

## RUSTENBURG PLATINUM MINES LTD: MOTOTOLO PLATINUM MINE

Draft Basic Assessment report for the proposed  
new parking area at the Mototolo Complex  
(Borwa Shaft)

FOR PUBLIC COMMENT

Date: September 2022



Stewards



Problem Solvers



Team Players

*Influencing decisions since 2000 through identification, quantification and mitigation of environmental, safety, health and compliance risks*

## Executive Summary

Rustenburg Platinum Mines Ltd: Mototolo Mine (hereafter referred to as “Mototolo Mine”) is an existing operation situated in the Limpopo Province, near Steelpoort. The mine proposes to construct an additional parking area at the Borwa Shaft to accommodate more vehicles at the shaft and avoid near-hits associated with the limited parking space on site. The study area associated with the proposed project is situated on Portion 7 of the farm Thornccliffe 374 KT and the area that will be cleared for the additional parking area will extend approximately 19 000 m<sup>2</sup>. The new parking area will accommodate approximately 120 parked vehicles.

Due to the extent and nature of the activities associated with the proposed project, the Environmental Assessment Practitioner (“EAP”) has identified that a Basic Assessment (“BA”) process is required in terms of the NEMA EIA Regulations, GN R.982 dated 2014, as amended.

This Basic Assessment Report (“BAR”) has investigated and assessed the significance of the predicted, potential positive and negative direct, indirect, and cumulative impacts associated with the proposed project, with mitigation and management actions included in the Environmental Management Programme report (“EMPr”) in Part B of this BAR.



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# PART A:

## SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT

### 1 Details of project applicant and environmental assessment practitioner

#### 1.1 Details of project applicant

Name of operation	Rustenburg Platinum Mines Ltd: Borwa Shaft
Applicant	Rustenburg Platinum Mines Ltd.
Postal address	55 Marshall Street, Marshalltown
Responsible person	Karabo Motene
Telephone no.	072 695 3064
e-mail address	Karabo.Motene@angloamerican.com
Company registration no.	1931/03380/06

#### 1.2 Details of the environmental assessment practitioner

EAP	Shangoni Management Services (Pty) Ltd.: Renate Steffens
Tel No	(012) 807 7036
Fax No	(012) 807 1014
e-mail Address	renate@shangoni.co.za

#### 1.3 Expertise of the environmental assessment practitioner

Name and Surname	Qualifications and summary of experience
Renate Steffens	Renate Steffens is a senior environmental consultant with more than 6 years' experience in drafting Basic Assessment Reports, Scoping Reports, Environmental Impact Assessments ("EIA"s), Environmental Management Programme Reports ("EMPr"s), Integrated Water and Waste Management Plans ("IWWMP"s) and Integrated Water Use Licence Applications ("IWULA"s). Renate also has the following experience in auditing: External Water Use Licence audits, Environmental Authorisation audits and Environmental Management Programme audits. Renate has also gained valuable experience in Geographic Information Systems ("GIS") in compiling regional, locality and infrastructure maps and mine plans.
Nico Brits	Nico obtained a M.Sc. in Water Resources Management and a B.Sc. Hons. degree in Environmental Management from the University of Pretoria and is a registered Pri.Sci.Nat. Scientist. He also registered as an EAP with EAPASA in 2020. He is a principal environmental consultant responsible for the





Name and Surname	Qualifications and summary of experience
	Integrated Water Use Licenses (“IWULA”) and the Integrated Water and Waste Management Plans (“IWWMP”) at Shangoni with over 11 years’ experience. He is also involved with Environmental Management, Environmental Impact Assessments (“EIA”) and Environmental Management Programmes (“EMP”).

## 2 Description of the property

Farm name	Portion 7 of farm Thorncliffe 374 KT
Application area (ha)	Approximately 2 ha
Magisterial district	Greater Tubatse Local Municipality
Distance and direction from nearest town	70 km East of Lydenburg
21-digit Surveyor General code for each farm portion	T0KT00000000037400007

## 3 Locality of the proposed project

Province	Limpopo
District municipality	Greater Sekhukhune District Municipality
Local municipality	Greater Tubatse Local Municipality
Department of Minerals Resources and Energy (“DMRE”), Competent Authority (“CA”)	DMRE Polokwane
Department of Water and Sanitation (“DWS”) Regional Office	Lydenburg Regional Office
Catchment zone	Olifants Primary River Catchment
Water Management Area (“CMA”)	Olifants River Water Management Area
Quaternary catchment	B41G

## 4 Description of the scope of the proposed overall activity

The Rustenburg Platinum Mines Ltd - Mototolo Mine (“Mototolo Mine”) is an existing operation situated in the Limpopo Province, approximately 31 km south of Steelpoort and 35 km west of Mashishing (Lydenburg). Mototolo Mine is situated in the Limpopo Province, the Sekhukhune District Municipality and the Greater Tubatse Local Municipality and falls within the regional authority of the Department of Water and Sanitation (“DWS”), Mpumalanga Regional Office.

The regional setting of Mototolo Mine, Borwa Shaft is indicated in Figure 1 below. The Borwa and Lebowa shafts located on Thorncliffe was acquired from GlencoreXtrata. Due to the transfer in





ownership, the Mototolo Mine Borwa Shaft parking area has reached maximum capacity. As a result, the Mototolo Mine proposes to construct a new parking area at the Borwa Shaft (hereafter referred to as the “proposed project”) to accommodate more vehicles on site. The study area associated with the proposed project is situated on Portion 7 of the farm Thorncliffe 374 KT. Refer to Figure 2 showing the properties affected by the proposed project. The area that will be cleared for the construction of the additional parking area will extend approximately 19 000 m<sup>2</sup> and will accommodate 120 parked vehicles. Mototolo Mine proposes to surface the parking area with appropriate G5 grade gravel material which will allow permeability of flow and reduce flood peaks and runoff. The construction of the parking area will include excavation of holes for the plinths, in support of the roof structure. Concrete works will be limited to the plinths. The storm water around the parking area will be directed into the current dirty water footprint and no road will be constructed as the parking area will be constructed next to the existing clinic where roads are already in place.



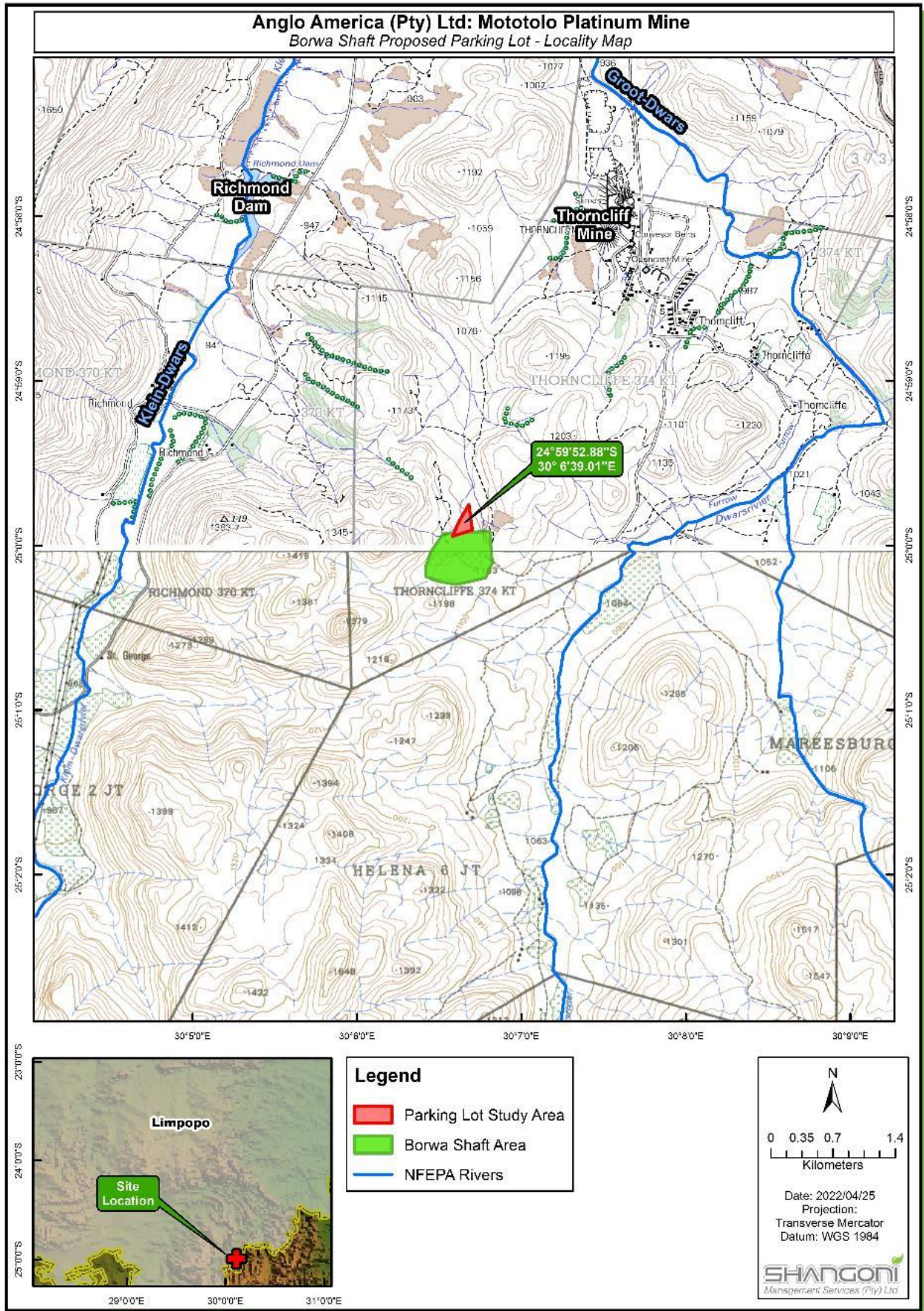


Figure 1: Locality Map





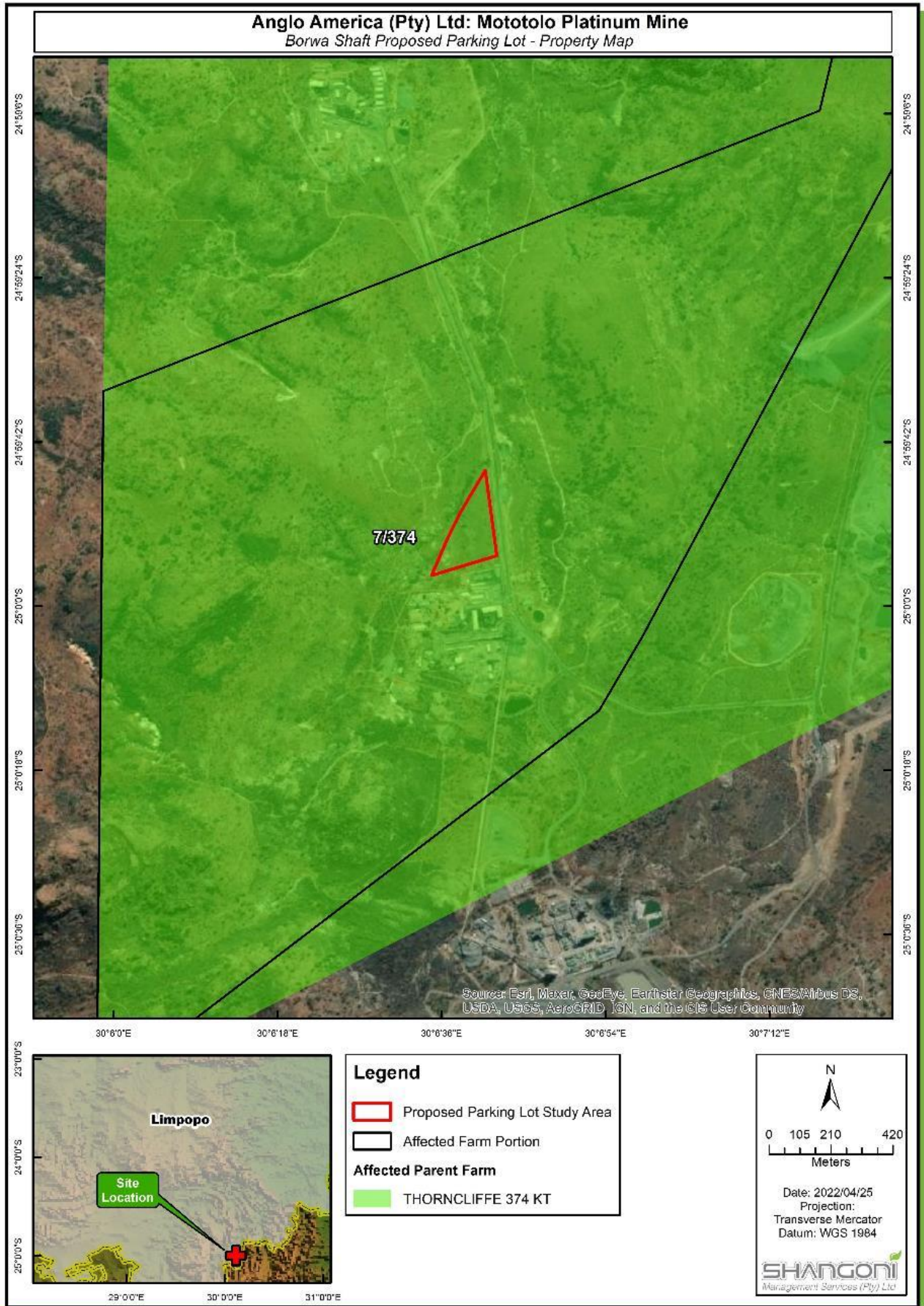


Figure 2: Layout map



## 4.1 Listed and specified activities

The proposed project will trigger the following authorisations:

- An Environmental Authorisation (“EA”) for listed activities provided in the Environmental Impact Assessment Regulations Listing Notices of 2014, as amended and published in terms of Sections 24(2), 24 (5), 24D, 44 and 47(A) (1) (b) of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (“NEMA”), as amended.
- A General Authorisation (“GA”) for water use activities in terms of the National Water Act (Act No. 36 of 1998) (“NWA”).

For the EA, a Basic Assessment (“BA”) is conducted in accordance with the NEMA and the Environmental Impact Assessment Regulations, 2014 (GN R982 of 4 December 2014) (“GN R982”), as amended. Listed activities have been identified and provided in Table 1.

A GA in terms of the NWA will be applied for separately, due to the proximity (approximately 40m) of the proposed project to an Ephemeral Drainage Line (“EDL”).

*Table 1: Activities and listed activities associated with the proposed project.*

Name of activity	Aerial extent of the activity (Ha or m <sup>2</sup> )	Listed activity. Mark with an x where applicable or affected.	Applicable listing notice (GNR 983, GNR 984 or GNR 985)
Clearance of vegetation	Approximately 2 ha	X	<p><b><u>Activity 27 of Listing Notice 1 (GNR 983 of 4 December 2014, as amended):</u></b></p> <p><i>The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for—</i></p> <p><i>(i) the undertaking of a linear activity; or</i></p> <p><i>(ii) maintenance purposes undertaken in accordance with a maintenance management plan.</i></p>
Clearance of vegetation in a CBA area.	Approximately 2 ha	X	<p><b><u>Activity 12 of Listing Notice 3 (GNR 983 of 4 December 2014, as amended):</u></b></p> <p><i>The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.</i></p> <p>e) Limpopo</p> <p><i>i. Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004;</i></p>



Name of activity	Aerial extent of the activity (Ha or m <sup>2</sup> )	Listed activity. Mark with an x where applicable or affected.	Applicable listing notice (GNR 983, GNR 984 or GNR 985)
			<p>ii. Within critical biodiversity areas identified in bioregional plans; or</p> <p>iii. On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning.</p>

## 5 Policy and legislative context

Table 2: Policy and legislative context

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT
The Constitution of the Republic of South Africa (1996).	The Constitution of the Republic of South Africa was considered and applied throughout the Basic Assessment Report ("BAR"), as the Constitution states that everyone has the right; (a) to an environment that is not harmful to their health or well-being; and (b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that; (i) prevent pollution and ecological degradation; (ii) promote conservation; and (iii) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.
The Promotion of Access to Information Act, 2000 (Act No. 2 of 2000).	Without access to information, a person may be unable to determine whether or not his or her right to just administrative action (or to an environment not harmful to human health or wellbeing or, for that matter, any other Constitutional right) has been infringed. The purpose of the Promotion of Access to Information Act ("PAIA") is to give effect to the Constitutional right of access to any information held by the State and any information that is held by another person and that is required for the exercise or protection of any rights, and to provide for matters connected therewith. In addition to providing access to information, cognisance should be taken that PAIA also makes provision for the refusal of access to information that is deemed to be of a sensitive, confidential or classified nature. This is captured under Chapter 4 of part 2 and 3 of PAIA.
The Environmental Impact Assessment Regulations (GN R982 dated 2014, as amended).	The BAR was compiled in terms of the requirements of Appendix 1 of the Environmental Impact Assessment ("EIA") Regulations (GN R.982 dated 2014, as amended).
The Environmental Impact Assessment Regulation. Listing Notice 1. (GN R983 dated 2014, as amended).	Activity 27 of Listing Notice 1 are applied for as part of the proposed project.
The Environmental Impact Assessment Regulation. Listing Notice 2. (GN R984 dated 2014, as amended).	None applicable.
The Environmental Impact Assessment Regulation. Listing	Activity 12 of Listing Notice 3 are applied for as part of the proposed project.



APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT
Notice 3. (GN R985 dated 2014, as amended).	
Guideline on Need and Desirability in terms of the Environmental Impact Assessment (“EIA”) Regulations, 2010. Government Notice 891 of 2014	The need and desirability were assessed for the proposed project and are discussed in terms of the required format contained in the Guideline on Need and Desirability (GN 891 of 2014).
The National Water Act (Act No. 36 of 1998, as amended).	The proposed project will require a General Authorisation (“GA”) due to the proximity to an EDL (approximately 40m), as per the outcome of the GN 509 Risk Assessment that was undertaken. The GA will be applied for separately.
The National Environmental Management: Biodiversity (Act 10 of 2004, as amended).	Biodiversity disturbance related to the proposed project were taken into account when the sites were selected.
Conservation of Agricultural Resources (Act 43 of 1983).	Erosion potential will be assessed and mitigated (in accordance with this act) during the construction and operational phases of the proposed project.
SABS Code of Practice 0103 of 2008: The measurement and rating of environmental noise with respect to land use, health, annoyance and to speech communication. SABS Code of Practice 0328 of 2008: Environmental Noise Impact Assessments.	The SABS Code of Practice 0103 will be taken into account when the mitigation measures for the proposed project are identified.
National Heritage Resources Act (Act No. 25 of 1999, as amended).	A Heritage Impact Assessment was undertaken, and mitigation measures provided in the report was considered in the risk matrix.

## 6 Need and desirability of the project

### 6.1 Need and Desirability in terms of the Guideline on Need and Desirability, 2017

In 2017, the then Department of Environmental Affairs published an Integrated Environmental Management Guideline, the Guideline on Need and Desirability. The following provides information on how the guideline requirements were considered in this BAR and should be read in conjunction with the guideline.

#### 6.1.1 How will this development (and its separate elements/aspects) impact on the ecological integrity of the area?<sup>1</sup>

- The ecological integrity of the area has been assessed as part of the specialist assessments (wetland impact assessment) with the baseline environmental description provided in section 7.4.

<sup>1</sup> Section 24 of the Constitution and section 2(4)(a)(vi) of NEMA refer.





Chapter E, F and L. The potential impacts that have been identified and may occur because of the proposed activities are discussed in section 7.5 of this document.

- Alternatives have been identified to limit the impact to natural resources. Refer to section 7.1 in Part A of this document for the alternative locations and section 7.7 for the advantage as disadvantages of these alternatives.
- With current knowledge the level of risk associated with the activity can be considered low. Refer to section 16 of Part A in this document. The potential risks have been identified in section 7.5 and were further assessed in detail in Section 8 and in the EMPr section of Part B of this document.

### 6.1.2 Promoting justifiable economic and social development<sup>2</sup>

- The area of jurisdiction of Fetakgomo Greater Thubatse Local Municipality (“FGTLM”) is approximately 4 550 km<sup>2</sup> (2020/21 Draft Consolidated IDP for Fetakgomo Greater Tubatse Municipality). According to the FGTLM, the northern part has inferior social and engineering infrastructure that impacts on the stability of the economy in this area. This may be attributed to the rural nature of the area. As such, upliftment in the area is of critical importance. In addition, safety of the employees is the mine’s first priority and by the implementation of the proposed project, safety will be improved and the risk of near-hits reduced.
- A conservative approach was followed in terms of the identification and assessing of environmental impacts associated with the proposed project.
- No negative impacts on the socio-economy as a result of the proposed project have been identified. Refer to section 7.7 of this report for the identification of positive impacts.
- The needs of the community will be determined through the public participation process of this BAR with the results of the public participation process presented in the final BAR. The public participation process that will be conducted aims to ensure that all I&APs are provided with an opportunity of access to information regarding the proposed project and to raise any concerns or provide any comments on the project.

## 7 Motivation for the overall preferred site, activities and technology alternative including a full description of the process followed to reach the proposed preferred alternatives within the site

### 7.1 Details of the development footprint alternatives considered

Specialist input was obtained in order to identify alternatives associated with the proposed project. The following categories of alternatives have been identified:

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<sup>2</sup> Section 24 of the Constitution refers.





- Location and layout alternatives, and
- No-go alternative.

No alternatives in terms of the technology were considered for the proposed project.

The section below is a summary of the alternatives considered. Detailed advantages and disadvantages of each alternative are described in section 7.7 of this report.

### 7.1.1 Location and layout alternatives

#### **Preferred location:**

The study area for the preferred location referred to as “Option A” (refer to Figure 3) is located directly north of the Borwa Shaft, and adjacent to the Mototolo Mine Road that connects the Borwa Shaft and the Lebowa Shaft. The study area for the preferred location is mostly undisturbed, and comprise of ferns, geophytes, grasses, herbs, shrubs, small trees, succulents and large trees. An EDL was identified in the western section of the study area as well as Protected Trees (*Sclerocarya birrea* (A.Rich.) Hochst. ssp. *caffra* (Sond.)).

#### **Preferred layout:**

Option A has been designed in such a way to avoid disturbance within the 32-meter buffer of the existing EDL as well as the Protected Trees located within the study area. The design also includes surfacing the parking area with appropriate G5 grade gravel material that will allow permeability of flow and reduce flood peaks and runoff.

#### **Alternative layout:**

Two alternative layouts within the same study area were originally considered (Figure 4), however, these were developed prior to the undertaking of any specialist studies. After completion of the specialist studies, it was noted that the original two layouts would have resulted in the disturbance of the Protected Trees and were subsequently eliminated to avoid disturbance to the Protected Trees identified within the study area.

#### **No-go option for the proposed activities:**

The no-go option would be the status quo whereby a lack of sufficient parking space at the Borwa Shaft remain as well as the safety risks associated with the limited parking space.



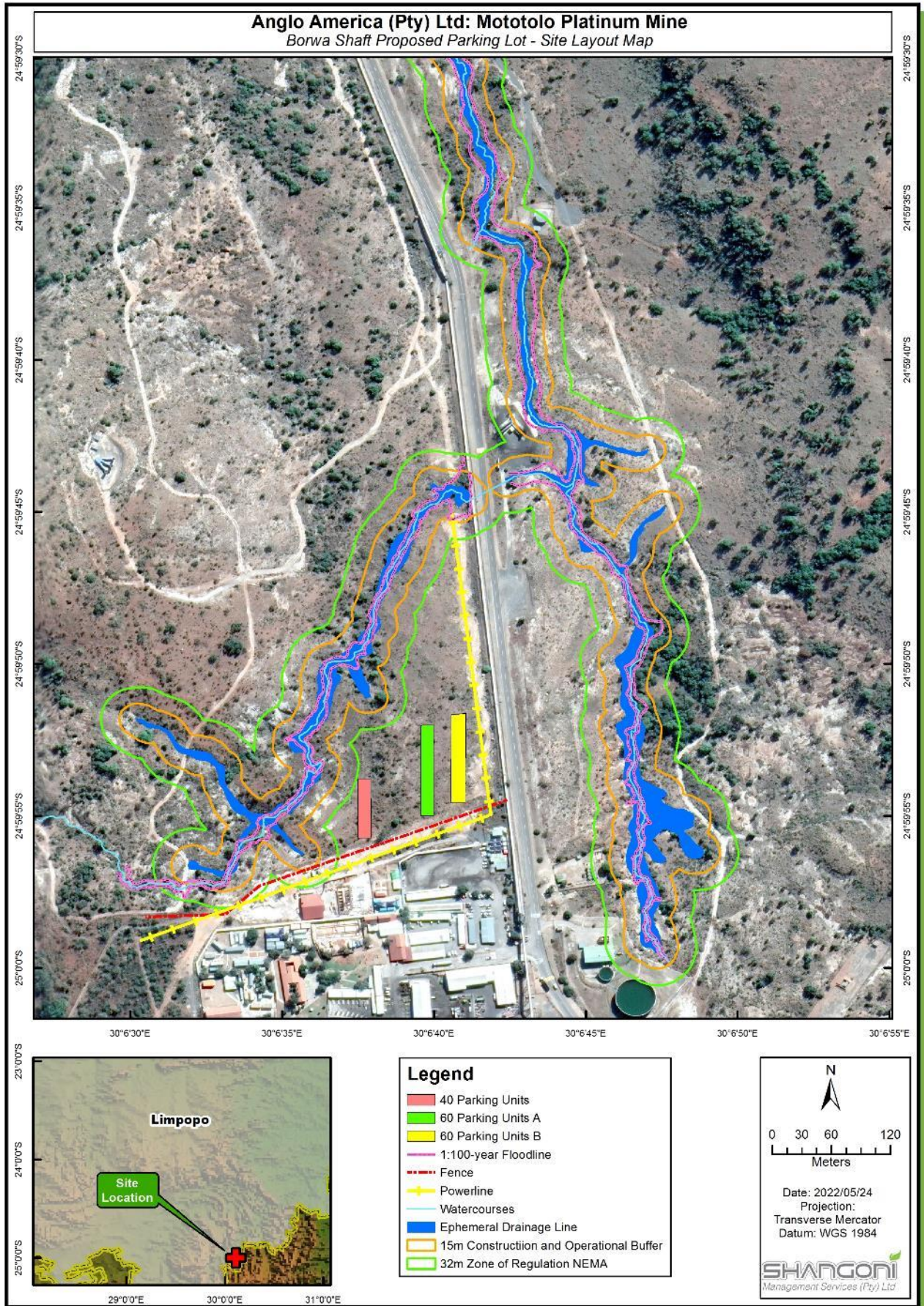


Figure 3: Site Layout of preferred location (Option A)







Figure 4: Site layout alternative 1 (top) and 2 (below), eliminated due to existence of Protected Trees within the footprint.



## 7.2 Details of the Public Participation Process followed

The public participation process for the proposed project will be conducted in terms of:

- The procedures and provisions in terms of the NEMA.
- Chapter 6 of the 2014 EIA Regulations.
- GN 807 of 2012; Public Participation Guideline.
- Other relevant legislation such as the Promotion of Access to Information Act (“PAIA”), 2000.

A detailed public participation process will be undertaken, and included the following:

- Key stakeholder identification.
- Method of notifications, e.g. advertisements, site notices, Background Information Document (“BID”), email notifications.
- Registration of Interested and Affected Parties (“I&APs”) and key stakeholders.
- Access and opportunity to comment on the draft BAR by I&APs.
- Consultation with the relevant authorities.

The following key stakeholder will be identified and notified of the proposed project:

- Landowner/s.
- Lawful occupier/s of the land.
- Landowners or lawful occupiers on adjacent properties.
- Municipal councillor.
- Municipality.
- Organs of state.
- Communities.
- Other Competent Authorities affected.

The following notification and consultation methods will be used:

- A newspaper advertisement will be placed in the local newspaper.
- Site notices will be placed around the proposed project site at different, noticeable places; Background Information Document (“BID”) will be sent to key stakeholders with email notifications.
- The potential key stakeholders will be notified of the proposed project and will be provided with the opportunity to register as an I&AP.

The draft BAR will be made available to the public for review for a period of thirty (30) days. An electronic copy of the BAR will also be posted on the Shangoni’s website ([www.shangoni.co.za](http://www.shangoni.co.za)) for public comment for the same period of thirty days.

After the I&APs comments have been addressed, the final BAR will be submitted to the Department of Mineral Resources and Energy (“DMRE”) for review. Once the DMRE has made a decision, registered stakeholders will be notified of the decision.



### 7.3 Summary of issues raised by I&APs

The table below will be completed when the final BAR is compiled and will provide a summary of the comments and issues raised and reaction to those responses.

INTERESTED AND AFFECTED PARTIES	DATE COMMENTS RECEIVED	ISSUES RAISED	EAPS RESPONSE TO ISSUES AS MANDATED BY THE APPLICANT	SECTION AND PARAGRAPH REFERENCE IN THIS REPORT WHERE THE ISSUES AND OR RESPONSE WERE INCORPORATED
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## 7.4 The Environmental attributes associated with the baseline environment

### 7.4.1 Type of environment affected by the proposed activity.

A baseline description or “status quo” of the present environmental situation is provided in this part of the document. The following attributes / aspects have been described in detail, in the following respective chapters:

- Chapter A: Geology
- Chapter B: Climate
- Chapter C: Topography
- Chapter D: Soil, land use and land capability
- Chapter E: Vegetation
- Chapter F: Fauna
- Chapter G: Surface water
- Chapter H: Groundwater
- Chapter I: Air Quality
- Chapter J: Noise
- Chapter K: Archaeology and Cultural History
- Chapter L: Sensitive Landscapes
- Chapter M: Visual Aspects
- Chapter N: Regional socio-economic structures

#### Chapter A: Geology

The following information was extracted from the *Anglo American – Mototolo Mine Hydrogeological study for Borwa and Lebowa Shafts Final Report date: 05 November 2020*, compiled by Shangoni AquScience.

The proposed project area lies on the southwestern edge of the Central Transvaal Basin. The geology comprises the Black Reef Quartzite formation, to the south, overlain by the Malmani Subgroup, comprising chert free and chert rich dolomites of the Oaktree, Monte Christo and Lyttelton formations.

The sequence dips gently towards the NNW at approximately 10°. The Malmani strata unconformably overlies an eroded surface of Andesitic lava and sediments of the Ventersdorp. An unconformable cover of argillaceous sediments of the Karoo Supergroup rests on the older rocks.

Surface deposits comprising calcrete, gravel, alluvium, chert rubble, clay and red soils form a covering over a large portion of the area, (extrapolated from the 1:250,000 geological maps 2624 Vryburg and 2626 West Rand).

The area is intruded by dolerite dykes of younger pre-Karoo age trending ENE – WSW, NNW – SSE, NE – SW and S - N forming variable degrees of compartmentalisation of the dolomite. The Hendriksdal and Blaauwbank dykes are considered to be impermeable while the upper portions of the



Elizabeth, Greefslaagte and Paarl dykes are considered moderately permeable dykes, allowing groundwater flow, when relatively shallow, to migrate between adjacent compartments. There are no major structural lineaments (faults) traversing the area. Where dykes are seen to be offset, these are inferred to be caused by possible localised structural features.

Various other similar mining operations are located near the Mototolo Mine. Mototolo Mine is located higher up in the lithological succession and mine the UG2 and the Merensky Reef. The former outcrops with a N-S strike in the west of the farm occupying the mid-slope section west of the Groot-Dwarsrivier. The UG2 lies some 180 to 210 m below the Merensky reef and outcrops in the gently sloping lower-slope section of the Groot-Dwars River valley.

The Borwa and Lebowa mining areas are located in the Dwarsrivier Subsuite of the Rustenburg Layered Suite of the Bushveld Complex. The Dwarsriver Subsuite comprise mostly of medium to coarse-grained norite, anorthosite and pyroxenite.

## Chapter B: Climate

The climate in the proposed project area can be characterised as a warm- temperate summer-rainfall region. Meteorological data were obtained from the closest South African Weather Service Station ("SAWSS") in Lydenburg, as well as on site from the Central Management Office ("CMO"). Mean annual rainfall is in the region of 700 mm/a with most rainfall occurring between October and April. Summer temperatures are high, and infrequent frost occurs in winter. The area has a warm to hot climate and a fairly high humidity in summer with average daily temperatures ranging from 32°C in January to 24°C in July.

## Chapter C: Topography

The following information was extracted from the *Terrestrial Ecological EIA Assessment for the proposed Borwa Shaft Parking Lot at the Mototolo Mine near Steelpoort in the Limpopo Province*, dated April 2022 and compiled by Bathusi Environmental Consulting.

The general region of the Mototolo Mine area is highly mountainous. The topography of the area is influenced by the underlying geology of the area, as well as the climatic conditions and is characterised by rugged areas and steep gradients (refer to Figure 5). The regional topography is rugged with steep slopes and incised valleys that strike east to west and north-east to south-west. Elevation at the site is approximately 1114m, situated within a shallow valley between low mountains to the east (1163m) and west (1340m). The terrain morphological class of the area can be described as hills and mountains with moderate and high relief (Kruger 1983). The area is characterized by steep-sided mountain ridges, with flatter terrain in between. The relief of the region measures approximately between 940 and 2000m.

The site generally slopes in a north-eastern direction, although the slopes is highly variable, notably along the drainage line at the north-western perimeter of the site.







Figure 5: Tilted view to indicate the topographical placement of the study site below the hills (view from the east) (Source: Bathusi Environmental Consulting, 2022).

#### Chapter D: Soil, land use and land capability

The following information was extracted from the *Terrestrial Ecological EIA Assessment for the proposed Borwa Shaft Parking Lot at the Mototolo Mine near Steelpoort in the Limpopo Province*, dated April 2022 and compiled by Bathusi Environmental Consulting.

The proposed project study area falls predominantly within “D” and “Ib” land types. D land types provide for land where duplex (highly erodible) soils predominate. Upland soils that exhibit duplex characteristics include Estcourt, Sterkspruit, Swartland, Valsrivier and Kroonstad forms. After subtracting exposed rock, stones, or boulders, more than half of the remaining land must consist of duplex soils. Dc, specifically, indicates land that qualifies for inclusion in D, but, in addition to the duplex soils, more than 10 % of the land type is made up of soils forms that have one or more of the vertic, melanic, or red structured diagnostic horizons. High variability of soils across the proposed development footprints were noted, ranging between rocky and gravelly soils in upland areas, red, sandy and loamy soils in midland positions and soils of a dark, clayey and structured disposition in bottomland positions, exposed rocksheets and eroded streambanks.

Ib type soils also indicate that the major topographic placement is defined by the dominant soil forms, with Mispah and overlying Hutton forms (brown to reddish-brown, structure-less to weakly structured, sandy clay loam topsoil on reddish-brown subsoil on rock) predominate the higher lying areas. Low lying areas are dominated by dark brown to black, moderately structured crumbly clay topsoil on strongly structured clay subsoils (mainly Bonheim and Milkwood forms interspersed with Arcadia, Inhoek and Mayo forms), often prone to high erosion levels. A low agricultural capability (due to dominating shallow and rocky soils) is typical and grazing and conservation has been indicated as the natural capability of the land.





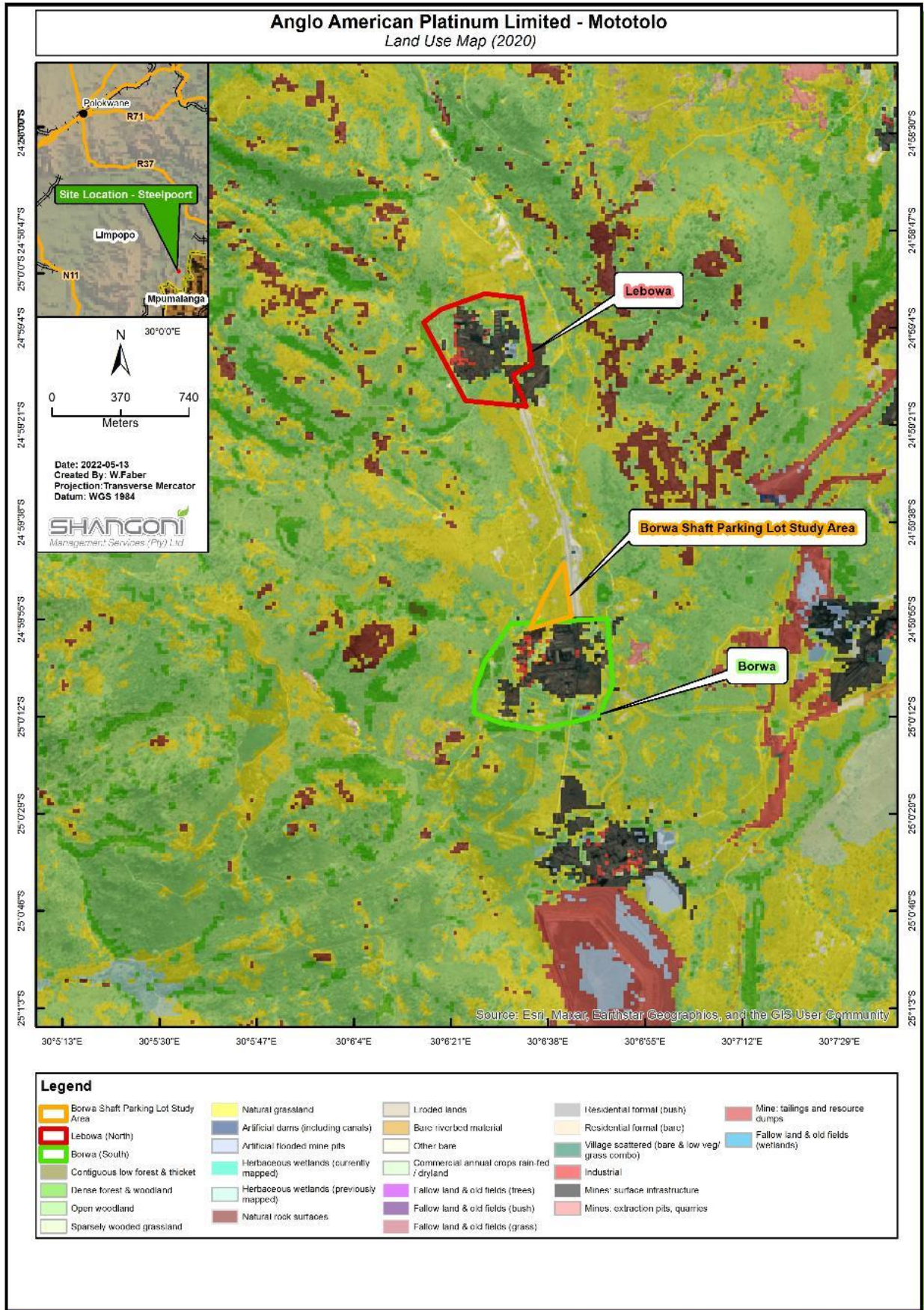


Figure 6: Land types of the site and immediate surrounds (Source: Bathusi Environmental Consulting, 2022).



## Chapter E: Vegetation

The following information was extracted from the *Terrestrial Ecological EIA Assessment for the proposed Borwa Shaft Parking Lot at the Mototolo Mine near Steelpoort in the Limpopo Province*, dated April 2022 and compiled by Bathusi Environmental Consulting.

The known floristic richness of the region reflects the high regional floristic richness context of the Savanna Biome, as well as the regional ecological type (Sekhukhune Mountain Bushveld). It is therefore reasonable to expect that untransformed and natural (indigenous) vegetation within the immediate region is likely to exhibit similarly high floristic richness and diversity patterns. However, because of extensive and large-scale deterioration of the savanna types in the local region, much of the area does not reflect the natural status of the savanna type, but rather a somewhat depauperate and depleted species composition that strongly reflects the deteriorated and altered vegetational structures. The study area also falls within an Ecological Support Area 1 (“ESA 1”).

The flora of the proposed project site is characterised by locally variable micro-habitat types that has their origin from heterogeneous slopes, and highly variable geomorphological, topographical and moisture regimes. While low levels of deterioration are noticeable from the site, nearby activities contributed to significant and unavoidable impacts on the flora of the area.

Habitat types within the site was found to be abundantly represented on a wider geographic scale, but while no unique habitat type was noted, small portions do represent habitat types that are somewhat restricted on a wider scale. The floristic constituents of the site are considered representative of the regional type, but is common and ubiquitous to the wider region. In addition to a moderately high floristic diversity, the presence of several conservation important plant species was recorded, resulted in a moderate-high floristic sensitivity of the receiving environment. Specifically, the ephemeral drainage line, which is situated adjacent to the planned footprint, is considered highly sensitive as a result of the abundant presence of conservation important plant species and impacts in this environment should be avoided at all costs.

Table 3 provides a list of protected and conservation important plant species that were recorded from the proposed project study area during the brief site inspection undertaken in March 2022. It is emphasised that valid permits need to be obtained from the Limpopo Department of Economic Development, Environment and Tourism (“LEDET”) and Department of Forestry, Fisheries and Environment (“DFFE”) prior to the removal, damage, relocation, or any other activity that might affect these species. Refer to Figure 7 that depicts the location of these species within the study area and Figure 8 for the study area relative to ESA 1.

*Table 3: Plant species of conservation concern recorded in the respective development footprints*

Species Name	Conservation / Invasive Status	Abundance/ Note
<i>Jamesbrittenia macrantha</i> (Codd) Hilliard	Near Threatened (IUCN) Sekhukhuneland endemic (VEGMAP)	Declining population status due to expanding mining activities in the region. Generally, occurs on grassy slopes with scattered shrubs, flowering between March and April. Restricted to



Species Name	Conservation / Invasive Status	Abundance/ Note
		norite and often associated with disturbed road reserves. Moderate/ low abundance on site, less than 20 individuals.
<i>Lydenburgia cassinoides</i> N.Robson	Near Threatened (IUCN). Protected Tree (National Forest Act, 1998)	Abundantly recorded in the drainage line adjacent to the northwest of the site. Moderate/ low abundance on the site, less than 10 individuals recorded from the development footprint. Also, abundantly present within the wider surrounds.
<i>Myrothamnus flabellifolius</i> Welw.	Data Deficient – Taxonomically Problematic (IUCN)	Restricted to open rocksheets, localised localities within study site, less than 30 individuals. Well represented in local surrounds as numerous areas of suitable habitat is present on a wider scale. Approximately 30 individuals recorded from the site, restricted to localised habitat.
<i>Rhoicissus sekhukhuniensis</i> Retief, Siebert & A.E.van Wyk	Least Concern (IUCN) Sekhukhune Endemic (Vegmap)	Preferred habitats include mountainous areas among boulders on dry, warm slopes descending towards nonperennial streams. A low number of this species was recorded from drainage line adjacent to the site, none recorded from the site. Low number of individuals recorded in the surrounds, none recorded from the development footprint.
<i>Sclerocarya birrea</i> (A.Rich.) Hochst. ssp. <i>caffra</i> (Sond.) Kokwaro	Least Concern (IUCN) Protected Tree (National Forest Act, 1998)	Single individual recorded from site, however, abundantly represented in surrounds as suitable habitat is present on a wider scale. Small individuals noted from nearby areas that are already transformed, likely due to growth from discarded pips.





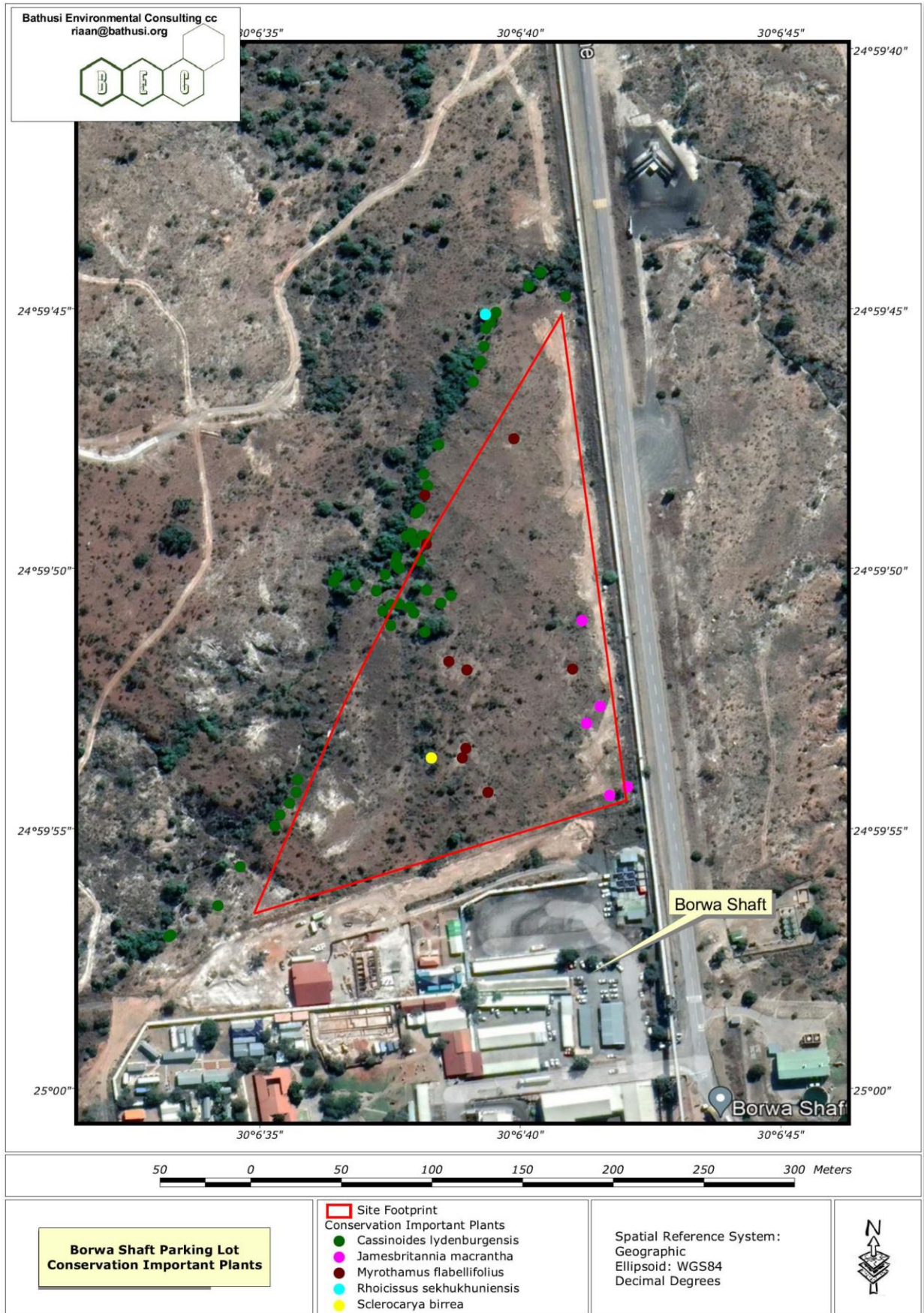


Figure 7: Images highlighting plant taxa of conservation concern that were recorded from the site (March 2022)(Source: Bathusi Environmental Consulting, 2022)





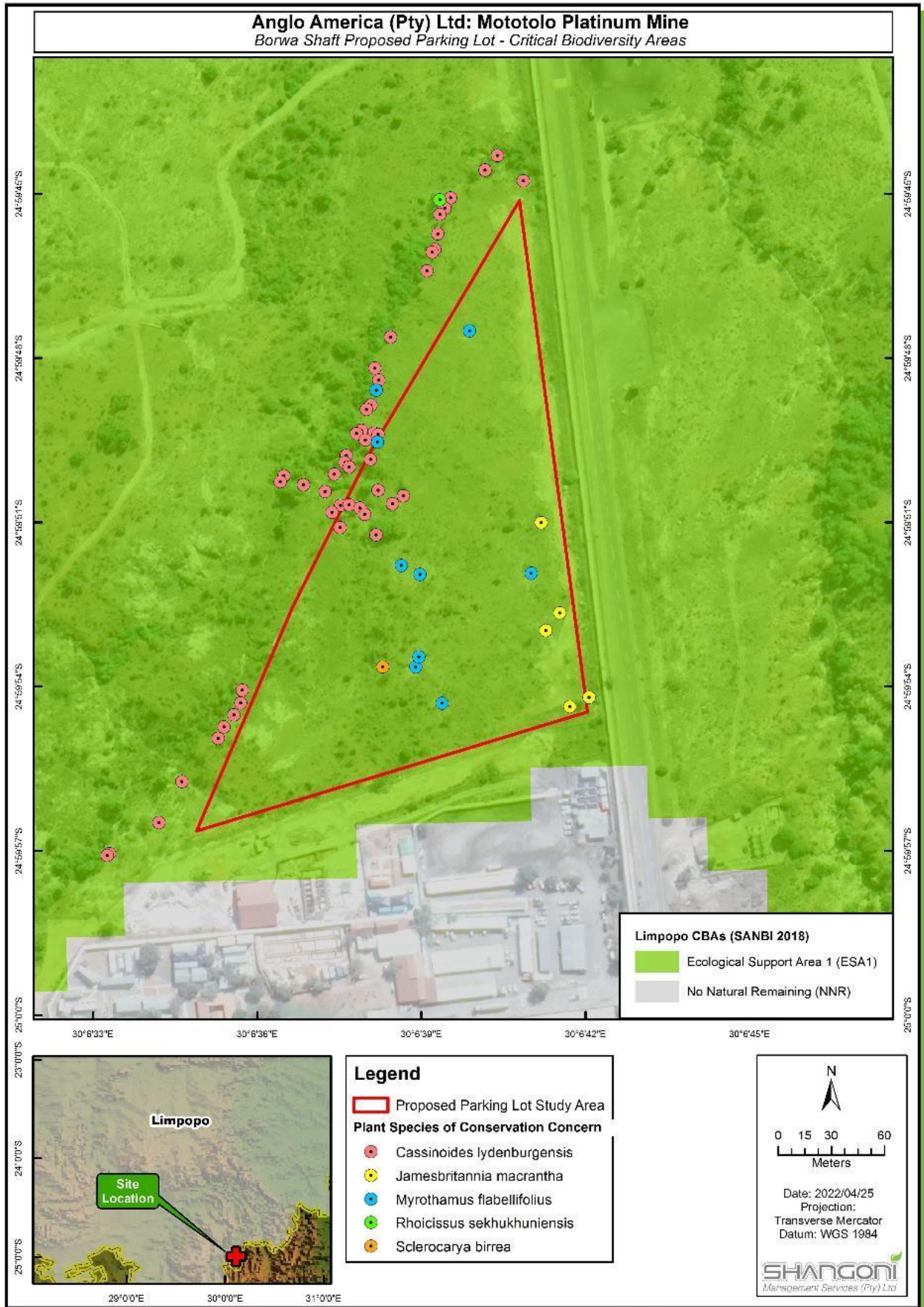


Figure 8: Study area relative to the Limpopo Ecological Support Area 1.



## Chapter F: Fauna

The following information was extracted from the *Terrestrial Ecological EIA Assessment for the proposed Borwa Shaft Parking Lot at the Mototolo Mine near Steelpoort in the Limpopo Province*, dated April 2022 and compiled by Bathusi Environmental Consulting.

Faunal habitat quality, diversity and status within the proposed development footprint is considered representative of the wider geographical region, comprising a variable woodland that, although potentially harbouring a high diversity of fauna species, was found to be comparatively species poor, which is best explained by the instantaneous nature of the survey, the small size of the site, but most importantly, the high disturbance level from surrounding mining infrastructure and activities.

Faunal species that were recorded and also considered likely inhabitants of the site are mainly represented by widespread and ubiquitous taxa that show large distribution ranges across the Savanna Biome. Charismatic and threatened animal taxa are generally considered unlikely inhabitants on the site, apart from migratory and opportunistic (short periods) presence.

### Mammals

Species that were recorded during the site inspection, include the Common Duiker (*Sylvicapra grimmia*), Vervet Monkey (*Chlorocebus Pygerythrus*), Southern Chacma Baboon (*Papio ursinus ssp. Ursinus*), House Cat (*Felis catus*), and the African Savanna Hare (*Lepus victoriae (saxatilis)*). The brief survey indicated a comparatively poor mammal compliment of only 5 mammal species recorded during the brief site inspection, best explained by the small size of the site and the instantaneous nature of the site inspection. Habitat status and variability from the site and immediate surrounds, exhibiting natural and pristine status, are however regarded suitable for a higher diversity of mammal species. From the brief habitat evaluation, it is estimated that 7 species previously recorded from the Q grids are either considered highly likely to utilise habitat from the study site or have been confirmed from the brief inspection.

Of the 5 species that were recorded during the site inspection, 2 species have not been previously recorded from the wider region, despite the ubiquitous nature of these species, and the availability of extensive areas of natural habitat for numerous other mammal species. The occurrence of common house cats is considered a potential threat to locally indigenous biota in the immediate surrounds.

### Herpetofauna

No threatened or near-threatened amphibian species are considered likely to occur within the site or immediate surrounds. The Sekhukhune Flat Lizard (*Platysaurus orientalis orientalis*) was confirmed from the study site where it was widespread to large boulders and outcrops. This species is restricted to the Sekhukhuneland region and its conservation status on national level is regarded as least concern (sensu Bates et al., 2014). During the site inspection, only reptile 3 species were recorded, which likely reflects on the brief nature of the survey period. While habitat within the site is considered natural and representative of the regional ecological type, a high reptile and, specifically, amphibian





diversity will be noted from the site. total of 18 reptile species are considered likely to persist on the site, none of which is included in a threatened category.

### **Avifauna**

Only 19 bird species have been recorded during the brief site inspection. This low diversity reflects the small size of the site and the brief nature of the survey. Habitat within the site correlates to natural woodland of the region and a higher diversity will undoubtedly be noted should the extent of the survey be extended temporally or geographically. However, the comparatively low presence of endemic and near-endemic species noted from existing observation records would indicate that the study area is not considered as an important endemic bird area, or "hotspot" area which could sustain avian speciation over evolutionary times.

The Cape Vulture (*Gyps coprotheres*) was the only species of conservation concern that was observed on the study site, at high altitude flying over the site March 2022 site visit. Considering the mountainous terrain of the surrounding region, it is regarded as a regular foraging visitor to the wider region, although unlikely directly utilising habitat from the study site.

Ultimately a moderate faunal sensitivity is ascribed to the site and anticipated impacts will likely be of medium significance (prior to mitigation), although any impacts in the EDL will be of high significance. The implementation of the suggested mitigation approach is expected to result in the amelioration of the anticipated impacts to an acceptable level. Specific priority should be afforded to the development of a prevention and management programme to discourage the presence of any problem, pest, or invasive animals within the larger mining activity. Human intervention and behaviour modifications will be required.

## **Chapter G: Surface water**

The following information was extracted from the *Anglo American – Mototolo Mine Hydrogeological study for Borwa and Lebowa Shafts Final Report date: 05 November 2020*, compiled by Shangoni Aquiscience.

### **Water Management Area**

The proposed project site is situated in Primary Catchment (B) of the Olifants River. The Olifants Water Management Area ("WMA") comprises four sub-catchment management areas. The Mototolo Mine and proposed project site is situated in the Steelpoort sub-catchment area, which is underlain by the eastern limb of the Bushveld Igneous Complex ("BIC"), the world's largest and most valuable layered intrusion.

The Mototolo mine is situated in quaternary catchment B41G (Figure 9). The main rivers and tributaries in the area are the Groot Dwars River, and the Klein Dwars River.

On a regional scale, the current ecosystem category of 'A' is an indication of the pristine nature of the catchment. However, smaller scale impacts that can be identified in this resource rich area are impacted due to the existing mining activities and initiatives. Category A can be defined as unmodified and natural.



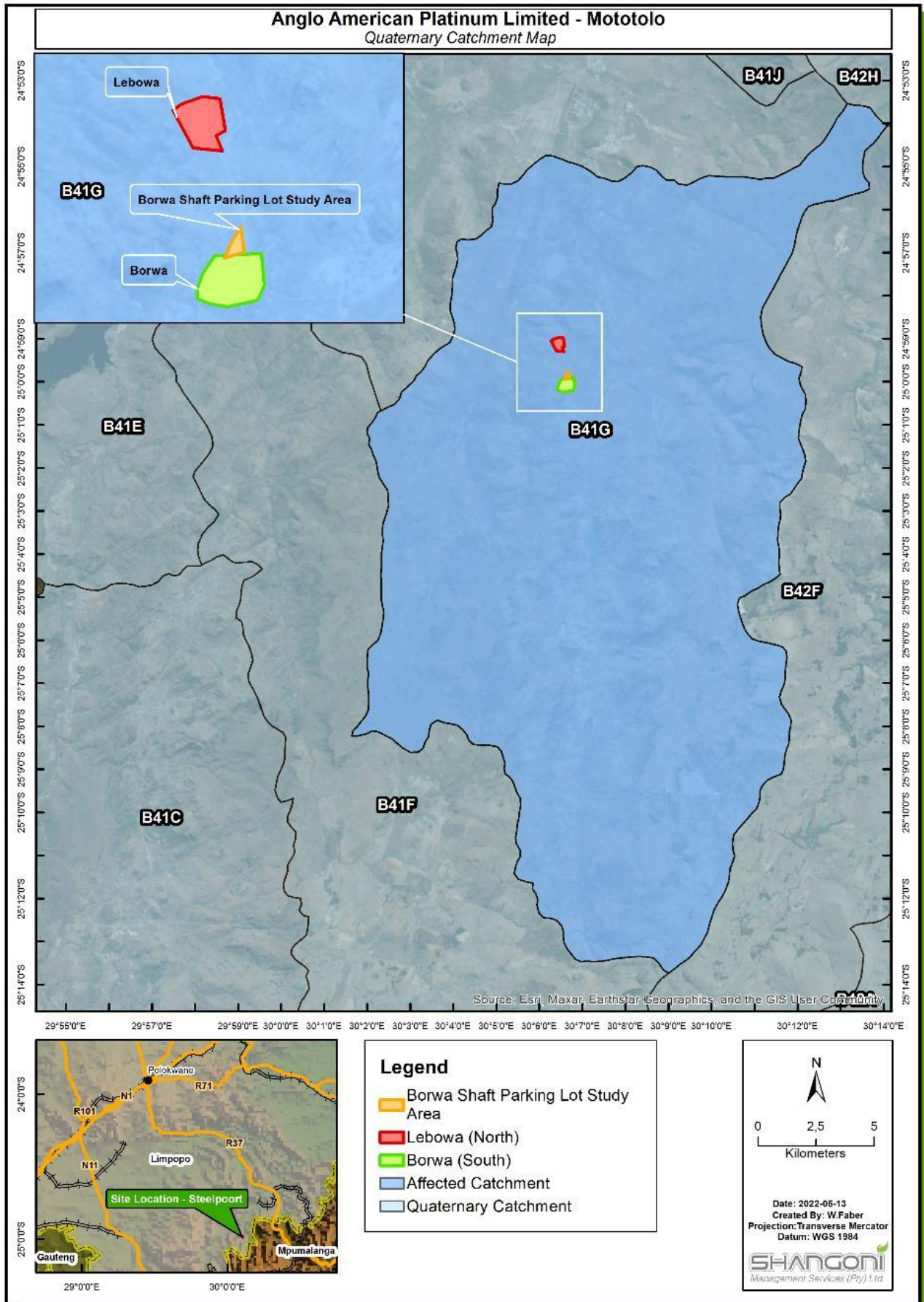


Figure 9: Quaternary catchment map



## Surface water quality

The following information was extracted from the report *Mototolo Lebowa (North): Quarterly Water Monitoring Report*, dated July 2021 and the report *Mototolo Borwa (South): Quarterly Water Monitoring Report*, dated July 2021 and prepared by Exigo<sup>3</sup>.

### Lebowa Shaft

Results for March 2021 indicate a significant increase in nitrate concentrations from SWM3 (downstream monitoring point) (34.8 mg/l) to SWM13 (additional downstream monitoring point) (97.4 mg/l). Nitrate concentration increased significantly at SWM3 from February 2021 (4 mg/l) to March 2021 (34.8 mg/l).

### Borwa Shaft

During January 2021, zinc (0.157 mg/l) was detected at SWM2 (downstream in the non-perennial watercourse). This concentration exceeded the Target Water Quality Range ("TWQR") (DWAf, 1996) concentration of 0.002 mg/l. Zinc was not detected at SWM2 during February 2021.

## Chapter H: Groundwater

The following information was extracted from the *Anglo American – Mototolo Mine Hydrogeological study for Borwa and Lebowa Shafts Final Report date: 05 November 2020*, compiled by Shangoni AquisScience.

### Depth of the water table

The variation in water level depths reflect the shallow upper/weathered aquifer (<10 mbgl) and the deeper fractured aquifer (>10 mbgl), however, the data observed for the aquifer zones suggest that many boreholes reflect the combined water table of the unconfined aquifer and potentiometric head (confined "deeper" aquifer) ranges. In addition, regionally, water levels mimic the topography and groundwater flows from higher lying ground towards lower lying ground and drainage systems (natural streams as well as dewatered open cast mines). The observed water levels show a very good correlation ( $R^2=0.99$ ) between absolute surface and groundwater table elevations in metres above mean sea level (mamsl). The variation between the various topographical settings is also visible (e.g. Klein-Dwars vs. Groot-Dwars sub-catchment).

### Groundwater quality

The following information was extracted from the report *Mototolo Lebowa (North): Quarterly Water Monitoring Report*, dated July 2021 and the report *Mototolo Borwa (South): Quarterly Water Monitoring Report*, dated July 2021 and prepared by Exigo<sup>3</sup>.

At Borwa Shaft, various boreholes displayed a stagnant character of a mixed anion/ cation nature. Some boreholes displayed a more recent character and were towards a bicarbonate nature. One borehole indicated a dynamic character towards a sodium/ potassium cation nature. Anionic nature was towards bicarbonate for all boreholes except BHMS5 and BHMS6, which displayed more chloride/sulphate, with magnesium cation nature. The overall water quality of most of the Borwa Shaft



boreholes sampled remained similar to what was observed during the last twelve months of monitoring.

### **Groundwater use**

Total groundwater use in the catchment is approximately 0.1247 Mm<sup>3</sup>/a. Irrigation and mining use are by far the greatest groundwater users in the catchment, making up more than 54% and 45% of the total usage, respectively. Mototolo Mine makes use of water abstracted from groundwater, as well as water from the Lebalelo Water Services Provider (“WSP”).

### Chapter I: Air Quality

Information regarding air quality in the proposed project study area was obtained from *Air Quality Specialist Report for the Der Brochen EMP Alignment and Amendment project, Report No. 13SRK25, September 2014* compiled by Airshed.

The sources of SO<sub>2</sub> and NO<sub>x</sub> that occur in the region include industrial emissions, blasting operations at mines, veld burning, vehicle exhaust emissions and household fuel burning. Various local and far-a-field sources are expected to contribute to the suspended fine particulate concentrations (which would include PM<sub>10</sub> and PM<sub>2.5</sub>) in the region. Local sources include wind erosion from exposed areas, fugitive dust from agricultural and mining operations, vehicle entrainment from roadways and veld burning. Long-range transport of particulates, emitted from remote tall stacks and from large-scale biomass burning in countries to the north of South Africa, has been found to contribute significantly to background fine particulate concentrations over the interior.

Mototolo Mine has a dust fallout monitoring network (conducted by GCS (Pty) Ltd.) that consists of various dust buckets within the vicinity of existing operations. The measured dust fallout rates indicate compliance with the Dust Control Regulations at all sampling sites.

### Chapter J: Noise

Information regarding the noise aspects for the proposed project was obtained from the *Noise Impact Study for Environmental Impact Assessment – Development of the Der Brochen Project & the existing Mototolo Concentrator and TSF near Steelpoort, Limpopo Province 2012*, M<sup>2</sup> Environmental Connections.

The proposed project area has a rural character in terms of the background ambient sound levels. There are existing noise sources in the proposed project area that will influence ambient sound levels in the area that influence the day and night-time ambient environment.

The Mototolo shafts (Lebowa and Borwa shafts) are considered as existing background noise levels, with potential noise estimated and considered during the operational phase. Traffic servicing the Booyendal Mine also uses the access road through the proposed Der Brochen mining site, and currently influences the ambient sound character along the main route.





## Chapter K: Archaeology and Cultural History

The following information was abstracted from the *Phase 1 Heritage Impact Assessment for the proposed parking area at the Borwa Shaft Complex of the Mototolo Mine on the portion 7 of the farm Thorncliffe 374 KT in the Limpopo Province*, dated April 2022 and undertaken by Siegwalt Küsel.

A Phase 1 Heritage Impact Assessment (“HIA”) was conducted for the proposed project that included a review of available desktop information as well as a site visit. Archaeological Impact Assessments (“AIAs”), Heritage Impact Assessments (“HIAs”) and academic publications on the prehistory and historical period generated a data base for the general area. These sources demonstrate a diverse cultural landscape with settlement and utilization of the local resources starting from the deep past over a period of time that spans millions of years up to recent times.

The study area and immediate surrounds were systematically searched and inspected on foot to identify any potential areas that could contain heritage resources (Figure 10). Only a single localised scatter of Middle Stone Age (“MSA”) lithics that qualifies as a site was located during the Phase 1 HIA. The site is afforded a field rating of Grade IIIC (low local significance), Not Conservation Worthy (“NCW”) and has been adequately documented as part of this Phase I Assessment.

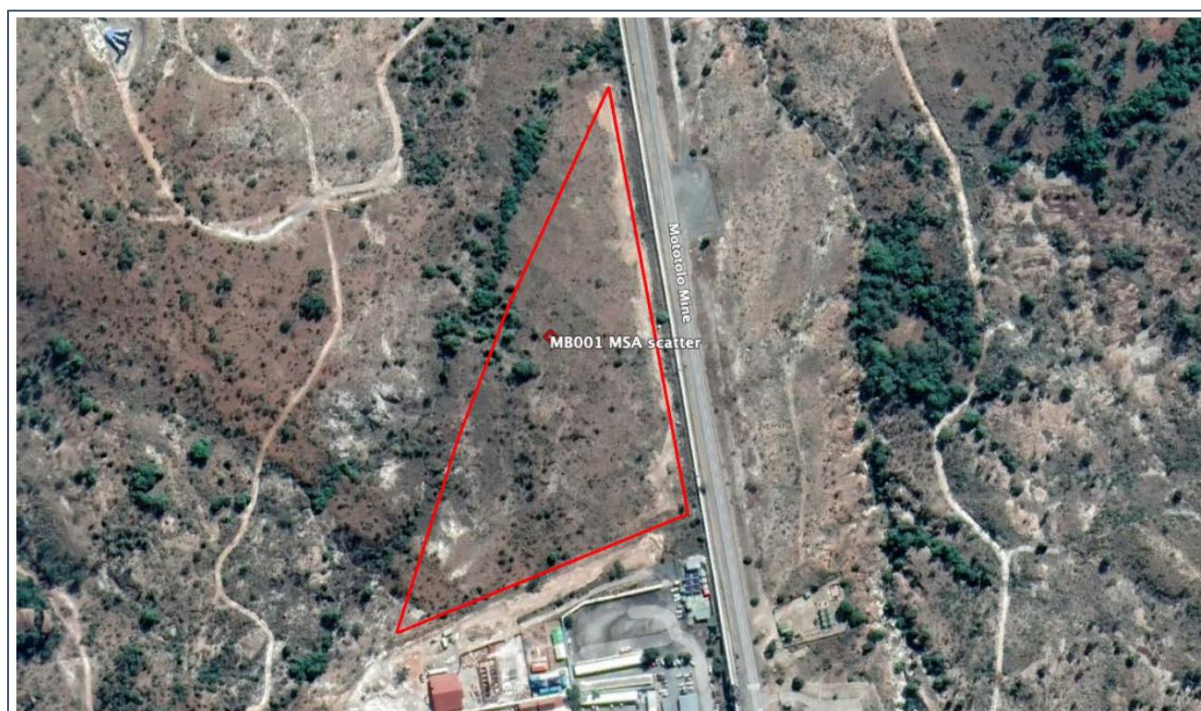


Figure 10: The location of MB001 within the study area.

## Chapter L: Sensitive Landscape

The following information was abstracted from the *Freshwater Ecosystem Assessment as Part of the Water Use Authorisation (WUA) Process for the Proposed Mototolo Parking Area, Limpopo Province*, dated September 2021 and undertaken by Scientific Aquatic Services (“SAS”).



A 500 m investigation area around the study area in accordance with GN 509 of 2016 as it relates to the National Water Act, 1998 (Act No. 36 of 1998), was used as a guide in which to assess possible sensitivities of the receiving environment. A single freshwater ecosystem was assessed to be at risk from the proposed development on the study area and was therefore assessed further as part of this study. This was classified as follows:

- An EDL with a weakly defined riparian zone.

The freshwater ecosystem was classified according to the Classification System (Ollis et al., 2013) as Inland Systems, falling within the Eastern Bankenveld Ecoregion and Central Bushveld Group 1 (Critically Endangered) wetland vegetation type according to Mbona et al. 2015. At Levels 3 (Landscape Unit) and 4 (Hydrogeomorphic Unit (HGM) Type) of the Classification System, the systems were classified as per the summary in Table 4 below.

*Table 4: Characterisation at Levels 3 and 4 of the Classification System (Ollis et al., 2013) of the freshwater ecosystem identified within the investigation area associated with the study area.*

Level 3: Landscape unit	Level 4: HGM Type
<b>Valley floor:</b> The base of a valley, situated between two distinct valley side-slopes.	<b>River:</b> A linear landform with clearly discernible bed and banks, which permanently or periodically carries a concentrated flow of water. A river is taken to include both the active channel and the riparian zone as a unit.

### **Present Ecological State (“PES”) and VEGRAI discussion**

Riparian Index of Habitat Integrity (“IHI”) PES Category: B (Largely natural) VEGRAI Category: B/C

The EDL was dry during the site assessment in August 2021 which is owing to the non-perennial nature of the system. Whilst some degree of naturally occurring erosion and subsequent deposition was occurring within the active channel, the observed geomorphological processes can be considered largely natural. As such, erosion after flood events is thus considered likely. The riparian zone was well defined and dominated by *Lydenburgia cassinoides* whilst the remaining extent of the EDL (non-marginal zone) was vegetated primarily by grasses and scattered small trees.

### **Ecological Importance and Sensitivity (“EIS”) discussion**

EIS Category: (High) - The EIS of the EDL was ascertained to be “High”, largely due to biodiversity support for *Lydenburgia cassinoides* (Sekhukhuni Bushman's Tea, listed as near threatened according to SANBI, and the Red List of South African Plants (Raimondo et al., 2009)) as well as being listed as a protected tree species under the National Forests Act, 1998 (Act No. 84 of 1998). The system also likely provides covers and some degree of a migratory corridor for fauna. Hydro-functional importance (i.e. provisioning of services such as flood attenuation, sediment trapping, phosphate, nitrate and toxicant assimilation and erosion control) supplied by the EDL. The EDL was largely limited in terms of socio-cultural services due to the relatively isolated locality and reduced reliance on the river for these services.



## **Recommended Ecological Category (“REC”), Recommended Management Objectives (“RMO”) & Best Attainable State (“BAS”) Category**

REC:B/ BAS: B/ RMO: Improve - As per the method of assessment (for the REC), a freshwater feature may receive the same class for the PES as the REC if the freshwater feature is deemed in good condition, and therefore must stay in good condition. Otherwise, an appropriate REC should be assigned in order to prevent any further degradation as well as enhance the PES of the freshwater ecosystem. The EDL was assigned a REC B with an RMO for the condition to be improved, however it was the specialist opinion that the RMO for the EDL should be to maintain the system at a category B.

### Chapter M: Visual aspects

Due to the surrounding hills and outcrops, no activities associated with the proposed project is anticipated to be visible from public roads. The Mototolo Mine Road connecting Borwa Shaft and Lebowa Shaft is the only road, only used by mine personnel, from where the proposed activities will be visible.

### Chapter N: Regional socio-economic structure

Mototolo Mine falls within the jurisdiction of the Fetakgomo-Greater Tubatse Local Municipality (“FGTLM”) that is under the jurisdiction of the Greater Sekhukhune Municipality of the Limpopo Province. This large municipality comprises of 39 wards and 342 villages. The municipality is largely dominated by rural landscape with only 6 (six) proclaimed townships. The area of jurisdiction of FGTLM is approximately 4 550 km<sup>2</sup> (2020/21 Draft Consolidated IDP for Fetakgomo Greater Tubatse Municipality). According to the FGTLM, the northern part has inferior social and engineering infrastructure that impacts on the stability of the economy in this area. This may be attributed to the rural nature of the area. As such, upliftment in the area is of critical importance. There is also virtually no economic base in the northern part of the area and the area is solely dependent on government handouts and migrant labour income for survival. The Fetakgomo – Greater Tubatse Local Municipality has 128 primary schools, 233 secondary schools, 2 higher intritions schools and 16 private schools with a total of 114 723 learners and 3 689 educators. FGTLM is neither a Water Services Authority nor a Water Service Provider. These functions were assigned to the Sekhukhune District Municipality (“SDM”). The SDM is responsible for provision of Free Basic Water (“FBW”) to the 39 wards of the municipality. According to community survey 2016 records that 62.7% of the households have access to safe drinking water supply services and further records that only 35.4% have no access to safe drinking water supply. The FGTLM have 413 communal boreholes, that a considerable portion of the local population are depended on. The total road network in Fetakgomo Tubatse Local Municipality (“FTLM”) comprise of 212 km which is paved and 386km which is gravel roads. The dominants modes of public transport within the municipality are busses and taxis.





### 7.5 Impacts and risks identified including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts

Table 5: Determination of potential impacts

No.	Aspect affected	Activity	Potential Impact	Reversibility	Irreplaceable loss	Phase	Size and scale of disturbance	Significance pre-mitigation			Mitigation Type	Significance post- mitigation		
								Probability	Magnitude	Significance		Probability	Magnitude	Significance
1	Geology	The proposed activities associated with the parking area are not anticipated to have an impact on Geology of the project area.												
2a	Topography	Alteration of the natural topography and drainage patterns.	The project area footprint (2 ha) will be levelled and compacted during the construction phase. These construction and operation of the activities will influence the nature of the topography. Changes to the topography of the site will increase the amount of run-off from site.	Partially reversible	Medium Degree	Construction and Operational	Impacts to remain within the study area footprint (±3ha).	3	2	Medium	Control	2	1	Low
3a	Soils, land use and land capability	Clearing and stockpiling of soil, levelling and compaction of site within the study area	The removal of topsoil may result in the mixing of the horizons of the soil that will have an impact on the fertility and production potential of the soil.	Partially reversible	Low Degree	Construction and Operational	Impacts to remain within the study area footprint (±3ha).	2	2	Low	Control, minimise	2	1	Low
3c			A loss of microbes and viable seed may occur as a result of the stockpiling of topsoil.	Partially reversible	Low Degree	Construction and Operational	Impacts to remain within the study area footprint (±3ha).	2	2	Low		2	1	Low
3d			The land use and land capability will be permanently altered due to the construction and operation of the parking area.	Partially irreversible	Medium Degree	Construction and Operational	Impacts to remain within the study area footprint (±3ha).	3	2	Medium		2	2	Low
3e			Construction and operation of the parking area may impact on soil in terms of compaction and possible spillages from machinery as well as spillages during the operational phase.	Partially reversible	Low Degree	Construction and Operational	Impacts to remain within the study area footprint (±3ha).	2	2	Low		2	1	Low
3f			Ineffective erosion control along the parking area and at stockpile areas may lead to siltation of downstream water resources and scouring of soil.	Partially reversible	Low Degree	Construction and Operational	Impacts to remain within the study area footprint (±3ha).	2	2	Low		2	1	Low



No.	Aspect affected	Activity	Potential Impact	Reversibility	Irreplaceable loss	Phase	Size and scale of impacts	Significance pre-mitigation			Mitigation Type	Significance post-mitigation		
								5	4	High		4	2	Medium
4a	Vegetation, Fauna, Avifauna	Land clearance, construction and operational activities	Impacts on/ losses of conservation important and protected species (individuals, stands, populations) as well as habitat that is associated with these species of conservation consideration. <sup>3</sup>	Partially irreversible	High Degree	Pre-construction & Construction Phases	Loss of species of conservation concern, although significant likely to be contained to footprint, local scale, physical impact not anticipated to exceed development footprint	5	4	High	Avoid, control	4	2	Medium
4b	General Ecology, Flora	Land clearance, construction and operational activities	Losses, and deterioration, of natural and sensitive habitat types, including essential habitat refugia, atypical and unique/ restricted habitat types. <sup>3</sup>	Partially irreversible	High Degree	Pre-construction & Construction Phases	Loss of natural habitat that is considered regionally important, although abundantly represented, not anticipated to exceed development footprint, local scale	4	3	High	Avoid, control	4	2	Medium
4c	Flora, Fauna, Avifauna	Land clearance, construction and operational activities	Depletion of local biodiversity and loss of rare species or communities. <sup>3</sup>	Low	Medium-High Degree	Pre-construction & Construction Phases	Losses and deterioration of natural habitat, impacts will exceed development footprint, likely contained to local scale	3	3	Medium	Avoid, control	2	2	Low
4d	General Ecology, Flora, Fauna, Avifauna	Contamination, spillages, erosion, uncontrolled construction & operational activities	Deterioration and changes to untransformed habitat in the surrounds, with specific reference to sensitive habitat types and habitat types of limited representation on a local scale. <sup>3</sup>	Medium Low	Medium High	Construction, Operational & Residual Phases	Deterioration of natural habitat and ecological processes, impacts will exceed development footprint, likely contained to local scale	4	3	High	Avoid, control	3	2	Medium
4e	General Ecology, Fauna, Avifauna	Construction & Operational activities, land clearance	Disruption of important ecological processes, -services, -infrastructure, and -functionality (such as fire, erosion), and disruption of migration patterns of animal species within natural habitat within the surrounds of the activity. Also include increased human movement and ambient noise levels. <sup>3</sup>	Medium-low	Medium	Construction, Operational & Residual Phases	Deterioration of natural habitat, impacts will exceed development footprint, likely contained to local scale	3	3	Medium	Avoid, control	3	2	Medium

<sup>3</sup> Impacts obtained from the specialist report: *Terrestrial Ecological EIA Assessment for the Proposed Borwa Shaft Parking Lot at the Mototolo Mine near Steelpoort in the Limpopo Province*, undertaken by Bathusi Environmental Consulting, dated May 2022.



No.	Aspect affected	Activity	Potential Impact	Reversibility	Irreversible placement loss	Phase	Size and scale of ...	Significance pre-mitigation			Mitigation Type	Significance post-mitigation		
4f	General Ecology, Flora, Fauna, Avifauna	Operational activities	Introduction, spread and proliferation of exotic and invasive species (plants and animals) to the area, or exacerbating the spread of existing infestations. Also including changed behaviour of locally indigenous species that are known to become 'pest' or opportunistic species. <sup>3</sup>	Medium	Medium-High	Operational activities	Deterioration of natural habitat, impacts will exceed development footprint, likely contained to local scale	4	3	High	Avoid, control	3	2	Medium
4g	Vegetation, Fauna	Construction & Operational activities	Inappropriate harvesting of natural resources and exacerbation of pressure on natural resources due to increased human encroachment, accessibility to the site, also considering changes in land use of surrounding areas that are not compatible to conservation efforts. Also include the opportunistic killing/ hunting of animals. <sup>3</sup>	Medium	Medium	Preconstruction, Construction, Operational & Residual Phases	Minor losses of locally indigenous species, potential harvesting of protected species, impacts will extend beyond footprint, likely to remain on local scale	3	3	Medium	Avoid, control	2	2	Low
4h	General Ecology	Land clearance, construction and operational activities	Exacerbation of existing levels of habitat fragmentation and isolation (within areas surrounding the development footprint), considering past, present and reasonably foreseeable future anthropogenic disruptive activities in the immediate region, resulting from increased levels of urban sprawl. <sup>3</sup>	Low	Medium	Construction, Operational & Residual Phases	Cumulative losses of natural habitat, in perspective with expanding mining activities on a regional scale	3	3	Medium	Avoid, control	2	2	Low
4i	General Ecology	Land clearance, construction and operational activities	Cumulative impacts on local/ regional and national conservation efforts, targets, and obligations (continued losses of sensitive natural habitat). <sup>3</sup>	Low	Medium	Construction, Operational & Residual Phases	Cumulative losses of natural habitat, in perspective with expanding mining activities on a regional scale	3	3	Medium	Control	2	2	Low
5a	Surface water	Grading, vegetation clearing and soil stripping	Deterioration of surface water quality due to an increase in sedimentation or other pollutants, affecting the use of surface water as a natural resource.	Partially reversible	Medium Degree	Construction	Impacts to remain within the study area footprint (±3ha).	3	2	Medium	Avoid, control	2	1	Low
5b		Use of hazardous materials	Deterioration of water quality due to chemical contamination affecting the use of surface water as a natural resource.	Reversible	Medium degree	Construction	Impacts to remain within the study area footprint (±3ha).	3	2	Medium	Avoid, mitigate	2	1	Low
6	Groundwater	Groundwater contamination	Groundwater quality may be impacted in the event of a spillage of chemicals or hydrocarbon materials (e.g. oil spill from vehicles and machinery).	Partially reversible	Medium Degree	Construction and operational	Impacts to remain within the study area footprint (±3ha).	3	2	Medium	Control, avoid, mitigate	2	1	Low
7	Air quality	Construction and earthmoving activities as well as the use of the parking area.	During the construction phase of the proposed project, dust (particulate matter, PM10 and PM2.5) may be generated and may have an impact on the ambient air quality of the area. Dust will also be generated during the operational phase due to the use of the parking area.	Reversible	Low degree	Construction and operational	Impacts to remain within the study area footprint (±3ha).	3	2	Medium	Control	2	1	Low



No.	Aspect affected	Activity	Potential Impact	Reversibility	Irreversible loss	Phase	Size and scale of footprint	Significance pre-mitigation			Mitigation Type	Significance post-mitigation		
								1	2	3		1	2	3
8	Noise and vibration	Construction and earthmoving activities as well as the use of the parking area	Increased noise levels are anticipated during the construction phase. Noise impacts of low significance will continue during the operational phase due to the use of the parking area.	Reversible	Low degree	Construction and operational	Impacts to remain within the study area footprint (±3ha).	2	2	Low	Control	1	1	Low
9a	Sites of Archaeological and Cultural Importance	Construction of the parking area	Destruction of heritage resources including potentially unknown resources.	Permanent	High degree	Construction	Limited to the development footprint.	2	2	Low	Chance Finds Procedure	1	1	Low
9b		Construction of the parking area	Possible disturbance of MSA material found within the study area (outside of the construction footprint)	Permanent	High degree	Construction	Limited to the development footprint.	2	2	Low	Chance Finds Procedure	2	1	Low
10a	Wetlands and sensitive landscapes	Site clearing and set up of contractor camps, prior to the commencement of construction activities.	Increased runoff and erosion, and thus increased sedimentation of the EDL situated downgradient; Potential smothering of the vegetation within the EDL as a result of increased sediment deposition, leading to altered freshwater ecosystem habitat; Disturbance of soil which may result in increased alien vegetation proliferation within the EDL; Potential decrease in ecoservice provision within the EDL; Potential soil and stormwater contamination from oil and hydrocarbons of construction vehicles into the EDL; Potential for anthropogenic disturbance and noise-pollution to surrounding biota associated with the EDL.	Partially reversibility	High degree	Construction	Impacts to remain within the study area footprint (±3ha).	2	2	Low	Avoid, control	1	1	Low
10b		Groundbreaking, excavation of foundation, placement of G5 material and potentially concrete and other construction related earthworks upgradient of the EDL.	Disturbance of soil leading to the potential for increased alien vegetation proliferation, upgradient of the EDL, which could lead to changes in species composition and structure in the EDL; Altered runoff patterns within the landscape, leading to increased runoff, erosion and potential sedimentation of the EDL; Potential runoff of chemicals, concrete, sediment laden surface water runoff of deteriorated water quality into the EDL; Potential for anthropogenic and noise disturbance to biota associated with the EDL.	Partially reversibility	High degree	Construction	Impacts to remain within the study area footprint (±3ha).	3	3	Medium	Avoid, control	2	2	Low
10c		Potential for installation of stormwater and drainage systems associated with the proposed development on the study area.	Possible contamination of freshwater soil and surface water of the EDL leading to reduced ecoservice provision and ability to support biodiversity; Potential erosion and sedimentation of the EDL as a result of stormwater discharges into the EDL; Potential for decreased ecological service provision of the EDL; Potential changes to the hydrological and geomorphological regimes of the EDL; Potential entry of contaminants such as hydrocarbons from any potential stormwater and drainage inputs of the parking area into the EDL.	Partially reversibility	High degree	Construction	Impacts to remain within the study area footprint (±3ha).	3	3	Medium	Avoid, control	2	2	Low
10d		Increased impermeable surfaces in the study area, upgradient of the EDL.	Altered runoff patterns and increased surface water input into the EDL situated downgradient of the study area; Altered flow regime may lead to changes in flow patterns and vegetation (marginal and non-marginal zones) along the riparian zone of the EDL; *Potential sedimentation and erosion from increased runoff into the EDL; Potential pollution of soil, groundwater and surface water of the EDL.	Partially reversibility	High degree	Operational	Impacts to remain within the study area footprint (±3ha).	3	3	Medium	Avoid, control	2	2	Low





No.	Aspect affected	Activity	Potential Impact	Reversibility	Irreplaceable loss	Phase	Size and scale of impacts	Significance pre-mitigation			Mitigation Type	Significance post-mitigation		
								3	2	Medium		2	2	Low
10e	Wetlands and sensitive landscapes	Operational activities and routine cleaning and maintenance associated with the proposed development on the study area.	Potential for increased runoff and ingress of hydrocarbons into the EDL leading to altered water quality, reduced ability to support biodiversity and provide ecological service provisioning; Potential disposal and runoff of hazardous and non-hazardous construction-related waste (such as rubble, hazardous chemicals and litter) into the EDL, situated downgradient; Potentially altered flow regime as a result of solid waste disposal within the EDL.	Partially reversibility	High degree	Operational	Impacts to remain within the study area footprint (±3ha).	3	2	Medium	Avoid, control	2	2	Low
11	Visual Impact	Construction and operational activities associated with the parking area.	The construction and operational activities associated with the parking area might increase the visibility of mining-related activities.	Reversible	Low degree	Construction and operational	Impacts will possibly extend beyond the study area footprint, remain within a local scale.	3	2	Medium	Mitigate, avoid	2	2	Low
12	Socio-economic	Construction and use of infrastructure associated with the proposed project.	Increase in mine health and safety and potential short term job creation for the construction of the parking area.	NA	NA	Construction and operation	Impacts to extend beyond the study area and possibly affect the local communities.	Positive Impact			Mitigate, avoid	Positive Impact		



## 7.6 Methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks.

Table 6 and Table 8 indicate the methodology used in order to assess the probability and magnitude of the impact. Table 7 provides the risk matrix used to plot the probability against the magnitude in order to determine the severity of the impact.

Table 6: Determination of Probability of Impact.

Score	Frequency of Aspect / Unwanted Event	Availability of Pathway from the source to the receptor	Availability of Receptor
1	Never known to have happened, but may happen	A pathway to allow for the impact to occur is never available	The receptor is never available
2	Known to happen in industry	A pathway to allow for the impact to occur is almost never available	The receptor is almost never available
3	< once a year	A pathway to allow for the impact to occur is sometimes available	The receptor is sometimes available
4	Once per year to up to once per month	A pathway to allow for the impact to occur is almost always available	The receptor is almost always available
5	Once a month - Continuous	A pathway to allow for the impact to occur is always available	The receptor is always available

**Step 1:** Determine the **PROBABILITY** of the impact by calculating the average between the Frequency of the Aspect, the Availability of a pathway to the receptor and the availability of the receptor.

Table 7: Determination of severity of the impact.

Environmental Impact Rating / Priority					
Probability	Magnitude				
	1 Minor	2 Low	3 Medium	4 High	5 Major
5 Almost Certain	Low	Medium	High	High	High
4 Likely	Low	Medium	High	High	High
3 Possible	Low	Medium	Medium	High	High
2 Unlikely	Low	Low	Medium	Medium	High
1 Rare	Low	Low	Low	Medium	Medium

**Step 3:** Determine the **SEVERITY** of the impact by plotting the averages that were obtained above for Probability and Magnitude in the table below.



Table 8: Determination of magnitude of impact

Score	SOURCE				RECEPTOR	
	Duration of impact	Extent	Volume / Quantity / Intensity	Toxicity / Destruction Effect	Reversibility	Sensitivity of environmental component
1	Lasting days to a month	Effect limited to the site. (metres);	Very small quantities / volumes / intensity (e.g. < 50 ℓ or < 1 ha)	Non-toxic (e.g. water) / Very low potential to create damage or destruction to the environment	Bio-physical and/or social functions and/or processes will remain unaltered.	Current environmental component(s) are largely disturbed from the natural state. Receptor of low significance / sensitivity
2	Lasting 1 month to 1 year	Effect limited to the activity and its immediate surroundings. (tens of metres)	Small quantities / volumes / intensity (e.g. 50 ℓ to 210 ℓ or 1 ha to 5 ha)	Slightly toxic / Harmful (e.g. diluted brine) / Low potential to create damage or destruction to the environment	Bio-physical and/or social functions and/or processes might be negligibly altered or enhanced / Still reversible	Current environmental component(s) are moderately disturbed from the natural state. No environmentally sensitive components.
3	Lasting 1 – 5 years	Impacts on extended area beyond site boundary (hundreds of metres)	Moderate quantities / volumes / intensity (e.g. > 210 ℓ < 5000 ℓ or 5 – 8 ha)	Moderately toxic (e.g. slimes) Potential to create damage or destruction to the environment	Bio-physical and/or social functions and/or processes might be notably altered or enhanced / Partially reversible	Current environmental component(s) are a mix of disturbed and undisturbed areas. Area with some environmental sensitivity (scarce / valuable environment etc.).
4	Lasting 5 years to Life of Organisation	Impact on local scale / adjacent sites (km's)	Very large quantities / volumes / intensity (e.g. 5000 ℓ – 10 000 ℓ or 8 ha– 12 ha)	Toxic (e.g. diesel & Sodium Hydroxide)	Bio-physical and/or social functions and/or processes might be considerably altered or enhanced / potentially irreversible	Current environmental component(s) are in a natural state. Environmentally sensitive environment / receptor (endangered species / habitats etc.).
5	Beyond life of Organisation / Permanent impacts	Extends widely (nationally or globally)	Very large quantities / volumes / intensity (e.g. > 10 000 ℓ or > 12 ha)	Highly toxic (e.g. arsenic or TCE)	Bio-physical and/or social functions and/or processes might be severely/substantially altered or enhanced / Irreversible	Current environmental component(s) are in a pristine natural state. Highly Sensitive area (endangered species, protected habitats etc.)

**Step 2:** Determine the **MAGNITUDE** of the impact by calculating the average of the factors above



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

The positive and negative implications of the proposed project and the alternatives identified have been provided below and assessed in terms of the following four categories:

- Environmental.
- Technical/Engineering.
- Economical.
- Social.

Table 9: Advantages and disadvantages of the proposed activities and preliminary identified alternatives.

Alternative	Advantages	Disadvantages
<b>Option A (Preferred Alternative)</b>	<p><b>Environmental:</b> Avoidance of the Protected Trees and 32-meter EDL buffer. No additional roads would be required to be constructed, thus the impact associated with this alternative will be of lower significance.</p> <p><b>Technical/Engineer:</b> Suitable for the area with less complications for the construction to occur. The preferred location is close to the Borwa Shaft entrance.</p> <p><b>Economical:</b> No additional roads would be required to be constructed as existing roads will be used, thus an economic benefit is associated with this alternative.</p> <p><b>Social:</b> Increase in safety on the mine, due to the construction of additional parking space and avoiding near hits.</p>	<p><b>Environmental:</b> Disturbance of approximately 3ha of vegetation and Middle Stone Age lithics (not conservation worthy).</p> <p><b>Technical/Engineer:</b> The preferred location is located further away from the nearest access road.</p> <p><b>Economical:</b> No disadvantages as compared to alternative locations.</p> <p><b>Social:</b> No disadvantages as compared to alternative locations.</p>
<b>Alternative 1 and 2 (Original designs)</b>	<p>The original design did not consider the occurrence of the Protected Trees and were subsequently eliminated to avoid disturbance to the Protected Trees identified within the study area. Any other locations were not deemed feasible due to the proximity to the Borwa Shaft and existing infrastructure. Alternative locations would have required additional activities such as the construction of roads, for access to the parking area.</p>	
<b>No-go Option</b>	<p><b>Environmental:</b> No additional disturbance to the environment.</p> <p><b>Technical/Engineer:</b> N/A</p> <p><b>Economical:</b> No additional costs incurred by the mine as no additional construction activities will take place.</p> <p><b>Social:</b> None.</p>	<p><b>Environmental:</b> None.</p> <p><b>Technical/Engineer:</b> N/A</p> <p><b>Economical:</b> Loss of potential job creation in the community or to subcontractors.</p> <p><b>Social:</b> No increase in safety at the mine and near-hits in relation to the parking space limitations are likely to persist.</p>



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

The impact management measures, and level of risk have been included under section 7.5 of Part A.

## **7.9 Motivation where no alternative sites were considered.**

Alternatives sites were considered as previously discussed.

## **7.10 Statement motivating the alternative development location within the overall site.**

Refer to section 7.1 for the description of the process undertaken to identify, assess and rank the impacts and risks of the activity at the preferred location (in respect of the final site layout plan) through the life of the activity.

All impacts and associated significance as identified are contained within section 7.5. As further provided, an indication of the extent to which the impacts can be avoided or addressed by the adoption of mitigation measures is provided. The methodology applied in assessing and ranking the impacts at the preferred site and associated preferred alternatives is described in section 7.6. The results of this assessments are provided below.

## 8 Assessment of each identified potentially significant impact and risk

Table 10: Risk assessment results including post mitigation significance

Environmental Component (Aspects affected)	Activity	Impact description	Phase (Construction/Operational/Decommissioning/Closure/Post Closure)	Pre-Mitigation Significance	Mitigation Type Modify/Remedy/Control/Stop	Post Mitigation Significance.
Geology	The proposed activities associated with the parking area are not anticipated to have an impact on Geology of the project area.					
Topography	Alteration of the natural topography and drainage patterns.	The project area footprint (2 ha) will be levelled and compacted during the construction phase. These construction and operation of the activities will influence the nature of the topography. Changes to the topography of the site will increase the amount of run-off from site.	Construction and Operational	Medium	Control	Low
Soils, land use and land capability	Clearing and stockpiling of soil, levelling and compaction of site within the study area	The removal of topsoil may result in the mixing of the horizons of the soil that will have an impact on the fertility and production potential of the soil.	Construction and Operational	Low	Control, minimise	Low
		A loss of microbes and viable seed may occur as a result of the stockpiling of topsoil.	Construction and Operational	Low		Low
		The land use and land capability will be permanently altered due to the construction and operation of the parking area.	Construction and Operational	Medium		Low
		Construction and operation of the parking area may impact on soil in terms of compaction and possible spillages from machinery as well as spillages during the operational phase.	Construction and Operational	Low		Low
		Ineffective erosion control along the parking area and at stockpile areas may lead to siltation of downstream water resources and scouring of soil.	Construction and Operational	Low		Low
Vegetation, Fauna, Avifauna	Land clearance, construction and operational activities	Impacts on/ losses of conservation important and protected species (individuals, stands, populations) as well as habitat that is associated with these species of conservation consideration.	Pre-construction & Construction Phases	High	Avoid, control	Medium
General Flora	Ecology, Land clearance, construction and operational activities	Losses, and deterioration, of natural and sensitive habitat types, including essential habitat refugia, atypical and unique/ restricted habitat types.	Pre-construction & Construction Phases	High	Avoid, control	Medium
Flora, Avifauna	Fauna, Land clearance, construction and operational activities	Depletion of local biodiversity and loss of rare species or communities.	Pre-construction & Construction Phases	Medium	Avoid, control	Low



Environmental Component (Aspects affected)		Activity	Impact description	Phase (Construction/Operational/Decommissioning/Closure/Post Closure)	Pre-Mitigation Significance	Mitigation Type Modify/Remedy/Control/Stop	Post Mitigation Significance.
General Ecology, Flora, Fauna, Avifauna	Ecology, Fauna, Avifauna	Contamination, spillages, erosion, uncontrolled construction & operational activities	Deterioration and changes to untransformed habitat in the surrounds, with specific reference to sensitive habitat types and habitat types of limited representation on a local scale.	Construction, Operational & Residual Phases	High	Avoid, control	Medium
General Ecology, Fauna, Avifauna	Ecology, Fauna, Avifauna	Construction & Operational activities, land clearance	Disruption of important ecological processes, -services, - infrastructure, and - functionality (such as fire, erosion), and disruption of migration patterns of animal species within natural habitat within the surrounds of the activity. Also include increased human movement and ambient noise levels.	Construction, Operational & Residual Phases	Medium	Avoid, control	Medium
General Ecology, Flora, Avifauna	Ecology, Fauna, Avifauna	Operational activities	Introduction, spread and proliferation of exotic and invasive species (plants and animals) to the area, or exacerbating the spread of existing infestations. Also including changed behaviour of locally indigenous species that are known to become 'pest' or opportunistic species	Operational activities	High	Avoid, control	Medium
Vegetation, Fauna		Construction & Operational activities	Inappropriate harvesting of natural resources and exacerbation of pressure on natural resources due to increased human encroachment, accessibility to the site, also considering changes in land use of surrounding areas that are not compatible to conservation efforts. Also include the opportunistic killing/ hunting of animals.	Preconstruction, Construction, Operational & Residual Phases	Medium	Avoid, control	Low
General Ecology		Land clearance, construction and operational activities	Exacerbation of existing levels of habitat fragmentation and isolation (within areas surrounding the development footprint), considering past, present and reasonably foreseeable future anthropogenic disruptive activities in the immediate region, resulting from increased levels of urban sprawl.	Construction, Operational & Residual Phases	Medium	Avoid, control	Low
General Ecology		Land clearance, construction and operational activities	Cumulative impacts on local/ regional and national conservation efforts, targets, and obligations (continued losses of sensitive natural habitat).	Construction, Operational & Residual Phases	Medium	Control	Low
Surface water		Grading, vegetation clearing and soil stripping	Deterioration of surface water quality due to an increase in sedimentation or other pollutants, affecting the use of surface water as a natural resource.	Construction	Medium	Avoid, control	Low
		Use of hazardous materials	Deterioration of water quality due to chemical contamination affecting the use of surface water as a natural resource.	Construction	Medium	Avoid, mitigate	Low
Groundwater		Groundwater contamination	Groundwater quality may be impacted in the event of a spillage of chemicals or hydrocarbon materials (e.g. oil spill from vehicles and machinery).	Construction and operational	Medium	Control, avoid, mitigate	Low



Environmental Component (Aspects affected)	Activity	Impact description	Phase (Construction/Operational/Decommissioning/Closure/Post Closure)	Pre-Mitigation Significance	Mitigation Type (Modify/Remedy/Control/Stop)	Post Mitigation Significance.
Air quality	Construction and earthmoving activities as well as the use of the parking area.	During the construction phase of the proposed project, dust (particulate matter, PM10 and PM2.5) may be generated and may have an impact on the ambient air quality of the area. Dust will also be generated during the operational phase due to the use of the parking area.	Construction and operational	Medium	Control	Low
Noise and vibration	Construction and earthmoving activities as well as the use of the parking area	Increased noise levels are anticipated during the construction phase. Noise impacts of low significance will continue during the operational phase due to the use of the parking area.	Construction and operational	Low	Control	Low
Sites of Archaeological and Cultural Importance	Construction of parking area	Destruction of heritage resources including potentially unknown resources and potential disturbance to	Construction	Low	Chance Finds Procedure	Low
Wetlands and sensitive landscapes	Site clearing and set up of contractor camps, prior to the commencement of construction activities.	Increased runoff and erosion, and thus increased sedimentation of the EDL situated downgradient. Potential smothering of the vegetation within the EDL as a result of increased sediment deposition, leading to altered freshwater ecosystem habitat. Disturbance of soil which may result in increased alien vegetation proliferation within the EDL. Potential decrease in ecoservice provision within the EDL. Potential soil and stormwater contamination from oil and hydrocarbons of construction vehicles into the EDL. Potential for anthropogenic disturbance and noise-pollution to surrounding biota associated with the EDL.	Construction	Low	Avoid, control	Low
	Groundbreaking, excavation of foundation, placement of G5 material and potentially concrete and other construction related earthworks upgradient of the EDL.	Disturbance of soil leading to the potential for increased alien vegetation proliferation, upgradient of the EDL, which could lead to changes in species composition and structure in the EDL; Altered runoff patterns within the landscape, leading to increased runoff, erosion and potential sedimentation of the EDL; Potential runoff of chemicals, concrete, sediment laden surface water runoff of deteriorated water quality into the EDL; Potential for anthropogenic and noise disturbance to biota associated with the EDL.	Construction	Medium	Avoid, control	Low
	Potential for installation of stormwater and drainage systems associated with the proposed development on the study area.	Possible contamination of freshwater soil and surface water of the EDL leading to reduced ecoservice provision and ability to support biodiversity; Potential erosion and sedimentation of the EDL as a result of stormwater discharges into the EDL; Potential for decreased ecological service provision of the EDL; Potential changes to the hydrological and geomorphological regimes of the EDL; Potential entry of contaminants such as hydrocarbons from any potential stormwater and drainage inputs of the parking area into the EDL.	Construction	Medium	Avoid, control	Low
	Increased impermeable surfaces in the study area, upgradient of the EDL.	Altered runoff patterns and increased surface water input into the EDL situated downgradient of the study area; Altered flow regime may lead to changes in flow patterns and vegetation (marginal and non-marginal zones) along the riparian zone of the EDL; Potential sedimentation and erosion from increased runoff into the EDL; Potential pollution of soil, groundwater and surface water of the EDL.	Operational	Medium	Avoid, control	Low





Environmental Component (Aspects affected)	Activity	Impact description	Phase (Construction/Operational/Decommissioning/Closure/Post Closure)	Pre-Mitigation Significance	Mitigation Type Modify/Remedy/Control/Stop	Post Mitigation Significance.
Wetlands and sensitive landscapes	Operational activities and routine cleaning and maintenance associated with the proposed development on the study area.	Potential for increased runoff and ingress of hydrocarbons into the EDL leading to altered water quality, reduced ability to support biodiversity and provide ecological service provisioning; Potential disposal and runoff of hazardous and non-hazardous construction-related waste (such as rubble, hazardous chemicals and litter) into the EDL, situated downgradient; *Potentially altered flow regime as a result of solid waste disposal within the EDL.	Operational	Medium	Avoid, control	Low
Visual Impact	Construction and operational activities associated with the parking area.	The construction and operational activities associated with the parking area might increase the visibility of mining-related activities.	Construction and operational	Medium	Mitigate, avoid	Low
Socio-economic	Construction and use of infrastructure associated with the proposed project.	Increase in mine health and safety and potential short term job creation for the construction of the parking area.	Construction and operation	N/A		



## 9 Summary of specialist reports

Specialist study	Recommendations of specialist reports	Reference to applicable section of the report
<p><i>Freshwater Ecosystem Assessment as part of the Water Use Authorisation (WUA) process for the proposed Mototolo Parking Area, Limpopo Province, compiled by Scientific Aquatic Services ("SAS"), dated September 2021.</i></p>	<p>A single freshwater ecosystem namely; an EDL was identified within the investigation area, downgradient of the proposed development within the study area. Of specific mention, the ecological importance and sensitivity ("EIS") of the EDL was assessed to be "high" due to the presence of <i>Lydenburgia cassinoides</i> (Sekhukhuni Bushman's Tea, listed as near threatened according to South African National Biodiversity Institute (SANBI), 2021).</p> <p>Following the assessment of the freshwater ecosystem, the DWS Risk Assessment Matrix (2016) was applied to determine the significance of impacts of the proposed development in the study area on the EDL situated downgradient, within the 500 m investigation area. Whilst it is acknowledged that no direct impacts to the EDL will occur as a result of the proposed development in the study area, the potential for edge effects is still considered likely. The results of the risk assessment, indicate that the risk to the EDL was deemed of "Moderate" risk significance. A manual adjustment was applied for sensitivity ratings within the "Moderate" risk range (56-80) which can be made to allow for a "Low" risk, according to the DWS Risk Assessment Matrix (2016) guidelines. This can be done subject to the listing of additional mitigation measures, which if adhered to, justify a lower risk rating. As such, with the implementation of these additional mitigation measures, the risk of the proposed development on the EDL was deemed of "Low" risk significance. Additional mitigation measures that must be adhered to include ensuring that construction must be undertaken in the dry season and the parking area must be surfaced with appropriate G5 grade gravel material which will allow permeability of flow and reduce flood peaks and runoff into the EDL, downgradient. In addition, it is noted that the G5 gravel material will still be erodible and thus appropriate silt traps must be constructed to prevent erosion and sedimentation from the proposed development, into the receiving freshwater environment. General good housekeeping of the Mototolo parking area must also be ensured at all times in order to prevent spills, leakages and runoff from operational activities into the EDL situated downgradient.</p> <p>Based on the findings of the freshwater ecosystem assessment, it is the opinion of the specialist that from a freshwater resource management perspective, the proposed development in the study area can be considered acceptable and authorised by means of confirmation of a Basic Assessment, provided that all assessed risks are reduced and acceptably minimised by adhering to the mitigation measures that are highlighted within the contents of this report.</p>	<p>Section 7.5 Impacts and risks identified and mitigation measures in section 1.4.4 of Part B.</p>
<p><i>Phase 1 Heritage Impact Assessment for the proposed parking area at the Borwa Shaft Complex of the Mototolo Mine on the portion 7 of the farm Thorncliffe 374 KT in the Limpopo Province, compiled by Siegwalt U</i></p>	<p>Only a single localised scatter of MSA lithics that qualify as a site was located within the study area (outside of the development footprint) during the Phase 1 HIA.</p> <p>The site is afforded a field rating of Grade IIIC, Not Conservation Worthy (NCW), and has been adequately documented as part of the Phase I Assessment. It is recommended that if any sites are to be destroyed, the sites be granted destruction authorisation at the discretion of the relevant heritage authority outside of the formal permitting process.</p> <p>It is not expected that the study area will yield subsurface heritage or burial sites. However, in the event that construction</p>	<p>Section 7.5 Impacts and risks identified and mitigation measures in section 1.4.4 of Part B.</p>



Specialist study	Recommendations of specialist reports	Reference to applicable section of the report
Küsel, dated April 2022.	activities do reveal subsurface sites, the Change Find Procedure (“CFP”) must be implemented and the heritage authorities informed.	
<p><i>Terrestrial Ecological EIA Assessment for the Proposed Borwa Shaft Parking Lot at the Mototolo Mine near Steelpoort in the Limpopo Province</i>, compiled by Bathusi Environmental Consulting, dated April 2022.</p>	<p>This report concludes that the ecological nature of the site is mainly represented by widespread flora and fauna taxa, habitat types and communities that are not only representative of the regional diversity and types, but also reflect a natural status and moderate high sensitivities, which is also the result of the presence of several conservation important plant species within the proposed development footprint. Charismatic and threatened animal taxa were however, not recorded from the site, apart from a single observation of the Cape Vulture (<i>Gyps coprotheres</i>) at high altitude over the site. The preservation of habitat with a high ecological sensitivity, i.e. the EDL is regarded as a high priority in order to maintain and facilitate extant animal dispersal corridors across the study area as well as high density of conservation important plant taxa.</p> <p>Nevertheless, the comparatively small size of the site, as well as the spatial placement in proximity to existing mining infrastructure and areas where human activities are relatively of high frequency, collectively contribute to anticipated impacts of moderate significance. It is predicted that anticipated impacts on the ecological components of the study area will likely be reduced to acceptably lower levels with the implementation of the suggested mitigation approach, with priority given to the natural dispersal of animals between and among habitat units in the wider study area.</p> <p>It is therefore the considered opinion, based on results of this ecological investigation, that no specific objections are raised to the proposed development and operation of the activity. This opinion is however, based on the explicit understanding that the recommended mitigation approach is timeously and comprehensively implemented and also adhered to during all stages of the development.</p>	Section 7.5 Impacts and risks identified and mitigation measures in section 1.4.4 of Part B.

## 10 Environmental impact statement

### 10.1 Summary of the key findings of the environmental impact assessment

The methodology utilised to undertake the impact assessment has incorporated, amongst other skills, professional experience and specialists, relevant literature and local knowledge of the site and surrounding area.

It is the EAP’s opinion that based on the process that has been followed and the findings of the impact assessment, in conjunction with the proposed mitigation measures, that no unmanageable adverse impacts are expected to occur.





# 11 Final Site Layout Map

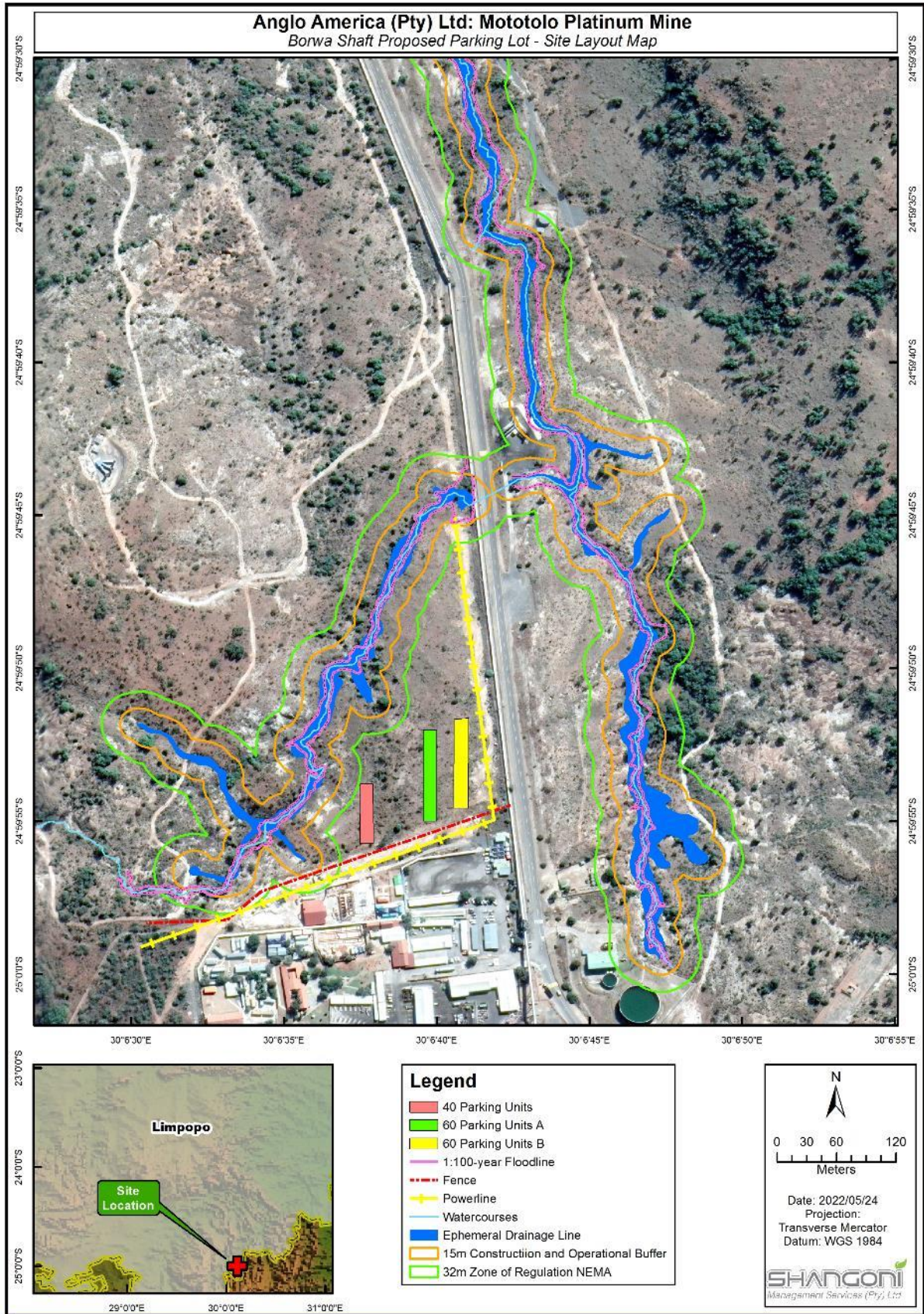


Figure 11: Final site layout map





## 12 Summary of the positive and negative impacts and risks of the proposed activity and identified alternatives

Table 11: Summary of environmental impacts (negative), after mitigation.

Environmental Aspect	Significance Post Mitigation
<b>TOPOGRAPHY</b>	
The project area footprint (2 ha) will be levelled and compacted during the construction phase. These construction and operation of the activities will influence the nature of the topography. Changes to the topography of the site will increase the amount of run-off from site.	L
<b>SOIL, LAND USE AND LAND CAPABILITY</b>	
<p>The removal of topsoil may result in the mixing of the horizons of the soil that will have an impact on the fertility and production potential of the soil.</p> <p>A loss of microbes and viable seed may occur as a result of the stockpiling of topsoil.</p> <p>The land use and land capability will be permanently altered due to the construction and operation of the parking area.</p> <p>Construction and operation of the parking area may impact on soil in terms of compaction and possible spillages from machinery as well as spillages during the operational phase.</p> <p>Ineffective erosion control along the parking area and at stockpile areas may lead to siltation of downstream water resources and scouring of soil.</p>	L
<b>FAUNA AND FLORA</b>	
<p>Impacts on/ losses of conservation important and protected species (individuals, stands, populations) as well as habitat that is associated with these species of conservation consideration.</p> <p>Losses, and deterioration, of natural and sensitive habitat types, including essential habitat refugia, atypical and unique/ restricted habitat types.</p> <p>Deterioration and changes to untransformed habitat in the surrounds, with specific reference to sensitive habitat types and habitat types of limited representation on a local scale.</p> <p>Disruption of important ecological processes, -services, -infrastructure, and -functionality (such as fire, erosion), and disruption of migration patterns of animal species within natural habitat within the surrounds of the activity. Also include increased human movement and ambient noise levels.</p> <p>Introduction, spread and proliferation of exotic and invasive species (plants and animals) to the area, or exacerbating the spread of existing infestations. Also including changed behaviour of locally indigenous species that are known to become 'pest' or opportunistic species.</p>	M
<p>Depletion of local biodiversity and loss of rare species or communities.</p> <p>Inappropriate harvesting of natural resources and exacerbation of pressure on natural resources due to increased human encroachment, accessibility to the site, also considering changes in land use of surrounding areas that are not compatible to conservation efforts. Also include the opportunistic killing/ hunting of animals.</p> <p>Exacerbation of existing levels of habitat fragmentation and isolation (within areas surrounding the development footprint), considering past, present and reasonably foreseeable future anthropogenic disruptive activities in the immediate region, resulting from increased levels of urban sprawl.</p> <p>Cumulative impacts on local/ regional and national conservation efforts, targets, and</p>	L



Environmental Aspect	Significance Post Mitigation
obligations (continued losses of sensitive natural habitat).	
<b>SURFACE WATER</b>	
Deterioration of surface water quality due to an increase in sedimentation or other pollutants, affecting the use of surface water as a natural resource.	L
Deterioration of water quality due to chemical contamination affecting the use of surface water as a natural resource.	
<b>GROUNDWATER</b>	
Groundwater quality may be impacted in the event of a spillage of chemicals or hydrocarbon materials (e.g. oil spill from vehicles and machinery).	L
<b>AIR QUALITY</b>	
During the construction phase of the proposed project, dust (particulate matter, PM10 and PM2.5) may be generated and may have an impact on the ambient air quality of the area. Dust will also be generated during the operational phase due to the use of the parking area.	L
<b>NOISE</b>	
Increased noise levels are anticipated during the construction phase. Noise impacts of low significance will continue during the operational phase due to the use of the parking area.	L
<b>VISUAL ASPECTS</b>	
The construction and operational activities associated with the parking area might increase the visibility of mining-related activities.	L
<b>SENSITIVE LANDSCAPES (INCLUDING WETLANDS)</b>	
Potential for increased runoff and ingress of hydrocarbons into the EDL leading to altered water quality, reduced ability to support biodiversity and provide ecological service provisioning; Potential disposal and runoff of hazardous and non-hazardous construction-related waste (such as rubble, hazardous chemicals and litter) into the EDL, situated downgradient; *Potentially altered flow regime as a result of solid waste disposal within the EDL.	L
Possible contamination of freshwater soil and surface water of the EDL leading to reduced ecoservice provision and ability to support biodiversity; Potential erosion and sedimentation of the EDL as a result of stormwater discharges into the EDL; Potential for decreased ecological service provision of the EDL; Potential changes to the hydrological and geomorphological regimes of the EDL; Potential entry of contaminants such as hydrocarbons from any potential stormwater and drainage inputs of the parking area into the EDL.	
Altered runoff patterns and increased surface water input into the EDL situated downgradient of the study area; Altered flow regime may lead to changes in flow patterns and vegetation (marginal and non-marginal zones) along the riparian zone of the EDL; Potential sedimentation and erosion from increased runoff into the EDL; Potential pollution of soil, groundwater and surface water of the EDL.	
<b>HERITAGE IMPACT ASSESSMENT</b>	
Possible disturbance to MSA identified within the study area (outside of the parking area footprint).	L
Destruction of heritage resources including potentially unknown resources.	



## 13 Proposed impact management objectives and the impact management outcomes for inclusion in the EMPr

Based on the assessment and where applicable the recommendations from specialist reports, the table below summarises the impact management objectives and the impact management outcomes for the development for inclusion in the EMPr as well as for inclusion as conditions of authorisation.

Table 12: Impact management objectives and the impact management outcomes

Environmental Aspect	Objective	Summary of impact management outcome
Topography	None	Minimise disturbance by remaining to the demarcated footprint.
Air Quality	Prevent the deterioration of air quality	Mototolo Mine is currently implementing dust fallout monitoring (monthly). Dust impacts will be minimised during the construction phase by means of dust suppression. Where possible, construction activities must take place outside of windy seasons.
Land use and capability	To prevent major disturbances within the site area during construction.	The disturbance area for the construction will be kept at a minimum and in the designated areas as per the approved layout plans.
Flora and Fauna	To prevent the proliferation and the increase of alien invasive plant species within disturbed areas.	Mototolo has developed and currently implements an alien invasive species control plan at all operations on site.
Sensitive Landscapes (including wetlands)	Prevent impact to sensitive landscapes	Avoid construction activities within 32 m of the EDL.
Surface water	To prevent quality deterioration of surface water quality.	To continue with the water quality monitoring of surface water bodies. Where accidental spillages may occur, the mine should apply their existing Standard Operating Procedures ("SOP") to mitigate spillages.
Groundwater	To limit degeneration of groundwater quality and quantity.	To continue with water quality monitoring of ground water in the surrounding areas. To avoid and rectify any potential spillages caused by activities.
Noise	To minimise the amount of noise generated during the construction phase of the proposed project.	Compliance with SABS Code of Practice 0328 of 2008: Environmental Noise Impact Assessments and adherence to the Mine Health and Safety Act.
Visual aspects	To limit the visual impact of the proposed project.	Due to the existing mining operations and surrounding outcrops and hills, the visual impact is low.
Sites of archaeological and cultural importance	Prevent the destruction of and loss of sites of cultural and archaeological importance.	Minimise disturbance to demarcated footprint.
Socio-economic aspects	Enhance the positive socio-economic impacts.	Implementation of approved Social and Labour Plan.



## 14 Aspects for inclusion as conditions of authorisation

Should the DMRE grant authorisation for this project, it should be subject to the following conditions:

- The proposed project should remain in full compliance with the requirements of the BAR and with all regulatory requirements;
- The BAR should be implemented by qualified environmental personnel who have the competence and credibility to interpret the requirements of the BAR. Such persons must be issued with a written mandate by mine management to provide guidance and instructions to employees and contractors;
- No construction activities to take place within 32 meters of the EDL; and
- Construction activities to take place under supervision of a qualified Environmental Officer.

## 15 Description of any assumptions, uncertainties and gaps in knowledge

In terms of the EIA Regulations GN R982 Appendix 1(3)(o), the Environmental Assessment Practitioner (“EAP”) must provide a description of any assumptions, uncertainties and gaps in knowledge upon which the impact assessment has been based. The table below provides the assumptions and limitations applicable to the Freshwater Ecosystem Assessment and Terrestrial Ecological Assessment.

Table 13: Specialist assumptions and limitations

Specialist	Assumptions and Limitations
<p><i>Freshwater Ecosystem Assessment as Part of the Water Use Authorisation (WUA) Process for the Proposed Mototolo Parking Area, Limpopo Province, compiled by SAS, dated September 2021.</i></p>	<ul style="list-style-type: none"> <li>• The determination of the freshwater ecosystem boundary and the assessment thereof is confined to the study area as provided by the client, and the associated investigation area. The portions of the freshwater ecosystem falling outside of the 500 m of investigation area associated with the study area were delineated in fulfilment of GN 509 of 2016 as it relates to the National Water Act, 1998 (Act No. 36 of 1998) using various desktop methods including use of topographic maps, historical and current digital satellite imagery, 5 m contours and aerial photographs. The general surroundings, neighbouring and adjacent properties, land uses and possible catchment impacts occurring on surrounding properties were however taken into consideration;</li> <li>• It is important to note that although all data sources used provide useful and often verifiable, high-quality data, the various databases used do not always provide an entirely accurate indication of the actual site characteristics within the study and investigation area at the scale required to inform the WUA process. However, this information is considered useful as background information to the study and based on the desktop results, sufficient decision making can take place with regards to the proposed development activities on the study area;</li> </ul>





Specialist	Assumptions and Limitations
	<ul style="list-style-type: none"> <li>• Although the Ecoservices method as defined by Macfarlane et al. (2020) and the EIS method, as defined by Rountree and Kotze (2013) was developed specifically for the assessment of wetland systems and are not intended to be applied to riverine systems, both methods allow for the assessment of characteristics which are not necessarily assessed by riverine-specific indices. Therefore, whilst it is acknowledged that neither method is strictly applicable to the EDL system (to be discussed), these were employed to provide a greater understanding of the overall ecological status of the freshwater ecosystem;</li> <li>• Global Positioning System (GPS) technology is inherently inaccurate and some inaccuracies due to the use of handheld GPS instrumentation may occur. If more accurate assessments are required, the freshwater ecosystem will need to be surveyed and pegged according to surveying principles and with surveying equipment;</li> <li>• Watercourse, riparian and terrestrial zones create transitional areas where an ecotone is formed as vegetation species change from terrestrial to facultative/ riparian species. Within this transition zone, some variation of opinion on the freshwater ecosystem boundary may occur. However, if the DWAF (2008) method is followed, all assessors should get largely similar results; and</li> <li>• With ecology being dynamic and complex, certain aspects (some of which may be important) may have been overlooked. It is, however, expected that the freshwater ecosystem within the investigation area associated with the study area have been accurately assessed and considered, based on the field observations undertaken in terms of the freshwater ecosystem ecology.</li> </ul>
<p><i>Terrestrial Ecological EIA Assessment for Borwa Shaft (Mototolo Mine) Parking Lot Development, dated April 2022 compiled by Bathusi Environmental Consultants.</i></p>	<ul style="list-style-type: none"> <li>• Findings, results, observations, conclusions and recommendations presented in this report are based on the authors' best scientific and professional knowledge as well as the interpretation of information available to them at the time of compiling this report.</li> <li>• Due care and diligence were exercised by the authors in rendering services, preparing this document and executing responsibilities as specialist consultants.</li> <li>• It is assumed that third party information (obtained from government, academic/research institution, non-governmental organisations) is accurate and true.</li> <li>• Even though care is taken to ensure the accuracy of surveys, data analysis and other aspects of this report, it should be noted that ecological/ biodiversity studies, notably for EIA purposes, are limited in time, budget and scope. It is not the purpose of this report to present exhaustively detailed information. Decisions and discussions are therefore, and to some extent, based on reasonable and informed decisions and assumptions that are extracted from bona fide information sources and from deductive reasoning (Precautionary Principle).</li> <li>• In order to obtain a comprehensive understanding of the dynamics of terrestrial ecological and diversity patterns, with particular reference to endemic, rare, or threatened species in any area,</li> </ul>



Specialist	Assumptions and Limitations
	<p>biodiversity assessments should always consider investigations at different time scales (across seasons/years) and through replication. However, such long-term studies are generally not part of the terms of reference for EIA assessments.</p> <ul style="list-style-type: none"> <li>• Results presented in this report are based on a snapshot investigation of the study area and not on detailed and long-term investigations of all environmental attributes and the varying degrees of biological diversity that may be present in the study area. Specifically, no discipline-specific, long-term survey methods were used in the collation of data from the site. Although as much as possible data was obtained from opportunistic observations during the brief survey period, these surveys are customarily limited by budgetary and time constraints – results presented in this report need to be interpreted with these limitations in mind.</li> <li>• Background information that were used to inform and augment the assessment was limited to data and GIS coverage available for the project site on a relevant scale. A paucity of site-specific data is typical of these data sources and should be accepted as a norm.</li> <li>• Notably, rare and endemic species normally do not occur in great densities and, because of customary limitations in the search and identification of Red Listed species, the detailed investigation of these species was not possible. Results are ultimately based on estimations and specialist interpretation of imperfect data.</li> <li>• It is emphasised that information, as presented in this document, only have bearing on the sites as indicated on accompanying maps. This information cannot be applied to any other area, however similar in appearance or any other aspect, without proper investigation.</li> <li>• Additional or supplementary information may become known during a later stage of the process or development. The authors therefore reserve the right to modify aspects of the report, including findings and recommendations, should new information become available from ongoing research or additional work performed in the immediate region of this specific area, or any forthcoming information pertaining to this investigation after the submission of this report.</li> <li>• The respective companies and specialists therefore do not accept any liability for conclusions, suggestions, limitations and recommendations made in good faith, based on available information, or based on data that was obtained from surveys of a brief nature.</li> <li>• This report should always be considered in its entirety. Reading and representing portions of the report in isolation could lead to incorrect conclusions and assumptions. In case of any uncertainty, the authors should be contacted to clarify any viewpoints, recommendations and/ or results.</li> </ul>



## 16 Reasoned opinion as to whether the proposed activity should or should not be authorised

From the impact assessment undertaken, no significant environmental impacts were identified, if the mitigation measures are adequately implemented and the project remains within the presented footprint for development. The most significant environmental risk is the disturbance of the 3 ha portion of vegetation during the construction of the proposed parking area. The benefits that will arise from the proposed parking area is the increase in safety of the mine.

In terms of collectively considering ecological, social and economic impacts, the EAP is of opinion that the proposed activities should be allowed, provided that the management objectives and management measures as presented in this BAR are implemented to effectively manage, prevent, control and / or stop environmental impacts from occurring.

## 17 Period for which the Environmental Authorisation is required

The current Life of Mine (“LoM”) of the Mototolo Mine are estimated until 2045. The proposed parking area is expected to remain until closure. Therefore, the period for which environmental authorisation is required is at least 5 years (from the date of approval provided by the DMRE).

## 18 Undertaking

The undertaking by the EAP is provided in Section 2 of Part B (Environmental Management Programme) below. This undertaking confirms: the correctness of the information provided in the reports, the inclusion of comments and inputs from stakeholders and I&APs (where received), the inclusion of inputs and recommendations from available specialist and monitoring reports, where relevant, and the acceptability of the proposed project in relation to the finding of the assessment and level of mitigation proposed.

## 19 Financial provision

### 19.1 Explain how the aforesaid amount was derived.

The proposed parking area will be included in the mine’s updated financial provision.



## 20 Specific Information required by the competent Authority

**20.1 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 BAR report must include the:**

20.1.1 Impact on the socio-economic conditions of any directly affected person.

Results of investigation, assessment and evaluation of impact on any directly affected person	Reference to where mitigation is reflected
Mototolo Mine strives to: <ul style="list-style-type: none"> <li>• Promote employment and advance the social and economic welfare of all employees;</li> <li>• Contribute to the transformation of the industry; and</li> <li>• Be actively involved in the community whereby funds are made available for the development of local infrastructure and social upliftment.</li> </ul>	Part A Section 7.5

## 20.2 Impact on any national estate referred to in section 3 (2) of the National Heritage Resources Act

Results of investigation, assessment and evaluation of impact on any national estate	Reference to where mitigation is reflected
Only a single localised scatter of MSA lithics that qualify as a site was located during the Phase 1 HIA. The site is afforded a field rating of Grade IIIC, Not Conservation Worthy ("NCW"), and has been adequately documented as part of this Phase I Assessment. It is recommended that if any sites are to be destroyed, the sites be granted destruction authorisation at the discretion of the relevant heritage authority outside of the formal permitting process.	Part A Section 7.5

## 21 Other matters required in terms of sections 24(4)(a) and (b) of the Act.

No other matters have been identified for inclusion to date.





# PART B

## ENVIRONMENTAL MANAGEMENT PROGRAMME

### REPORT

## 1 Environmental Management Programme

### 1.1 Description of the aspects of the activity

The requirement to describe the aspects of the activity that are covered by the environmental management programme is included in Part A, section 4.

### 1.2 Details of the EAP

The requirements for the provision of the detail and expertise of the EAP are included in Part A, section 1.2.

### 1.3 Composite Map

Refer to Figure 2 for the site layout plan.

### 1.4 Description of impact management objectives including management statements

#### 1.4.1 Determination of closure objectives.

The existing closure objectives as per the *Der Brochen EMP Alignment and Amendment Final Environmental Impact Assessment and Environmental Management Programme*, dated March 2015 compiled by SRK Consulting will apply to the proposed project. These include:

- Decommissioning all surface infrastructure that has no beneficial post-closure use;
- Identify potential post-closure uses of the land occupied by mine infrastructure in consultation with the surrounding land owners and land users. Should a suitable use for mine infrastructure not be found, it will be removed;
- Rehabilitate all disturbed land to a state that is suitable for its post-closure uses;
- Rehabilitate all disturbed land to a state that facilitates compliance with applicable environmental quality objectives (air quality objectives and water quality guidelines);
- Reduce the visual impact of the site through rehabilitation of all disturbed land and residue deposits;
- Reclamation that results in landforms that emulate the surroundings and would facilitate drainage and ensuring that all other remaining embankments are shaped and trimmed and that these are free draining; and



- Rehabilitate all disturbed land and residue deposits to a state where post-closure management is minimised.

#### 1.4.2 Volumes and rate of water use required for the operation.

Water tankers will be used for dust suppression during the construction phase, if required. Water will be obtained from the existing operations and in accordance with the quantities as specified in the existing Water Use Licence.

#### 1.4.3 Has a water use licence been applied for?

The proposed project will possibly require a General Authorisation (“GA”) due to the proximity to an EDL (approximately 40 metres) from the parking area, as per the outcome of the GN 509 Risk Assessment that was undertaken. Discussions with the DWS are ongoing and if such is required, it will be applied for separately.



## 1.4.4 Impacts to be mitigated in their respective phases

Table 14: Measures to mitigate the impacts associated with the proposed project.

Aspect affected	Activity	Phase	Size and scale of disturbance	Mitigation Measures	Compliance with standards	Time period for implementation
Geology	The proposed activities associated with the parking area are not anticipated to have an impact on Geology of the project area.					
Topography	Alteration of the natural topography and drainage patterns.	Construction and Operational	Impacts to remain within the study area footprint ( $\pm 3$ ha).	Disturbance to the natural topography should be limited to the construction footprint of the parking area as far as possible.	Ensure minimum change in topography. Principles in the MPRDA, 2002, NEMA, 1998, NEM:WA, 2008, Regulations there under and amendments thereto.	Construction phase
Soils, land use and land capability	Clearing and stockpiling of soil, levelling and compaction of site within the study area	Construction and Operational	Impacts to remain within the study area footprint ( $\pm 3$ ha).	Soil must be stripped and stockpiled (outside of the 32m EDL buffer zone) for future rehabilitation purposes. Additional related mitigation measures include pollution prevention and limiting site clearance to designated footprint areas. Contain spillage; excavate and dispose soil if required. Utilisation of spill kits and/or excavation of affected soil with subsequent disposal at a licensed disposal site is vital. Compilation and implementation of an effective stormwater design report specific to this site, to minimise runoff, erosion and sedimentation. Stormwater channels should have necessary energy dissipators to slow the water flow and limit erosion.	Preserve sufficient soil for future rehabilitation purposes. Principles in the MPRDA, 2002, NEMA, 1998, NEM:WA, 2008, Regulations there under and amendments thereto. National Norms and Standards for the Remediation of Contaminated Land and Soil Quality (GNR.331 of 2014), thereunder.	Construction phase
		Construction and Operational	Impacts to remain within the study area footprint ( $\pm 3$ ha).			
		Construction and Operational	Impacts to remain within the study area footprint ( $\pm 3$ ha).			
		Construction and Operational	Impacts to remain within the study area footprint ( $\pm 3$ ha).			
		Construction and Operational	Impacts to remain within the study area footprint ( $\pm 3$ ha).			
Vegetation, Fauna, Avifauna	Land clearance, construction and operational activities	Pre-construction & Construction Phases	Loss of species of conservation concern, although significant likely to be contained to footprint, local scale, physical impact not anticipated to exceed development footprint	Appoint and instruct Environmental Officer. Exclude all areas of high ecological sensitivity, with reference to buffers. Apply and secure all relevant permits (DFFE, LEDET) for removal of conservation important plant species. Develop and execute a suitable Search and Rescue Plan, with reference to the use of existing trees for landscaping purposes.	Appointment of EO. Successful acquisition of legal permits prior to commencement.	Planning phase, prior to commencement of clearance activities
General Ecology, Flora	Land clearance, construction and operational activities	Pre-construction & Construction Phases	Loss of natural habitat that is considered regionally important, although abundantly represented, not anticipated to exceed development footprint, local scale	Develop and implement a biodiversity monitoring programme to establish long-term ecological trends and mitigate against impacts. Minimize land clearance and erect a fence to avoid overspill of activities. Ensure appropriate marking and demarcation of development footprint. Provide demarcated fire-safe zones, facilities, and suitable fire control measures. Site induction for contractors and workers should include a familiarization with all	Zero impact and loss of plant and animal species and natural habitat from adjacent areas	Planning phase, Construction phase



Aspect	Activity	Phase	Size and scale of	Mitigation Measures	Compliance with standards	Time period for
Flora, Fauna, Avifauna	Land clearance, construction and operational activities	Pre-construction & Construction Phases	Losses and deterioration of natural habitat, impacts will exceed development footprint, likely contained to local scale	aspects relating to environmental components of the project. Ensure minimal impact on small mammal species by means of a screening walkthrough prior to land clearance.		
General Ecology, Flora, Fauna, Avifauna	Contamination, spillages, erosion, uncontrolled construction & operational activities	Construction, Operational & Residual Phases	Deterioration of natural habitat and ecological processes, impacts will exceed development footprint, likely contained to local scale	Minimize land clearance and erect a fence to avoid overspill of activities. Develop and implement an Alien and Invasive Plant Species Management Plan. Prevent any runoff, effluents from entering the drainage line. Erosion preventative measures should be implemented around development. Natural habitat outside the development footprint shall not be affected in any manner. Ensure appropriate marking and demarcation of development footprint. Prevent all open fires on site.		
General Ecology, Fauna, Avifauna	Construction & Operational activities, land clearance	Construction, Operational & Residual Phases	Deterioration of natural habitat, impacts will exceed development footprint, likely contained to local scale	The burning of general waste material is not to be allowed. Provide demarcated fire-safe zones, facilities, and suitable fire control measures. A periodic clean-up of the surrounding natural environment should be undertaken to remove litter and prevent unwanted deterioration of the surrounding natural environment.	Demarcated development footprint. Implementation of biodiversity monitoring programme. Development and implementation of AIP management plan. Implementation of animal conflict and management measures and litter control. No impact or deterioration of natural/ sensitive habitat adjacent to development footprint. Absence of declared and invasive plant species from site and surrounds. Normal biodiversity status and functionality in surrounding areas.	Construction phase, Operational phase
General Ecology, Flora, Fauna, Avifauna	Operational activities	Operational activities	Deterioration of natural habitat, impacts will exceed development footprint, likely contained to local scale	The use of locally indigenous plant species for landscaping purposes is strongly recommended. Under no circumstances shall exotic and invasive plants be used for landscaping purposes. Intentional killing, trapping, catching or disturbing of any animal species from nearby natural areas is strictly prohibited. Apply suitable preventative measures to avoid birds nesting in structures. Develop and use nest boxes at suitable localities to help with rodent control. Monitor and screen the presence and abundance of problem and invader animal species. No pets shall be allowed. No animals shall be fed or allowed to scavenge for waste food. Make use of animal and scavenger proof disposal facilities. Littering and indiscriminate waste of food shall not be allowed.		
Vegetation, Fauna	Construction & Operational activities	Preconstruction, Construction, Operational & Residual Phases	Minor losses of locally indigenous species, potential harvesting of protected species, impacts will extend beyond footprint, likely to remain on local scale	Exclude all areas of high ecological sensitivity, with reference to buffers. Develop and implement a biodiversity monitoring programme to establish long-term ecological trends and mitigate against impacts. Minimize land clearance and erect a fence to avoid overspill of activities. Prevent any runoff, effluents from entering the drainage line.	Zero unforeseen and uncontrolled losses of natural habitat adjacent to development footprint. Typical and normal ecological status and functionality of remaining natural habitat	Construction phase, Operational phase
General Ecology	Land clearance, construction and operational activities	Construction, Operational & Residual Phases	Cumulative losses of natural habitat, in perspective with expanding mining activities on a regional scale	Erosion preventative measures should be implemented around development. Natural habitat outside the development footprint shall not be affected in any manner. A periodic clean-up of the surrounding natural environment should be undertaken to remove litter and prevent unwanted deterioration of the surrounding natural	Zero unforeseen and uncontrolled losses of natural habitat adjacent to development footprint. Typical and normal ecological status and functionality of remaining natural habitat	Construction phase, Operational phase





Aspect	Activity	Phase	Size and scale of	Mitigation Measures	Compliance with standards	Time period for
General Ecology	Land clearance, construction and operational activities	Construction, Operational & Residual Phases	Cumulative losses of natural habitat, in perspective with expanding mining activities on a regional scale	environment. Make use of animal and scavenger proof disposal facilities. Littering and indiscriminate waste of food shall not be allowed.		
Surface water	Grading, vegetation clearing and soil stripping	Construction	Impacts to remain within the study area footprint ( $\pm 3$ ha).	Activities taking place during the construction must be limited to the designated areas only, and not outside of the designated areas as specified in the layout map. Soil stockpile must be kept in designated areas, outside of the 32 m EDL bufferzone.	In line with the DWS Best Practice Guidelines and Regulations there under and amendments thereto.	Construction
	Use of hazardous materials	Construction	Impacts to remain within the study area footprint ( $\pm 3$ ha).	All vehicle and equipment usage should be limited to designated areas only. Manage oil and fuel by storing it in designated bunded areas. Cement must be placed in designated areas. Treat all hydrocarbon spills as hazardous and dispose of accordingly.		
Groundwater	Groundwater contamination	Construction and operational	Impacts to remain within the study area footprint ( $\pm 3$ ha).	Prevent or contain contamination from spilling and oil leaks from vehicles and other equipment. Construction activity management should ensure that any materials handling does not pose a material risk to soil, surface water and groundwater pollution.	In line with the DWS Best Practice Guidelines (and Regulations there under and amendments thereto).	Construction
Air quality	Construction and earthmoving activities as well as the use of the parking area.	Construction and operational	Impacts to remain within the study area footprint ( $\pm 3$ ha).	Dust suppression along the gravel road, and other disturbed areas, where possible. Dust fallout monitoring plan is already being done within the vicinity of the proposed site. Effective maintenance of diesel driven vehicles to manage the greenhouse gases.	Dust suppressing methods to reduce dust to comply with the Dust Control Regulations GNR 827 of 2013 and NEM: AQA, 2004.	Construction
Noise and vibration	Construction and earthmoving activities as well as the use of the parking area	Construction and operational	Impacts to remain within the study area footprint ( $\pm 3$ ha).	All equipment and vehicles must be regularly serviced to prevent excessive noise. Only vehicles and equipment generating excessive noise should be fitted with appropriate noise abatement measures. Personal Protective Equipment ("PPE") must be worn at all times during construction of the proposed activities. PPE register to be kept.	SABS Code of Practice 0103 of 2008: The measurement and rating of environmental noise with respect to land use, health, annoyance and to speech communication. SABS Code of Practice 0328 of 2008: Environmental Noise Impact Assessments. Adherence to the Mine Health and Safety Act.	Construction



Aspect	Activity	Phase	Size and scale of	Mitigation Measures	Compliance with standards	Time period for
Sites of Archaeological and Cultural Importance	Construction of parking area	Construction	Limited to the development footprint.	<p>In the event that any sub-surface heritage resources or graves are unearthed all work has to be stopped until an assessment as to the significance of the site (or material) in question has been made by a professional archaeologist. Note that no archaeological material that has been uncovered may be removed.</p> <p>This applies to human remains, formal and informal graves and cemeteries. In the event that any graves or burial places are located during the development, the procedures and requirements pertaining to graves and burials will apply. If human remains are uncovered, or previously unknown graves are discovered, a professional archaeologist needs to be contacted and an evaluation of the finds made.</p> <p>If any archaeological material is uncovered during the course of development, then work in the immediate area should cease. The find will need to be reported to the relevant heritage authority and may require investigation and possibly mitigation by a professional archaeologist.</p> <p>If any area that contains stone artefacts in reasonable numbers (e.g. more than 10 within a few metres of one another) or in high concentrations is noted during the proposed developments this should be inspected by a professional archaeologist prior to any disturbance.</p> <p>If any engraved rocks or rock paintings are noted, the find should be reported.</p> <p>All finds or suspected finds must be reported to a professional archaeologist and to the relevant heritage authority.</p>	In compliance with the National Heritage Resources Act (Act No. 25 of 1999)	Construction
Wetlands and sensitive landscapes	Site clearing and set up of contractor camps, prior to the commencement of construction activities.	Construction	Impacts to remain within the study area footprint (±3ha).	<p>Due to the location of the EDL adjacent and downgradient of the study area, it is considered imperative that the EDL and associated 15 m construction and operational phase buffer zones be demarcated as no-go areas. This includes the use of a suitable fence to demarcate the EDL and sandbags placed along the EDL which will prevent the entry of excessive erosion and sedimentation into the EDL.</p> <p>It must therefore be ensured that contractor laydown areas are to be placed outside of the demarcated boundary of the EDL and associated 15 m construction and operational phase buffer zones and no construction personnel or equipment should be allowed within the EDL and associated buffer zones. A designated contractor laydown area should be approved by the Environmental Control Officer ("ECO") prior to use.</p> <p>Limit clearing of vegetation and associated soil disturbance associated with the proposed development on the study area (upgradient of the EDL) to the approved footprint and essential areas only. Avoidance of vegetation clearing outside the footprint of the proposed development on the study area is advised in order to reduce the risk of proliferation of alien vegetation, retain a level of protection to the EDL as well as to ensure optimal and safe construction.</p> <p>All construction and site clearing associated with the proposed development in the study area should ideally take place during the dry season to limit potential impacts to the EDL as a result of construction activities.</p> <p>Protect exposed soil/ soil stockpiles by enhancing vegetation growth on the stockpiles.</p> <p>An ECO must be appointed in order to ensure all water related aspects are adequately mitigated for the life of the proposed development on the study area.</p>	In line with the DWS Best Practice Guidelines, and Regulations there under and amendments thereto.	Construction and Operational



Aspect	Activity	Phase	Size and scale of	Mitigation Measures	Compliance with standards	Time period for
	Groundbreaking, excavation of foundation, placement of G5 material and potentially concrete and other construction related earthworks upgradient of the EDL.	Construction	Impacts to remain within the study area footprint ( $\pm 3$ ha).	<p><b>All construction and site clearing must take place during the dry season to limit potential impacts to the EDL as a result of construction activities to a low risk significance.</b></p> <p>With regards to excavation and soil compaction activities associated with the proposed development on the study area, upgradient of the EDL: During the likelihood of any excavation activities, no stockpiles are to be permitted within the EDL and associated 15 m construction and operational phase buffer zones.</p> <p>Dust suppression measures must be implemented throughout the construction phase activities of the proposed development in the study area to prevent excessive dust which may smother riparian vegetation within the EDL.</p> <p>It is highly recommended that G5 gravel be used as part of the proposed development in the study area as opposed to concrete and paved surfaces. This will allow for adequate infiltration of surface water runoff in the study area as well as attenuate flow, thereby reducing the increase of flood peaks and excessive runoff into the EDL situated downgradient.</p> <p>With regards to potential concrete mixing on site to facilitate introduction of plinths: Concrete and cement-related mortars can be toxic to aquatic life and other biota. Proper handling and disposal are considered imperative to minimise or eliminate discharge into the EDL and associated 15 m construction and operational phase buffer zones. High alkalinity associated with cement can dramatically affect and contaminate both soil and ground water.</p> <p>Should the potential for concrete be required, the following recommendations related to concrete handling must be adhered to: Fresh concrete and cement mortar should not be mixed near the proximity of the EDL.</p> <p>Mixing of cement should only be undertaken within the construction camp and may not be mixed on bare soil within the study area as this may runoff into the EDL situated downgradient.</p> <p>Mixing of concrete is also to be strictly undertaken within a lined, bound or bunded portable mixer. Consideration must be taken to use ready mix concrete.</p> <p>A batter board or other suitable platform/mixing tray is to be provided onto which any mixed concrete can be deposited whilst it awaits placing.</p> <p>A washout area should be designated outside of the confines of the EDL and associated construction and operational phase buffer zones and wash water should be treated on-site or discharged to a suitable sanitation system.</p> <p>Any concrete spillage outside of the proposed development footprint on the study area must be promptly removed and taken to a suitably licenced waste disposal facility.</p>	In line with the DWS Best Practice Guidelines, and Regulations there under and amendments thereto.	Construction and Operational



Aspect	Activity	Phase	Size and scale of	Mitigation Measures	Compliance with standards	Time period for
	Potential for installation of stormwater and drainage systems associated with the proposed development on the study area.	Construction	Impacts to remain within the study area footprint ( $\pm 3$ ha).	<p>Should the release of stormwater into the EDL be required, it is considered essential that appropriate attenuation of runoff and the installation of silt traps be implemented as part of the proposed development in order to dissipate flow as well as trap sediment before any entry into the EDL.</p> <p>The use of a flow attenuation structure such as stone pitching or potentially a bioswale should be located at the outlet of the stormwater discharge in order to dissipate flow, reduce the risk of erosion, incision and prevent significant impact on the hydrological functioning of the EDL.</p> <p>The installation of stormwater management systems and outlet structures must ensure that stormwater outputs do not result in excessive erosion and incision to the EDL.</p> <p>Any construction vehicles facilitating the laydown of the stormwater infrastructure must be regularly inspected for leaks and to be refuelled on sealed surfaces to prevent ingress into soil and leaching into the EDL situated downgradient.</p> <p>Any spills associated with the proposed development in the study area are to be immediately cleaned up and treated accordingly. In addition, a spill cleanup kit and spill clean-up plan should be incorporated as part of the operation of the proposed development, in the event that a spill should occur.</p>	In line with the DWS Best Practice Guidelines, and Regulations there under and amendments thereto.	Construction and Operational
	Increased impermeable surfaces in the study area, upgradient of the EDL.	Operational	Impacts to remain within the study area footprint ( $\pm 3$ ha).	<p>It is highly recommended that G5 gravel be used as part of the proposed development in the study area as opposed to concrete and paved surfaces. This will allow for adequate infiltration of surface water runoff in the study area as well as attenuate flow, thereby reducing the increase of flood peaks and excessive runoff into the EDL, situated downgradient. It is however, deemed essential that appropriate silt traps are put in place to prevent sedimentation from the G5 material.</p>	In line with the DWS Best Practice Guidelines, and Regulations there under and amendments thereto.	Construction and Operational
Wetlands and sensitive landscapes	Operational activities and routine cleaning and maintenance associated with the proposed development on the study area.	Operational	Impacts to remain within the study area footprint ( $\pm 3$ ha).	<p><b>General good housekeeping of the Mototolo parking area must be ensured at all times in order to prevent spills, leakages and runoff from operational activities of the proposed development into the EDL situated downgradient.</b></p> <p>The use of appropriate waste disposal facilities and stormwater management are considered imperative to ensure no ingress of hydrocarbons and other waste substances into the EDL, situated downgradient.</p> <p>An emergency spill clean-up management plan is to be put in place should a large-scale spill occur.</p> <p>No waste disposal is to be permitted within the EDL and associated construction and operational phase buffer zones and all waste is to be removed from the site and disposed of at a registered waste disposal facility.</p> <p>It is recommended that all vehicles must be parked on a non-permeable surface on a suitable platform area to prevent any leakage and runoff into the EDL and associated construction and operational phase buffer zones.</p>	In line with the DWS Best Practice Guidelines, and Regulations there under and amendments thereto.	Construction and Operational
Visual Impact	Construction and operational activities associated with the parking area.	Construction and operational	Impacts will possibly extend beyond the study area footprint, remain within a local scale.	<p>Remove inoperative equipment and maintain good housekeeping.</p> <p>Apply dust suppression as required.</p>	Dust suppressing methods to reduce dust to comply with the Dust Control Regulations GNR 827 of 2013 and NEM: AQA, 2004.	Construction
Socio-economic	Construction and use of infrastructure associated with the proposed project.	Construction and operation	Impacts to extend beyond the study area and possibly affect the local communities.	<p>Maximise positive impact by appointing local contractors as far as possible.</p>	In line with the company's SLP.	Construction





## 1.5 Mechanisms for monitoring compliance with and performance assessment against the environmental management programme

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

- Monitoring of impact management actions;
- Monitoring and reporting frequency;
- Responsible persons;
- Time period for implementing impact management actions; and
- Mechanism for monitoring compliance

Source Activity	Impacts Requiring Monitoring Programmes	Functional Requirements for Monitoring	Roles and Responsibilities (For the Execution of The Monitoring Programmes)	Monitoring and Reporting Frequency and Time Periods for Implementing Impact Management Actions
Spills/Incidents	Spillages of hazardous chemicals or oil spills from vehicles or equipment.	Site must be inspected on a weekly basis during the construction phase to ensure that no incidents have occurred. Accidents and incidents will continue to be reported as per the mine's current procedure. In the event of a spill, the internal environmental department must be informed of such.	Site officer to ensure that all incidents are recorded and reported to the Environmental Practitioner during the construction phase. SHE Manager to ensure that employees are trained on spills management.	As specified by the Environmental Department
Air quality	Dust generated from the construction of the proposed activities.	Dust fallout monitoring must continue as per the Air Quality Monitoring Plan at the mine.	SHE Manager to ensure that monitoring on site is conducted by the specialist.	Dust monitoring (monthly)
Health and safety	Structural risk associated with the construction and operation of the proposed activities.		Safety practitioner must ensure that the SHE inspections are undertaken for the duration of the activity.	Weekly.
Noise	Noise associated with the construction vehicles accessing the site, turning, offloading materials on site etc. Also, the noise of machines to be used when constructing the proposed infrastructure.	SHE inspections must be undertaken by the Safety Practitioner to ensure structural stability during the construction and operation of the proposed project as well as safety of employees during the construction phase.	Site officer to ensure that PPE is issued to all employees/contractors during the construction phase.	As specified by the Environmental Department at the mine.
Wetland / watercourse disturbance	Disturbance of EDL and related vegetation, increased sediment movement into EDL, spillage of contaminants leading to water quality impacts. Increase in alien vegetation. Spills, leaks or incorrect disposal of cement, hydrocarbons or waste. Disturbance to wetland biota due to noise and light pollution.	Monthly environmental inspections should be undertaken during the construction phase to ensure implementation of the stormwater management plan. In addition, this area should be included in the mine's biannual alien vegetation surveys.	SHE Manager to ensure that monitoring on site is conducted by the specialist.	Prior to the construction phase.
Soil contamination	Construction vehicles accessing the site, turning, offloading materials could possibly result in hydrocarbon spills.	Site inspection must occur on a weekly basis to ensure that no incidents have occurred. Vehicles and machinery equipment must be regularly serviced. A spills incident register must be kept by the contractor on site during the construction phase, all the incident recorded during the construction phase be recorded.	SHE Manager to ensure that monitoring is done accordingly and only at the workshop.	As specified by the Environmental Department at the mine.
Heritage Palaeontology and	If any archaeological material of significant importance is uncovered during the course of development.	Undertake weekly inspections to ensure that the identified MSA is avoided and to inspect if any notable heritage sites are identified during the construction phase.	Site officer shall ensure that if any sites are discovered during construction a registered specialist shall be appointed to.	As described by SAHRA when any additional sites are discovered.



## 1.6 Indicate the frequency of the submission of the performance assessment/ environmental audit report.

An environmental audit should be conducted monthly during the construction phase of the project and submitted to the DMRE.

## 1.7 Environmental Awareness Plan

### 1.7.2 Manner in which the applicant intends to inform his or her employees of any environmental risk which may result from their work.

The following Environmental Awareness Training will be implemented by Mototolo in order to inform employees and contractors of the environmental risk that may result from their work, or the risk of their interaction with the environment. The training will be conducted as part of the induction process for all new employees (including contractors) that will perform work in terms of the proposed activities. Proof of all training provided must be kept on-site.

The Environmental Training Procedure applies to all persons who work on behalf of or for Mototolo Mine whose work may create a significant impact on the environment.

For this project the following objectives of the Environmental Training Procedure are as follows:

- To identify environmental training needs as required by the Environmental Management System (“EMS”) Standard ISO14001.
- To ensure that any person, on behalf of Mototolo, performing tasks which has the potential to cause a significant impact upon the environment is competent on the basis of appropriate education, training or experience and will retain associated records.

### 1.7.3 Manner in which risks will be dealt with in order to avoid pollution or the degradation of the environment.

#### Responsibilities

The Environmental Practitioner is the Master of the Environmental Training Procedure. The Training Manager is the Activity Manager for this procedure and is responsible for keeping this Standard Procedure up to date as well as to ensure that the relevant persons, who have responsibilities under the procedure, follow the instructions in this Standard Procedure.

Responsibilities of the Training Superintendent include:

- The development, reviewing and updating of this procedure,
- Implementation of the training procedure,
- Conducting of training as specified, and
- Keeping this procedure and its supporting documentation up to date.

Responsibilities of the Environmental Practitioner include:

- Ensuring that the environmental induction module is regularly updated and presented at weekly induction, and



- To identify new environmental training needs and facilitate the training process by developing training programmes and providing materials and information.

### **Activity procedures**

The Environmental Practitioner, in conjunction with the Training Manager, will identify Mototolo's environmental training needs of all persons working for or on behalf of Mototolo, taking the following into consideration:

- Analysis of non-conformances and incidents,
- In-task observation of performance,
- Significant Environmental Impacts, and
- Environmental Aspect Register.

Training needs may change due to additions to the scope in services provided or due to the updating of procedures (quality, technical and administrative) and will be updated accordingly.

### Department specific / on-the-job training

A job specific training programme is developed for each department, concentrating on the major risk and impact areas identified in the EMS workshops. The training focuses on the following:

- Waste prevention and control.
- Water usage.
- Energy consumption.
- Storage and handling of petroleum products.
- Pollution control.
- Spillages and clean-up of spillages.
- Rehabilitation.

The Environmental Co-ordinator and the Training Superintendent, in liaison with the Training Course Co-ordinator, will co-ordinate the training.

### **Environmental awareness and EMS training**

#### All personnel

All persons working for or on behalf of Mototolo undergo induction, a part of which is environmental awareness training. Currently, induction is presented by the appointed security contractor and the results are sent to the planning department and HR department respectively.

The content of the environmental portion of the induction programme is updated as necessary, but in general includes topics such as: an overview of environmental legislation, with an emphasis on the rights of the employee and incident management; roles and responsibilities regarding the EMS; the most common environmental impacts and their mitigation; environmental emergencies and response; and the communication of incidents

### **Documents and reports checklists records**

The records and reports that will be maintained in the employees' training file are indicated in Table 15.



Table 15: Records and reports maintained in employees training file.

Report title	Type of report / document	Reporting frequency
Personnel qualifications	Certificates	As required
Training needs	Matrix / audits	As required
Certificates	Course certificates	As required
Training programmes/ courses attended	Attendance records	As required
Staff induction	Attendance records	Annually

## 1.8 Specific information required by the Competent Authority

The following information in Table 16 will be required by the competent authority.

Table 16: Information required by the competent authority

Information	Frequency of submission
Quantum of Financial Provision	Annually
Environmental Audit Report on approved BAR.	Monthly environmental audit reports (ECO reports), during the construction phase.

## 2 Undertaking

The EAP herewith confirms

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

\_\_\_\_\_  
Signature of EAP

\_\_\_\_\_  
Date





### 3 Declaration of independence

Shangoni hereby declares that it is an independent auditor in that it has no business, financial, personal or other interest in this project in respect of which Shangoni is appointed. Furthermore, no circumstances exist that may compromise the objectivity of Shangoni, excluding fair remuneration for work performed in connection with this project.

Report compiled by: **DRAFT FOR PUBLIC COMMENT**

**Renate Steffens  
(EAPASA)**

Report reviewed by: **DRAFT FOR PUBLIC COMMENT**

**Nico Brits (Pr.Sci.Nat.  
& EAPASA)**

