mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

# SCOPING REPORT

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

**SUBMITTED FOR ENVIRONMENTAL AUTHORIZATION TO MEET THE REQUIREMENTS OF THE REGULATION IN COMPLIANCE WITH THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, (ACT 107 OF 1998 AS AMENDED)**

**NAME OF APPLICANT: PPC Ltd**

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# INTRODUCTION

In terms of section 27 (6) (d) 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 mining right 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.

## a) Project Contact Person and Correspondence

### 1. Details of the EAP

Name of The Practitioner: **Tashriq Naicker**
Tel No.: **012 471 8918**
Fax No. : **012 348 5878**
e-mail address: **tnaicker@gibb.co.za**

**2. Expertise of the EAP**

*i. The qualifications of the EAP*

Tashriq Naicker holds a Bachelor of Science (Hons) degree in Environmental Geology. Please find attached proof of qualifications in Appendix H of this application.

*ii. Summary of the EAP's past experience.*

Tashriq Naicker is a Senior Environmental Scientist with with over eight (8) years of experience in the environmental management field. His key experience includes Project management, Scoping & Environmental Impact Reporting, Basic Assessments, Environmental Opinions, Geotechnical Risk Assessments, Strategic Integrated Permitting Systems, Legal Environmental Legislation Reviews, Dust and Water Monitoring, Specialist Assistance with regard to bio-monitoring, Water Use Licence Applications, Section 24G Applications as well as Renewable Energy Applications. He has worked extensively in South Africa and also has project experience in Botswana and Zambia.

Please find attached CV for detailed project experience in Appendix H of this application.

## b) Description of the property

| | |
|---|---|
| **Farm Name:** | • Portion 4 of the Farm Zandriviers Drift 188, (previously known as , Portion 2 of the farm Zandriviers Drift 188);<br>• The Remainder of the Farm Zandriviers Drift 188;<br>• The Remainder of the Farm Toekoms 974, (previously known as Portion 1 of the Farm Zandriviers Drift 188);<br>• The Remainder of the Farm Klein Moorland 973, (previously known as Portion 1 of the Farm Zandriviers Drift 188); and<br>• The Remainder of the Farm Vogelstruispan 189 |
| **Application area (Ha)** | 1800 ha |
| **Magisterial district:** | Brits |
| **Distance and direction from nearest town** | The town of Brits is located approximately 52km south of the study area. |
| **21 digit Surveyor General Code for each farm portion** | • T0JQ00000000018800004 (previously T0JQ00000000018800002)<br>• T0JQ00000000018800000<br>• T0JQ00000000097400000 (previously T0JQ00000000018800001)<br>• T0JQ00000000097300000 (previously T0JQ00000000018800001)<br>• T0JQ00000000018900000 |

## 1. Locality Map

(Show nearest town, scale not smaller than 1:250000).

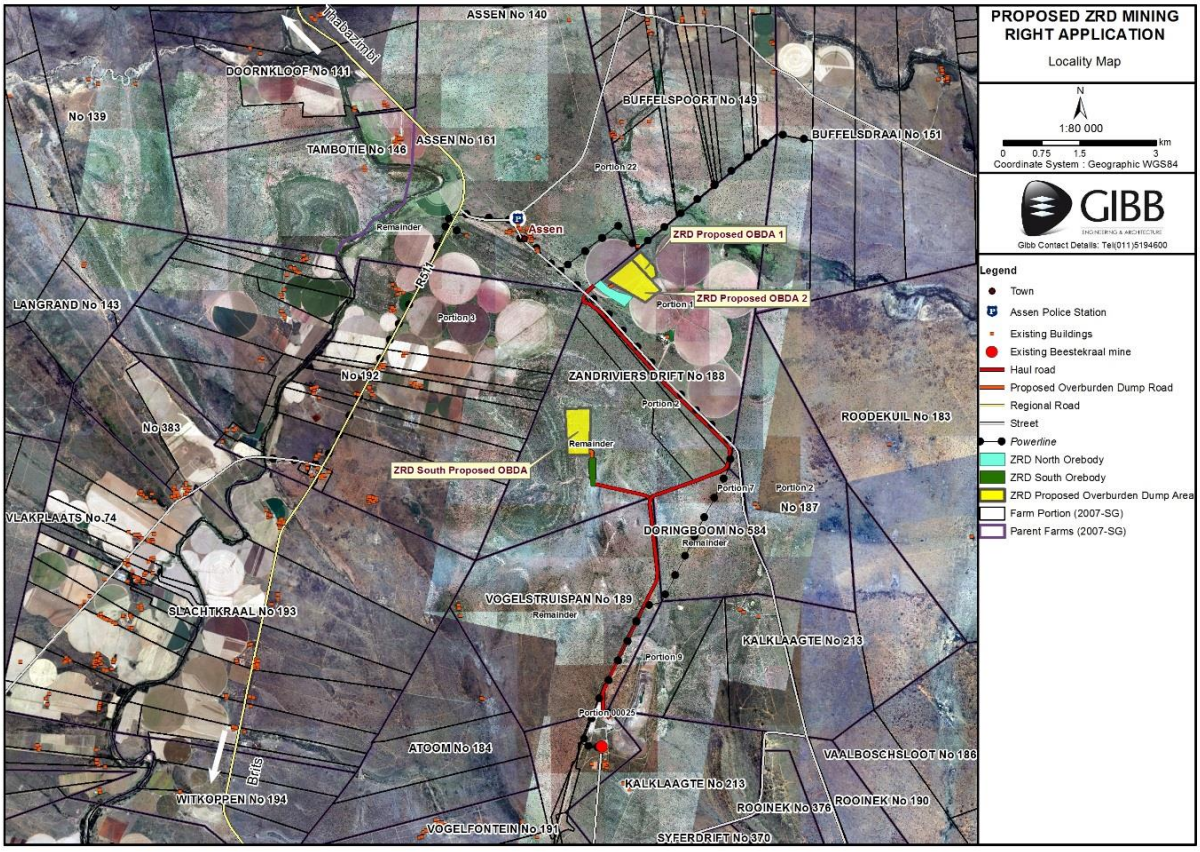



Figure 1: Locality Map of the proposed ZRD Ore Bodies and associated infrastructure (2007)

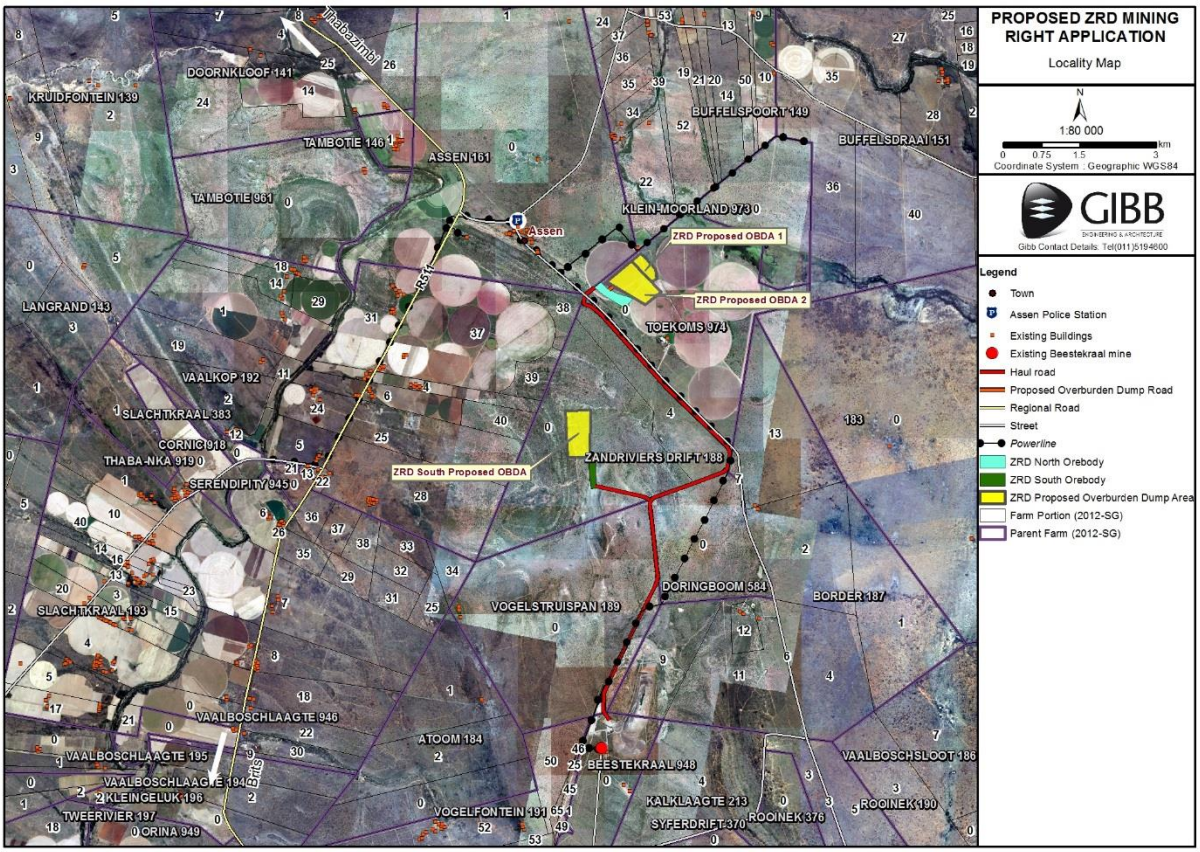



Figure 2: Locality Map of the proposed ZRD Ore Bodies and associated infrastructure (2012)

Please refer to Appendix A of this report for all the maps relevant to this application.

## c) Description of the proposed overall activity.

**Table 1: Mining Activities, Listed Activities and Listing Notice**

| **NAME OF ACTIVITY (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc…etc…etc.)** | **Aerial extent of the Activity Ha or m²** | **LISTED ACTIVITY Mark with an X where applicable or affected.** | **APPLICABLE LISTING NOTICE (*GNR 983, GNR 984 or GNR 985)*** |
|---|---|---|---|
| The development of –<br>(i) A road 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 or 2010; or<br>**(ii) A road with a reserve wider than 13.5 meters, or where no reserve exists where the road is wider than 8 meters;**<br>But excluding-<br>(a) Roads which are identified and included in activity 27 in Listing Notice 2 of 2014; or<br>(b) Roads where the entire road falls within an urban area. | 6 Ha<br><br>The haul roads associated with the proposed development will have a road width of 15m | X | GNR 983, December 2014, Listed Activity 24 (ii) |
| 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. | 90 Ha<br><br>The aerial extent of the study area to be cleared of vegetation for the proposed establishment of the ZRD limestone mining area and associated infrastructure will be 90 ha. | **X** | GNR 984, December 2014, Listed Activity 15 |
| Any activity including the operation of that activity which requires a mining right as contemplated in section 22 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including associated infrastructure, structures and earthworks, directly related to the extraction of a mineral resource, including activities for which an exemption has been issued in terms of section 206 of the | 1800 Ha study area<br><br>The proposed project is for the conversion of the ZRD prospecting right to a mining right | X | GNR 984, December 2014, Listed Activity 17 |

| | | | |
|---|---|---|---|
| Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2008). | | | |
| Any activity including the operation of that activity associated with the primary processing of a mineral resource including winning, reduction, extraction, classifying, concentrating, crushing, screening and washing but excluding the smelting, beneficiation, refining, calcining or gasification of the mineral resource in which case activity 6 in the Notice applies | The limestone ore mined from the ZRD north and south ore bodies will be crushed at the existing PPC Beestekraal mine | X | GNR 984, December 2014, Listed Activity 21 |

## d) 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

**PROJECT DESCRIPTION**

The proposed Zandriviers Drift (ZRD) limestone open cast mining project will be located on the farm Zandriviers Drift 188, Toekoms 974, Klein Moorland 973 and farm Vogelstruispan 189, situated within the greater Assen area, North West Province.

PPC Currently operates an opencast limestone mine and associated crushing plant facility under an existing mining right at the Beestekraal mine. The existing Beestekraal operation is located near the town of Assen (approximately 52 km north of Brits) constituting a small farming community. The study area is situated in the Madibeng Local Municipality and furthermore forms part of the Bojanala District Municipality (BDM) of the North West Province.

The study area for the proposed ZRD mining operations, is situated approximately 1km south of Assen covering land situated adjacent to the Assen police station and a few buildings with no major commercial or business value. The study area is approximately 1800 ha in extent and the limestone mining will take place by means of an open cast mine. It is envisaged that the proposed ZRD mine will mine approximately 350,000 tonnes/annum of limestone, where the limestone will then be transported to the existing Beestekraal mine for further crushing. The project activities assessed as part of this application, includes the following:

- ZRD North Ore Body
- ZRD North Overburden Dump Area Alternatives 1 & 2
- Overburden Dump Road
- Haul road
- ZRD South Ore Body
- ZRD South Overburden Dump Area
- Overburden Dump Road
- Haul Road

The proposed limestone mining will take place via the open cast mining method and the use of

excavators and haul trucks to transport the ore to the existing Beestekraal crushing plant. The proposed life of mine for the ZRD north and south operations will be fifteen (15) years each (i.e. life of mine 30 years), with mining taking place to a maximum depth of fifty (50) meters below ground. Mining will start at the ZRD South Ore body and then move to the ZRD North Ore Body.

The open cast mining method will involve stripping usable soil and softer overburden material using a fleet of diesel trucks and shovels. The topsoil and subsoil that has been stripped will be transported to the predetermined storage areas outlined in the rehabilitation programme as set out in the Environmental Management Programme (EMPr). Harder overburden material will be drilled and blasted to break the rock, which will then be removed as waste rock and stored along with the soft overburden in the designated Overburden Dump Areas (OBDA). Once the overburden material has been removed, the limestone ore will be extracted by means of drilling and then hauled to the existing Beestekraal crushing plant. The ore will then undergo primary crushing, secondary crushing and lastly stacking of the product.

Due to the fact that the crushing facilities already exist in close proximity to the proposed ZRD mining areas, it is not deemed feasible to establish a separate crushing plant. For the ZRD North ore body, two (2) site alternatives have been proposed for the location of the ZRD North Overburden Dump Areas (OBDA). Please refer to Figure 1 (2007 cadastral dataset) and Figure 2 (2012 cadastral dataset) above for the locality map of the proposed ZRD mining right application.

## e) The sector classification of the activity as identified in the national electronic register.

The sector classification of the activity is 'Hard Rock Quarrying'.

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

The need and desirability for the project is supported by the need to convert the existing prospecting right for the area to a mining right due to the confirmed prevalence of the relevant limestone ore bodies. The proposed development of the ZRD mining operations will result in a number of employment opportunities to undertake the various mining, blasting and drilling operations on site which will inevitably contribute to economic upliftment of local community and the greater region. The project will furthermore provide a secure and long term supply of limestone resource to the cement industry.

In addition, with the implementation of the project it will ultimately lead to the increase in Gross Domestic Product (GDP) for the country which resembles the country's economic wealth and makes it more lucrative overall for foreign investment.

## g) Activity Context

**Table 2: Applicable Legislation and Guidelines**

| APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT | REFERENCE WHERE APPLIED |
|---|---|
| **National Environmental Management Act,** | The National Environmental Management Act, 1998 (Act No. 107 of 1998) as amended (NEMA) and EIA Regulations of 2014 (GNR 982, 983, 984 and 985), is the key national legislation underpinning environmental |

| | |
|---|---|
| **1998** (Act No. 107 of 1998) (NEMA) | authorisations in South Africa. The Department of Mineral Resources (DMR) is the Competent Authority (CA) for mining-related applications in terms of NEMA.<br><br>NEMA and associated regulations are directly relevant to this application. The proposed development trigger listed activities in terms of the EIA Regulations of 2014 (as listed in Table 1 above). |
| **Environmental Impact Assessment (EIA) Regulations, 2014** (Government Notice No. 982, 983, 984 and 985, 4 December 2014) | The EIA regulations describe the EIA process to be followed including the public participation process, and the listed activities that may have a harmful impact on the environment and must be assessed. |
| **National Water Act, 1998** (Act No. 36 of 1998) | This Act provides for the protection and management of water resources. A Water Use License Application is made to authorise water use activities listed in Section 21 of the NWA. A WUL Application will be submitted as dewatering of the pit will occur (i.e. 21 (j) is triggered). |
| **National Environmental Management: Biodiversity Act, 2004** (Act No. 10 of 2004) | This Act makes provision for the protection of species and ecosystems that warrant national protection; the sustainable use of indigenous biological resources; the fair and equitable sharing of benefits arising from bio prospecting involving indigenous biological resources in terms of the National Environmental Management Biodiversity Act (Act 10 of 2004).<br><br>The implementation of this Act and associated provisions will lead to the protection of sensitive species. |
| **National Heritage Resources Act, 1999** (Act No. 25 of 1999) | The National Heritage Resources Act requires all developers (including mines) to undertake cultural heritage studies for any development exceeding 0.5 hectares in extent. It also provides guidelines for impact assessment studies to be undertaken where cultural resources may be disturbed by development activities.<br><br>The Heritage Impact Assessment will require approval by the North West Provincial Heritage Resources Agency (NW PHRA) as part of the impact assessment process.<br><br>The National Heritage Resources Act aims to introduce an integrated system for the management of South Africa's heritage resources. Further, the Act empowers civil society to nurture and conserve their heritage resources so that they can be passed on to future generations. The Act provides a framework for the management of heritage resources in South Africa and to protect heritage resources of national significance. In order to meet these objectives, the Act introduces an integrated system that can allow for the identification, assessment and management of heritage resources in South Africa.<br><br>A Heritage Impact Assessment will be undertaken for proposed project and will be submitted to NW PHRA for comment and decision making. |
| **National** | Section 8 of the Act provides for the setting of national air quality standards, |

| | |
|---|---|
| **Environmental Management: Air Quality Act, 2004** (Act No. 39 of 2004) | monitoring and management of air quality and emissions. Section 32 deals with dust control measures and provides for the Minister to prescribe measures for the control of dust in specified places or areas, either in general of by specified machinery or in specified instances the steps to be taken to prevent nuisance or other measures aimed at the control of dust.<br><br>Section 21 of the NEMAQA makes provision for the listing of activities which result in atmospheric emissions, which must be licensed prior to commencement in accordance with Section 22 of the NEMAQA.<br><br>Since the proposed activities do not trigger any listed activities as per section 21 no Atmospheric Emissions Licence will be required. |
| **National Environmental Management: Waste Act, 2008** (Act No. 59 of 2008). | This act provides for specific waste management measures, by regulating waste management in order to protect health and the ecological degradation and for securing ecological sustainable development; to provide for institutional, arrangements and planning matters, to provide fir national norms and standards for regulating the management of waste.<br><br>Waste management principles and provisions will be implemented for the project to ensure adherence to the specific NEM:WA outcomes. |
| **Conservation of Agricultural Resources Act, 1983** (Act No. 43 of 1983) | In terms of section 6 of the Act, the Minister may prescribe control measures with which all land users have to comply. The control measure may relate to the regulating of the flow pattern of run-off water, the control of weeds and invader plants, and the restoration or reclamation of eroded land or land which is otherwise disturbed or denuded. This act will regulate construction activities to prevent the spreading of invasive species and to ensure successful rehabilitation of the receiving environment. |
| **National Forests Act, 1998** (Act No. 84 of 1998) | The proposed project may result in the disturbance or damage to a tree protected under the NFA. |
| **National Environmental Management: Protected Areas Act, 2003** (Act No. 57 of 2003) | The Protected Areas Act provides for the protection and conservation of ecologically viable areas representative of the country's biological diversity, its natural landscapes and seascapes. The proposed routes both preferred and alternative routes runs through a non-statutory protected area. |
| **Constitution of the Republic of South Africa** | The constitution paved the way for the protection of the natural environment and heritage resources through the recognition of the rights to a safe and healthy environment. |
| **National Road Traffic Act, 1996** (Act No. 93 of 1996) | All the requirements stipulated in the NRTA regarding traffic matters will need to be complied with during the construction, operation and decommissioning phases of the proposed powerline. |
| **Provincial and Municipal by-laws** | All provincial and municipal by-laws applicable to the study area will need to be complied with during the construction, operation and decommissioning phases of the proposed open cast mine development. |
| **Occupational Health and Safety Act ,1993** (Act No. 85 of 1993) | Identify the hazards and evaluate the risks associated with such work constituting a hazard to the health of such employees, and the steps that need to be taken to comply with the provision of this act |
| **Guideline on Alternatives** | The Department must take into account all relevant factors, which may include, inter alia, any feasible and reasonable alternatives to the activity |

| | |
|---|---|
| | which are the subject of the application and any feasible and reasonable modifications or changes to the activity that may minimise harm to the environment |

## h) Map of the Site and location of the property on site

(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).

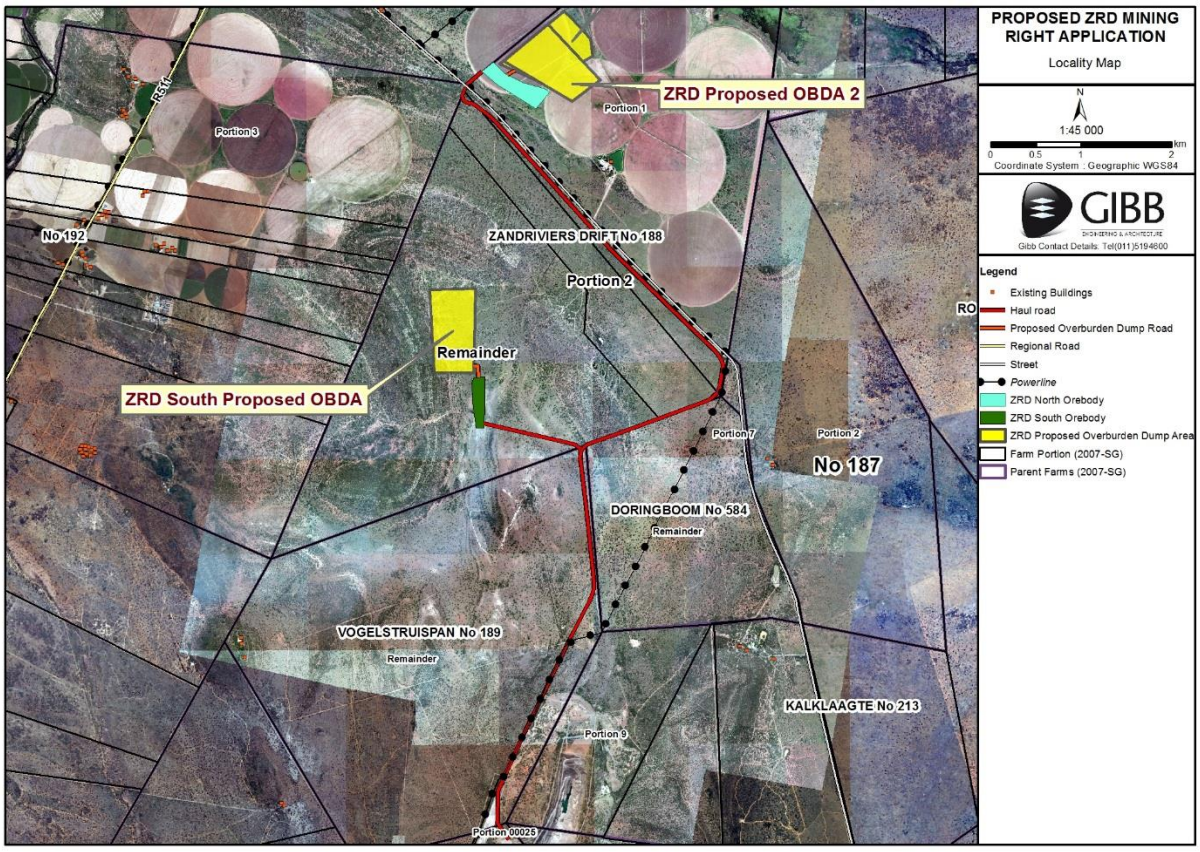



Figure 3: Focussed Locality Map of the proposed ZRD Ore Bodies and associated infrastructure

## i) Period for which the environmental Authorisation is required

(And the date on which the activity is concluded and the post construction monitoring)

Environmental Authorisation validity period: **Two (2) years**
Date on which activity will be concluded: **Construction will be concluded by June 2019**
Post construction monitoring commence: **July 2019**

## j) Specific information required by the Competent Authority

(The Environmental attributes associated with the sites)
(Its current geographical, physical, biological, socio- economic and cultural character).

### 1. Baseline Environment Type of environment affected by the proposed activity

#### 1.1. Topography

The topography of the study area and immediate vicinity is primary very flat to slightly flat with broad, undulating plains. The average elevation of the ZRD north study area is approximately 980 metres above mean sea-level (mamsl), whereas the ZRD south study area is approximately 1010 mamsl. There are no distinctive ridges, rocky outcrops, steep gradients, gorges or ravines within the study area. Large mountains, escarpment and valleys are prominent to the north of the study area, approximately 2-3 km away.

## 1.2. Climate

### *1.2.1.Regional Rainfall*

The study area is situated within the summer rainfall region, with the rainy season usually occurring between the months of October to March. The mean annual precipitation (MAP) is approximately 561mm, with the mean annual evaporation (MAE) for the study area being measured as approximately 2061mm per annum.

Please refer below to Table 3 for the Mean Annual Climatic Data for the study area.

**Table 3: Mean Annual Climatic Data for Study Area**

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sept | Oct | Nov | Dec | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **MAP (mm)** | 112 | 82 | 68 | 31 | 8 | 4 | 2 | 3 | 12 | 52 | 81 | 105 | 561 |
| **MAE (mm)** | 228 | 195 | 190 | 149 | 123 | 97 | 105 | 140 | 185 | 215 | 211 | 224 | 2061 |

### *1.2.2.Temperature*

Temperature statistics available for the town of Brits (situated approximately 52km south of the study area) was used as an indication of temperatures for the study area. The monthly distribution of average daily maximum temperatures show that the average midday temperatures for Brits range from 19.8˚C in June to 29.3˚C in January. The region is the coldest during the month of July when the mercury levels drop to 2.1˚C on average during the night.

## 1.3. Geology and Soils

Based on the 1:250 000 Geological Maps (2523 Rustenburg) produced for the greater area, the general study area is underlain by the Dolomitic formations of the Malmani Subgroup, of the Chuniespoort Group. This Malmani Subgroup fragment along the Crocodile River north of Brits, is known as the Assen Formation. The ore-grade limestone at the study area, occurs within the lower layers of the Eccles Formation (VA1) and its base is formed by the Lyttleton Formation (VA2).

All the rock formations in the Crocodile River Fragment have been subjected to deformation due to the high temperature and pressures during the intrusion of the Rashoop Granites to the south. These dolomitic rocks tend to suffer more ‘plastic’ deformation than other more competent dolomitic rocks, and typically will form a ‘box’ type fold around a more competent and less ‘plastic’ rock mass.

The Assen Formation around the study area forms part of an anticlinal structure with a north-west strike direction, while the northern and southern limbs dip at an angle of approximately 35 degrees. The Chert-rich dolomite (Va1), forms the flat topographic area towards the north-west of the ZRD north deposit and to the west of the ZRD south deposit, while the chert-free dolomites of (Va2 or Lyttleton FM) lies just below the small ridge directly south of the site. The ridge itself is made up out of the harder chert – rich dolomites of the Monte-Carlo (Va3).

Please refer below to Figure 4 and 5 below for the regional geology related to the study area.

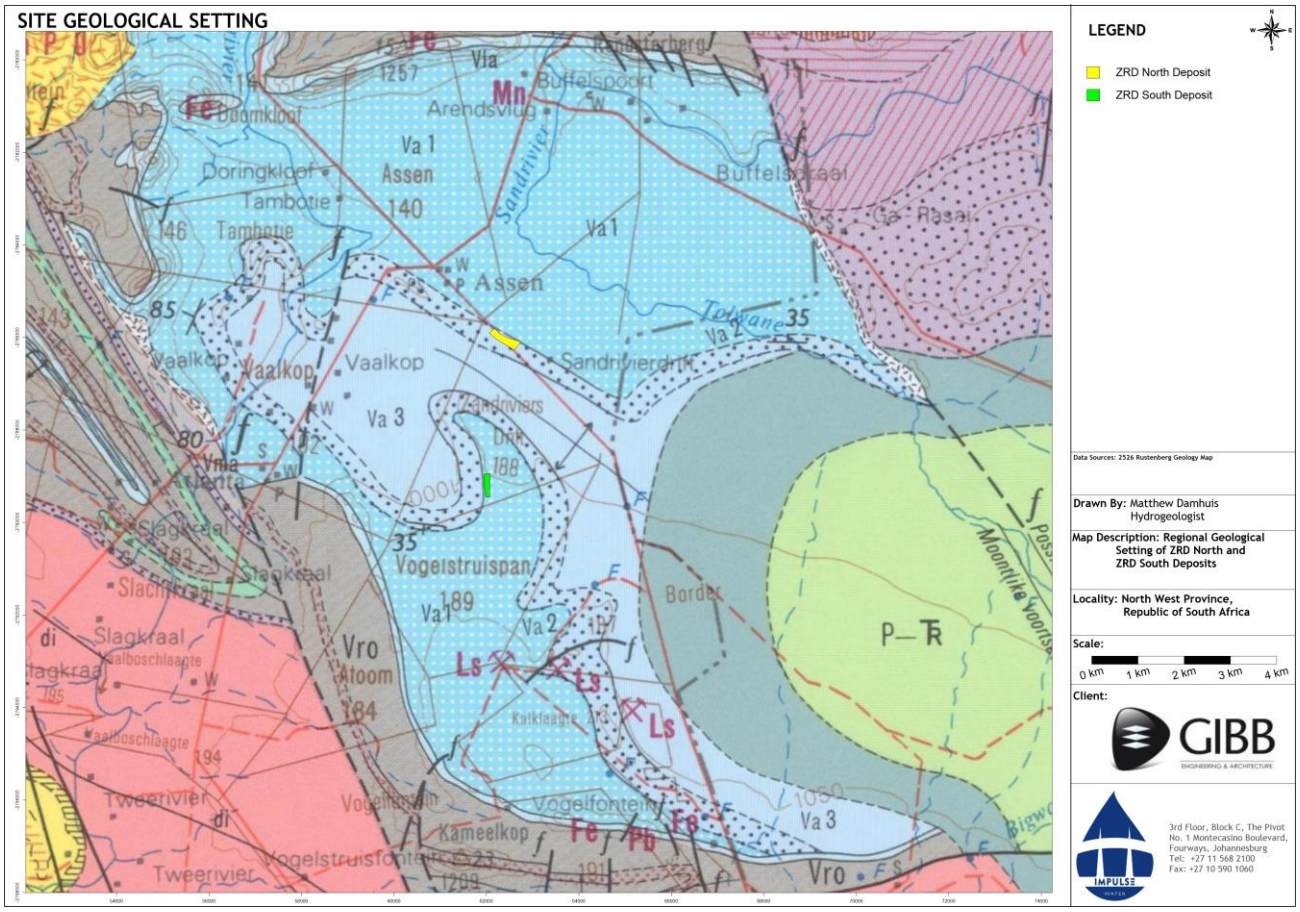



Figure 4: Site Geological Setting

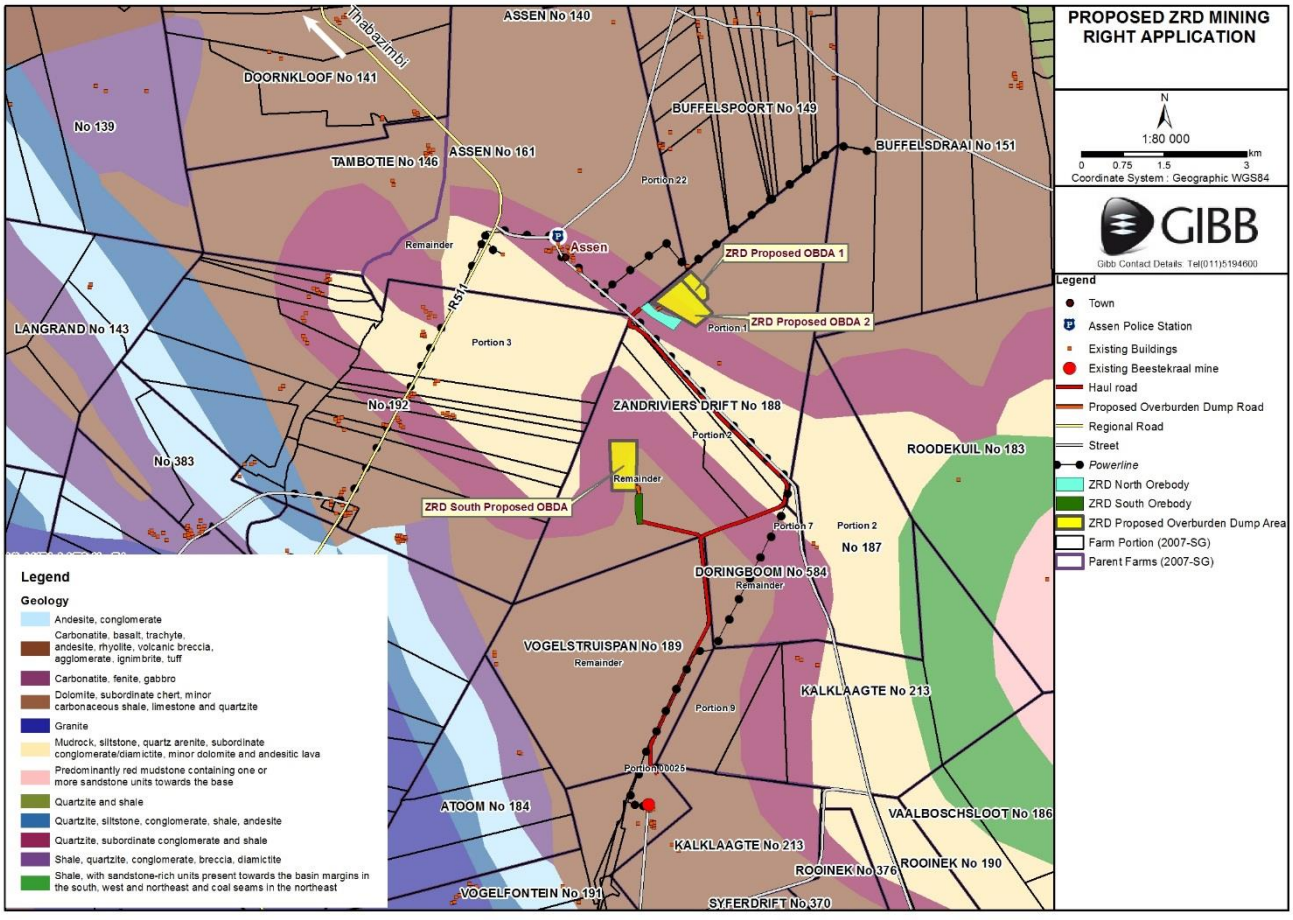



Figure 5: Geological Map of the study area

## 1.4. Hydrology

### *1.4.1.Watercourses throughout the study area*

There are **no** prominent perennial rivers or semi-perennial streams in the immediate demarcated areas of the ZRD North and South Ore bodies, associated dump areas or haul roads. There are also no distinctive drainage lines present either. The closest large river to any of the study site areas is the Crocodile River, which flows north of the two ZRD Ore bodies. The Crocodile River flows in a northerly direction and eventually ties into the Limpopo River. The Pienaars River, which is north of the study area flows into the Crocodile River, while the Tolwane River is a tributary of the Pienaars River (Figure 6).

The Tolwane (Sand) River is approximately 1,6km northeast of the ZRD north Ore body and is also of no significant consequence to the spatial study on the Ore bodies. There are no prominent perennial or even semi-perennial rivers within the area of the ZRD south ore body. The Tolwane (Sand) River flows in a northerly direction into the Pienaars River and then links into the Crocodile River. The Crocodile River flows further north and from there into the Limpopo River.

The closest waterbodies to the study area are two situated to the west and one to the east of the Haul Road (**Error! Reference source not found.**7). The three (3) waterbodies situated in close proximity to the Haul Road, are regarded as impoundments (manmade dams) (**Error! Reference source not found.**7). The impoundment situated to the east is specifically used for irrigation purposes on the large, pivot irrigated lands. Water is specifically pumped into this farm dam for this purpose which implies that the farm dam is not an in-channel impoundment. The two (2) waterbodies situated to the west are artificially impounded (dammed) probably to create watering holes for the wild animals on the game farm. These two (2) impoundments are in-channel impoundments. However, the channel is a seasonal drainage line that is very shallow. It is not a river or stream. Notwithstanding, it is still a watercourse.

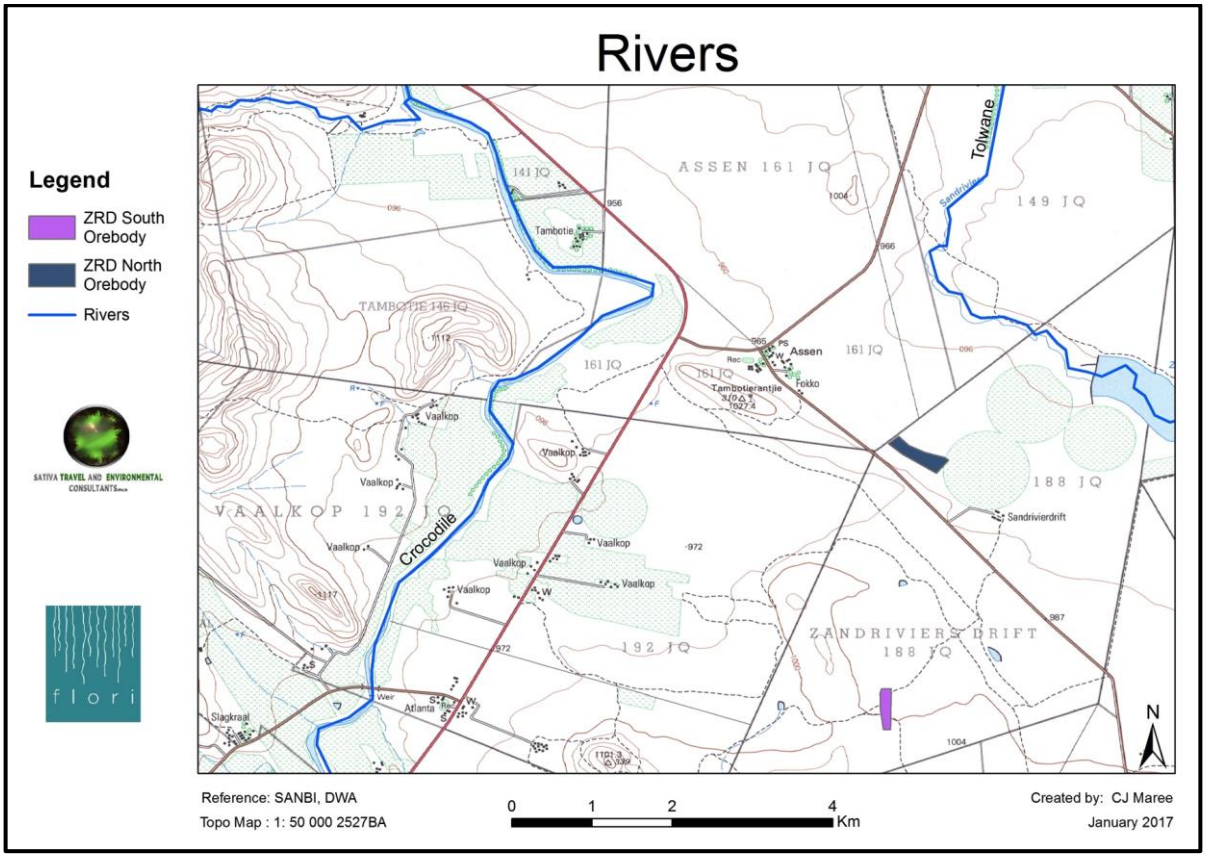



Figure 6: Topographical representation of Rivers in proximity to the study area

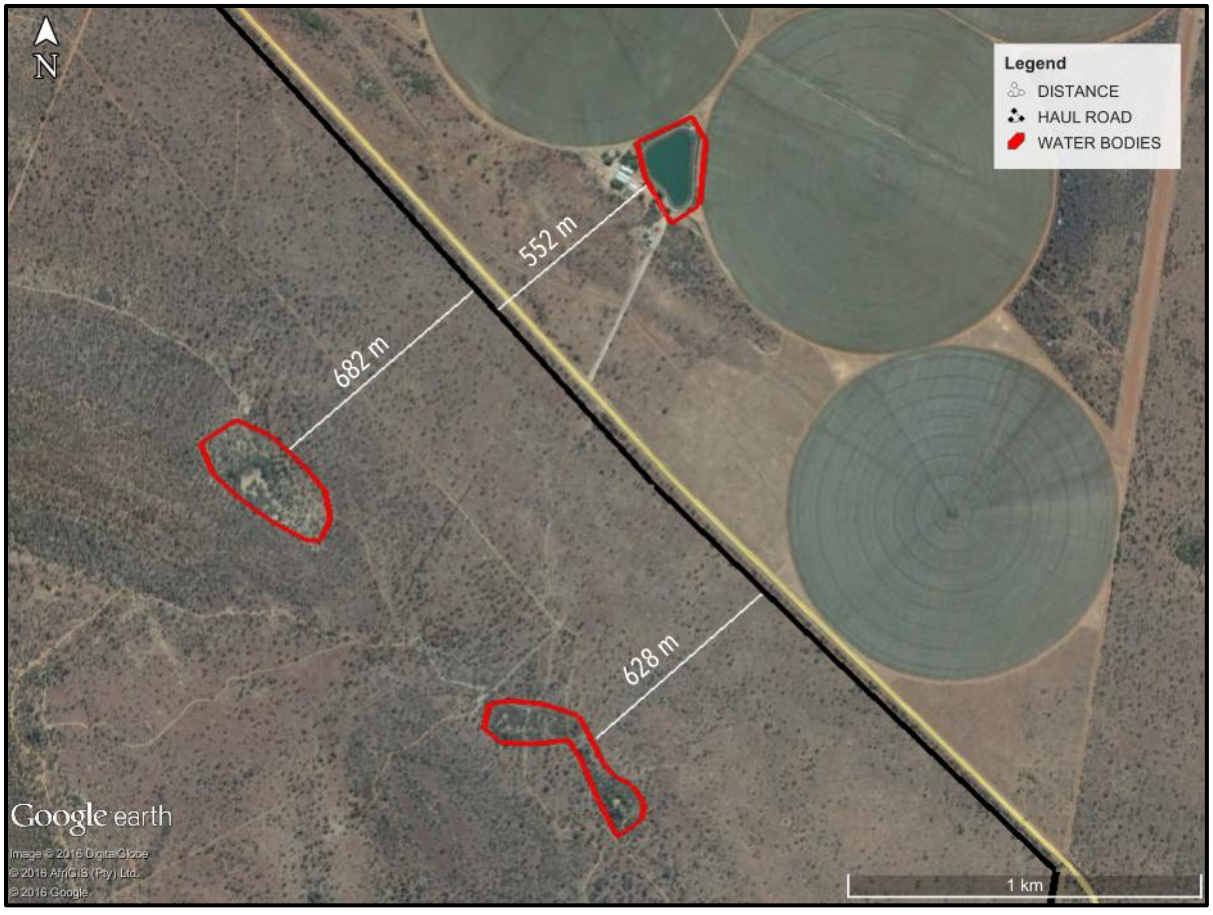



Figure 7: Rivers in the region of the study area

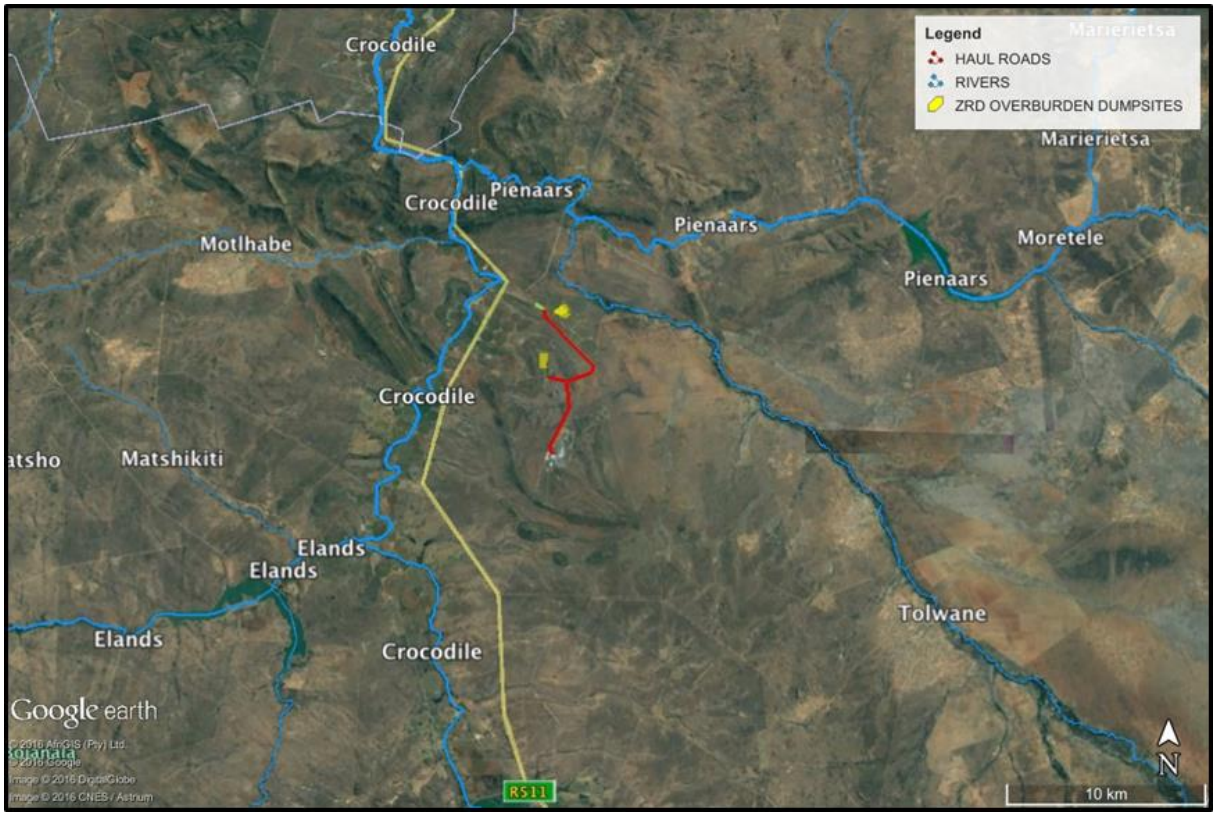



Figure 8: Rivers in the region

*Water Management Areas*

The study area is situated within the Crocodile (West) & Marico Water Management Area (WMA). Furthermore, the study area falls within the jurisdiction of the Limpopo Catchment Management Authority (CMA).

*Quaternary Drainage Areas*

The study area extends over two wetland ecoregions namely Central Bushveld Group 2 and Central Bushveld Group 3. Majority of the study area and proposed activities (including the limestone orebodies) are situated within quaternary drainage area A23K, however a small section of the Haul road extending from ZRD north extends into quaternary drainage area A24A. Please refer to Figure 9 below.

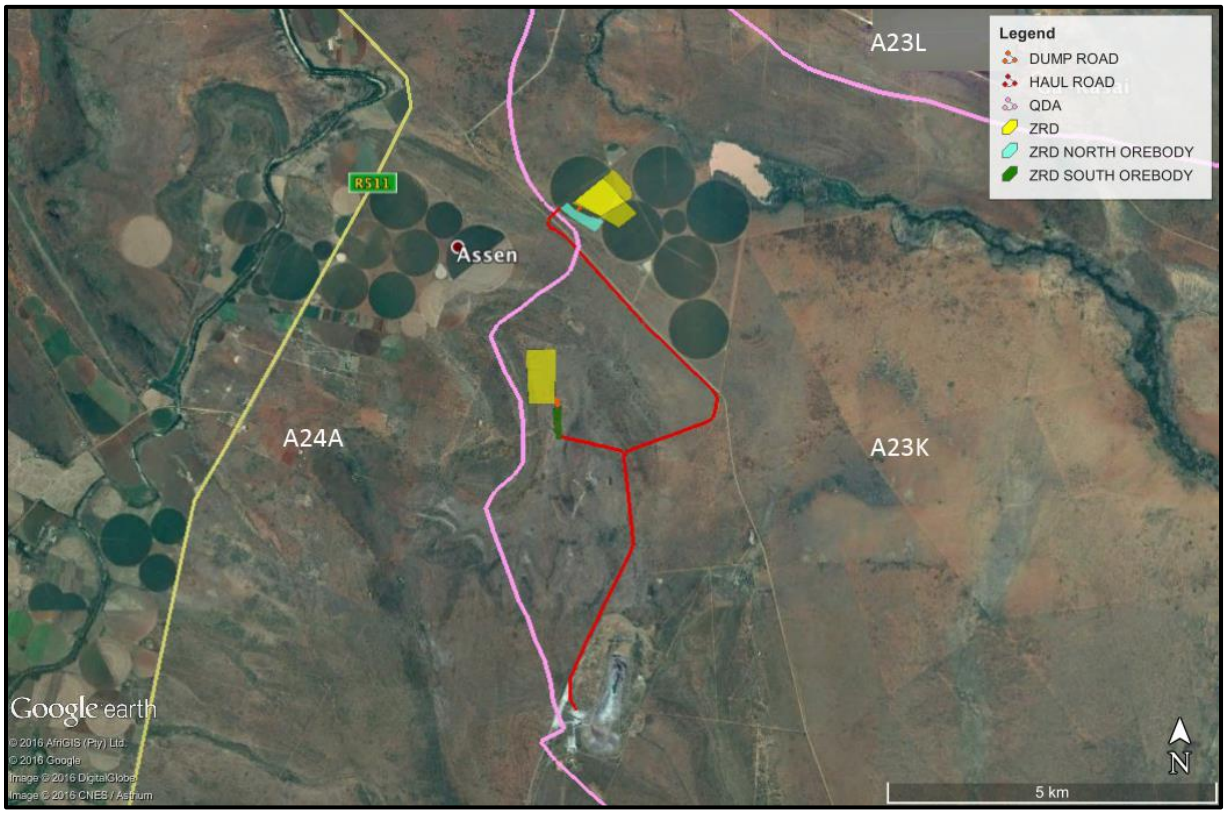



Figure 9: Quaternary Drainage Areas relevant to the proposed development

### 1.5. Air Quality

Based on the surrounding land use and the fact that the greater area is already exposed to mining activities, it is envisaged that the project will alter the ambient dust levels during its construction and operational phases due to the vehicles hauling the mined limestone resource from the ore body to the existing Beestekraal mine for further crushing. Vehicles travelling on exposed surfaces, earthworks as well as wind are the main generators of dust. The nuisance and aesthetic impacts associated with the dust generation during construction and operation should be minimal if mitigating measures are implemented effectively.

Dust generation off the earth's surface is generally regarded as a nuisance rather than a health or environmental hazard. On a large scale dust will impair atmospheric visibility, however, in the context of the proposed activity, the impact of dust production on air quality should be minimal taking into account that effective dust suppression techniques that are available and will be recommended during the Environmental Impact Reporting (EIR) Phase.

### 1.6. Ecological

#### *1.6.1.Flora*

South Africa is divided up into nine major Biomes. The study area and the surrounding region fall within the Savanna Biome, which is also known as the Bushveld Biome (Figure 10). Savanna vegetation types tend to have a mix of a lower grassy layer, middle shrub layer and an upper woody layer. The mix and ratio of the three layers varies from veldtype to veldtype within the Savanna Biome. The Savanna Biome is then further subdivided into six bioregions, namely, Central Bushveld; Mopane; Lowveld; Sub-Escarpment Savanna; Eastern Kalahari Bushveld; and Kalahari Duneveld. The study area is situated within the Central Bushveld Bioregion.

The dominant veldtypes (vegetation types) of the region include the Western Sandy Bushveld and Springbokvlakte Thornveld. Springbokvlakte Thornveld is characterised by open to dense bushveld dominated by thorn trees of Acacia species or shrubby grassland with a very low shrub layer. The topography is typically flat to slightly undulating plains. Although red-yellow freely draining soils occur the soils of the veldtype are typically heavy turf and clayey soils. Western Sandy Bushveld varies from tall open woodland to low woodland, with broad-leaved as well as microphyllous (fine-leaved or compound leaved) tree species. Dominant species within this veldtype include *Acacia erubescens* (Blue thorn) in flat areas, *Combretum apiculatum* (Red bushwillow) in shallow soils of gravelly upland sites and *Terminalia sericea* (Silver clusterleaf) in deep sands throughout slightly undulating plains.

The ZRD south ore body, associated OBDA and a section of haul road is situated in within the Western Sandy Bushveld. The ZRD north ore body, associated OBDA and a section of the haul road extending from ZRD north, are situated within the Springbokvlakte Thornveld (Figure 11). Due to the close proximity of both ore bodies to the different veldtype boundaries, the vegetation communities have characteristics and floral species of both veldtypes.

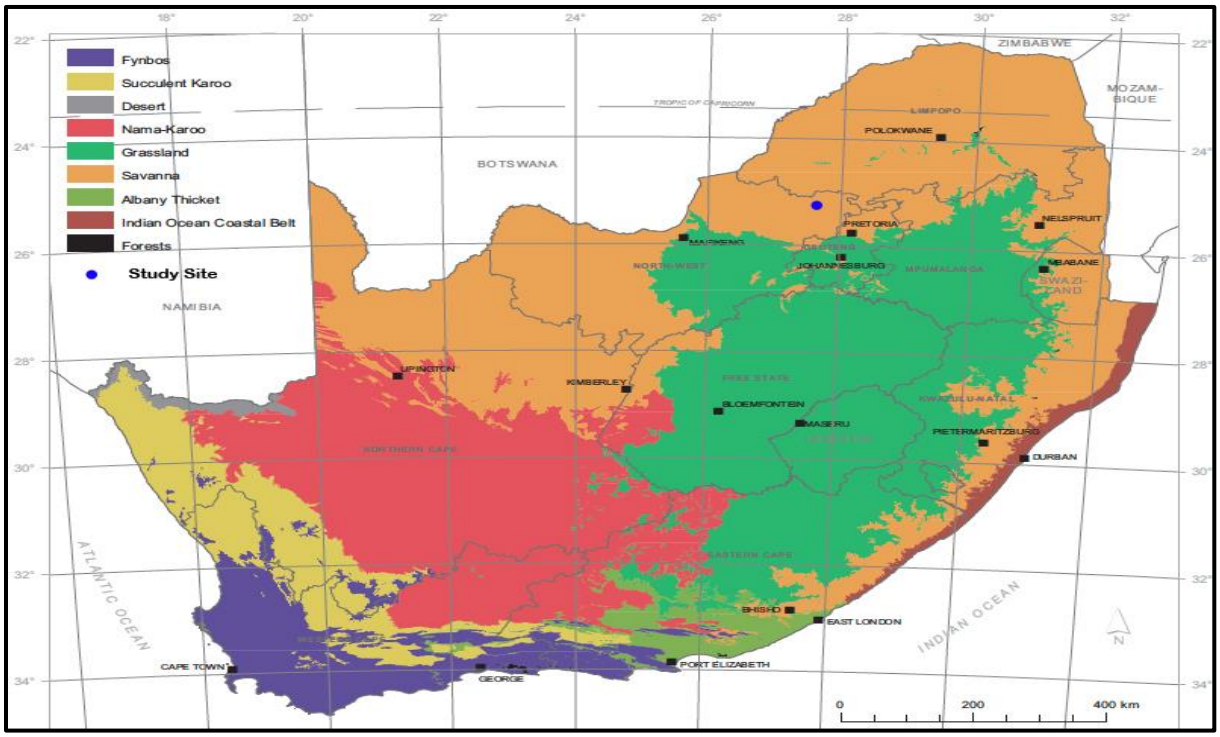


Figure 10: Biomes of South Africa

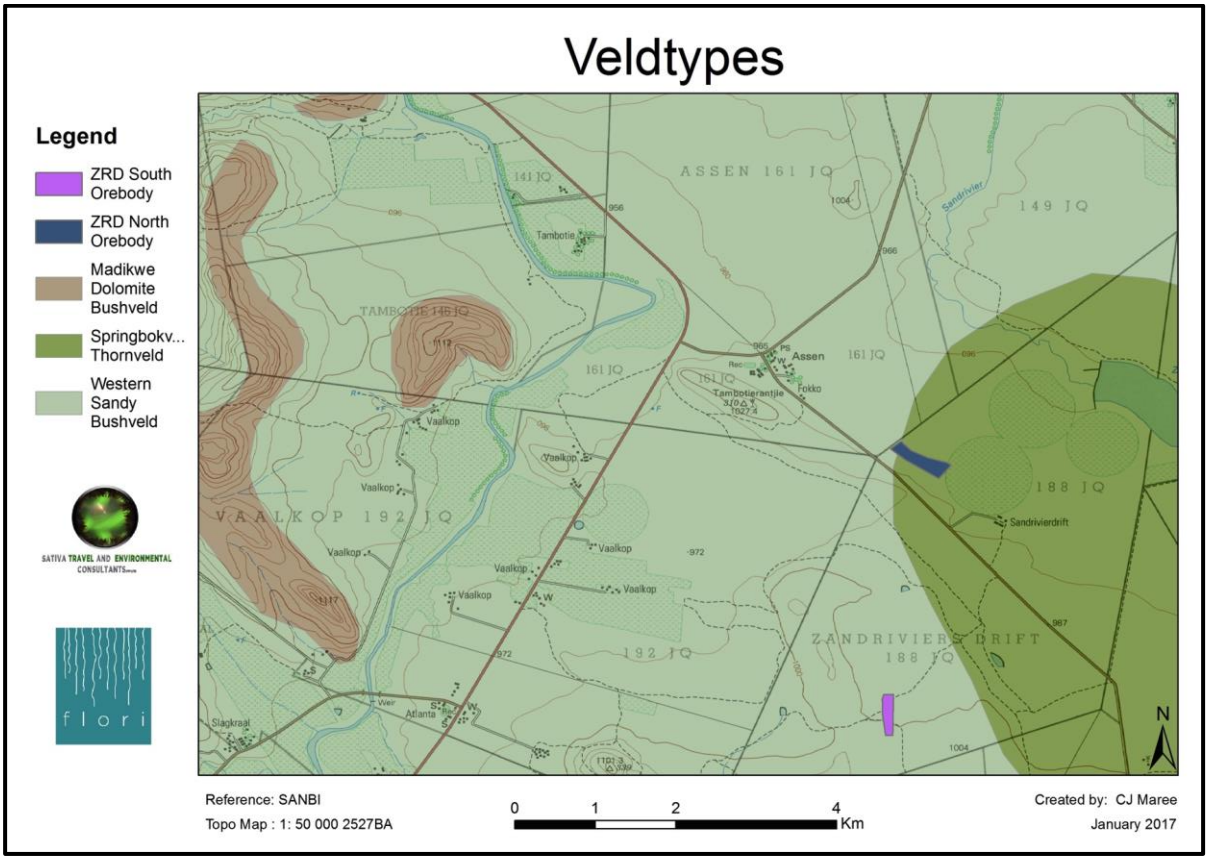



Figure 11: Veldtypes of the Study Area

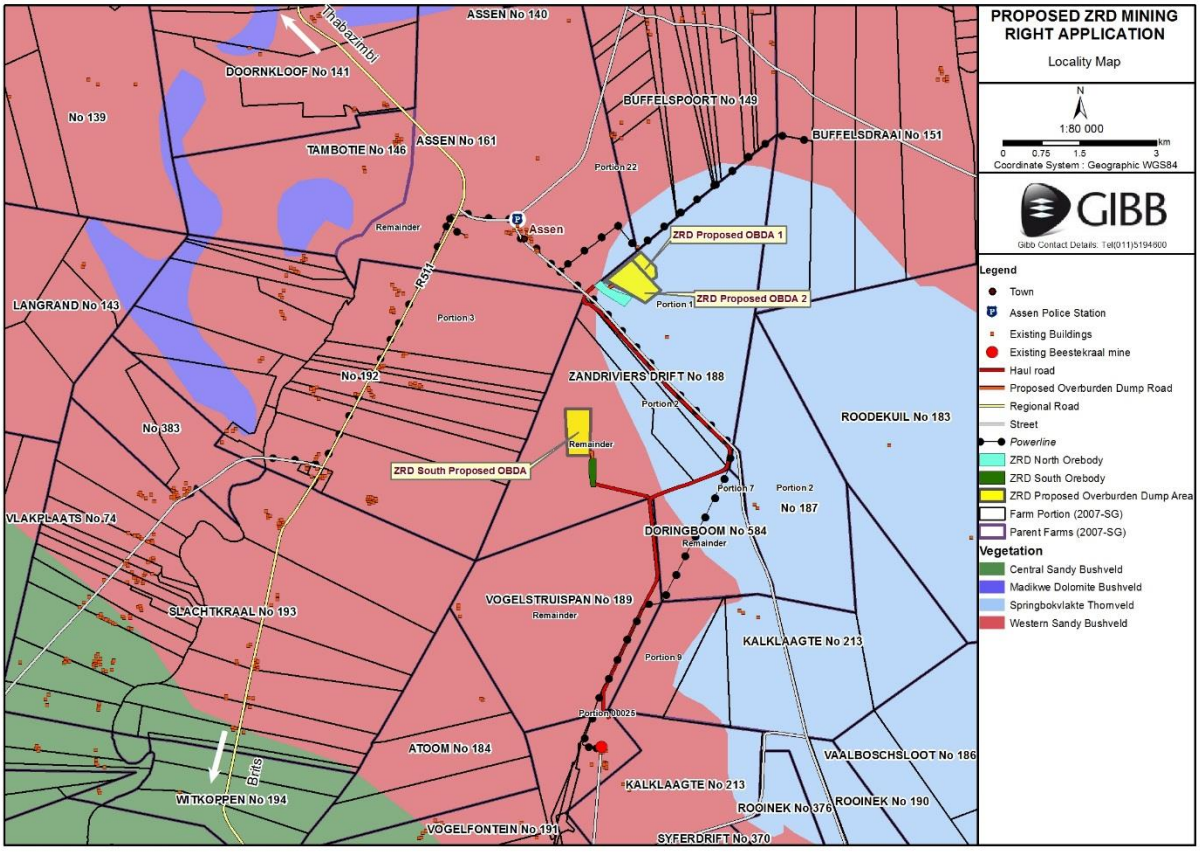



Figure 12: Vegetation Cover Map of the Study Area

*1.6.2.Fauna*

The study area is situated within private game farms. Therefore, a number of large mammals and other animals are present on the properties. Large mammals seen during the various field investigations include buffalo, blesbok, common duiker, giraffe, kudu, roan antelope, impala, warthog and vervet monkey, to name but a few. Other large animals seen were ostrich.

While **no red data** species were observed during the site investigation, the habitat presented in the study area is ideal for many of the species listed in Table 4 below, to occur. Great care should therefore be taken to avoid impacting on any of priority species, should they be encountered during construction and/ or operational activities on site. Furthermore, the habitat of the area also indicates that a number of snake species (some of which may be poisonous) may be encountered on site.

**Table 4: Priority Faunal Species likely to occur in the area**

| Species | Common Name | Red Data status | Preferred Habitat | Habitat Restrictions | Present in Study area |
|---|---|---|---|---|---|
| **Frogs** | | | | | |
| *Pyxicephalus adspersus* | Giant bullfrog | Threatened | Grassland; savannah | Temporary floodplains; pans | Likely |
| **Mammals** | | | | | |
| *Atelerix frontalis* | SA hedgehog | Near Threatened | Most, broad | broad | Likely |
| *Manis temmincki* | Pangolin (Scaly anteater) | Vulnerable | Grassland, savannah | Woody; savannah; ants; termites | Possible |
| | Honey badger (Ratel) | Near threatened | Most, broad | Broad | Possibly |
| *Cloeotis percivali* | Short-eared trident bat | Critically endangered | Savannah | Caves and subterranean habitat | Not likely |
| *Pipistrellus rusticus* | Rusty bat | Near threatened | Most, broad | Woody savannah, large trees | Not likely |
| **Snakes** | | | | | |
| *Python natalensis* | Southern African python | Vulnerable | Ridges, wetlands | Rocky areas; open water | Likely |

## 1.7. Socio-Economic Environment

*1.7.1.Demographics*

According to Stats SA, the Madibeng Local Municipality is located in the Bojanala Platinum District Municipality within the North West Province, situated between the Magaliesberg and the Witwatersrand mountain range.

The Municipality is demarcated into 31 wards of which 10 fall in the urban areas (Brits, Hartbeespoort and Skeerpoort) and 21 in the rural areas and villages. It includes approximately 43 villages and 9 000 farm areas. Madibeng is centrally situated (approximately 50km from Pretoria, 55 km from Johannesburg and 60km from Rustenburg) and is easily accessible with various road networks,

amongst others the N4 toll road, which is links from various directions through Madibeng to Mmabatho, as well as a railway line and airport for light aircraft.

Population

The Local Municipality of Madibeng has a total population of 477 381, making it the second most populous municipality in the Bojanala District Municipality after Rustenburg. It is highly rural, with 57% of its population residing in rural areas (tribal or traditional areas), about 28% residing in urban areas and about 15% residing in farming areas. Black Africans are the majority, with an 89% share of the Madibeng Municipality's population. The most commonly spoken language is Setswana.

More than half of the population is male (53%), with 47% constituting females. At age 85 and older, there were more than twice as many women as men. People under 20 years of age made up over a quarter of the population (33.5%), and people aged 65 and older made up 5% of the population.

| **Municipality** | **Total Area of Municipality** | **Total Area of Settlements** | **Area of Settlements as % of Municipal Area** |
|---|---|---|---|
| Madibeng Local Municipality | 3.839 $km^2$ | 63 639 ha | 5% |

Socio-Economic status

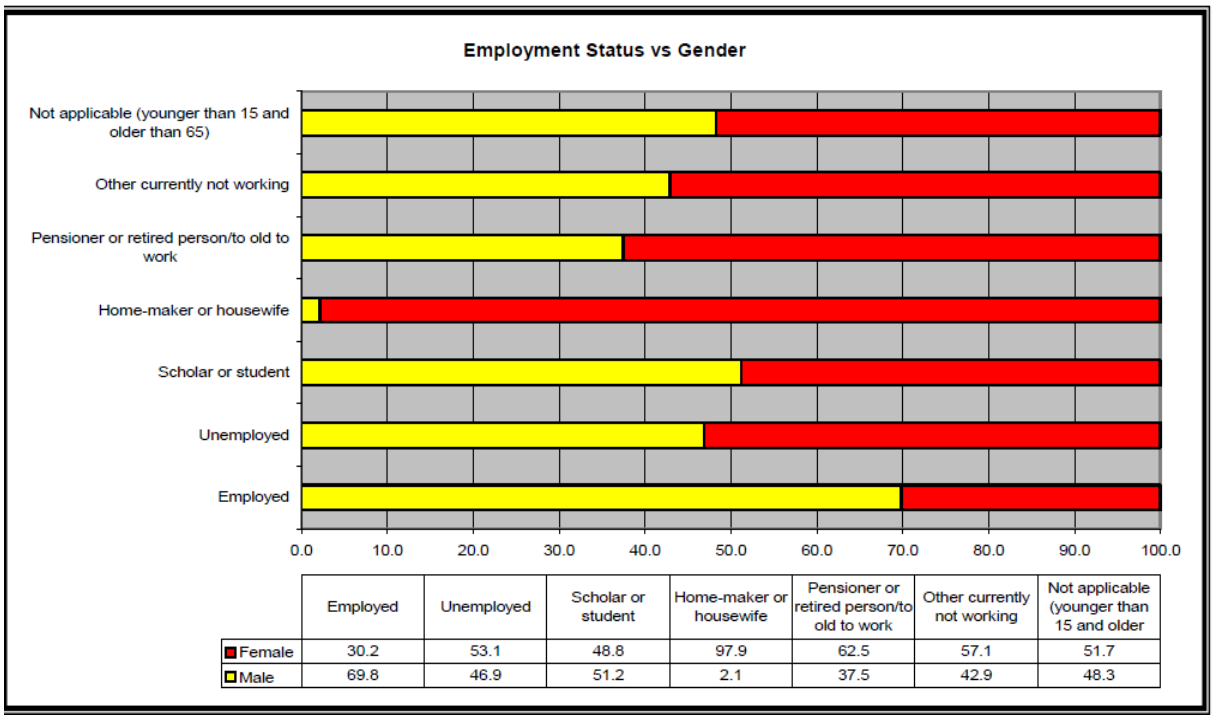
Madibeng prides itself on a number of economic activities which play a significant role in the growth of the province and country as a whole, and which include agriculture, mining, tourism and manufacturing. Mining is presently predominant with Madibeng being the world's third largest chrome producer, and includes the richest Platinum Group Metals Reserve (situated on the Merensky Reef). Manufacturing is also a dominant sector with a wide variety of industries situated in the various industrial areas.

Tourism is one of the strong contenders, if well explored in the area. The possible establishment of the tourism belt is being researched for economic expansion. The advantage of rail and road infrastructure spanning in all lucrative destinations will begin to bear necessary fruit for the prosperity of the people of Madibeng.

Unemployment is still a serious concern in the Bojanala District. According to the 2007-2011 BDM Integrated Development Plan (IDP) the total number of unemployed persons in the district increased over the period 1996 to 2003 (from 140000 to 217000) and the unemployment rate has stabilized and decreased slightly from 2002 onwards.

The municipality is characterised by high levels of unemployment. In Madibeng, the unemployment rate for those aged 15 to 24 is 38.2%, which is almost 10% more than the overall unemployment rate.

The information depicted in Figure 13 indicates that nearly 70% of the total employed population consists of males, with only 30% females. These figures also clearly indicate that 53% of the total unemployed population is represented by the female population in the district

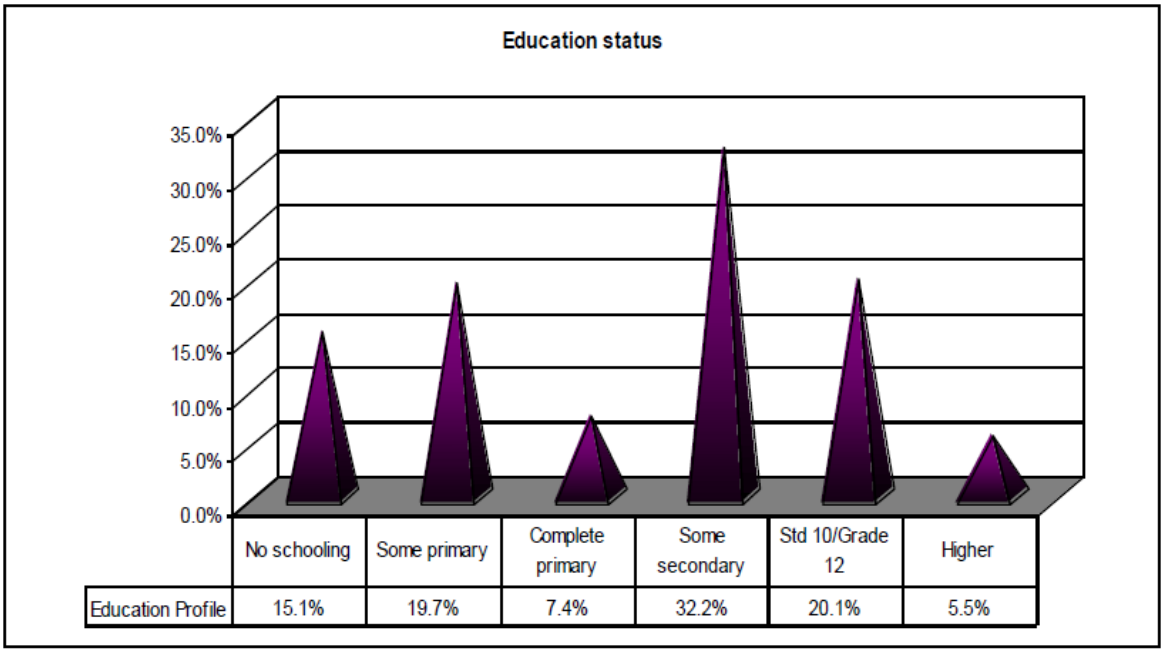



| | Employed | Unemployed | Scholar or student | Home-maker or housewife | Pensioner or retired person/to old to work | Other currently not working | Not applicable (younger than 15 and older |
|---|---|---|---|---|---|---|---|
| Female | 30.2 | 53.1 | 48.8 | 97.9 | 62.5 | 57.1 | 51.7 |
| Male | 69.8 | 46.9 | 51.2 | 2.1 | 37.5 | 42.9 | 48.3 |

Figure 13: Employment status vs Gender (BDM IDP 2007-2011)

Education

The education status of the population older than 20 years of age as depicted in the figure below indicates that the district labour market is characterized by low skills levels. As much as 15.1% of the population older than 20 years have not received any form of schooling and a further 19.7% only some primary education. These figures imply that nearly 35% of the total adult population can be regarded as functionally illiterate. Conversely, only 20.1% of the adult population has completed their high school education and only 5.5% has obtained some form of tertiary education.




| | No schooling | Some primary | Complete primary | Some secondary | Std 10/Grade 12 | Higher |
|---|---|---|---|---|---|---|
| Education Profile | 15.1% | 19.7% | 7.4% | 32.2% | 20.1% | 5.5% |

Figure 14: Education status of the Madibeng District Municipality population

Households Income

There are approximately 84,239 household, 20,483 agricultural households with an average household size of 3.3 individuals. Only 30.9 % of households have access to piped water inside dwellings and only 84.5 % of households have access to electricity for lighting

Economic Status

According to the information from Stats SA (2011), the Madibeng District Municipality comprise 30.4% unemployment rate, with 38.2% of this total constituting youth unemployment

### 1.8. Heritage Resources

Heritage sites have special attributes which contribute to the cultural identify of a local population and of humanity as a whole. Heritage sites may be related to religious and cosmological beliefs, constitute a source of aesthetic inspiration, can provide wildlife sanctuaries and form the basis of important local traditions.

The study area is situated within the North West Province of South Africa which boasts a rich traditional homeland of contemporary Western Sotho-Tswana including Hurutshe, Kwena and Kgatla. Previous archaeological and heritage studies in the region indicate that the area constitute a high pre-historic and heritage significance. The region is regarded as a cultural landscape where palaeontological, Stone Age, Iron Age and Historical period sites contribute the bulk of the cultural heritage of the region itself. Stone Age sites are general identifiable by stone artefacts found scattered on the ground surface, as deposits in caves and rock shelters as well as in eroded gully or river sections. Archaeological sites recorded in the project region confirms the existence of Stone Age sites that conform to the generic SA periodization split into the Early Stone Age (ESA) (2.5 million years ago to 250 000 years ago), the Middle Stone Age (MSA) (250 000 years ago to 22 000 years ago) and the Late Stone Age (LSA) (22 000 years ago to 300 years ago). Stone Age sites in the region are also associated with rock painting sites. Cave sites also exist on the landscape south-west of the project area.

Any heritage resources occurring within the study area will be identified and discussed in detail by a Heritage specialist study during EIR phase of the project. The findings within the report will thereafter be incorporated into the Draft and Final EIR reports.

### 1.9. Ambient Noise

When considered in the context of the surrounding land use and the nature of the proposed development, it is envisaged that the project may alter the ambient noise levels during both the construction and operational phases of the project. The severity and extent of any changes will however be investigated in detail during the EIR phase of the project. Appropriate mitigation measures, where required, will also be incorporated into the Environmental Management Programme (EMPr) in order to limit the extent of disturbance to the surrounding residents.

### 1.10. Visual Environment

Scenic value can be described as the reaction to the environmental aesthetics as perceived by an individual or a group and can therefore be subjective. In terms of surrounding landscape, the study area is regarded to be of a high visual quality with the small town of Assen being the only “town” within a 5km radius of both ZRD north and south.

## k) Description of the current land uses

Land uses observed throughout the study area mainly constitute agricultural (olive farms, wheat farms, small scale farming etc.), game farms, mining activities and natural land / open space (dense natural vegetation with height of approximately 4m). The land use in the demarcated areas of the ore bodies varies slightly from one to the other. The ZRD north ore body is situated completely within currently cultivated lands. The ZRD South ore body constitutes bushveld and is situated within a private game farm area belonging to PPC Ltd.

The low-density urbanisation in the area is in the form of some farm homesteads and the small Assen hamlet, consisting of a police station and general store. The cultivation in the area is mainly in the form of high-intensity, pivot-irrigated maize production. Please refer to Figure 15 below for the Land Use Map of the study area.

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

The proposed development is situated within a cultural landscape that is integrated with existing mining activities to the north and south of the study area, game farming, and small olive farming. PPC housing facilities are considered the closest residential area, situated north of both ZRD ore bodies. The town of Assen is located within a 5km radius of the study area.

## m) Environmental and current land use map.

(Show all environmental, and current land use features such as agriculture, forestry, including infrastructure such as power lines, roads, railways, pipelines, buildings and any infrastructure requiring servitudes. The map must be drawn to the same scale as the map required in (h) above),

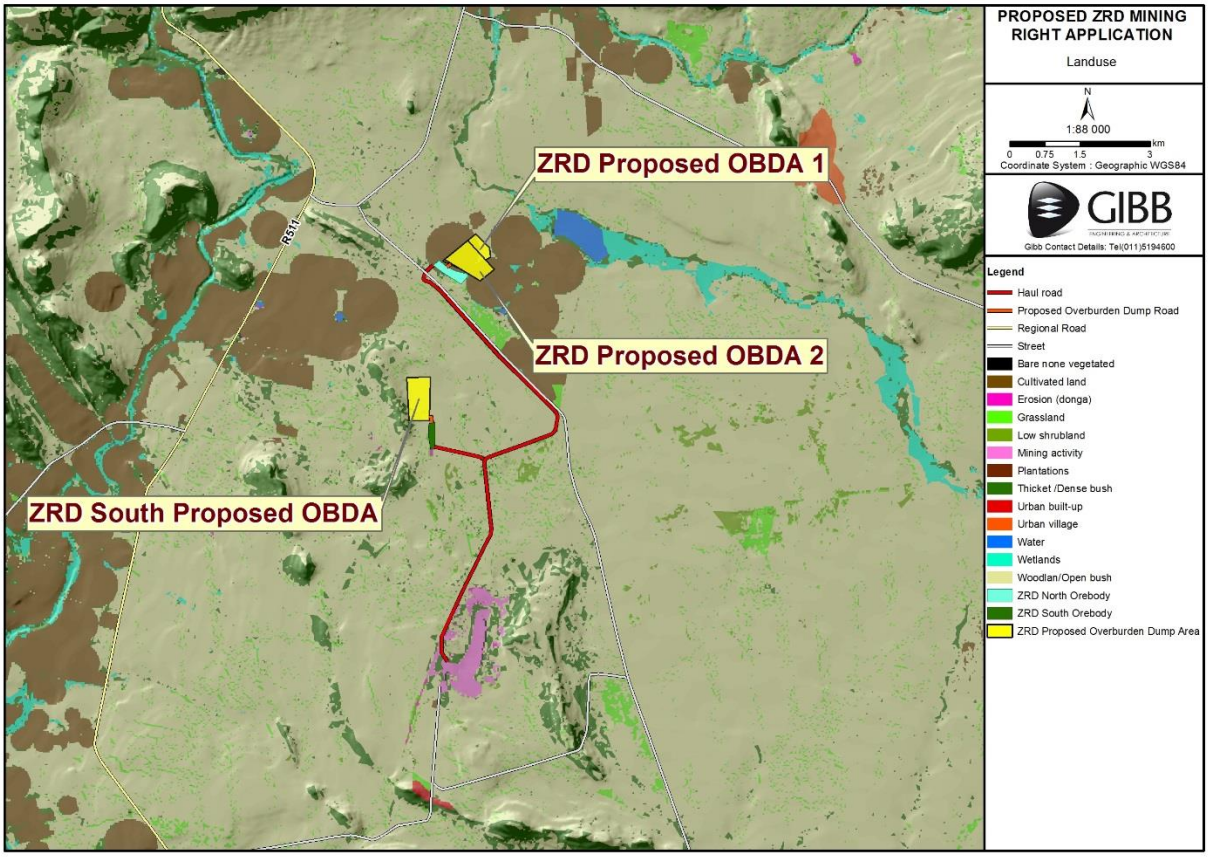



Figure 15: Land Use Map of the Study Area

## n) Identification of affected parties

(Must be informed by the current environment, land uses and infrastructure on site and include (but not be limited to) landowners, lawful occupiers, landowners and lawful occupiers on adjacent properties, municipality and municipal councillor, organs of State responsible for infrastructure on site, communities, Department of Land Affairs, Traditional Leaders, and other competent authorities affected).

Please refer to Appendix E of this report for the stakeholder database.

## o) Plan of study for the Environmental Impact Assessment process

The Plan of Study for the EIR phase of the project sets out the proposed approach to the EIR phase. The following requirements of Appendix 2, Regulation 2 (i) of the Government Notice Regulation No. 982 promulgated in terms of Section 24 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) have been considered in compiling this Plan of Study.

- A description of the tasks that will be undertaken as part of the environmental impact reporting phase, including any specialist reports or specialised processes, and the manner in which such tasks will be undertaken;
- Identify suitable measures to avoid, reverse, mitigate or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored;
- An indication of the stages at which the CA will be consulted;
- A description of the proposed method of assessing the environmental issues and alternatives, including the option of not proceeding with the activity; and
- Particulars of the public participation process that will be conducted during the environmental impact assessment process.

***Introduction***:

The purpose of the Impact Reporting phase of the S&EIR process is to:

- Address issues that have been raised during the Scoping phase;
- Assess alternatives to the proposed activity in a comprehensive and comparative manner;
- Assess all identified impacts and determine the significance of each impact; and
- Formulate mitigation measures in order to minimise negative impacts and optimise the effects of positive impacts.

Numerous acceptable approaches and methodologies exist by which the above purpose can be achieved. The legislation in South Africa, including the guideline documents published in support thereof; do not provide a specific methodology for the assessment of impacts. Rather, an assessment framework is provided within which Environmental Assessment Practitioners (EAPs) are expected to structure a project-specific assessment methodology. This assessment framework recognises that there are different methodologies available for assessing the impact of a development but that the specific methodology selected must provide for the following:

- A clear process for impact identification, prediction and evaluation;
- The specification of impact identification techniques;
- Criteria for evaluating the significance of impacts;
- The design of mitigation measures to address impacts;

- Defining types of impacts (direct, indirect or cumulative); and
- Specification of uncertainties.

The Plan of Study is set out below describing the manner in which GIBB, as the appointed EAP, intends undertaking the detailed EIR phase of the S&EIR process.

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

***Overburden Dump Area Site Alternatives:***

Two site alternatives for the proposed Overburden Dump Area associated with ZRD North ore body will be assessed as part of the EIR phase of the project. The ZRD North OBDA alternative 1 and 2 are situated approximately 1km south from the farmsteads situated on the farm Assen, on existing agricultural fields with no existing infrastructure on site.

Apart from the agricultural fields, majority of the land use is dense natural vegetation with an average height of approximately 4m high. A dirt road from Assen extending south to the existing PPC Beestekraal mine is the closest road to this site. Both ZRD North OBDA site alternatives are approximately 750 meters from this dirt road.

Please refer to Figure 16 below for the ZRD north OBDA alternative1 and 2.

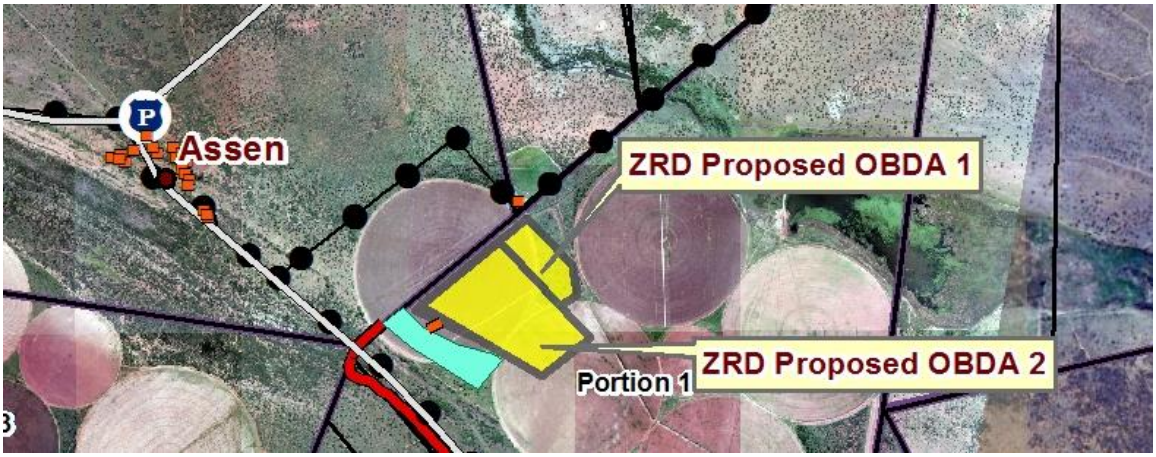



Figure 16: ZRD North OBDA Alternative 1 and 2

During the selection of the most suitable OBDA site alternative for ZRD North, the following principles will be taken into consideration:

- The opinion of the public, ascertained through the public consultation process;
- Specialist's recommendations;
- Environmental Constraints;
- Minimal environmental impacts;
- Optimisation of existing infrastructure, such as access roads; and
- Economic cost-benefit analyses.

***No-Go Alternative:***

This option assumes that the proposed development of the ZRD North and South Limestone open cast mines will not take place, and a conservative approach would ensure that the environment is

not impacted upon any more than is currently the case. It is important to state that this assessment is informed by the current environmental condition of the area. Should the decision-making Authority decline the application, the No-Go option will be followed and the status quo in terms of the environment will remain. As a result, the existing prospecting right for the area will not be converted to a mining right and various employment opportunities (related to mining, blasting and drilling operations on site) will not be created and no contribution to economic upliftment of local community and the greater region will take place. The No-Go alternative furthermore implies that PPC's ability to provide a secure and long term supply of limestone resource to the cement industry will be affected.

**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.)**.

This S&EIR process complies with the requirements of NEMA. Principles contained in NEMA, South Africa's overarching environmental legislation, serve as guidelines for interpreting and implementing the requirements of the projects.

Key principles contained in NEMA include:

- Sustainable development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs;
- Mitigation hierarchy – avoidance of environmental impact, or where this is not possible, minimising the impact and remediating the effects of the impact; and
- Developments have a duty of care towards the environment.

The assessment of the impacts associated with the various activities forming part of the proposed development, will be conducted within the context provided by these principles and objectives.

The impact assessment will be comprised of a number of specialist studies. Once completed, the findings of the specialist studies will be integrated with the Draft Environmental Impact Report (Draft EIR), where the impacts identified and assessed will be ranked using a scoring system that compares the overall impact significance of each impact.

It is proposed that the following specialist studies will be undertaken as part of the EIR phase of the project.

- Ecological Impact Assessment;
- Wetland Delineation and Impact Assessment;
- Phase 1 Archaeological / Heritage Impact Assessment;
- Agricultural Potential Impact Assessment;
- Air Quality Impact Assessment;
- Hydrogeological Impact Assessment;
- Noise Impact Assessment;
- Visual Impact Assessment

The specialist reports will be included as part of the Draft EIR and will be made available for public review before submission to the decision-making authorities. Following submission of the Draft Scoping Report to the CA, the Department may require additional specialist studies to be undertaken. Any additional relevant studies will be undertaken following discussions with the Department itself.

*South African Requirements:*

The NEMA EIA Regulations of December 2014 states that an environmental impact assessment report must contain all information that is necessary for the CA to consider the application and to reach a decision, and must include the following:

- A detailed description of the proposed activity;
- A description of the property on which the activity is to be undertaken and the location of the activity on the property;
- A description of the environment that may be affected by the activity and the manner in which the physical biological, social, economic and cultural aspects of the environment may be affected by the proposed activity;
- Details of the public participation process conducted, including –
    - Steps undertaken in accordance with the Plan of Study (PoS);
    - A list of persons, organisations and organs of state that were registered as interested and / or affected parties (I&APs);
    - A summary of comments received from, and a summary of issues raised by registered I&APs, the date of receipt of these comments and the response of the EAP to those comments; and
    - Copies of any representations and comments received from registered I&APs;
- A description of the need and desirability of the proposed activity;
- A description of identified potential alternatives to the proposed activity, including advantages and disadvantages that the proposed activity or alternatives may have on the environment and the community that may be affected by the activity;
- An indication of the methodology used in determining the significance of potential environmental impacts;
- A description and comparative assessment of all alternatives identified during the environmental impact assessment process;
- A summary of the findings and recommendations of any specialist report or report on a specialised process;
- A description of all environmental issues that were identified during the environmental impact assessment process, an assessment of the significance of each issue and an indication of the extent to which the issue could be addressed by the adoption of mitigation measures;
- An assessment of each identified potentially significant impact, including:
    - Cumulative impacts;
    - The nature of the impact;
    - The extent and duration of the impact;
    - The probability of the impact occurring;
    - The degree to which the impact can be reversed;
    - The degree to which the impact may cause irreplaceable loss of resources; and
    - The degree to which the impact can be mitigated.
- A description of any assumptions, uncertainties and gaps in knowledge;

- A reasoned opinion as to whether the activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation;
- An environmental impact statement which contains:
  - A summary of the key findings of the environmental impact assessment; and
  - A comparative assessment of the positive and negative implications of the proposed activity and identified alternatives;
- A draft environmental management programme containing;
  - Copies of any specialist reports and reports on specialised processes;
  - Any specific information that may be required by the CA.

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

A team of eight (8) specialists will be involved in the detailed impact reporting phase of the process. A summary of the specialist studies and the proposed specialist responsible for that study is provided in Table 5 below.

**Table 5: Proposed Specialist Studies to be undertaken during the EIR phase of the project**

| Specialist Study | Specialist Name |
|---|---|
| Ecological Impact Assessment | Sativa Travel and Environmental Consultants, Johannes Maree |
| Wetland Delineation and Impact Assessment | Sativa Travel and Environmental Consultants, Johannes Maree |
| Phase 1 Archaeological / Heritage Impact Assessment | Sativa Travel and Environmental Consultants, Trust Mlilo |
| Agricultural Potential Impact Assessment | Agribusiness and Environmental Consultants, J.S. Phipson |
| Air Quality Impact Assessment | EScience Associates, Abdul Ebrahim |
| Hydrogeological Impact Assessment | Impulse Water, Matthew Damhuis |
| Noise Impact Assessment | Airshed, Nicolette von Reiche |
| Visual Impact Assessment | GIBB, Deon de Witt |

The scope of each of the above individual studies is provided below.

*General Terms of Reference for all Specialist Studies:*

In April 2006, the Department of Environmental Affairs and Tourism (DEAT), now known as the Department of Environment Affairs (DEA) issued guidelines for involving specialists in S&EIR processes. The specialists are required to make themselves aware of these guidelines and amendments thereof, as well as any other guidelines, codes, standards, or applicable legislation relative to their field of expertise, and will utilise them to more precisely determine methods and approaches to their specialist studies and will reference compliance with the above-mentioned requirements accordingly. Specialists are also expected to consider best practise when undertaking their study.

The assessment of impacts should be broadly undertaken in accordance with the guidelines provided in the Guideline Document: EIA Regulations (DEA, 1998), NEMA principles, Section 24(4) of NEMA (as amended) and the DEA guideline documents as appropriate to the specific field of study. In addition, the following General Terms of Reference apply to each of the specialist studies:

- Undertake site visit(s);
- Design and undertake the specialist study in accordance with the specifications provided;
- Describe the baseline conditions that exist in the study area and identify any sensitive areas that would need special consideration;
- Provide an outline of the approach used in the study;
- Assess all project alternatives including the no-go alternative;
- Identify, assess and evaluate the possible impacts of the proposed mining development during all development phases (construction, operation and decommissioning) of the proposed project;
- Identify and assess any cumulative impacts arising from the proposed project;
- Determine the significance of assessed impacts according to the methodology provided by the Environmental Assessment Practitioner (EAP) and provide a revised significance rating of assessed impacts after the implementation of mitigation measures;
- Undertake field surveys, as appropriate to the requirements of the particular specialist study;
- Identify areas where integration of studies with other specialists would ensure a better assessment and coordinate with other specialists in this regard;
- Apply the precautionary principle in the assessment of impacts, in particular where there is major uncertainty, low levels of confidence in predictions and poor data or information;
- Recommend practicable mitigation measures to minimise or eliminate negative impacts and/or enhance potential project benefits;
- Recommend appropriate auditing, monitoring and review measures;
- Compile all information into a stand-alone report according to the format provided by GIBB;
- Take cognisance of and comply with the relevant guideline documents applicable to that particular specialist study; and
- The specialist report must comply with Appendix 6 of GN R 982 of 2014.

*Specific Terms of Reference for Specialist Assessments:*

**Ecological Impact Assessment**

The Ecological Assessment will aim to:

- A desk-top investigation of the area;
- A site visit to the proposed development site;
- Describe the relevant baseline conditions relating to the natural vegetation communities and faunal species in the area of investigation;
- Describe the anticipated environmental impacts on the natural vegetation and fauna during the construction phase and operational phase of the project;
- Describe how the negative environmental impacts as described above will be managed;
- Provide a description of the dominant and typical species occurring on site; and
- Provide a description of threatened, endemic or rare species to the Province, with an indication of the relative functionality and conservation importance of the specific community in the area under investigation.

**Wetland Delineation and Aquatic Impact Assessment**

The Wetland Assessment will aim to:

- A desk-top investigation of the area;
- A site visit to the proposed development site;

- Delineation of the wetland and riparian zones in accordance to the "DWAF, 2005: A practical Guideline Procedure for the Identification and Delineation of Wetlands and Riparian Zones" as advocated by GDARD;
- Describe the relevant baseline conditions relating to the soil morphological characteristics and vegetation types in the area of investigation;
- Wetness will be used to delineate the various zones of the wetland (permanent and temporary) according to the guidelines;
- Delineation of the buffer zone around the identified wetland areas;
- Describe the anticipated environmental impacts on the natural wetland and riparian zones during the construction phase and operational phase of the project;
- Describe how the negative environmental impacts as described above will be managed;
- Provide a description of the dominant and typical species occurring within the wetland and riparian zones of the study area; and
- Provide a description of threatened, endemic or rare species to the Province, with an indication of the relative functionality and conservation importance of the specific community in the wetland and riparian zones under investigation.

**Heritage Impact Assessment**

The heritage impact assessment needs to fulfil the requirements of Section 38 of the National Heritage Resources Act, 1995 (Act No. 25 of 1999) (NHRA). The assessment will therefore, have to cover the full range of potential cultural heritage as defined as "cultural" contained in the NHRA. The following assessments will therefore be undertaken:

- A desk-top investigation of the area;
- A site visit to the proposed development site;
- Identify possible archaeological, cultural and historic sites within the proposed development area;
- Evaluate the potential impacts of construction, operation and maintenance of the proposed development on archaeological, cultural and historical resources; and
- Recommend mitigation measures to mitigate any negative impacts on areas of archaeological, cultural or historical importance.

**Agricultural Potential Impact Assessment**

The Agricultural Potential Impact Assessment will aim to:

- A desk-top investigation of the area;
- A site visit to the proposed development site;
- Gather data relevant to the proposed investigation, by means of a site visit and client meetings;
- Determine the soil parent materials, soils data, soil quality and yield potential;
- Undertake land capability class determination of the study area;
- Report on the soil forms encountered on site and its associated agricultural potential significance relevant to the climate experienced on site;
- Evaluate the potential impacts of construction, operation and maintenance of the proposed development on study area from an agricultural point of view; and
- Recommend mitigation measures to mitigate any negative impacts on areas of agricultural potential.

**Air Quality Impact Assessment**

It is important to note that the emissions from the existing Beestekraal mine will be measured as part of this study and applied as a baseline for discussion surrounding the potential emissions that may be experienced during the operation of the proposed ZRD open cast mine. The reason for this is due to the fact that the ZRD mine does not exist as yet and therefore no air emissions can be measured and assessed for the purposes of the air quality impact assessment. The current emissions from the existing Beestekraal open cast mine will therefore be used as an indication as to what can be expected for the ZRD mine given that similar operations will be followed.

The aim of the Air Quality Impact Assessment will be to:

- A desk-top investigation of the area;
- A site visit to the proposed development site;
- Establish the background levels of ambient air pollution;
- Determine the nature and impact of emissions to be generated during the construction and operational phases of the project;
- Undertake atmospheric dispersion modelling of how air pollutant disperse in the ambient atmosphere. This data will then be used to assist in the design and assessment of various control strategies and abatement technologies for emissions reductions;
- Determine concentrations of PM10 and PM2.5 resulting from the proposed development, and the impact that these emissions may have on the receiving environment;
- Outline current or planned air quality management interventions;
- Recommend compliance and enforcement actions; and
- Make recommendations in terms of the way forward, mitigation measures and intervention requirements for implementation throughout the project lifetime.

**Hydrogeological Impact Assessment**

The aim of the Hydrogeological Impact Assessment will be to:

- A desk-top investigation of the area;
- A site visit to the proposed development site;
- Gather data relevant to the proposed investigation by means of a site visit and client meetings;
- Undertake hydro census investigation for the proposed development relevant to the study area, and to update the existing hydro census data for the area;
- Develop and undertake scenario, numerical and conceptual modelling, to inform the formulation of the results and relevant mitigation measures forming part of the hydrogeological impact assessment;
- Report on the proposed water management plan for implementation throughout the construction and operational phases of the project, constituting specific mitigation measures to address potential impacts that may arise.

**Noise Impact Assessment**

The aim of the Noise Impact Assessment will be to:

- A desk-top investigation of the area;
- A site visit to the proposed development site;

- Review the available technical information relating to the project, as well as legal requirements and applicable environmental noise guidelines;
- Determine the baseline receiving acoustic environmental conditions by means of identifying noise receivers from available maps; studying environmental noise attenuation potential by referring to available weather records, land use and topography data sources; as well as determining representative baseline noise levels through the analysis of sampled environmental noise levels obtained from a survey;
- Undertake an impact assessment including the establishment of a source inventory for the project, noise propagation simulations to determine environmental noise levels, as well as a screening of simulated noise levels against environmental noise criteria;
- Identify and derive recommendations related to suitable mitigation measures and monitoring requirements; and
- Develop a specialist noise impact assessment report constituting all potential impacts and specialist recommendation measures to address these impacts.

**Visual Impact Assessment**

The aim of the Visual Impact Assessment will be to:

- A desk-top investigation of the area including a GIS Scan;
- A site visit to the proposed development site;
- Identify and quantify the potential visual impact of the proposed development on the receiving environment from a visual impact point of view;
- Develop a digital elevation model of the study area (15km radius);
- Source and interpret relevant spatial data including vegetation types, vegetation conservation status, cadastral boundaries, existing roads and rail infrastructure, wetlands, water bodies, rivers, drainage lines, contours, land cover;
- Outline sensitive areas and other features that might be negatively affected by the proposed development. This includes residential and protected areas. Viewshed analysis will be required to determine the visual exposure and the ability of the environment to absorb the visual impact; and
- Formulate an impact report which outlines all relevant potential impacts and associated mitigation measures to address these impacts throughout the construction and operational phases of the project.

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

The objective of the assessment of impacts is to identify and assess all the significant impacts that may arise because of the proposed ZRD Limestone mining project. The process of assessing the potential impacts of the project encompasses the following four activities:

- Identification and assessment of potential impacts;
- Prediction of the nature, magnitude, extent and duration of potentially significant impacts;
- Identification of mitigation measures that could be implemented to reduce the severity or significance of the impacts of the activity; and
- Evaluation of the significance of the impact after the mitigation measures have been implemented i.e. the significance of the residual impact.

The possible impacts associated with the proposed development are identified in the Scoping phase through stakeholder consultation, as well as through input from the authorities and the EIA team.

These impacts are derived from the concerns that are identified in respect of all phases of the development including the planning, construction and operational phases. During the detailed EIR phase of the S&EIR process, additional impacts will be identified through the various specialist studies to be undertaken and through the on-going consultation process with I&APs.

*Consideration of Alternatives:*

**Overburden Dump Area Site Alternatives**

Two site alternatives for the proposed Overburden Dump Area associated with ZRD North ore body will be assessed as part of the EIR phase of the project. The ZRD North OBDA alternative 1 and 2 are situated approximately 1km south from the farmsteads situated on the farm Assen, on existing agricultural fields with no existing infrastructure on site.

Apart from the agricultural fields, majority of the land use is dense natural vegetation with an average height of approximately 4m high. A dirt road from Assen extending south to the existing PPC Beestekraal mine is the closest road to this site. Both ZRD North OBDA site alternatives are approximately 750 meters from this dirt road.

Please refer to Figure 16 for the ZRD North OBDA alternative 1 and 2.

During the selection of the most suitable OBDA site alternative for ZRD North, the following principles will be taken into consideration:

- The opinion of the public, ascertained through the public consultation process;
- Specialist's recommendations;
- Environmental Constraints;
- Minimal environmental impacts;
- Optimisation of existing infrastructure, such as access roads; and
- Economic cost-benefit analyses.

**No-Go Alternative**

This option assumes that the proposed development of the ZRD North and South Limestone open cast mines will not take place, and a conservative approach would ensure that the environment is not impacted upon any more than is currently the case. It is important to state that this assessment is informed by the current environmental condition of the area. Should the decision-making Authority decline the application, the No-Go option will be followed and the status quo in terms of the environment will remain. As a result, the existing prospecting right for the area will not be converted to a mining right and various employment opportunities (related to mining, blasting and drilling operations on site) will not be created and no contribution to economic upliftment of local people and the greater region will take place. The No-Go alternative furthermore implies that PPC's ability to provide a secure and long term supply of limestone resource to the cement industry will be affected where other means to achieve this goal will then need to be investigated.

*Environmental Impact Report:*

The contents of the Environmental Impact Report (EIR) (as per section 23 and Appendix 3 of GN R 982) will include the following:

- Details and expertise of the EAP to undertake a S&EIR process;
- Detailed description of the proposed activity;

- Detailed description of the property on which the activity is to be undertaken and the location of the activity on the property;
- A description of the environment that may be affected by the activity and the manner in which the physical, biological, social, economic and cultural aspects of the environment may be affected by the proposed activity;
- Details of the PPP conducted during the detailed assessment phase of the S&EIR process;
- A description of the need and desirability of the proposed activity;
- A description of identified potential alternatives to the proposed activity, including advantages and disadvantages that the proposed activity or alternatives may have on the environment and the community that may be affected by the activity;
- An indication of the methodology used in determining the significance of potential environmental impacts;
- A description and comparative assessment of all alternatives identified during the environmental impact reporting phase;
- A summary of the findings and recommendations of any specialist report or report on specialised process;
- A description of all environmental issues that were identified during the environmental impact reporting phase, an assessment of the significance of each issue and an indication of the extent to which the issues could be addressed by the adoption of mitigation measures;
- An assessment of each identified potentially significant impact in terms of cumulative impacts, the nature of the impact, the extent and duration of the impact, the probability of the impact occurring, the degree to which the impact can be reversed, the degree to which the impact may cause irreplaceable loss of resources and the degree to which the impact can be mitigated;
- A description of any assumptions, uncertainties and gaps in knowledge;
- A reasoned opinion as to whether the activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation;
- An environmental impact statement which contains a summary of the key findings of the environmental impact assessment, a comparative assessment of the positive and negative implications of the proposed activity and identified alternatives;
- A draft Environmental Management Programme (EMPr);
- Copies of any specialist reports and reports on specialised processes; and
- Any specific information that may be required by the CA and any other matters required in terms of sections 24(4)(a) and (b) of NEMA.

*Draft Environmental Management Programme (EMPr):*

During the compilation of the EIR, a draft EMPr will be compiled in accordance with Section 24 of the NEMA and as detailed in appendix 4 of GNR. 982. The draft EMPr will provide the actions for the management of identified environmental impacts emanating from the proposed project and a detailed outline of the implementation programme to minimise and/ or eliminate the anticipated negative environmental impacts. The draft EMPr will provide strategies to be used to address the roles and responsibilities of environmental management personnel on site, and a framework for environmental compliance and monitoring. The draft EMPr will be included as part of the EIR.

The EMPr will thus include the following:

- Details and expertise of the person who prepared the EMPr;

- Information on any proposed management or mitigation measures that will be taken to address the environmental impacts that are identified in the EIR, including environmental impacts or objectives in respect of planning and design, pre-construction and construction activities, operation or undertaking of the activity, rehabilitation of the environment and closure where relevant;
- A detailed description of the aspects of the activity that are covered by the draft EMPr;
- An identification of the persons who will be responsible for the implementation of the measures;
- Proposed mechanisms for monitoring compliance with the EMPr and reporting thereof; and
- As far as reasonable practicable, measures to rehabilitate the environment affected by the undertaking of any listed activity or specified activity to its natural or predetermined state or to a land use which conforms to the generally accepted principle of sustainable development, including, where appropriate, concurrent or progressive rehabilitation measures.

### v. The proposed method of assessing significance

In accordance with GN R 982 of the EIA Regulations (2014), specialists will be required to assess the significance of potential impacts in terms of the following criteria:

- Cumulative impacts;
- Nature of the impact;
- Extent of the impact;
- Probability of the impact occurring;
- The degree to which the impact can be reversed;
- The degree to which the impact may cause irreplaceable loss of resources; and
- The degree to which the impact can be mitigated.

Table 6 provides a summary of the criteria which GIBB proposes to use to assess the significance of the potential impacts identified. An explanation of these impact criteria is provided in Table 7.

**Table 6: Proposed Criteria and Rating Scales to be used in the Assessment of the Potential Impacts**

| Criteria | Rating Scales | Notes |
|---|---|---|
| Nature | Positive | An evaluation of the effect of the impact related to the proposed development |
| | Negative | |
| Extent | Footprint | The impact only affects the area in which the proposed activity will occur |
| | Site | The impact will affect only the development area |
| | Local | The impact affects the development area and adjacent properties |
| | Regional | The effect of the impact extends beyond municipal boundaries |

| Criteria | Rating Scales | Notes |
|---|---|---|
| | National | The effect of the impact extends beyond more than 2 regional/ provincial boundaries |
| | International | The effect of the impact extends beyond country borders |
| Duration | Temporary | The duration of the activity associated with the impact will last 0-6 months |
| | Short term | The duration of the activity associated with the impact will last 6-18 months |
| | Medium term | The duration of the activity associated with the impact will last 18 months-5 years |
| | Long term | The duration of the activity associated with the impact will last more than 5 years |
| Severity | Low | Where the impact affects the environment in such a way that natural, cultural and social functions and processes are minimally affected |
| | Moderate | Where the affected environment is altered but natural, cultural and social functions and processes continue albeit in a modified way; and valued, important, sensitive or vulnerable systems or communities are negatively affected |
| | High | Where natural, cultural or social functions and processes are altered to the extent that the natural process will temporarily or permanently cease; and valued, important, sensitive or vulnerable systems or communities are substantially affected. |
| Potential for impact on irreplaceable resources | No | No irreplaceable resources will be impacted. |
| | Yes | Irreplaceable resources will be impacted. |
| Consequence | Extremely detrimental | A combination of extent, duration, intensity and the potential for impact on irreplaceable resources |
| | Highly detrimental | |
| | Moderately detrimental | |
| | Slightly detrimental | |
| | Negligible | |
| | Slightly beneficial | |
| | Moderately beneficial | |
| | Highly beneficial | |
| | Extremely beneficial | |
| Probability (the likelihood of the impact occurring) | Improbable | It is highly unlikely or less than 50 % likely that an impact will occur. |
| | Probable | It is between 50 and 70 % certain that the impact will occur. |
| | Definite | It is more than 75 % certain that the impact will occur or it is definite that the impact will occur. |
| Significance | Very high - negative | A function of Consequence and Probability |
| | High - negative | |

| Criteria | Rating Scales | Notes |
|---|---|---|
| | Moderate - negative | |
| | Low - negative | |
| | Very low | |
| | Low - positive | |
| | Moderate - positive | |
| | High - positive | |
| | Very high - positive | |

**Table 7: Explanation of Assessment Criteria**

| | |
|---|---|
| **Nature** | This is an evaluation of the type of effect the construction, operation and management of the proposed development would have on the affected environment. Will the impact change in the environment be positive, negative or neutral? |
| **Extent or scale** | This refers to the spatial scale at which the impact will occur. Extent of the impact is described as: footprint (affecting only the footprint of the development), site (limited to the site) and regional (limited to the immediate surroundings and closest towns to the site). Extent or scale refers to the actual physical footprint of the impact, not to the spatial significance. It is acknowledged that some impacts, even though they may be of small extent, are of very high importance, e.g. impacts on species of very restricted range. In order to avoid "double counting, specialists have been requested to indicate spatial significance under "intensity" or "impact on irreplaceable resources" but not under "extent" as well. |
| **Duration** | The lifespan of the impact is indicated as temporary, short, medium and long term. |
| **Severity** | This is a relative evaluation within the context of all the activities and the other impacts within the framework of the project. Does the activity destroy the impacted environment, alter its functioning, or render it slightly altered? |
| **Impact on irreplaceable resources** | This refers to the potential for an environmental resource to be replaced, should it be impacted. A resource could possibly be replaced by natural processes (e.g. by natural colonisation from surrounding areas), through artificial means (e.g. by reseeding disturbed areas or replanting rescued species) or by providing a substitute resource, in certain cases. In natural systems, providing substitute resources is usually not possible, but in social systems substitutes are often possible (e.g. by constructing new social facilities for those that are lost). Should it not be possible to replace a resource, the resource is essentially irreplaceable e.g. red data species that are restricted to a particular site or habitat of very limited extent. |
| **Consequence** | The consequence of the potential impacts is a summation of above criteria, namely the extent, duration, intensity and impact on irreplaceable resources. |
| **Probability of occurrence** | The probability of the impact actually occurring based on professional experience of the specialist with environments of a similar nature to the site and/or with similar projects. It is important to distinguish between probability of the impact occurring and probability that the activity causing a potential impact will occur. Probability is defined as the probability of the impact occurring, not as the probability of the activities that |

| | |
|---|---|
| | may result in the impact. |
| **Significance** | Impact significance is defined to be a combination of the consequence (as described below) and probability of the impact occurring. The relationship between consequence and probability highlights that the risk (or impact significance) must be evaluated in terms of the seriousness (consequence) of the impact, weighted by the probability of the impact actually occurring.<br><br>In simple terms, if the consequence and probability of an impact is high, then the impact will have a high significance. The significance defines the level to which the impact will influence the proposed development and/or environment. It determines whether mitigation measures need to be identified and implemented and whether the impact is important for decision-making. |
| **Degree of confidence in predictions** | Specialists and the EIA team were required to provide an indication of the degree of confidence (low, medium or high) that there is in the predictions made for each impact, based on the available information and their level of knowledge and expertise. Degree of confidence is not taken into account in the determination of consequence or probability. |
| **Mitigation measures** | Mitigation measures are designed to reduce the consequence or probability of an impact, or to reduce both consequence and probability. The significance of impacts has been assessed both with mitigation and without mitigation. |

Consideration will also be given to potential cumulative impacts as illustrated below, occur as a result from the combined effect of incremental changes caused by other activities together with the particular project. In other words, several developments with insignificant impacts individually may, when viewed together, have a significant cumulative adverse impact on the environment (Figure 17).

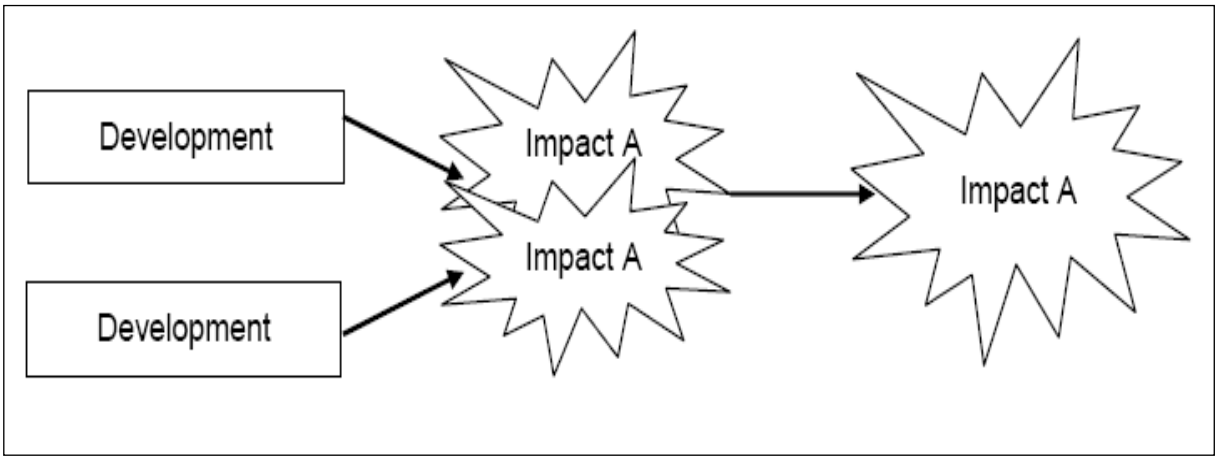



Figure 17: Cumulative Impacts

An indication of the degree of confidence (low, medium or high) that there is, in the predictions made for each impact, based on the available information and the specialist /. EAP's level of knowledge and expertise will also be reported. The Degree of confidence will however not be taken into account in the determination of consequence or probability.

This assessment will be done initially for the scenario where no mitigation measures are implemented. Mitigation measures will then be identified and considered for each impact and the assessment

repeated in order to determine the significance of the residual impacts (the impact remaining after the mitigation measure has been implemented) (refer to Table 9 and 10). The results of the assessment of the significance of the residual impacts will then be linked to decision-making by Authorities.

The objective of the assessment of impacts is to identify and assess all the significant impacts that may arise as a result of the proposed development. For each of the main project phases the existing and potential future impacts and benefits (associated only with the proposed development) were described using the criteria listed in below. This was done in accordance with Government Notice R.982, promulgated in terms of Section 24 of the NEMA and the criteria drawn from the IEM Guidelines Series, Guideline 5: Assessment of Alternatives and Impacts, published by the DEAT (April 1998). The assignment of ratings will be undertaken based on past experience of the EIA team, as well as through research. Subsequently, mitigation measures will be identified and considered for each impact and the assessment repeated in order to determine the significance of the residual impacts (the impact remaining after the mitigation measure has been implemented).

**Table 8: Example of Impact Assessment Matrix**

| | Pre-mitigation: | | | | | | | Recommended mitigation | Post-mitigation: | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Impact | Duration | Extent | Severity | Impact on irreplaceable resources | Consequence | Probability | Significance | | Duration | Extent | Severity | Impact on irreplaceable resources | Consequence | Probability | Significance | Confidence |
| **CONSTRUCTION PHASE** | | | | | | | | | | | | | | | | |
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| **OPERATIONAL PHASE** | | | | | | | | | | | | | | | | |
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| **DECOMMISIONING PHASE** | | | | | | | | | | | | | | | | |
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**Table 9: Impact Assessment Matrix Key**

| Duration | | Extent | | Irreplaceable Resources | | Severity | | Probability | | Consequence = (Duration+Extent+Irr) x Severity | | Significance | | Confidence |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Temporary | 1 | Footprint | 1 | Yes | -3 | High - negative | 0 | Improbable | -25 to -33 | Extremely detrimental | -49 to -66 | Very high - negative | Low |
| 2 | Short term | 2 | Site | 0 | No | -2 | Moderate - negative | 1 | Probable | -19 to -24 | Highly detrimental | -37 to -48 | High - negative | Medium |
| 3 | Medium term | 3 | Local | | | -1 | Low -negative | 2 | Definite | -13 to -18 | Moderately detrimental | -25 to -36 | Moderate - negative | High |
| 4 | Long term | 4 | Regional | | | 0 | Negligible | | | -7 to -12 | Slightly detrimental | -13 to -24 | Low - negative | |
| | | 5 | National | | | 1 | Low -positive | | | 0 to -6 | Negligible | 0 to -12 | Very low - negative | |
| | | 6 | International | | | 2 | Moderate - positive | | | | | | | |
| | | | | | | 3 | High - positive | | | 0 to 6 | Negligible | 0 to 12 | Very Low - positive | |
| | | | | | | | | | | 7 to 12 | Slightly beneficial | 13 to 24 | Low - positive | |
| | | | | | | | | | | 13 to 18 | Moderately beneficial | 25 to 36 | Moderate - positive | |
| | | | | | | | | | | 19 to 24 | Highly beneficial | 37 to 48 | High - positive | |
| | | | | | | | | | | 25 to 33 | Extremely beneficial | 49 to 66 | Very high - positive | |

**vi. The stages at which the Competent Authority will be consulted**

- Pre application consultation meetings held with the competent authority on Friday, 20 May 2016;
- Public review of Draft Scoping Report;
- Approval of Final Scoping Report;
- Public review of Draft EIR;
- Approval of Final EIR;
- Any additional ad-hoc meetings during these stages.

**vii. Particulars of the public participation process that will be conducted**

*Public Review of EIR and EMPr:*

The Draft EIR (with associated specialist studies) and EMPr will be distributed to suitable public venues with comment sheets, which will be collected at the end of the public review and comment period. Registered I&APs will be informed of the location and contact details of the public venues.

A commenting period of at least 30 days will be provided for registered I&APs to comment on the Draft EIR. Comments on the Draft EIR will be captured and responded to in the updated Comments and Response Report (CRR). Thereafter, the Draft EIR will be finalised into a Final EIR, which will be submitted to the Competent Authority (CA) for their review and decision making. All registered I&APs will be informed of the availability of the Final EIR. Any comments received on the Final EIR will be submitted directly to the CA for their review and consideration.

**a) 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).

All Interested and/or Affected Parties (I&APs) will be notified by means of undertaking the following activities:

- Windeed searches;
- Knock and drops of notification letters;
- Public Meeting (during the scoping and EIR phase of the project);
- Placement of Site Notices in conspicuous places in the vicinity of the study area;
- Placement of Advertisements in the local newspaper;
- Meetings held with relevant associations such as the Farmers Union; and
- Using existing databases from existing mines in the area such as the PPC Ltd Beestekraal mine.

**b) Details of the engagement process.**
(Describe the process to be undertaken to consult interested and affected parties including public meetings and one on one consultations. 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).

*Draft Reports for Public Review:*

All the issues raised to date will be captured in a Draft Scoping Report and Draft EIR. The reports will be written in a way accessible to stakeholders in terms of language level, fog index and general coherence (note the DEA Guidelines – the public participation agency must be able to produce readable reports).

A period of 30 calendar days will be allowed for public comment. The availability of the Draft Reports will be announced by way of:

- All initial contact with I&APs;
- Personalised letters to all I&APs on the database;
- Posters at selected public places to announce the opportunity to comment; and
- The printed media (where necessary).

The reports will be distributed for comment as follows:

- Public places such as libraries, municipal offices and community centres throughout the study area where the broader public can have access to it;
- Copy of CD available on request by key stakeholders; and
- Available on the GIBB website.

Public review of the Draft Reports will be by the following methods:

- Written comment, including e-mail – a comment sheet asking I&APs to respond to particular questions will accompany the report;
- Verbal comment during stakeholder consultations; and
- Verbal comment during public meetings (if any).

Various public participation products will be produced within the course of this EIA. This will include the following:

- Invitation letter to comment and be registered on the stakeholder database;
- Site Notices (x3);
- Comments and Response Report (CRR);
- Two (2) local newspaper advertisements (one for announcement of the project and one for announcement of the decision on the application);
- Draft report notice letters to stakeholders and I&APs;
- Public meeting and Focus group meetings;
- Announcement of Environmental Authorisation; and
- PDF versions of all documents for publishing on the GIBB project's website.

*Notification of Environmental Authorisation:*

All I&APs will receive a letter at the end of the process notifying them of the authorities' decision, thanking them for their contributions, and explaining the appeals procedure.

**c) 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 be notified of the project by means of I&AP notification letters, site notices and advertisements. The content of these documents will provide I&APs with the necessary information related to the proposed development as well as elaborate further on the ways in which they can get more information, register as an I&AP as well as how to engage in the process going forward.

Furthermore, hard copies of the scoping report will be made available for public review and comment at public venues. The complete report will also be uploaded onto the GIBB Project website with the specific link to access the report included in the notification letters sent out to all registered I&APs on the project. I&APs will therein be able to review the content of the reports and provide comments, which will need to be taken into consideration during the detailed EIR phase of the project.

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

The information collated during the Scoping Phase, the PPP and the specialist studies will be compiled into the Draft EIR document, which will be made available for a 30 day period in suitable public places (e.g. libraries) and on the GIBB website to allow for I&APs to readily access and comment on the report. The comments arising from I&APs during the public review period for the Draft EIR, will be used to finalise the EIR for submission to the relevant Competent Authority for review and decision making.

The method of impact assessment using a significance rating matrix will be applied in order to quantify the significance of the environmental impact(s) that the project will have, without and with the recommended mitigation measures. This methodology is in line with the NEMA EIA Regulations of 2014 and the associated guideline documents. This method will be integrated in the terms of reference for all specialist studies in order to ensure uniformity and continuity throughout the detailed impact assessment phase.

All information will be compiled into the EIR. The content of the EIR is prescribed in Appendix 3 of Government Notice No. R. 982 of 2014. Cumulative impacts as well as impacts of the proposed facility itself will be assessed. As required by the EIA regulations (2014), alternatives including the no-go option will be evaluated.

Please refer to Section o) iv) and v) above for more detailed information.

**b) An undertaking under oath or affirmation by the EAP in relation to the level of agreement between the EAP and interested and affected parties on the plan of study for undertaking the environmental impact assessment; and**

The EAP hereby declares that the proposed Plan of Study and detailed EIR will meet all legal requirements as outlined in GNR 982 as well as take into consideration and furthermore address all concerns raised by I&APs during the scoping phase of the project.

**c) Any other matter required in terms of sections 24(4)(a) and (b) of the Act.**

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:-

**i. An explanation of how the impact on the socio-economic conditions of any directly affected person will be addressed. (To 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 an Appendix and confirm how the applicable mitigation (normally compensation in the form of purchasing or leasing the land) will be provided for).**

It should be noted that PPC Ltd currently owns the farm where the ZRD South ore body and associated infrastructure is located.

Landowners will be compensated by way of such agreements as may be negotiated between the parties for the portions of land affected on farms that are not owned by PPC Ltd itself which will be required for the implementation / operation of the limestone mine.

**ii. The impact on any national estate referred to in section 3(2) of the National Heritage Resources Act. (To 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 an Appendix and confirm that the applicable mitigation will be reflected in the EIR).**

From the baseline information available for the study area, it has been established that a few old farmsteads (older than 60 years) are located throughout the Assen area, on the farm portion owned by PPC Ltd. It is not envisaged that the proposed development will have any direct impact on any of these farmsteads, however the extent and severity of the impacts resulting from the proposed development on the surrounding heritage / archaeological resources (if any) will be assessed as part of the heritage impact assessment during the detailed EIR phase of the project.

**-END-**