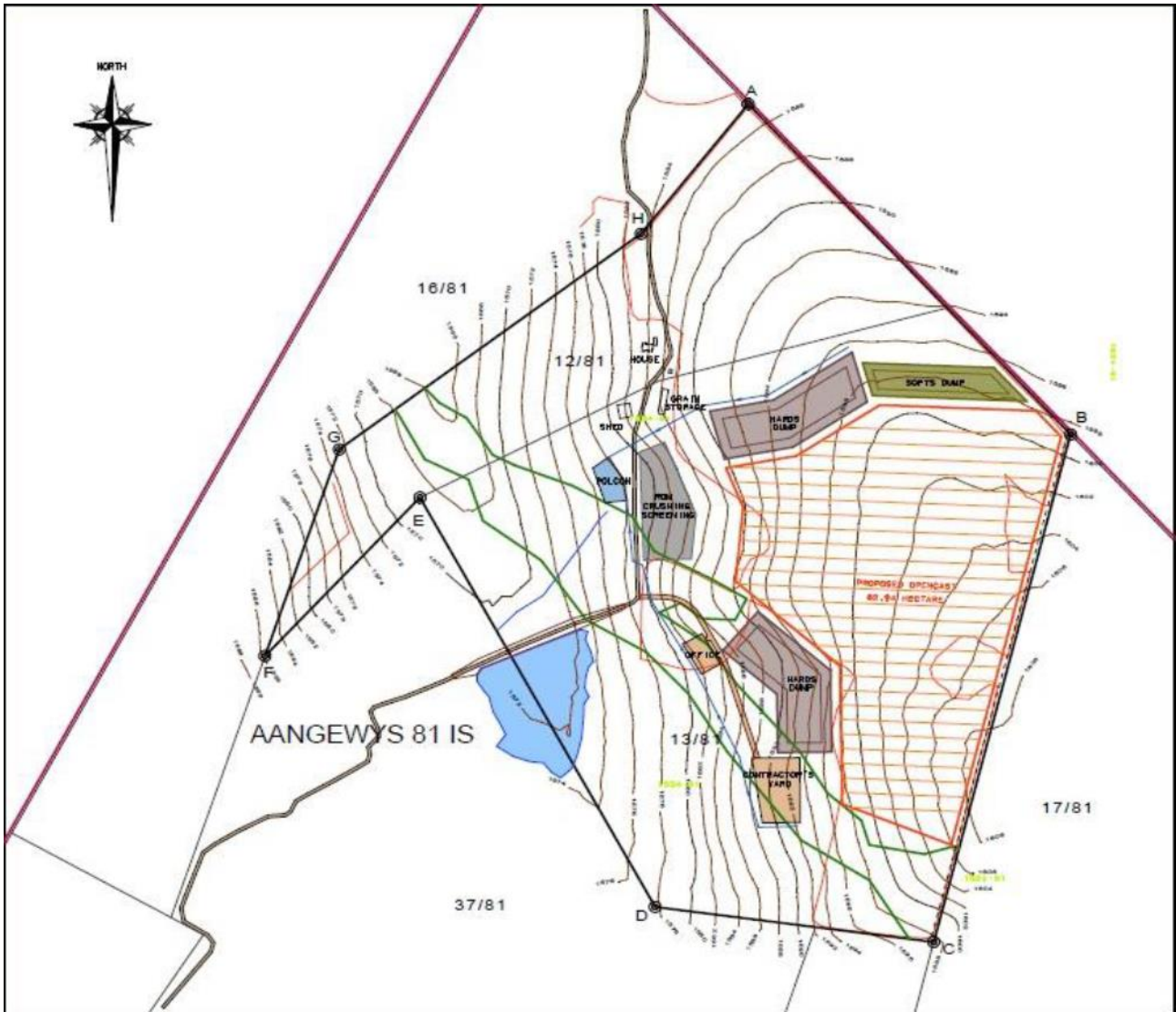


Figure 2.2: Location of listed activities

2.d.ii Description of the activities to be undertaken

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

The resource will be mined via both opencast roll over mining as well as underground mining. The following activities will be undertaken on site:

- Box cut opencast mining with a roll over rehabilitation sequence;
- Adit to access underground mining area;
- Crushing and screening of the ROM coal;
- Hauling, access road, haul road,
- Mobile offices;
- Mobile sanitation and change house;
- Mobile fuel storage;
- Pollution control facility/dam(s);
- Clean and dirty water separation system;
- Topsoil, subsoil, overburden, discard and ROM stockpiles;
- Weighbridge;



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- Waste management.

2.d.ii.1 Mining Method - Open Cast and Underground Mining

Studies undertaken on the approved Mining Right have shown that it would be viable to mine the coal reserve by means of the opencast mining method (Seam 5), as well as underground mining (Seam 2).

Opencast mining using the truck and shovel lateral sequential rollover mining method will be undertaken. Mining will commence from the initial box cut.

The soft overburden will be removed by mechanical methods. The hard overburden will be drilled and blasted and then removed by mechanical methods. The coal will be drilled and blasted prior to removal.

Replacement of overburden materials into the mining pit will be according to the following sequence:

1. Placement of hard overburden at base of pit;
2. Placement of soft overburden;
3. Final cover of topsoil (minimum 500 mm)

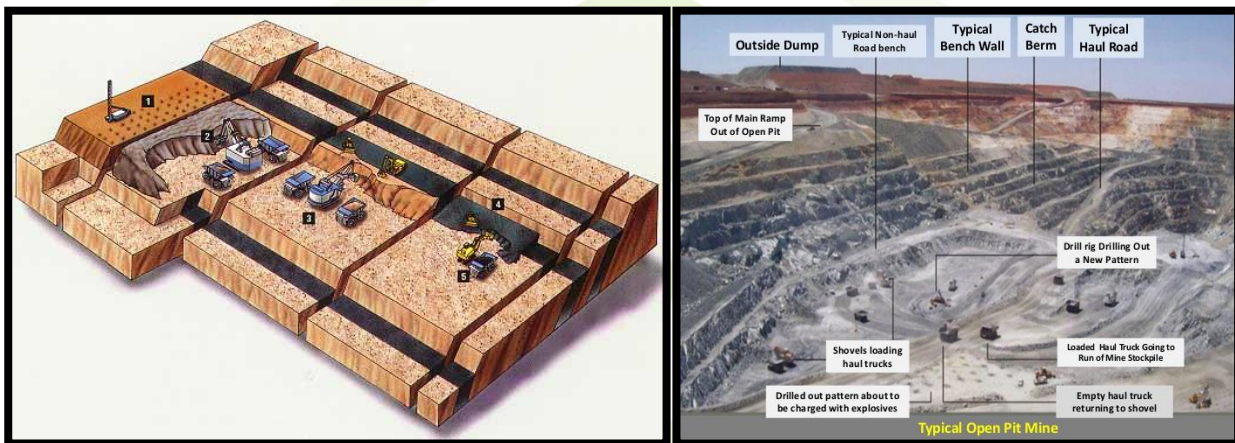


Figure 2.3: Typical Opencast Concurrent Roll Over Rehabilitation Mining Technique

An adit will be constructed to then access the underground Seam 2, via the open pit area. Bord and Pillar mining will be implemented for the extraction of the 2 seam. This mining method is implemented to ensure roof stability and avoid subsidence.

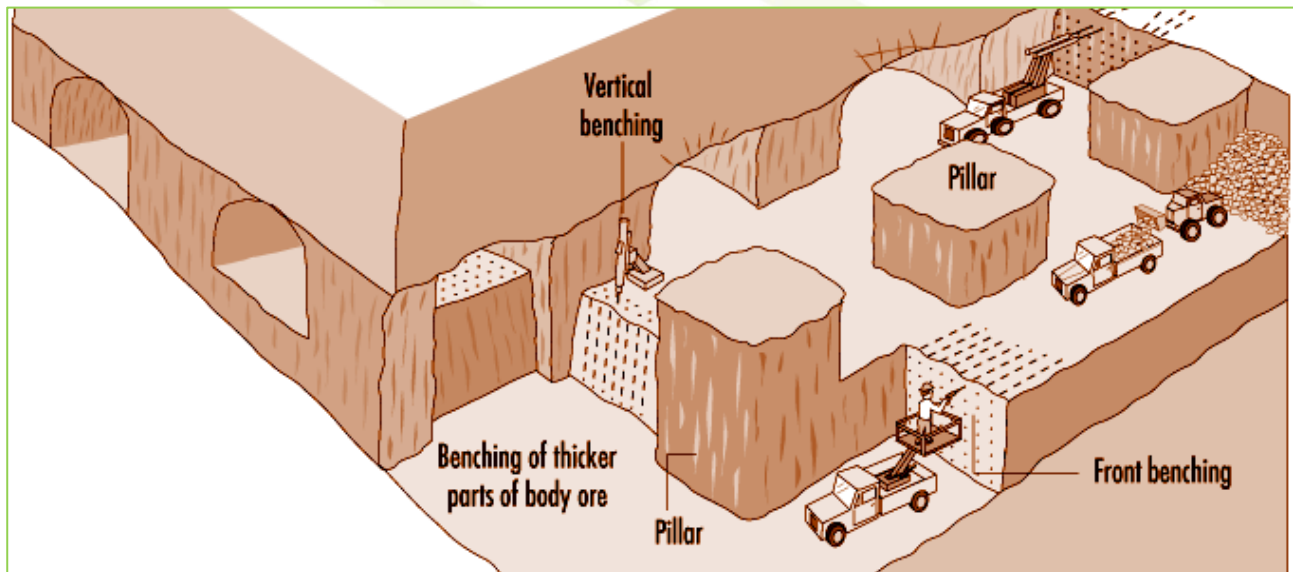


Figure 2.4: Illustration of typical Bord and Pillar mining



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Run of Mine Coal and Coal Beneficiation

Run of Mine Coal will be transported to an on site Coal Wash Plant for beneficiation.

2.e POLICY AND LEGISLATIVE CONTEXT

Table 2.4: Policy and Legislative Context

<p>APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT (a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process);</p>	<p>REFERENCE WHERE APPLIED</p>	
<p>National Environmental Management Act (107 of 1998) The NEMA provides the overarching legislation for environmental governance in South Africa, giving effect to Section 24 of the Constitution of the Republic of South Africa. NEMA sets out the fundamental principles of Integrated Environmental Management that must be adhered to in order to ensure sustainable development.</p>	<p>Section 28 of the NEMA includes a far-reaching general “Duty of Care” which stipulates the need to protect the environment from degradation and pollution. In terms of the listed activities, an S&EIR process is required.</p>	<p>An Application for Environmental Authorisation and amended MWP have been made to the DMR.</p>
<p>Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) To make provision for equitable access to and sustainable development of the nation's mineral and petroleum resources; and to provide for matters connected therewith.</p>	<p>Section 22- The project requires a mining right from the DMR.</p>	<p>A section 22 Mining Works Programme was lodged with the DMR.</p>
<p>NEMA Environmental Impact Assessment (EIA) Regulations, 2014 (as amended)</p>	<p>In terms of the listed activities, an S&EIR process is required. The process will be followed in terms of the “one environmental system”</p>	<p>An Application for Environmental Authorisation and MWP have been made to the DMR.</p>
<p>The South African Constitution In terms of Section 24, of the Constitution of the Republic of South Africa (108 of 1996), everyone has the right to an environment that is not harmful to their health or well-being and to have the environment protected, for the benefit of present and future generations, through reasonable legislation and other measures that prevent pollution and ecological degradation, promote conservation and secure ecologically sustainable development and use of natural resources while prompting justifiable economic and social development.</p>	<p>Applied at potential impacts identification as well as mitigation measures and public participation.</p>	<p>An open and participatory public participation process will be followed. An EMP and awareness plan will be designed according to the issues raised during this process.</p>
<p>National Environmental Management: Biodiversity Act, 2004 The National Environmental Management: Biodiversity Act (Act 10 of 2004) (NEM:BA) provides for listing of threatened or protected species.</p>	<p>The fauna and flora prevailing in the proposed project site will be handled in terms of this Act and relevant ecological studies have already been initiated.</p>	<p>The mining footprint will be guided by the results of the ecological studies where possible. Permits will be applied for where and when necessary, should any red data species be relocated.</p>
<p>National Environmental Management: Waste Act The objectives of NEM:WA involve the protection of health, wellbeing and the environment by providing reasonable measures for the minimization of natural resource consumption, avoiding and minimizing the generation of waste, reducing, recycling and recovering waste, and</p>	<p>In terms of the list of Section 19 waste management activities, an S&EIR process is required. The process is part of the “one environmental system”.</p>	<p>In terms of GN718 of 2009, under NEMWA, various Category B waste management activities are applicable to the proposed mining operation. The impacts and associated</p>



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<p>APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT (a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process);</p>	<p>REFERENCE WHERE APPLIED</p>	
<p>treating and safely disposal of waste as a last resort. In terms of the NEMWA, all waste management activities must be licensed.</p> <p>A distinction is made between Category A waste management activities, which require a basic assessment, and Category B activities, which require a full EIA, and Category C waste management activities which do not require a waste management license but compliance with relevant requirements or standards.</p> <p>According to Section 44 of the Act, the licensing procedure must be integrated with an EIA process in accordance with the Regulations GNR 982.</p>	<p>GNR 633 includes the establishment or reclamation of a residue stockpile or residue deposit, resulting from prospecting or mining activities as a listed activity.</p>	<p>management and/or mitigation measures will be included in the EIA phase of the project.</p>
<p>National Heritage Resources Act (Act No. 25 of 1999)</p> <p>The protection and management of South Africa's heritage resources are controlled by the National Heritage Resources Act (Act No. 25 of 1999) (NHRA). The enforcing authority for this act is the South African National Heritage Resources Agency (SAHRA).</p>	<p>A Heritage and Paleontological study has been initiated to identify and assess the project in terms of heritage and paleontological resources. This is mandatory in terms of Section 38 of the NHRA.</p>	<p>The Heritage Report will be uploaded on the SAHRIS website for comment and the development guided by any findings of the Report.</p>
<p>National Water Act (Act No. 36 of 1998)</p> <p>The NWA is the primary regulatory legislation, controlling and managing the use of water resources as well as the pollution thereof. This act provides for fundamental reformation of legislation relating to water resource use.</p> <p>GN 704- Regulations on use of water for mining and related activities aimed at the protection of water resources.</p>	<p>An IWUL amendment will be submitted to DWS for consideration for the following Section 21 water uses including:</p> <ul style="list-style-type: none"> (a) abstraction from a borehole. (c) and (i) mining activities within 500 m from a wetland. (g) dust suppression, coal stockpiling, mine residue stockpiling and dirty water dams. (j) abstraction from the open pit 	<p>The DWS will provide comment and an application will be lodged for their review prior to the undertaking of any water use activities on site.</p> <p>Management Principles will be applied to the mining operations as per GN704.</p>
<p>National Environmental Management: Air Quality Act, 2004 (Act no.39 of 2004); and applicable Regulations, Standards and Notices published in terms of NEMAQA</p> <p>The promulgation of this Act marked a turning point in the approach to air pollution control and governance in South Africa, introducing the philosophy of Air Quality Management, in line with international policy developments and the environmental right, i.e. Section 24 of the Constitution (Act No. 108 of 1996).</p>	<p>Dust monitoring on site during operations</p>	<p>As part of the EMP dust suppression methods will be used.</p>
<p>Mine Health and Safety Act, 1996 (Act No. 29 of 1996);</p> <p>The Mine Health and Safety Act (Act No. 29 of 1996) (MHSA) aims to provide for protection of the health and safety of all employees and other personnel at the mines of South Africa.</p>	<p>Health and Safety Policy of mine to be guided by this Act.</p>	<p>Risk Impact Assessment to be conducted.</p>
<p>Mpumalanga Spatial Development Framework (SDF)</p>	<p>Used to identify the municipality's long term spatial development plans. SDF to be considered in terms of the need and desirability.</p>	<p>The SDF should be consulted as part of the Socio-Economic Study's Scope of Work.</p>



APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT (a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process);		REFERENCE WHERE APPLIED
<p>National Development Plan (2012)</p> <p>The National Development Plan outlines what we should do to eradicate poverty, increase employment and reduce inequality by 2030. The Plan has the target of developing people's capabilities to be to improve their lives through education and skills development, health care, better access to public transport, jobs, social protection, rising income, housing and basic services, and safety.</p>	Used to identify project Need and Desirability and alignment with National Policy.	To form part of the project background and socio-economic evaluation.
<p>Promotion of Access to Information Act, 2000 (Act No. 2 of 2000) (PAIA)</p> <p>PAIA recognises that everyone has a right of access to any information held by the state and by another person when that information is required to exercise or protect any right.</p>	The S&EIR process is aligned with the PAIA and therefore fair and open public participation is undertaken.	NEMA Public Participation Process will be followed as per the 2014 EIA Guidelines.
<p>Conservation of Agricultural Resources Act (act no. 43 of 1983) (CARA)</p> <p>CARA provides for control over the utilization of the natural agricultural resources in order to promote the conservation of the soil, the water sources and the vegetation and the combating of weeds and invader plants.</p>	Principles of the Act to be included in the relevant specialist's Scope of Work.	Mine Closure and Rehabilitation strategy to be informed by CARA and stakeholder engagement process.

2.f NEED AND DESIRABILITY OF THE PROPOSED ACTIVITIES.

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

- The area falls within the Mpumalanga coal fields and as such the economy of the surrounding area is predominantly based on coal mining (and associated services such as coal hauling); agriculture; forestry and timber processing.
- The mining industry is identified as one of the key components toward Rapid Economic Growth in order to reduce poverty and minimise unemployment Growth (State of the Nation Address, 2019). The key issues include:
 - The need for a strong capable state;
 - Cost reduction for businesses and consumers;
 - The need for reindustrialisation and a revitalised mining sector;
 - Faster growth in tourism;
 - Improved infrastructure;
 - Better support for small businesses; and
 - Marked reduction in unemployment
- Mining's contribution to provincial GDP (2020) is 25.9% and the sector employs 53 000 people.
- The activity of mining has numerous social and economic benefits in local, regional and national context. These include:
 1. Job creation
 2. Skills development
 3. SMME development
 4. Local economic development
 5. Contribution to local and national tax income (royalties, companies' tax etc.)
 6. Contribution to the national gross domestic product, and



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7. Future business opportunities.
- The ongoing need for electricity supply further enforces the need for the ongoing and increased supply of Coal to the Eskom Power Stations, from suppliers that conform to the MPRDA, NEMA, and NWA.
- The production of goods, supply of services or construction of infrastructure results in expenditure within a regional economy which has knock-on effects and results in additional expenditure which contributes to the regional economy.
- At the South Africa Investment Conference in 2020, over 50 global companies made investment commitments of R109 billion in industries as diverse as advanced manufacturing, agro-processing, infrastructure, mining, services, tourism and hospitality. Global investment in mining being the 7th largest out of 19 economic subsectors with a total investment of >R2 billion This shows that mining remains a significant source of investment into the country.

2.g PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED

A 10 year authorisation is requested.

2.h DESCRIPTION OF THE PROCESS FOLLOWED TO REACH THE PROPOSED PREFERRED SITE.

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

- GIS and spatial analysis will be used to determine the location of the mining infrastructure by considering environmental sensitivities.
- The site layout will take into account the resource location, watercourse location, and location of built structures and graves.
- The detailed infrastructure layout will be presented during the EIA phase.

2.h.i Details of all alternatives considered.

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

a) the property on which or location where it is proposed to undertake the activity;

The site location is limited to the Current Mining Right Area, which is constrained by the location of other mining houses. The resource location and sensitive areas further restricts the infrastructure layout.

b) the type of activity to be undertaken;

Both opencast and underground mining will be undertaken. Both methods are proved in this instance to optimally remove the coal resource and seams.

c) the design or layout of the activity;

The infrastructure and mining layout is constrained by the mining right boundary and the location of other mining houses. The resource location and sensitive areas on the site further restrict the layout options. The final layout will be determined based on the results from the specialist assessments.

d) the technology to be used in the activity

The technology proposed will be the most economically viable technology for the proposed operation.



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e) *the operational aspects of the activity; and*

As per (d) above.

f) *the option of not implementing the activity.*

The no-go option will result in the protection of the environment in situ and the continued use of the land for agricultural purposes. Not mining the area for coal will result in the sterilisation of the coal resource. The no-go option would also prevent the socioeconomic benefits, including the need for job creation, increased socio-economic activity and social upliftment. If National Treasure Minerals (Pty) Ltd (NTM) does not proceed with the Mining Right Application, another company is almost certain to apply for the rights.

The following negative impacts will however be avoided should the project not go-ahead:

- Potential surface and groundwater pollution;
- Loss of sensitive riparian habitats associated with identified wetland areas on site;
- Increased noise and dust levels (PM10 and PM2.5);
- Potential decant of acid mine drainage during post closure (as a result of the sulphides) which may result in significant water quality modification;
- Lowering of the water table in the coal seam aquifer as a result of mine dewatering;
- Sense of place for the surrounding community and land users; and
- Loss of agricultural land/grazing land (current land use).

2.h.ii Details of the Public Participation Process Followed

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

Section 41 of NEMA Regulation 982 (specifically Chapter 6) set out the Legal and Regulatory Requirement for Public Participation. The Public Participation Process (PPP) aims to involve the authorities and I&APs in the project process, and determines their needs, expectations and perceptions which in turn ensures a complete and comprehensive environmental study. An open and transparent process will/has been followed at all times and is based on reciprocal dissemination of information. The following was/will be undertaken during the PPP:

- Identification of Interested and Affected Parties (IAPs);
- Consultation with selected landowners;
- Notification of IAPs regarding the proposed project via newspaper advert (in the Witbank News); the placing of 4 x site notices at conspicuous places, the sending of notices to affected parties via email (in the form of Background Information Documents) and sms'.
- A public information meeting (open day) with IAPs will be held during the EIA phase;
- Gathering comments, issues and concerns from IAPs;
- Responding to IAP comments, issues and concerns;
- Compilation and submission of results of consultation report to the DMR; and
- Providing IAPs with the opportunity to review and comment on the Draft Scoping and EIA Reports.

2.h.iii Summary of issues raised by I&APs

(Complete the table summarising comments and issues raised, and reaction to those responses)

Issues raised by I&AP's will be presented after the initial Public Participation period for the project.



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2.h.iv The Environmental attributes associated with the sites

2.h.iv.1 Baseline Environment

2.h.iv.1.a Type of environment affected by the proposed activity.

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

GEOLOGY

The project area is situated on the Witbank coalfield, which forms part of the Karoo basin extensively covering the central regions of South Africa. The Karoo Super Group overlies the basement rocks within the Karoo Basin. The basement of the Karoo Super Group is the Dwyka tillites that are regularly deposited over the basin except for paleotopographical highs. The Dwyka tillites are overlain by the Vryheid formation, which includes the coal seams. The Vryheid formation consists of various sequences of sandstones, shales, and siltstones with the various coal seams located within them. In terms of the area’s structural geology, during the Jurassic period, a large number of dolerite dykes and sills intruded into the Karoo formation, acting as important geological structures diverting and impeding groundwater movements (DWA, 2009).

TOPOGRAPHY

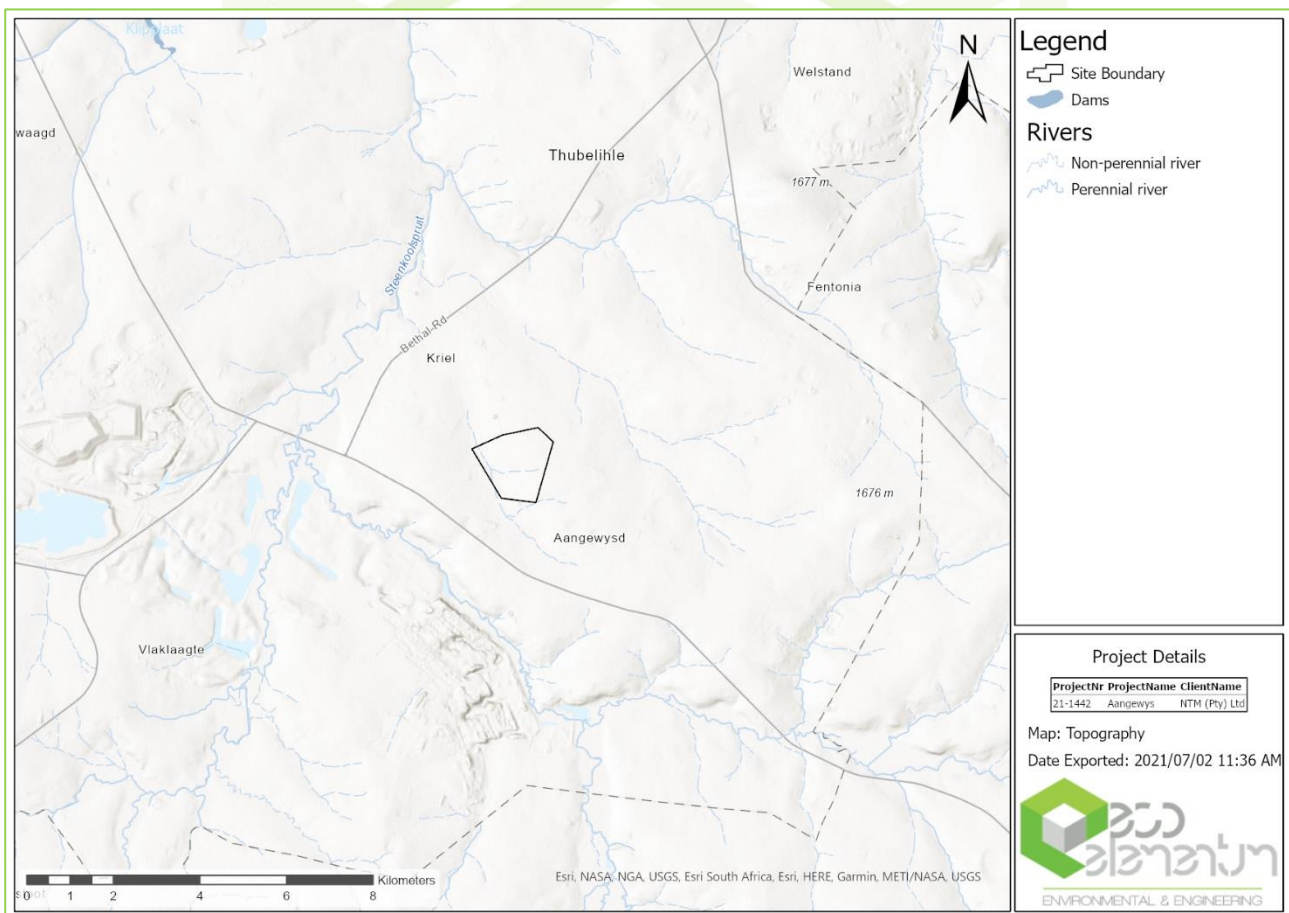


Figure 2.5: Topography of the area

CLIMATE

The mining area is located in the Highveld climatic region of South Africa, which is a summer rainfall area. Temperature classifications for the region are hot in summer and mild to warm in winter, with significant diurnal fluctuations. Climate Data was obtained from the Eco Elementum (Pty) Ltd | Office number: 012 807 0383 | Website: www.ecolementum.co.za | Email: info@ecolementum.co.za



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South African Weather Service (SAWS) and databases of WR2005. The local climate can be described as semi-arid highveld conditions, with warm summers and moderate dry winters. Average daily summer temperatures of approximately 27°C are experienced, while peak temperatures of up to 36°C do occur. Average daily winter temperatures are approximately 4°C, with minimum temperatures reaching around -4°C. The number of days when heavy frost occurs is however, limited and freezing of wet soils, frost heave and permafrost do not occur.

WETLAND ECOLOGY

Catchment description

The site is located within Quaternary Catchment B11D, within the Upper Olifants catchment and the Olifants Water Management Area. The main river within the catchment is the Steenkoolspruit. A channelled Valley Bottom wetland runs from South to Northwest in the border of the project area, through Kriel until it confluences with the Steenkoolspruit.

Classification of wetlands

A channelled Valley Bottom Wetland as well as a possible Pan wetland are present within the Study Area.

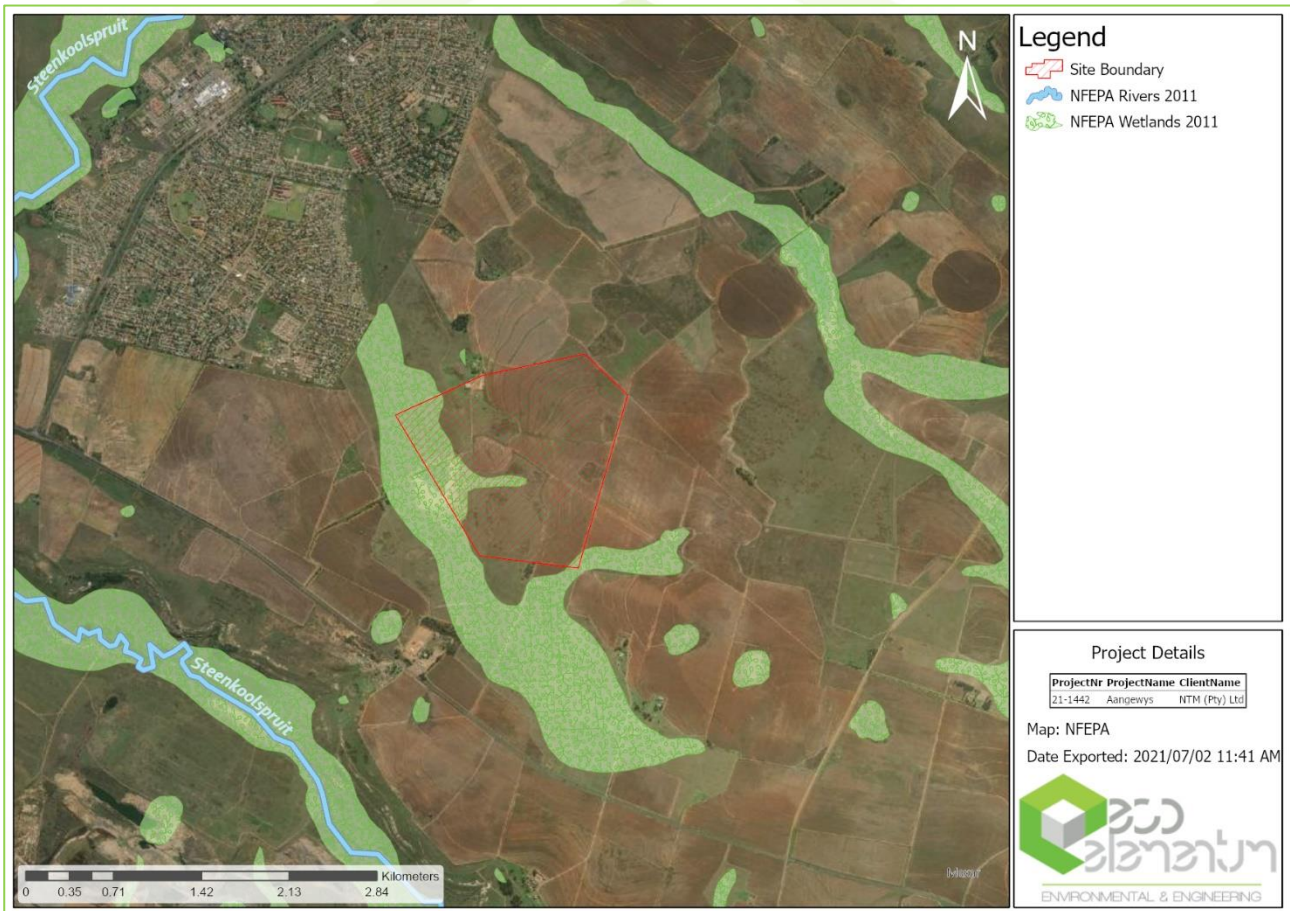


Figure 2.6: Wetlands associated with the site

A detailed Wetland Impact Assessment will be conducted and included in the EIA.

TERRESTRIAL ECOLOGY

The project area is situated within the Eastern Highveld Grassland Vegetation type. The terrestrial combined sensitivity is regarded as Very High as determined by the Environmental Screening Tool, due to the Vegetation type being classified as a Vulnerable Ecosystem.



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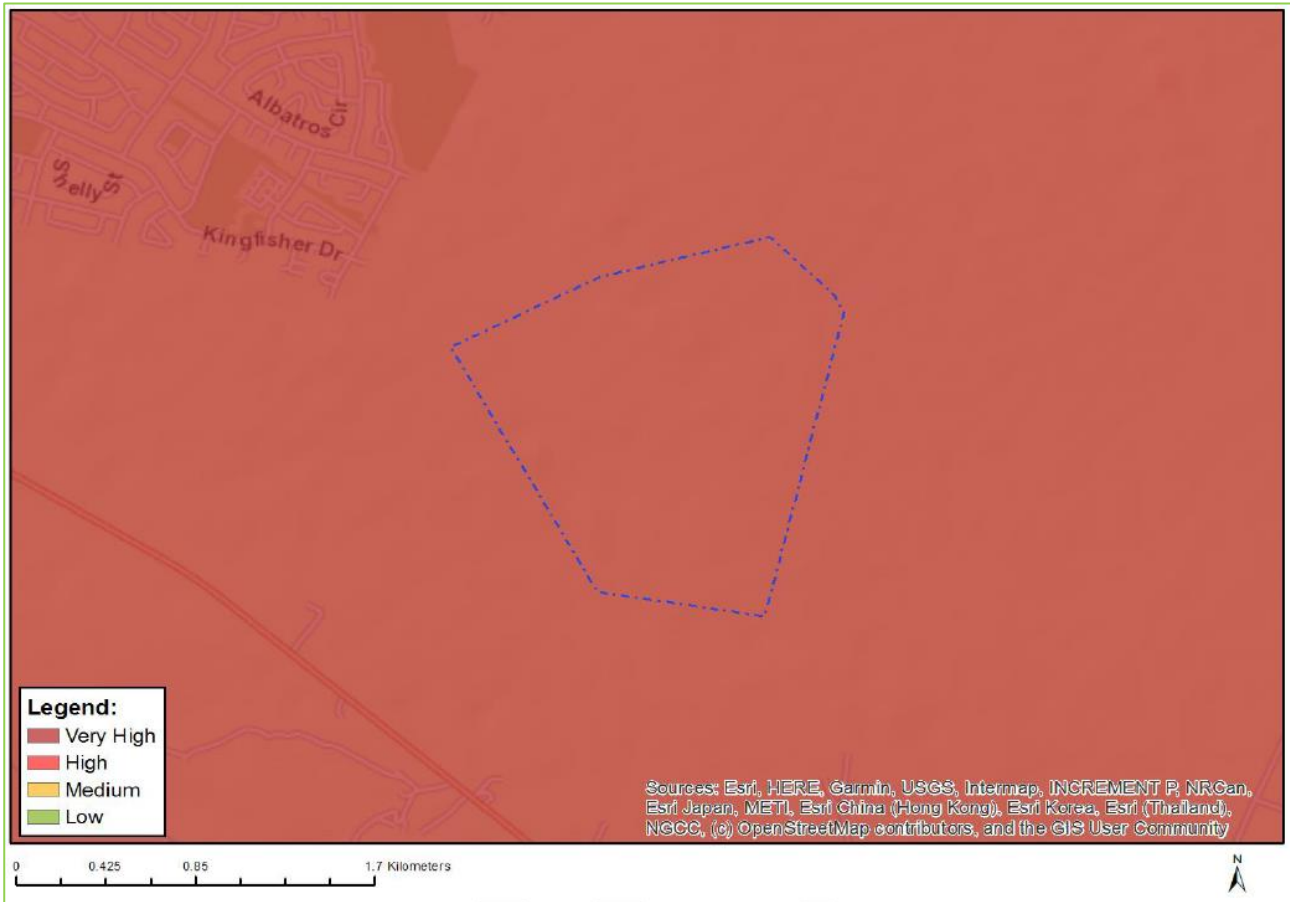


Figure 2.7: Relative Terrestrial Biodiversity Theme Sensitivity

Flora

The faunal sensitivity for the project area is shown in Figure 2.8. A large section of the project area is categorised as having Medium sensitivity, due to the possible presence of up to 691 sensitive species. These species will be associated with the on site wetlands as these are the only natural habitat remaining within the site.



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Figure 2.8: Relative Floral sensitivity of the area

Fauna

The faunal sensitivity for the project area is shown in Figure 2.9. A large section of the project area is categorised as having Medium sensitivity, due to the possible presence of *Hydriectis maculicollis*, which is listed as Near Threatened under the IUCN Red List species.

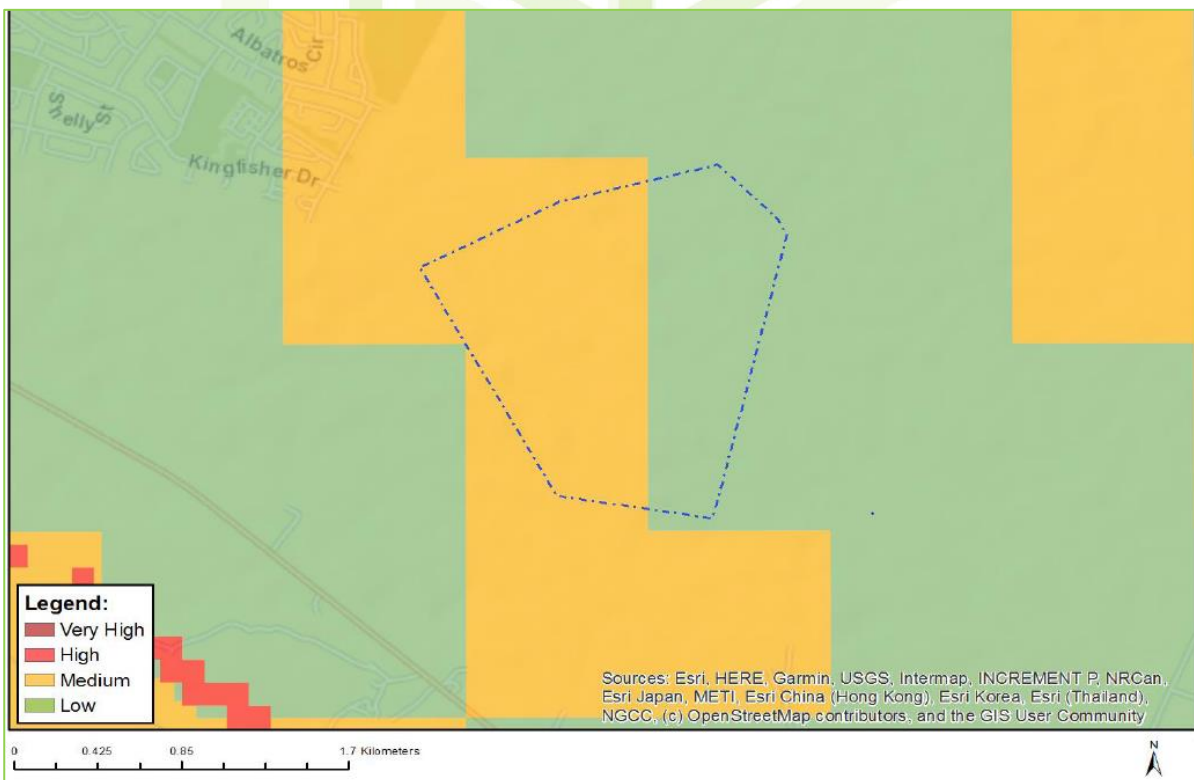


Figure 2.9: Faunal Species Sensitivity



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A detailed Terrestrial Impact Assessment will be conducted and included in the EIA.

HERITAGE AND PALAEOONTOLOGY

The following figures show the relative sensitivity of the area for Archaeological finds and Cultural Heritage as well as Palaeontological sensitivities (Figure 2.10 and Figure 2.11).



Figure 2.10: Relative Archaeological and Cultural Heritage Theme Sensitivity



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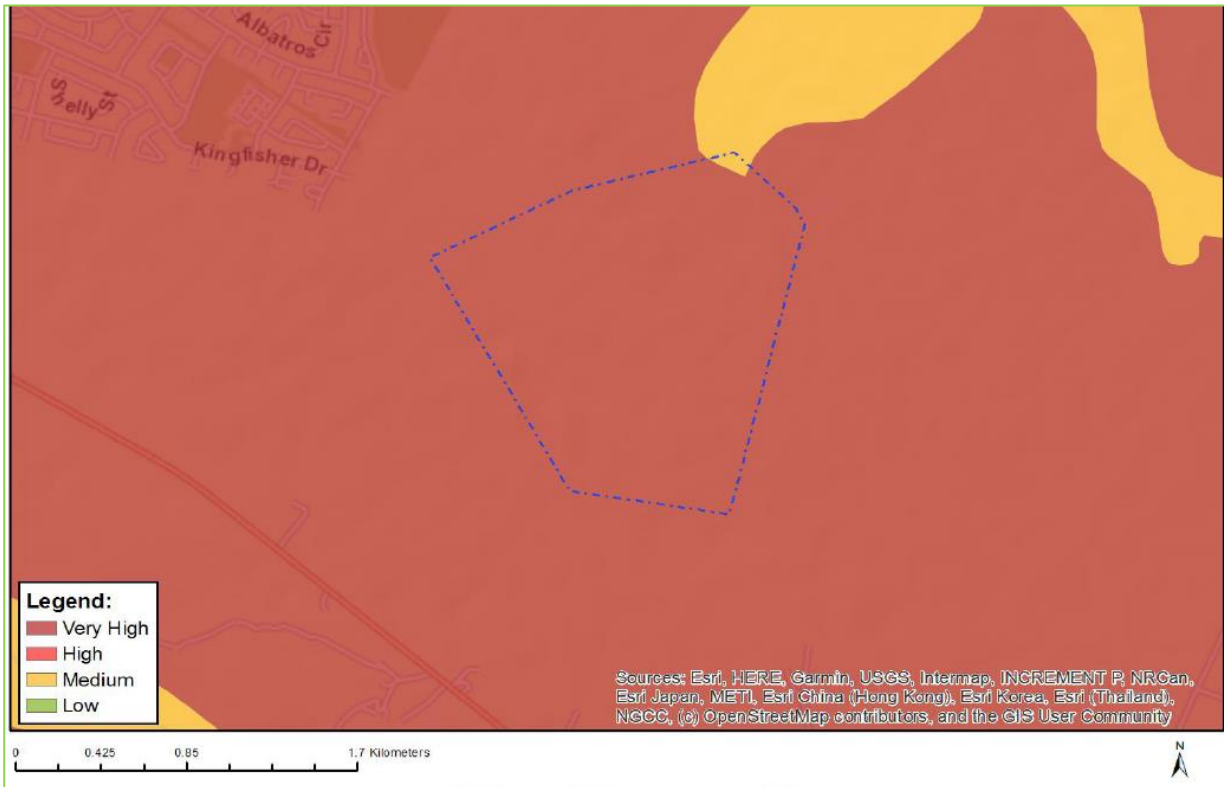


Figure 2.11: Sites of Paleontological Sensitivity

A detailed Heritage Impact Assessment will be conducted and included in the EIA.

SURFACE WATER

The site is located within Quaternary Catchment B11D, within the Upper Olifants catchment and the Olifants Water Management Area. The main river within the catchment is the Steenkoolspruit. A channelled Valley Bottom wetland runs from South to Northwest in the border of the project area, through Kriel until it conflues with the Steenkoolspruit.



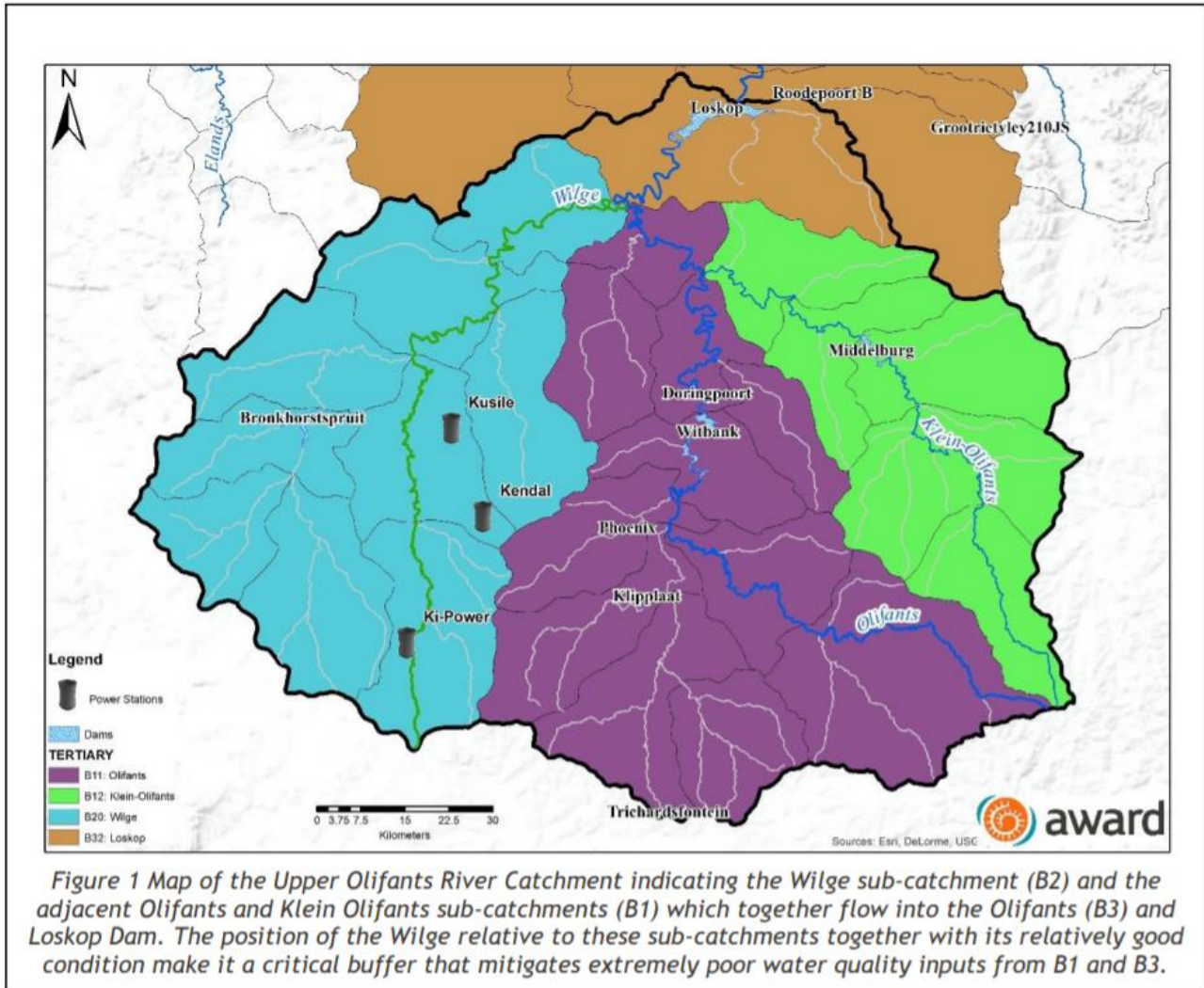


Figure 2.12: Tertiary drainage regions

The Steenkoolspruit within the B11D Quaternary Catchment is categorised as Largely Modified.



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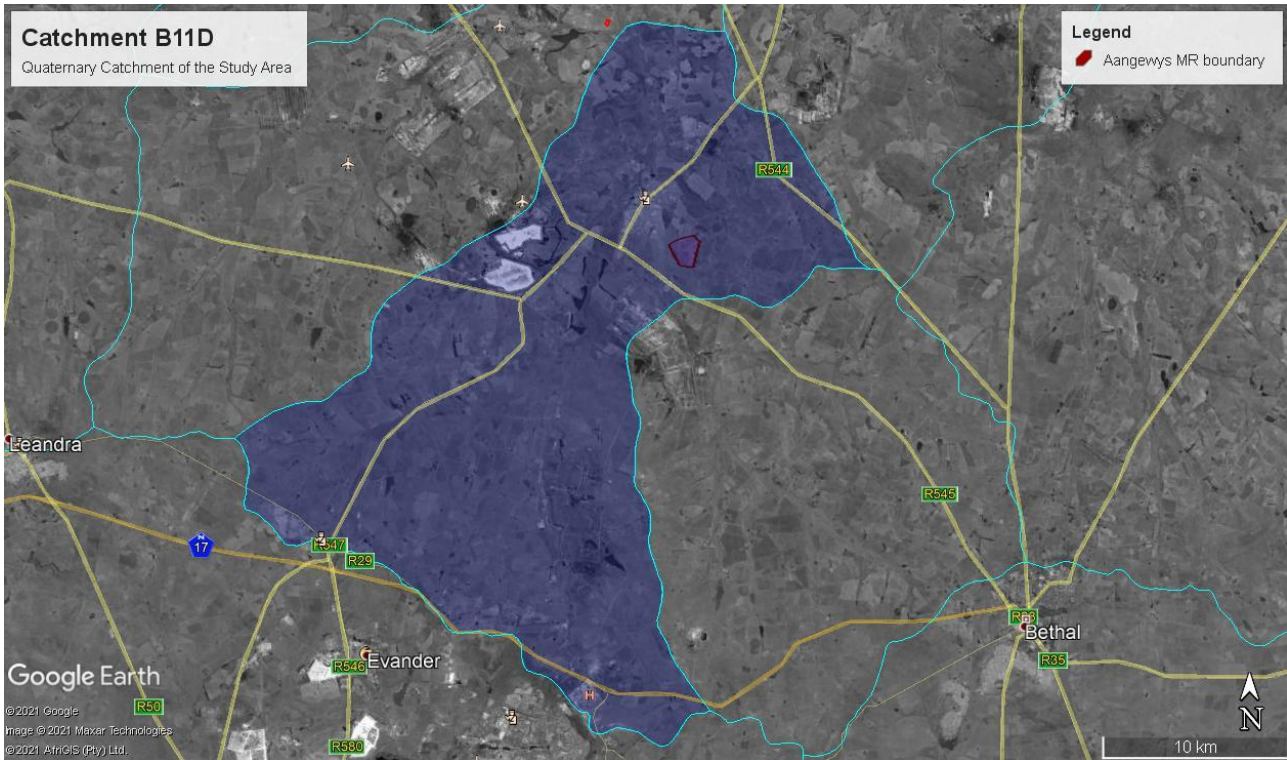


Figure 2.13: Quaternary Catchment B11D

A detailed surface water Impact Assessment will be conducted and included in the EIA.

GROUNDWATER

Three principal aquifers in the area are identified as follows: the weathered aquifer, the fractured Karoo aquifer, and the fractured pre-Karoo aquifer (Hodgson and Krantz, 1998). The Karoo rocks are not known for the development of aquifers, but occasional high-yielding boreholes are present. The aquifers that occur in the area can, therefore, be classified as minor aquifers (low yielding), but of high importance (Parsons, 1995).

The Groundwater Elevation taken from a study done by GCS for the neighbouring Dorstfontein Coal mine in 2020 is shown in Figure 2.14.



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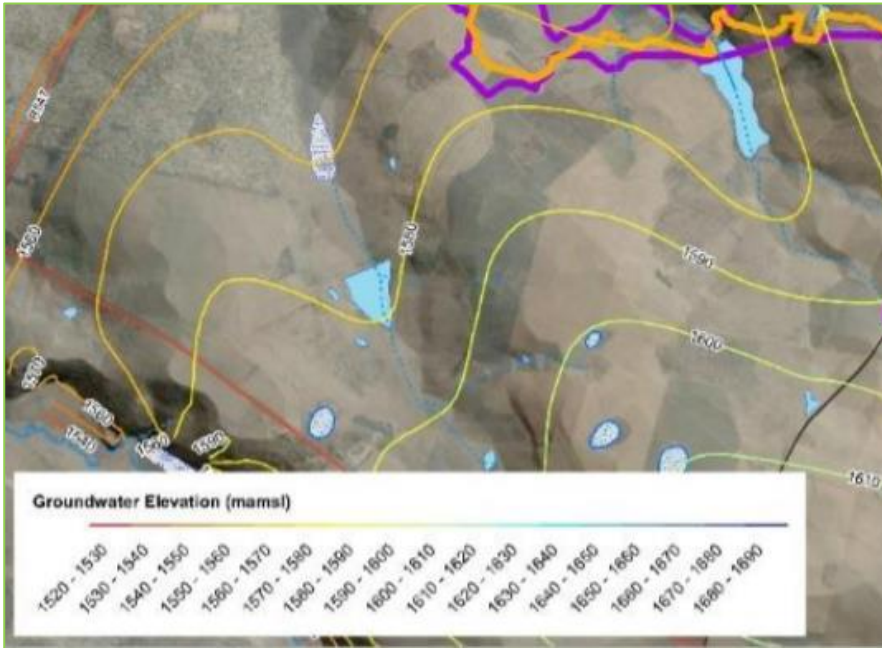


Figure 2.14: Groundwater Elevation

A detailed Groundwater Impact Assessment will be included in the EIA

BLASTING AND VIBRATION

Ground Vibrations Assessment

Explosives are used to break rock through the shockwaves and gases yielded from the explosion. Ground vibration is a natural result from blasting activities. The far field vibrations (those vibrations felt further away from the blast area) are inevitable, but undesirable by products of blasting operations. The shockwave energy that travels beyond the zone of rock breakage is wasted and could cause damage and annoyance further on. The following factors influences the magnitude of ground vibration (Rangasamy, 2018):

- The charge mass per delay,
- The delay period,
- Distance from the blast,
- Rock mass and
- Geometry of the blast.

The factors influencing ground vibrations can be controlled by a planned design and proper blast preparation (Rangasamy, 2018):

- The larger the charge mass per delay the greater the vibration energy yielded. A certain quantity of holes will detonate within the same time frame (delay) and it is the maximum total explosive mass per such delay that will have the greatest influence. In practice, this means that if all holes are detonated separately, the weight of explosives per single hole is considered. It follows that if more than one hole is detonated simultaneously, the mass per
- hole for each hole must be added together. Specifically, charges detonated within 15 milliseconds are considered as a single detonation, and delays of more than 15 milliseconds are treated as separate blasts.
- The distance between the blast and the point of interest. The ground vibrations attenuate over distance at a rate determined by the mass per delay, timing and geology. Each geological interface that a shockwave encounters will reduce the vibration energy due to reflections of the shockwave. Closer to the blast will yield high levels and further from the blast will yield lower levels of ground vibrations.
- The geology of the blast medium and surroundings also influences the magnitude of vibrations. High density materials have highs shockwave transferability where low density materials have low transferability of the shockwave.

The following ground vibration outcomes are predicted:



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Structures	Distance (m) D										PPV	Description	
	50	100	150	200	250	300	350	400	450	500			
Charge per Delay (Kg) E	100	80	26	13	8	6	4	3	3	2	2	<50mm/s	Pipelines
	150	112	36	18	11	8	6	5	4	3	3	<75mm/s	Eskom Power Lines
	200	142	45	23	14	10	7	6	5	4	3	<150mm/s	Public Roads
	250	171	54	28	17	12	9	7	6	5	4	<200mm/s	Conveyors
	300	199	63	32	20	14	10	8	6	5	4	>200mm/s	too high for structures
	350	226	72	37	23	16	12	9	7	6	5		
	400	252	80	41	26	18	13	10	8	7	6		
	450	278	89	45	28	20	14	11	9	7	6		
	500	303	97	49	31	21	16	12	10	8	7		
	550	328	104	53	33	23	17	13	11	9	7		
600	352	112	57	36	25	18	14	11	9	8			

Outcome – Structures

Buildings	Distance (m) D										PPV	Description	
	50	100	150	200	250	300	350	400	450	500			
Charge per Delay (Kg) E	100	80	26	13	8	6	4	3	3	2	2	6mm/s	Rural Buildings
	150	112	36	18	11	8	6	5	4	3	3	12.5mm/s	Houses
	200	142	45	23	14	10	7	6	5	4	3	25mm/s	General Houses
	250	171	54	28	17	12	9	7	6	5	4	>25mm/s	too high for buildings
	300	199	63	32	20	14	10	8	6	5	4		
	350	226	72	37	23	16	12	9	7	6	5		
	400	252	80	41	26	18	13	10	8	7	6		
	450	278	89	45	28	20	14	11	9	7	6		
	500	303	97	49	31	21	16	12	10	8	7		
	550	328	104	53	33	23	17	13	11	9	7		
600	352	112	57	36	25	18	14	11	9	8			

Outcome – Buildings
AIR QUALITY

The following baseline information was sourced from the **Baseline Assessment, Problem Analysis and the Air Quality Management Plan for the Highveld Priority Area (2011)**.

The Highveld area in South Africa is associated with poor air quality, and elevated concentrations of criteria pollutants occur due to the concentration of industrial and nonindustrial sources (Held et al, 1996; DEAT, 2006). The Minister of Environmental Affairs and Tourism, Martinus van Schalkwyk, therefore, declared the Highveld Priority Area (HPA) on 23 November 2007. The priority area covers 31 106 km², including parts of Gauteng and Mpumalanga Provinces, with a single metropolitan municipality, three district municipalities, and nine local municipalities (Figure 2.15).



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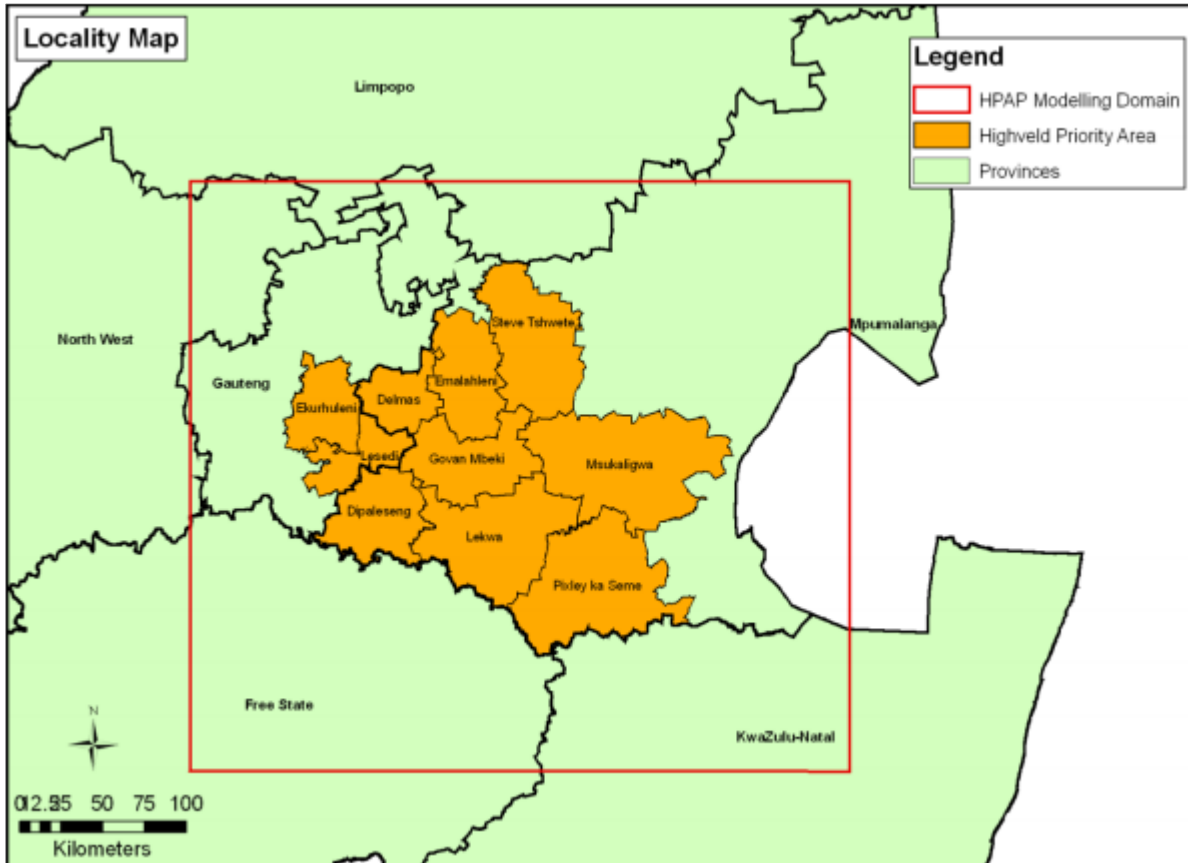


Figure 2.15: Highveld Priority Areas (HPA)

The total estimated annual emissions of fine particulate matter (PM₁₀) on the HPA is 279 630 tons, of which approximately half is attributed to particulate entrainment on opencast mine haul roads. The emission of PM₁₀ from the primary metallurgical industry accounts for 17% of the total emission, with 12% of the total from power generation. By contrast, power generation contributes 73% of the total estimated oxides of nitrogen (NO_x) emission of 978 781 tons per annum and 82% of the total estimated sulphur dioxide (SO₂) emission of 1 633 655 tons per annum. The emission inventory for industrial sources was relatively complete and included all industries on the HPA with scheduled processes in terms of the APPA. Industrial sources in total are by far the largest contributor of emissions in the HPA, accounting for 89% of PM₁₀, 90% of NO_x and 99% of SO₂. Major industrial source contributors were grouped into the following categories:

- Power Generation
- Coal Mining
- Primary Metallurgical Operations
- Secondary Metallurgical Operations
- Brick Manufacturers
- Petrochemical Industry
- Ekurhuleni Industrial Sources
- Mpumalanga Industrial Sources



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Table 2.5: Total emission of PM₁₀, NO_x and SO₂ from the different source types on the HPA (in tons per annum), and the percentage contribution for each source category

Source Category	PM10 t/a	%	NOx t/a	%	SO2 t/a	%
Ekurhuleni MM Industrial (incl. Kelvin)	8 909	3,00	15 636	2	25 772	2
Mpumalanga Industrial	684	0,00	590	0	5 941	0
Clay Brick Manufacturing	9 708	3,00	-		9 963	1
Power Generation	34 373	12,00	716 719	73	1 337 521	82
Primary Metallurgical	46 805	17,00	4 416	0	39 582	2
Secondary Metallurgical	3 060	1,00	229	0	3 223	0
Petrochemical	8 246	3,00	148 434	15	190 172	12
Mine Haul Roads	135 766	49,00	-		-	-
Motor vehicles	5 402	2,00	83 607	9	10 059	1
Household Fuel Burning	17 239	6,00	5 600	1	11 422	1
Biomass Burning	9 438	3,00	3 550	0	-	-
TOTAL HPA	279 630	99*	978 781	100	1 633 655	101*

* Total Percentage does not count to 100% due to rounding of figures.

Ambient air quality

Most of the HPA experiences relatively good air quality, but ambient air quality standards for SO₂, PM₁₀ and ozone (O₃) concentrations are exceeded in nine extensive areas. These “hot spots” are illustrated in Figure 2.15 by the number of modelled exceedances of the 24-hour SO₂ and PM₁₀ standards, and are confirmed by ambient monitoring data (Table 2.6). The air quality hot spots result mostly from a combination of emissions from the different industrial sectors and residential fuel burning, with motor vehicle emissions, mining and cross boundary transport of pollutants into the HPA adding to the base loading.

Available monitoring confirms that the areas of concern are in the vicinity of Witbank 2, Middelburg, Secunda, Ermelo, Standerton, Balfour, and Komati where exceedances of ambient SO₂ and PM₁₀ air quality standards occur (Table 2.6).

Table 2.6: Exceedances at HPA sites based on historic and new monitoring data

Municipality	Area	NO ₂ 1-hr (88)	O ₃ 8-hr (11)	PM ₁₀ 24-hr (4)	SO ₂ 24-hr (4); 1 hr. (88)
Emalahleni LM	Kendal 2	1	58		34; 343
	Phola	0		3	7; 27
	Witbank	37	9	9	4; 51
	Witbank 2		17	25	1; 11
Steve Tshwete LM	Columbus				
	Komati 2			26	1; 14
	Hendrina	1	22	3	1; 2
	Middelburg	71	60	7	1; 4



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Municipality	Area	NO ₂ 1-hr (88)	O ₃ 8-hr (11)	PM ₁₀ 24-hr (4)	SO ₂ 24-hr (4); 1 hr. (88)
	Middelburg 2		1	7	0; 1
Govan Mbeki LM	Sasol Club	1		0	0; 25
	Langverwacht	1		0	2; 78
	Bosjesspruit				2; 27
	Elandsfontein	0	73	3	4; 33
	Leandra				6; 114
	eMbalenhle	2	4	39	0; 1
Msukaligwa LM	Camden	0	24	1	0; 4
	Ermelo	1	73	22	21 ; 10
Pixley Ka Seme LM	Amersfoort				
	Majuba 1				4; 87
	Majuba 2				
	Verkykkop	0	46	0	1; 7
Lekwa	Standerton	4	10	29	1; 6
Dipaleseng	Balfour		29	8	0; 4

NB. - Row 1: The averaging period for the relevant pollutant's standard is represented below the pollutant and following the allowed frequency of exceedance in brackets - Exceedances in bold are greater than the permitted frequency in the standard for the monitoring period. The permitted frequency of exceedance varies according to period for which data is presented at each monitoring site, and for Eskom and Sasol stations must be assessed against a cumulative permitted frequency of exceedance for 3 years of data.



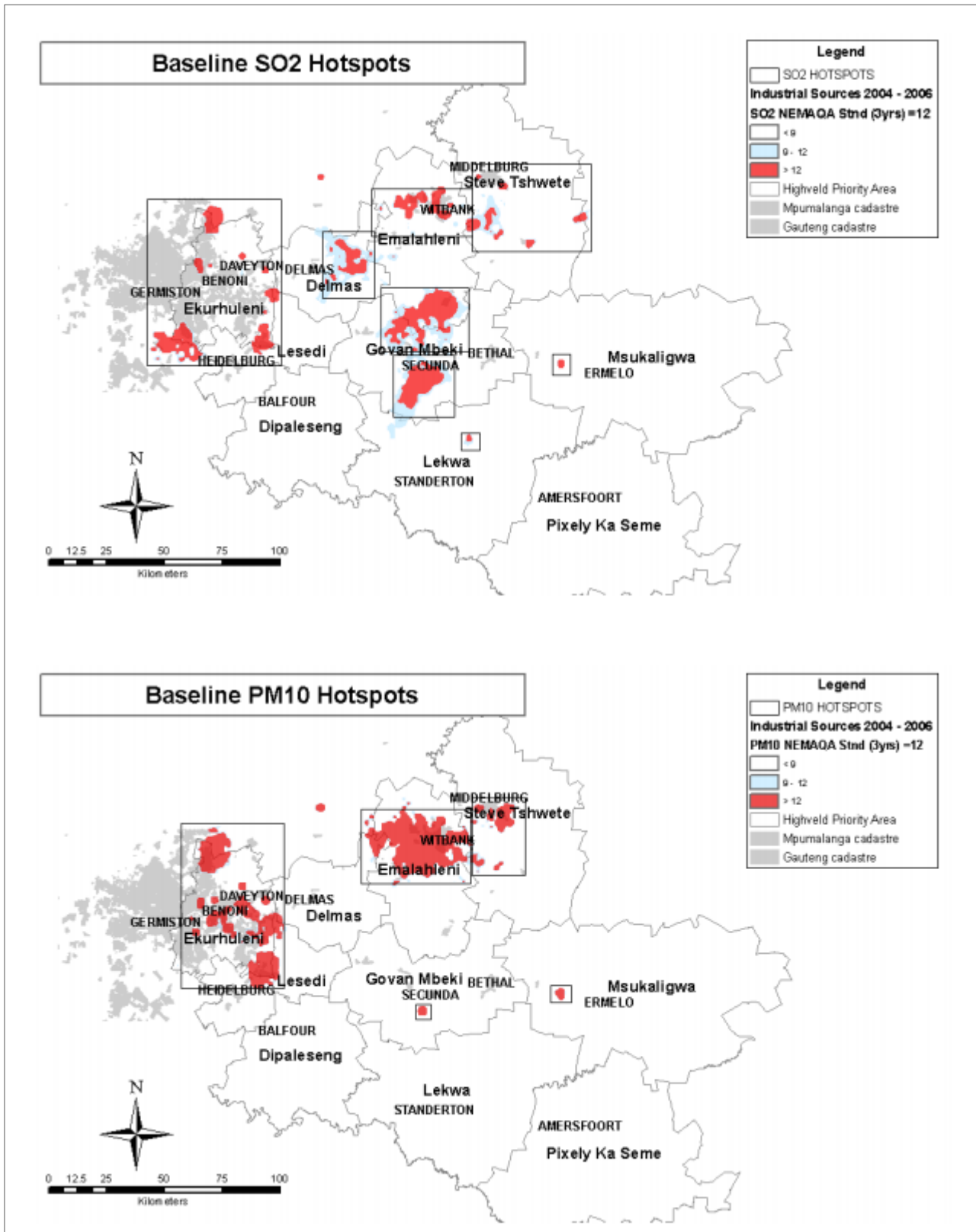


Figure 2.16: Modelled frequency of exceedance of 24-hour ambient SO₂ and PM₁₀ standards in the HPA, indicating the modelled air quality Hot Spot areas

Detailed Air Quality Impact assessment will be undertaken for inclusion in the EIA report.



NOISE

Table 2.7 depicts acceptable noise levels within districts according to the SANS 10103 guideline.

Table 2.7: Acceptable rating levels for noise in districts (SANS 10103, 2008)

Type of District	Equivalent continuous rating level ($L_{Req,T}$) for noise (dBA)					
	Outdoors			Indoors, with open windows		
	Day-night	Day-time	Night-time	Day-night	Day-time	Night-time
	$L_{R,dna}$	$L_{Req,db}$	$L_{Req,nb}$	$L_{R,dna}$	$L_{Req,db}$	$L_{Req,nb}$
RESIDENTIAL DISTRICTS						
a) Rural districts	45	45	35	35	35	25
b) Suburban districts with little road traffic	50	50	40	40	40	30
c) Urban districts	55	55	45	45	45	35
NON-RESIDENTIAL DISTRICTS						
d) Urban districts with some workshops, with business premises, and with main roads	60	60	50	50	50	40
e) Central business districts	65	65	55	55	55	45
f) Industrial districts	70	70	60	60	60	50
NOTE 1 If the measurement or calculation time interval is considerably shorter than the reference time intervals, significant deviations from the values given in the table might result.						
NOTE 2 If the spectrum of the sound contains significant low frequency components, or when an unbalanced spectrum towards the low frequencies is suspected, special precautions should be taken and specialist advice should be obtained. In this case the indoor sound levels might significantly differ from the values given in columns 5 to 7.						
NOTE 3 In districts where outdoor $L_{R,dn}$ exceeds 55 dBA, residential buildings (e.g. dormitories, hotel accommodation and residences) should preferably be treated acoustically to obtain indoor $L_{Req,T}$ values in line with those given in table 1.						
NOTE 4 For industrial districts, the $L_{R,dn}$ concept does not necessarily hold. For industries legitimately operating in an industrial district during the entire 24 h day/night cycle, $L_{Req,d} = L_{Req,n} = 70$ dBA can be considered as typical and normal.						
NOTE 5 The values given in columns 2 and 5 in this table are equivalent continuous rating levels and include corrections for tonal character, impulsiveness of the noise and the time of day.						
NOTE 6 The noise from individual noise sources produced, or caused to be produced, by humans within natural quiet spaces such as national parks, wilderness areas and bird sanctuaries, should not exceed a maximum Weighted sound pressure level of 50 dBA at a distance of 15 m from each individual source.						
a) The values given in columns 2 and 5 are equivalent continuous rating levels and include corrections for tonal character and impulsiveness of the noise and the time of day.						
b) The values given in columns 3, 4, 6 and 7 are equivalent continuous rating levels and include corrections for tonal character and impulsiveness.						

The probable community/group response to levels in excess of the acceptable rating levels are presented in Table 2.8, where $L_{Req,T}$ is the equivalent continuous A-weighted sound pressure level, in decibels (dBA), determined over a specific time period. 'A-weighted' is a standard weighting of the audible frequencies designed to reflect the response of the human ear to noise.



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Table 2.8: Categories of community/group response (SANS 10103, 2008)

Excess ($\Delta L_{Req,T}$) ^a dBA	Estimated community/group response	
	Category	Description
0 – 10	Little	Sporadic complaints
5 – 15	Medium	Widespread complaints
10 - 20	Strong	Threats of action
>15	Very strong	Vigorous action

NOTE Overlapping ranges for the excess values are given because a spread in the community reaction might be anticipated.

a $\Delta L_{Req,T}$ should be calculated from the appropriate of the following:

- 1) $\Delta L_{Req,T} = L_{Req,T}$ of ambient noise under investigation MINUS $L_{Req,T}$ of the residual noise (determined in the absence of the specific noise under investigation);
- 2) $\Delta L_{Req,T} = L_{Req,T}$ of ambient noise under investigation MINUS the maximum rating level for the ambient noise given in table 1;
- 3) $\Delta L_{Req,T} = L_{Req,T}$ of ambient noise under investigation MINUS the typical rating level for the applicable district as determined from table 2; or
- 4) $\Delta L_{Req,T} =$ Expected increase in $L_{Req,T}$ of ambient noise in an area because of a proposed development under investigation.

A baseline assessment will be undertaken to determine the current ambient noise level at the nearest noise sensitive receptor to the proposed project.

SOILS, LAND CAPABILITY, LAND USE, AGRICULTURAL POTENTIAL

The soils associated with the project area is red or yellow structureless soils with a plinthic horizon (Figure 2.17)

The Area is further characterised as having a Very High Agricultural sensitivity (Figure 2.18) with reasons explained in Table 2.9

Table 2.9: Soils and Land Capability Features

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



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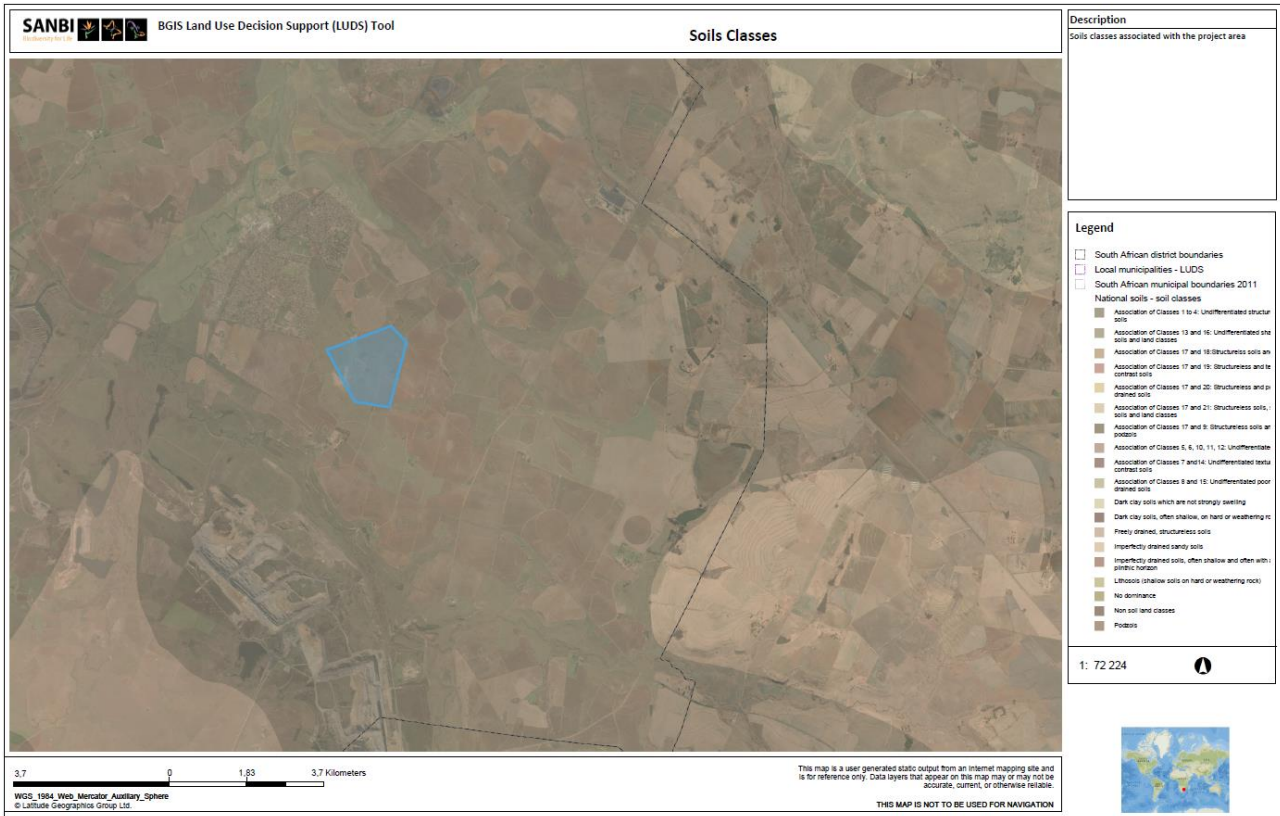


Figure 2.17: General Soil Classes

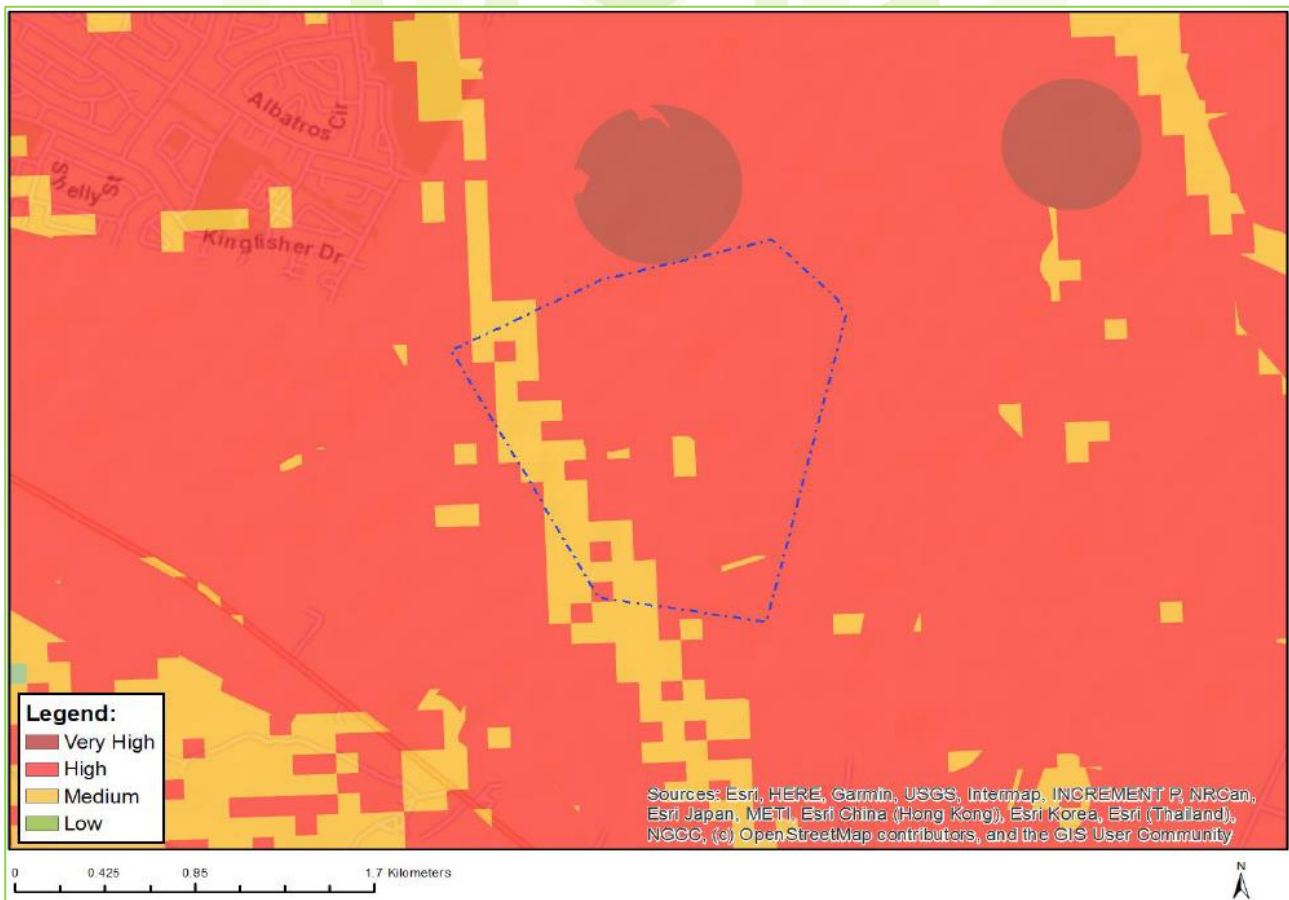


Figure 2.18: Agricultural Sensitivity



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A detailed soils, land use, and land capability assessment will be undertaken for inclusion in the EIA.

SOCIAL ECONOMIC

The proposed Project is located in eMalahleni Local Municipality (ELM), within the Nkangala District Municipality (NDM) in Mpumalanga Province. The socio-economic characteristics of the population within each of the aforementioned areas are listed below.

Population and Demographics

According to the ELM 2013-2014 IDP, this municipality is the largest economic contributor to the NDM of the six local municipalities, contributing 45% to the district's economy. Dominant economic contributors include utilities (74.1%), mining (52.8%) and construction (52.5%). Emalahleni's population size, as recorded by Stats SA 2011, was 395 466 people which makes up 30% Nkangala District's population. The population lives in 119 874 households with an average household size of 3.3 people. This is a relatively low family size, which may reflect the young age of the urban centres in the district, in which large family structures have not had time to develop. More established towns generally have average family sizes in excess of 4.5 people, while rural areas often average 5.5 people or more per household. The ELM's population grew by 43.1% between 2001 and 2011 while annualised population growth rate was measured at 3.6%.

Educational Status

Educational achievement is a key development indicator of a population. The majority of the population (ages over twenty) in the local study area as well as district municipality have not completed matric, however, there is a large percentage of learners who complete primary level education.

Employment and Labour

According to Statistics South Africa, (2011) the employment rate for Mpumalanga Province and Nkangala District Municipality was 24% and 27% respectively (Stats SA, 2011). There has been a drop in unemployment rate in the ELM from 38.4% to 27% between 2001 and 2011. A large portion of those employed are absorbed into the mining, construction, power generation and agricultural sectors.

Annual Household Income

Over 40% of people in Mpumalanga Province have no annual income at all. Average income figures for the local study area, the ELM and the NDM are all very much in line with the provincial average; however, the income earning figures are slightly higher for the local study area, with more people earning between R3 201 and R12 800 (Stats SA, 2011). It can be gathered that the ELM has a higher income production than the provincial figures. This is attributed to the concentration of mining and power generation activities, and construction industry in this area (Stats SA, 2011).

Social Infrastructure and Services

All the urban areas within ELM (with the exception of informal settlements and townships) are fully reticulated in terms of potable water supply. A large percentage of households in the local study area have access to piped water either inside their house or within a communal yard, with an average of 77% having access to municipal water, whilst 8% have access to water through a borehole. In terms of sanitation, data from the 2011 census, show that an estimated 57% of households in the local study area have access to waterborne sewer services (flush toilets, with or without septic tanks); the majority (33%) of the remaining households use pit latrines (Stats SA, 2011). An estimated 69% of waste generated within the ELM is collected weekly by the local municipality. In contrast to the ELM, the most common means of waste disposal for populations in Ward 30 is through utilisation of their own refuse dumps (39%), 36% make use of municipal services and a significant amount of the population has no means of waste disposal at all. Of the households in local study area, 53% use electricity for cooking, heating and lighting. In contrast 69% of the households in the ELM use electricity. The bulk electricity provider throughout the municipality is Eskom (ELM IDP, 2012 - 2013). The ELM is strategically located in terms of the provincial context and transport network. It is situated in close proximity to the City of Johannesburg, City of Tshwane and Ekurhuleni Metropolitan Municipalities in Gauteng, and is connected to these areas by the N4 and N12 freeways. Although roads in the ELM are sufficiently connected with district, provincial and national roads, many secondary road systems are in a state of disrepair, being



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insufficient to handle the increased traffic created by mining and other industrial developments. Crime and community safety is generally a cause of concern for communities in the local study area. There has been a history of substance abuse and widespread criminal activity in the area, with several instances of community conflict, industrial action and opposition towards the local municipality and surrounding mining companies.

Health Services

It was found in an interview with the head nurses at the Phola Community Health Centre and the Ogies Clinic that prostitution has become an increased problem within the region as a result of the mining operations; this then in turn leads to an increase in HIV/AIDS rates. The mining operations also have resulted in an influx of inhabitants into the area which has put tremendous strain on health facilities.

2.h.iv.1.b Description of the current land uses.

The current land use for the project area is majority commercial croplands. Grazing is practiced to a lesser extent.

2.h.iv.1.c Description of specific environmental features and infrastructure on the site.

The site is located within Quaternary Catchment B11D, within the Upper Olifants catchment and the Olifants Water Management Area. The main river within the catchment is the Steenkoolspruit. A channelled Valley Bottom wetland runs from South to Northwest in the border of the project area, through Kriel until it confluences with the Steenkoolspruit.

According to the Critical Biodiversity Areas datasets provided by SANBI (2019), the majority of the application area falls within a moderately to heavily modified area, with a small area along the wetland classified as “other natural areas”. The mining area is not in close proximity to any protected areas.

The majority of the study site consisted very little indigenous vegetation.

2.h.iv.1.d Environmental and current land use map.

(Show all environmental, and current land use features)

See Figure 2.19, Figure 2.20 and Annexure 3.



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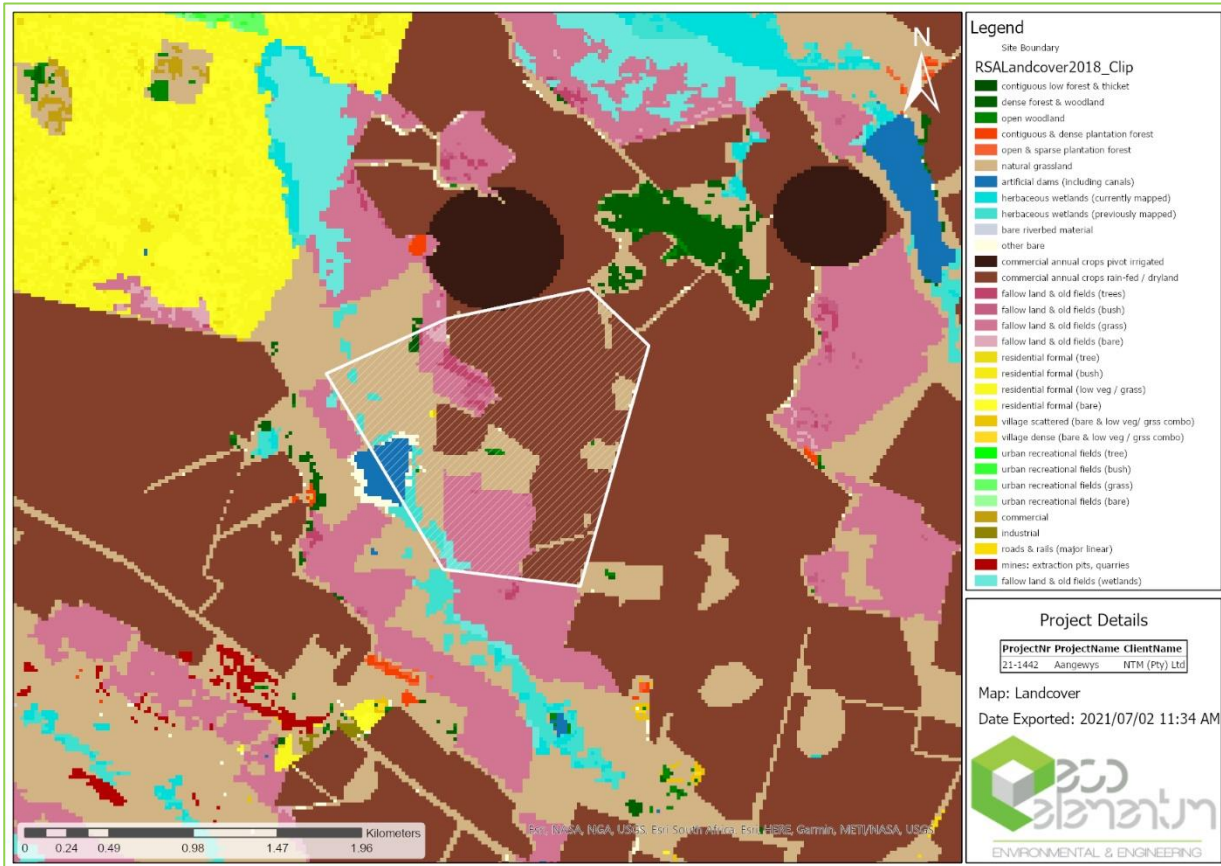


Figure 2.19: Land cover

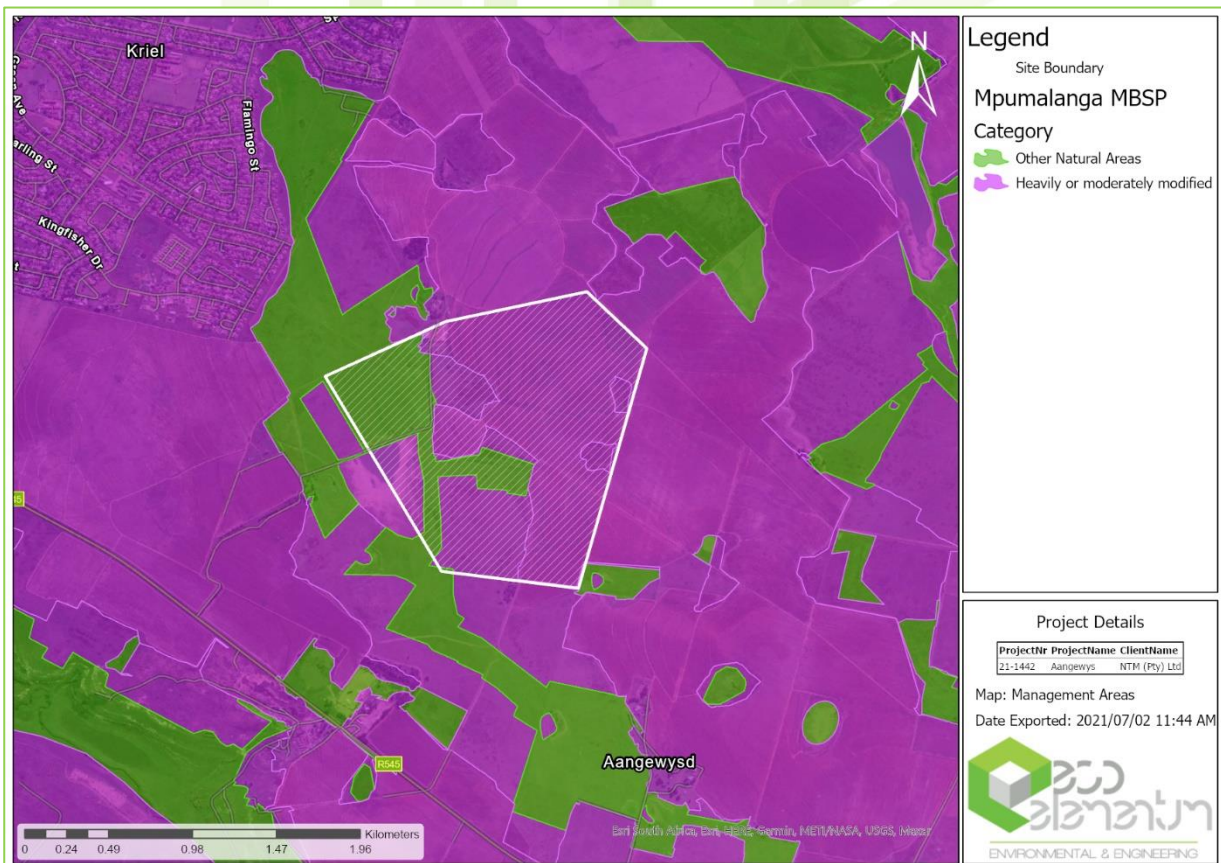


Figure 2.20: Mpumalanga Biodiversity Spatial Plan



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2.h.v Impacts identified

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

The anticipated preliminary impacts associated with the project is discussed in the following table. Detailed impacts from specialist investigations will be included in the EIA.

Table 2.10: List of Preliminary Issues

Preliminary impact to be assessed	Construction phase	Operational Phase	Decommissioning phase	Positive / Negative	Significance	Duration	Probability
Potential to alter the topography	✓	✓	✓	-	High	Permanent	High
Loss of soil characteristics - erosion and compaction	✓	✓	✓	-	Medium	Long term	High
Change in land use from arable to mining	✓	✓		-	High	Short term	High
Loss of biodiversity – vegetation clearance, habitat destruction and faunal displacement	✓	✓	✓	-	Low	Medium term	Medium
Potential for alien invasive establishment	✓	✓	✓	-	Medium	Medium term	High
Reduced flow to downstream water catchment		✓		-	Medium	Short term	High
Potential pollution to water resources (surface and groundwater)	✓	✓	✓	-	Medium	Long term	Medium
Drawdown cone from dewatering activities (groundwater quantity)	✓	✓		-	Medium	Medium term	High
Increased dust and emissions	✓	✓	✓	-	Medium	Medium term	High
Increased noise levels	✓	✓	✓	-	Medium	Medium term	High
Visual aesthetics and sense of place will be altered	✓	✓	✓	-	High	Short term	High
Damage to property/infrastructure from blast events	✓	✓		-	Low	Short term	Low
Potential damage to heritage sites (grave and/or archaeological artefacts)	✓			-	Medium	Short term	Medium
Influx of job seekers to the area	✓	✓		-	Medium	Short term	Medium
Increased traffic – coal haulage		✓		-	Low	Long term	Low
Employment opportunities	✓	✓	✓	+	Medium	Medium term	High
Economic stimulation	✓	✓		+	High	Medium term	High



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2.h.vi Methodology used in determining the significance of environmental impacts

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

Table 2.11: Impact Criteria and Assigned Rating

Intensity (Magnitude)		ASSIGNED QUANTITATIVE SCORE
The intensity of the impact is considered by examining whether the impact is destructive or benign, whether it has a significant, moderate or insignificant		
(L)OW	The impact alters the affected environment in such a way that the natural processes or functions are not affected.	1
(M)EDIUM	The affected environment is altered, but functions and processes continue, albeit in a modified way.	3
(H)IGH	Function or process of the affected environment is disturbed to the extent where it temporarily or permanently ceases.	5
Duration		
The lifetime of the impact, that is measure in relation to the lifetime of the proposed development.		
(S)HORT TERM	The impact will either disappear with mitigation or will be mitigated through a natural process in a period shorter than that of the construction phase.	1
(SM) SHORT MEDIUM TERM	The impact will be relevant through to the end of a construction phase.	2
(M)MEDIUM	The impact will last up to the end of the development phases, where after it will be entirely negated.	3
(L)ONG TERM	The impact will continue or last for the entire operational lifetime (i.e. exceed 20years) of the development, but will be mitigated by direct human action or by natural processes thereafter.	4
(P)ERMANENT	This is the only class of impact, which will be non-transitory. Mitigation either by man or natural process will not occur in such a way or in such a time span that the impact is transient.	2
Spatial Scale/Extent		
Classification of the physical and spatial aspect of the impact		
(F)OOTPRINT	The impacted area extends only as far as the activity, such as footprint occurring within the total site area.	1
(S)ITE	The impact could affect the whole, or a significant portion of the site.	2
(R)EGIONAL	The impact could affect the area including the neighbouring Farms, the transport routes and the adjoining towns.	3
(N)ATIONAL	The impact could have an effect that expands throughout the country (South Africa).	4



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(I)INTERNATIONAL	Where the impact has international ramifications that extend beyond the boundaries of South Africa.	5
Probability		
This describes the likelihood of the impact actually occurring. The impact may occur for any length of time during the life cycle of the activity. The classes are rated as follows:		
(I)IMPROBABLE	The possibility of the Impact occurring is none, due to the circumstances or design. The chance of this Impact occurring is zero (0%)	1
(P)OSSIBLE	The possibility of the Impact occurring is very low, due either to the circumstances or design. The chance of this Impact occurring is defined as 25% or less	2
(L)IKELY	There is a possibility that the impact will occur to the extent that provisions must therefore be made. The chances of Impact occurring is defined as 50%	3
(H)IGHLY LIKELY	It is most likely that the Impacts will occur at some stage of the development. Plans must be drawn up before carrying out the activity. The chances of this impact occurring is defined as 75 %.	4
(D)EFINITE	The impact will take place regardless of any prevention plans, and only mitigation actions or contingency plans to contain the effect can be relied on. The chance of this impact occurring is defined as 100 %.	5
Weighting Factor		
Subjective score assigned by Impact Assessor to give the relative importance of a particular environmental component based on project knowledge and previous experience. Simply, such a weighting factor is indicative of the importance of the impact in terms of the potential effect that it could have on the surrounding environment. Therefore, the aspects considered to have a relatively high value will score a relatively higher weighting than that which is of lower importance		
(L)OW		1
LOW- MEDIUM		2
MEDIUM (M)		3
MEDIUM-HIGH		4
HIGH (H)		5
Mitigation Measures and Mitigation Efficiency		
Determination of significance refers to the foreseeable significance of the impact after the successful implementation of the necessary mitigation measures		
<p>Mitigation measures were recommended to enhance benefits and minimise negative impacts and address the following:</p> <p><u>Mitigation objectives:</u> what level of mitigation must be aimed at: For each identified impact, the specialist must provide mitigation objectives (tolerance limits) which would result in measurable reduction in impact. Where limited knowledge or expertise exists on such tolerance limits, the specialist must make “educated guesses” based on professional experience;</p> <p><u>Recommended mitigation measures:</u> For each impact the specialist must recommend practicable mitigation actions that can measurably affect the significance rating. The specialist must also identify management actions, which could enhance the condition of the environment. Where no mitigation is considered feasible, this must be stated and reasons provided;</p> <p><u>Effectiveness of mitigation measures:</u> The specialist must provide quantifiable standards (performance criteria) for reviewing or tracking the effectiveness of the proposed mitigation actions, where possible; and</p>		



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Recommended monitoring and evaluation programme: The specialist is required to recommend an appropriate monitoring and review programme, which can track the efficacy of the mitigation objectives. Each environmental impact is to be assessed before and after mitigation measures have been implemented.

The management objectives, design standards, etc., which, if achieved, can eliminate, minimise or enhance potential impacts or benefits. National standards or criteria are examples, which can be stated as mitigation objectives.

HIGH	The impact is of major importance. Mitigation of the impact is not possible on a cost-effective basis. The impact is regarded as high importance and taken within the overall context of the project, is regarded as a fatal flaw. An impact regarded as high significance, after mitigation could render the entire development option or entire project proposal unacceptable.	0.2
MEDIUM-HIGH	The impact is of major importance but through the implementation of the correct mitigation measures, the negative impacts will be reduced to acceptable levels	0.4
MEDIUM	Notwithstanding the successful implementation of the mitigation measures, to reduce the negative impacts to acceptable levels, the negative impact will remain of significance. However, taken within the overall context of the project, the persistent impact does not constitute a fatal flaw	0.6
LOW -MEDIUM	The impact is of importance, however, through the implementation of the correct mitigation measures such potential impacts can be reduced to acceptable levels	0.8
LOW	The impact will be mitigated to the point where it is of limited importance	1.0

Table 2.12: Description of bio-physical assessment parameters with its respective weighting

Extent	Duration	Intensity	Probability	Weighting Factor (WF)	Significance Rating (SR)	Mitigation Efficiency (ME)	Significance Following Mitigation (SFM)
Footprint 1	Short term 1	Low 1	Probable 1	Low 1	Low 0-19	High 0,2	Low 0-19
Site 2	Short to medium 2	Low to medium 2	Possible 2	Low to medium 2	Low to medium 20-39	Medium to high 0,4	Low to medium 20-39
Regional 3	Medium term 3	Medium 3	Likely 3	Medium 3	Medium 40-59	Medium 0,6	Medium 40-59
National 4	Long term 4	High 4	Highly Likely 4	Medium to high 4	Medium to high 60-79	Low to medium 0,8	Medium to high 60-79
International 5	Permanent 5	High 5	Definite 5	High 5	High 80-100	Low 1,0	High 80-100

Table 2.13: Significant Rating Scale Without Mitigation

Potential Impacts Without Mitigation Measures (WOM)		
Following the assignment of the necessary weights to the respective aspects, criteria are summed and multiplied by their assigned weightings, resulting in a value for each impact (prior to the implementation of mitigation measures).		
SIGNIFICANT RATING EQUATION		
Significant Rating (SR) = (Extent + Intensity + Duration) x Probability		
S=0	INSIGNIFICANT	The impact will be mitigated to the point where it is regarded as insubstantial
SR < 30	LOW (L)	The impact will be mitigated to the point where it is of limited importance.



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20<SR<39	LOW- MEDIUM	The impact is of importance, however, through the implementation of the correct mitigation measures such potential impacts can be reduced to acceptable levels;
40> SR < 59	MEDIUM (M)	Notwithstanding the successful implementation of the mitigation measures, to reduce the negative impacts to acceptable levels, the negative impact will remain of significance. However, taken within the overall context of the project, the persistent impact does not constitute a fatal flaw.
60<SR>79	MEDIUM-HIGH	The impact is of major importance but through the implementation of the correct mitigation measures, the negative impacts will be reduced to acceptable levels.
80<SR > 100	HIGH (H)	The impact is of major importance. Mitigation of the impact is not possible on a cost-effective basis. The impact is regarded as high importance and taken within the overall context of the project, is regarded as a fatal flaw. An impact regarded as high significance, after mitigation could render the entire development option or entire project proposal unacceptable.

Table 2.14: Significant Rating Scale with Mitigation

Potential Impacts with Mitigation Measures (WM) –		
In order to gain a comprehensive understanding of the overall significance of the impact, after implementation of the mitigation measures, it will be necessary to re-evaluate the impact.		
SIGNIFICANT RATING WITH MITIGATION EQUATION		
Significance Rating (WM) = Significance Rating (WOM) x Mitigation Efficiency		
Or $WM = WOM \times ME$		
S=0	INSIGNIFICANT	The impact will be mitigated to the point where it is regarded as insubstantial.
SR < 30	LOW (L)	The impact will be mitigated to the point where it is of limited importance.
20<SR<39	LOW- MEDIUM	The impact is of importance, however, through the implementation of the correct mitigation measures such potential impacts can be reduced to acceptable. levels;
40> SR < 59	MEDIUM (M)	Notwithstanding the successful implementation of the mitigation measures, to reduce the negative impacts to acceptable levels, the negative impact will remain of significance. However, taken within the overall context of the project, the persistent impact does not constitute a fatal flaw.
60<SR>79	MEDIUM-HIGH	The impact is of major importance but through the implementation of the correct mitigation measures, the negative impacts will be reduced to acceptable levels.
80<SR > 100	HIGH (H)	The impact is of major importance. Mitigation of the impact is not possible on a cost-effective basis. The impact is regarded as high importance and taken within the overall context of the project, is regarded as a fatal flaw. An impact regarded as high significance, after mitigation could render the entire development option or entire project proposal unacceptable.

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

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

Refer to Table 2.10.



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2.h.viii The possible mitigation measures that could be applied and the level of risk.

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

To be updated once the specialist has completed their studies and comment has been received from I&APs during the Draft EIA Phase. The following is proposed in the interim:

- Design the surface and storm water infrastructure to be within the footprint of the project area.
- Separate clean from dirty water and allow discharge of water to designated areas.
- Vegetate disturbed areas to limit erosion.
- Implement berms, trenches and storm water management measures in accordance with GN 704 Regulations.
- Pollution Control Dams to be designed to cater for the required storage capacity.
- Compacted soil areas in and around the periphery of the wetland will be ripped to break up compacted soil and vegetated with indigenous seed mix.
- Comply with the National Air Quality Standards and Dust Control Regulations.
- Comply with the SANS noise standard.
- Avoid travelling past residences. Speed limit of 40 km/h will be enforced. Liaise with landowner on areas sensitive to noise. Provide a buffer of 100 m from households.
- Prescribe to the DWS Catchment Water Quality Standards where possible.
- Restrict traveling speed of vehicles to reduce vehicle entrainment of dust. Wet gravel roads if dust is found to be excessive.
- No-go areas to be identified. Environmental awareness training of all employees.
- Preference to be given to the use of local employment, contractors and local suppliers.
- Implement measures to protect soils from pollution.
- Reduce the visual impacts of mining activities, i.e. concurrent rehabilitation.
- Site selection aimed at minimising disturbance to sensitive animal habitats and breeding areas.
- Utilise existing access roads as far as possible.
- Access roads to follow slope contours where possible.
- Vegetation to be left in place at the sides of the road to protect the soils.

2.h.ix The outcome of the site selection Matrix. Final Site Layout Plan

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

To be submitted with the Draft EIA Report once the specialist has given their input.

2.h.x Motivation where no alternative sites were considered.

The site location is limited to the Mining Right Area, which is constrained by the location of other mining houses. The resource location and the presence of a watercourse on the site further restrict the infrastructure layout. Therefore, no alternative sites were considered.

2.h.xi Statement motivating the preferred site.

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

The site location is limited to the Mining Right Area, which is constrained by the location of other mining houses. The resource location and the presence of a watercourse on the site further restrict the infrastructure layout. Therefore, no alternative sites were considered.

Once specialist studies have been undertaken the most suitable layout will be finalised and presented in the EIA.



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2.i PLAN OF STUDY FOR THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

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

Refer to Section 2.h.i.

2.i.ii Description of the aspects to be assessed as part of the environmental impact assessment process

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

A team of specialist Scientists and Engineers have been appointed to undertake the following specialist studies. These studies will investigate the baseline environment, potential impacts and provide management measures where applicable.

- Social Impact Study.
- Air quality.
- Aquatic Ecology.
- Storm Water Management Plans.
- Ecological.
- Geo-hydrological.
- Surface water.
- Wetland.
- Heritage, Archaeological, and Palaeontology.
- Blasting and Vibration.
- Soils, land use and land capability.

Table 2.15: Specialist Scope of Work

Specialist Study	Scope of Work
Air quality	The purpose of this baseline study is to:
	<ul style="list-style-type: none"> • Study the available information relevant to the pre and post-development ambient air quality pollution concentrations in the environment;
	<ul style="list-style-type: none"> • Identify the major existing air emission sources in the environment;
	<ul style="list-style-type: none"> • Identify the existing sensitive air pollution areas in the environment;
	<ul style="list-style-type: none"> • Estimate by means of measurements and integration of the results with those of any relevant existing information the present ambient air quality climate;
	<ul style="list-style-type: none"> • Identify the processes and equipment that will cause the major contribution to the future air quality impact;
	<ul style="list-style-type: none"> • Consider, evaluate and rate the potential air quality impacts; and
	<ul style="list-style-type: none"> • Propose relevant management and mitigation measures to lessen the anticipated impacts.
	<i>It is highly recommended that baseline dust monitoring be conducted for at least 3 months prior to the start of the project.</i>
Aquatic Ecology	The assessment will be conducted as part of a three phase approach. The first phase consisted of a rapid desktop assessment. The second phase was conducted in field to gather data. The third phase consisted of an impact assessment and reporting by combining field data and desktop data.
	1. Rapid desktop assessment:



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Specialist Study	Scope of Work	
	<ul style="list-style-type: none"> Google Earth satellite imagery Aerial photographs GIS mapping software 	
	2. Field assessment by identifying the presence of one (at least) or more of the following attributes:	
	<ul style="list-style-type: none"> Wetland/hydromorphic soils Hydrophytes High water table 	
	3. Combining desktop data, field data and calculating the Wetland Index of Habitat Integrity (DWA, 2007) by using the following indices:	
	<ul style="list-style-type: none"> Present Ecological status Ecological Importance and Sensitivity Ecosystem Services supplied by wetland 	
	<i>The following sections deal with the Wetland Index of Habitat Integrity as performed as part of the third phase of the study approach.</i>	
	Social Impact Assessment	1) Identification of key stakeholders;
		2) Development of a social profile of the affected community;
		3) Identifying all applicable legislative and regulatory considerations;
		4) Undertaking stakeholder consultation;
		5) Assessment of possible social and economic impacts;
6) Rating of impacts according to significance (severity, probability, duration, spatial extent and		
7) stakeholder sensitivity;		
8) Making a clear distinction between objective and subjective impacts;		
9) Provision of management guidelines for anticipated impacts; and		
Ecological Assessment	The study will include two phases:	
	10) Desktop study:	
	<ul style="list-style-type: none"> Review of existing information e.g. EIA, Specialist studies, Mining right, WULA etc.; Analysis of recent Google maps; Literature review of fauna and flora in the area; Review of endangered species known to occur in the area; 	
	11) Detailed Terrestrial Ecology Report including a wetland delineation and functional assessment.	
	The scoping groundwater study will include, amongst others, the following information as required in terms of the MPRDA:	
	<ul style="list-style-type: none"> A description of the groundwater environment likely to be affected by the proposed mining activities; An assessment of potential impacts on the groundwater environment. A summary of the potential significance of identified impacts; Proposed mitigation and management measures to minimise adverse impacts and to optimise benefits; 	
Geo-hydrological		



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Specialist Study	Scope of Work
	<ul style="list-style-type: none"> Planned monitoring and performance assessment of the EMP and Rehabilitation measures of areas disturbed during mining activities.
<p>Surface water</p>	<p>The assessment will be conducted as part of a three-phase approach. The first phase consisted of a rapid desktop assessment. The second phase was conducted in field to gather data. The third phase consisted of an impact assessment and reporting by combining field data and desktop data.</p>
	<p>1. Rapid desktop assessment:</p>
	<ul style="list-style-type: none"> Google Earth satellite imagery.
	<ul style="list-style-type: none"> Aerial photographs
	<ul style="list-style-type: none"> GIS mapping software
	<p>2. Field assessment by identifying the presence of one (at least) or more of the following attributes:</p>
	<ul style="list-style-type: none"> Wetland/hydromorphic soils.
	<ul style="list-style-type: none"> Hydrophytes.
	<ul style="list-style-type: none"> High water table.
	<p>3. Combining desktop data, field data and calculating the Wetland Index of Habitat Integrity (DWA, 2007) by using the following indices:</p>
<ul style="list-style-type: none"> Present Ecological status. 	
<ul style="list-style-type: none"> Ecological Importance and Sensitivity. 	
<ul style="list-style-type: none"> Ecosystem Services supplied by wetland. 	
<p>Wetland Impact Assessment</p>	<p>As above.</p>
<p>Heritage, Archaeological, and Paleo</p>	<p>Phase 1 Archaeological Impact Assessments generally involve the identification of sites during a field survey with assessment of their significance, the possible impact development might have and relevant recommendations.</p>
	<p>All Archaeological Impact Assessment reports should include:</p>
	<p>a. Location of the sites that are found;</p>
	<p>b. Short descriptions of the characteristics of each site;</p>
	<p>c. Short assessments of how important each site is, indicating which should be conserved and which mitigated;</p>
	<p>d. Assessments of the potential impact of the development on the site(s);</p>
	<p>e. In some cases a shovel test, to establish the extent of a site, or collection of material, to identify the associations of the site, may be necessary (a pre-arranged SAHRA permit is required); and</p>
	<p>f. Recommendations for conservation or mitigation.</p>
	<p>This AIA report is intended to inform the client about the legislative protection of heritage resources and their significance and make appropriate recommendations. It is essential to also provide the heritage authority with sufficient information about the sites to enable the authority to assess with confidence:</p>
	<p>a. Whether or not it has objections to a development;</p>
<p>b. What the conditions are upon which such development might proceed;</p>	



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Specialist Study	Scope of Work
	<p>c. Which sites require permits for mitigation or destruction;</p> <p>d. Which sites require mitigation and what this should comprise;</p> <p>e. Whether sites must be conserved and what alternatives can be proposed to relocate the development in such a way as to conserve other sites; and</p> <p>f. What measures should or could be put in place to protect the sites which should be conserved.</p>
Visual	<p>The scope of work for this Visual Impact Assessment will include:</p> <ul style="list-style-type: none"> Describe the existing visual characteristics of the proposed sites and its environs; Viewshed and viewing distance; Visual Exposure Analysis; Viewer Sensitivity; The overall objective of the Visual Impact Assessment (VIA) is to assess the significance of the visual impacts that will be caused by the mining activities.
Soils, land use and land capability	<p>The following scope of work is proposed:</p> <ol style="list-style-type: none"> A study of the diagnostic soil horizons, soil forms and soil series for the area, including an assessment of effective profile depth and the classification of soils according to the South African Soil Classification System (Soil Working Group, 1991). An assessment of the pedohydrological functioning of the area in order to shed light on the water storage capacity of the soils and occurrence of wetland or hydromorphic soils. Characteristics that will be noted include: <ul style="list-style-type: none"> Fe(II)/Fe(III) layered double hydroxides (green rusts) that is indicative of moderate conditions of reductions and soils that are moist for prolonged periods; The accumulation of ferrihydrate, lepidocrosite, goethite and hematite in vesicular nodules (mottling) owing to the reduction of Fe(III) to Fe(II), under conditions of a fluctuating water table; The occurrence of grey colours, especially where mottling is not present, as a further indication of Fe mobilisation and semi-permanent or permanent conditions of water saturation; The occurrence of bleached soil horizons that indicate lateral drainage of water; The occurrence of uniform red and yellow colouration that is indicative of well drained areas; Signs of Mn mobilisation and/or precipitation as indicating a fluctuating water table; The occurrence of smectite clays that lead to swelling and shrinking characteristics in soil and that is conducive to water flow in the dry state but not in the wet state. Texture of the soil horizons as a means to assess the water holding capacity, saturated water content and saturated hydraulic conductivity, Textural changes and other aspects in the soil profile that will influence saturated and unsaturated flow of water. Occurrence of layers, such as the rocks, ferricrete and/or calcrete, which impede water flow. Occurrence of concretions, stones or pebbles in the soil horizons and the effect on water holding capacity, saturated water content and saturated hydraulic conductivity. <p>Representative soil samples will be collected and subjected to chemical and physical analyses. The following analyses will be conducted:</p> <ul style="list-style-type: none"> Water soluble cations and anions; pH and EC (electrical conductivity);



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Specialist Study	Scope of Work
	<ul style="list-style-type: none"> Exchangeable/weakly complexed fraction of major cationic plant nutrients – calcium (Ca), sodium (Na), magnesium (Mg), potassium (K)
	<ul style="list-style-type: none"> Cation exchange capacity;
	<ul style="list-style-type: none"> Plant available phosphorus (P), nitrogen content;
	<ul style="list-style-type: none"> Organic carbon content;
	<ul style="list-style-type: none"> Soil particle size distribution (texture including clay and silt content); and
	<ul style="list-style-type: none"> Soil salinity levels will be calculated.

2.i.iii Description of aspects to be assessed by specialists

Refer to previous section 2.i.ii, Table 2.15.

2.i.iv Proposed method of assessing the environmental aspects including the proposed method of assessing alternatives

Refer to previous section 2.i.ii, Table 2.15.

2.i.v The proposed method of assessing duration significance

Refer to previous section 2.i.ii, Table 2.15.

2.i.vi The stages at which the competent authority will be consulted

- Application Stage.
- Copy of the Draft Scoping Report to be submitted for their records.
- Submission of the Final Scoping Report for review and comment.
- Copy of the Draft EIA Report to be submitted for their records.
- Copy of the Final EIA Report to be submitted for review and decision making.

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

2.i.vii.1 Steps to be taken to notify interested and affected parties.

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

Section 41 of NEMA Regulation 982 (specifically Chapter 6) set out the Legal and Regulatory Requirement for Public Participation. The Public Participation Process (PPP) aims to involve the authorities and I&APs in the project process, and determines their needs, expectations and perceptions which in turn ensures a complete and comprehensive environmental study. An open and transparent process will/has been followed at all times and is based on reciprocal dissemination of information. The following was undertaken during the PPP:

- Identification of Interested and Affected Parties (IAPs);
- Notification of IAPs regarding the proposed project via newspaper adverts (in the Witbank News); the placing of site notices at conspicuous places, the sending of notices to affected parties via email and sms (in the form of Background Information Documents) to adjacent landowners.
- A public information meeting (open day) with IAPs;
- Gathering comments, issues and concerns from IAPs;
- Responding to IAP comments, issues and concerns;
- Compilation and submission of results of consultation report to the DMR;



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- g. Providing I&APs with the opportunity to review and comment on the Draft Scoping and EIA Reports; and
- h. Further personal consultation with affected landowners.

2.i.vii.2 Details of the engagement process to be followed.

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

All persons registered as I&APs and organs of state identified through the scoping phase PPP will be sent invites to attend the EIA Phase PPP meeting. The meeting will address specialist findings, focusing on sensitive issues, and provide information on the impact probability and significance. Proposed mitigation measures will also be discussed. The meeting will be recorded and minuted, and the minutes distributed to all attendees and I&APs for comment.

I&APs will be notified of the availability of the Scoping Report and EIA and EMP reports and associated Appendices for public review and comment, the location where the hard copy and electronic copies can be viewed and the timeframe (30 calendar days, which will be extended if significant public holidays occur within this period as per NEMA EIA regulations) for comment. All comments received from the review phase will be incorporated into the issues and response table and incorporated into the Final PPP Report and Final EIA and EMP for submission to authorities. During the EIA and EMP phase, if the need is identified to have one-on-one micro consultations, then these will be organised with the relevant I&AP. Upon receipt of an Environmental Authorisation, all registered I&APs will be notified of decision and the appeal process they can follow under NEMA.

2.i.vii.3 Description of the information to be provided to Interested and Affected Parties.

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

I&APs will have access to any of the project information as per the NEMA and PAIA. They will also be given ample opportunity to comment and provide input on the relevant pieces of information during the S&EIR process.

2.i.viii Description of the tasks that will be undertaken during the environmental impact assessment process

- Public Review of the Draft Scoping Report (30 days);
- Public Engagement and gathering of issues and comments;
- Finalising of the Scoping Report and submission to the DMR for consideration;
- Undertaking of the specialist studies and risk assessment phase;
- Drafting of the EIA Report, EMP and IWULA;
- Public Review of the Draft EIA Report and EMP (30 days) including the IWULA;
- Public Engagement and gathering of issues and comments; and
- Finalisation of the EIA Report and EMP, submission to the DMR for decision making.



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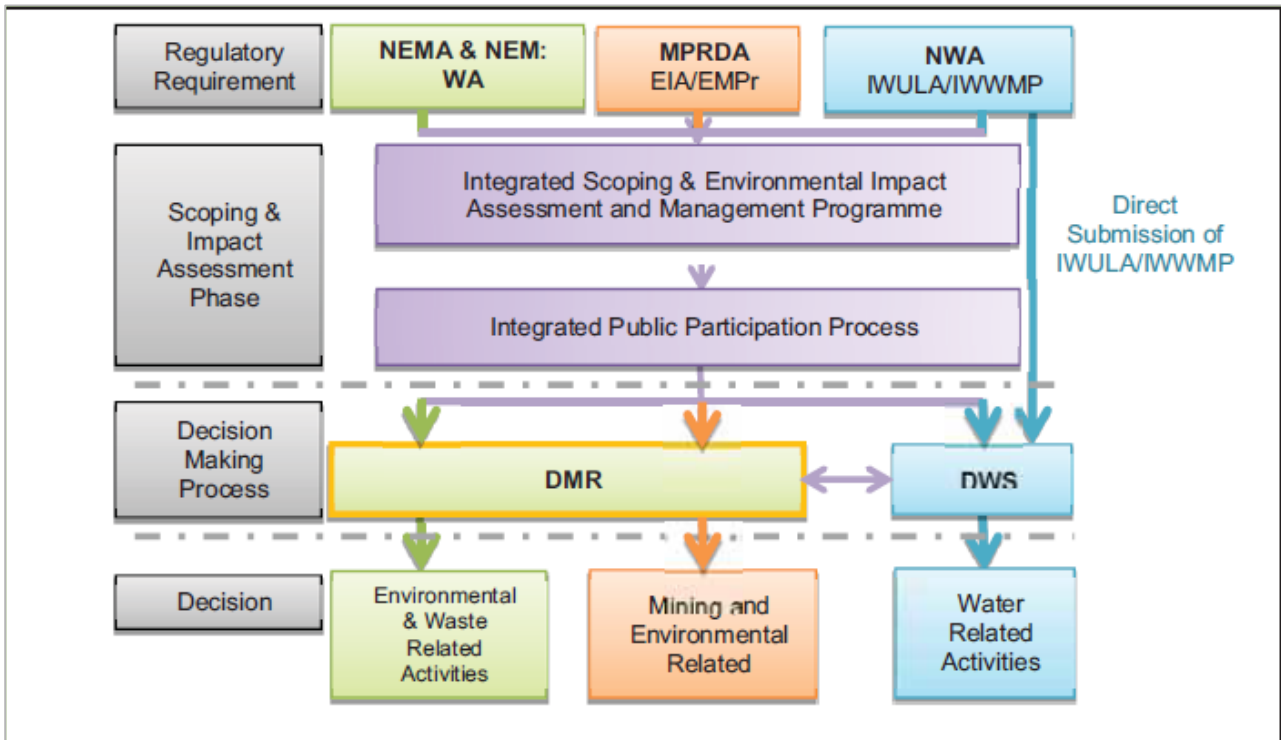


Figure 2.21: Authorisation Process Overview

2.i.ix Measures to avoid, reverse, mitigate, or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored.

- Design the surface and storm water infrastructure to be within the footprint of the project area.
- The water from the voids must be pumped out in order to facilitate and ensure safe and effective mining.
- The water from the voids must be contained in the PCDs because it is considered polluted. The water can therefore not be discharged into the nearest river, nor be used as potable or irrigation water. As a result, it can only be used on the dirty water areas of the mine, for dust suppression. The area has windy dry seasons and the mine will require dust suppression on site.
- The stockpiling of potentially acid-generating material (interburden material and ROM coal) is only a temporary measure. This material will be stockpiled on a compacted surface, with adequate surrounding drainage systems that will contain any polluted water arising off these stockpiles. This dirty water will be directed to the PCDs. There is no other option for the handling of this material other than stockpiling temporarily. The interburden material will be placed back into the progressively rehabilitated pits, and the ROM coal will be loaded and transported after it has been crushed.
- Separate clean from dirty water and allow discharge of water to designated areas.
- Vegetate disturbed areas - limit erosion.
- Implement berms, trenches and storm water management measures in accordance with GN 704 Regulations.
- Pollution Control Dams to be designed to cater for the required storage capacity.
- Comply with the National Air Quality Standards and Dust Control Regulations.
- Comply with the SANS noise standard.
- Avoid travelling past residences. Speed limit of 40 km/h will be enforced. Liaise with landowner on areas sensitive to noise. Provide a buffer of 100 m from households.
- Prescribe to the DWS Catchment Water Quality Standards.
- Restrict traveling speed of vehicles to reduce vehicle entrainment of dust. Wet gravel roads if dust is found to be excessive.
- No-go areas to be identified. Environmental awareness training of all employees.
- Preference to be given to the use of local employment, contractors and local suppliers.
- Implement measures to protect soils from pollution.
- Reduce the visual impacts of mining activities, i.e. concurrent rehabilitation.
- Site selection aimed at minimising disturbance to sensitive animal habitats and breeding areas.



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- Utilise existing access roads as far as possible.
- Access roads to follow slope contours where possible. Vegetation to be left in place at the sides of the road to protect the soils.

2.1 OTHER INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

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

2.1.i.1 *Impact on the socio-economic conditions of any directly affected person. (Provide the results of Investigation, assessment, and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any directly affected person including the landowner, lawful occupier, or, where applicable, potential beneficiaries of any land restitution claim, attach the investigation report as Appendix 2.19.1 and confirm that the applicable mitigation is reflected in 2.5.3; 2.11.6.and 2.12.herein).*

Section to be populated once the Social Assessment process of the Draft EIA Phase commences.

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

This will be included in the EIA once the Heritage Impact Assessment is concluded, Information to be uploaded on the SAHRIS website once received.

2.m OTHER MATTERS REQUIRED IN TERMS OF SECTIONS 24(4)(A) AND (B) OF THE ACT.

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

The site location is limited to the Mining Right Area, which is constrained by the location of other mining houses. The resource location and the presence of a watercourse on the site further restrict the infrastructure layout. Therefore, no alternative sites were considered.



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2.j UNDERTAKING REGARDING CORRECTNESS OF INFORMATION

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



Signature of the EAP

05/07/2021

DATE



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2.k UNDERTAKING REGARDING LEVEL OF AGREEMENT

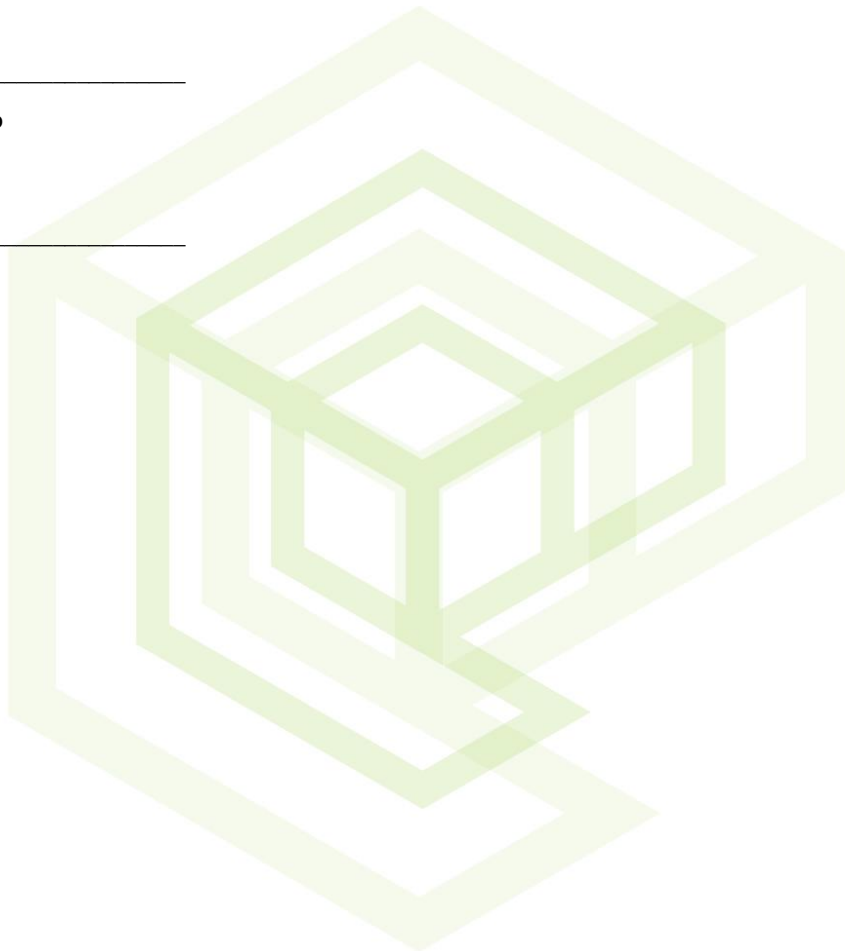
I Riana Panaino herewith undertake that the information provided in the foregoing report is correct, and that the level of agreement with interested and Affected Parties and stakeholders has been correctly recorded and reported herein.



Signature of the EAP

05/07/2021

DATE:



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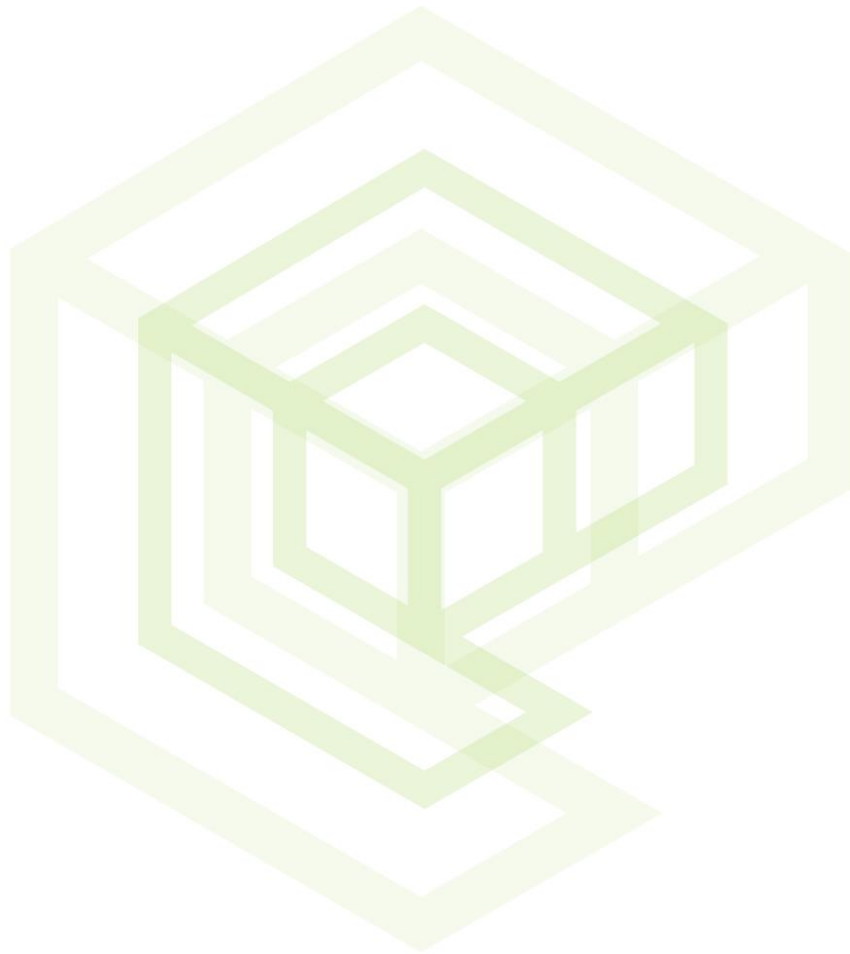
ANNEXURE 1: QUALIFICATION OF EAP



ANNEXURE 2: EAP CV



ANNEXURE 3: LOCALITY MAPS



ANNEXURE 4: SITE LAYOUT AND INFRASTRUCTURE



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ANNEXURE 5: Proof of PPP

PPP Report will be submitted once the initial Public Review and Participation period has ended

