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Applicant: Pilanesberg Platinum Mines

DMR Reference Number: NW30/5/1/2/2/320MR

DREAD Reference Number: EIA 410/2005NW

PPM PLANT EXPANSION AND RE-PROCESSING OF THE EXISTING TAILINGS STORAGE FACILITY

DRAFT

May 2015

SCOPING REPORT

Submitted with due regard to

consultation with communities and interested and affected parties

as required in terms of Regulation 49 of the Mineral and Petroleum Resources Development Act (Act 28 of 2002), and in accordance with the standard directive for the compilation thereof as published on the official website of the Department of Mineral Resources as required in terms of Regulation 28 of the National Environmental Management Act (Act 107 of 1998); and

as required in terms of the National Water Act (NWA), 36 of 1998; and

as required in terms of the National Environmental Management: Air Quality Act (NEM:AQA), 39 of 2004.

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ACRONYMS AND ABBREVIATIONS

ACRONYMS / ABBREVIATIONS	DEFINITION
AEL	Air emission licence
BBKKA	Bakgatla-Ba-Kgafela Tribal Authority
BIC	Bushveld Igneous Complex
BID	Background Information Document
BPDM	Bojanala Platinum District Municipality
BPJV	Bakgatla/Pallinghurst Joint Venture
CEC	Cation Exchange Capacity
Cl ₂	Chlorine gas
DAFF	Department of Agriculture, Forestry and Fisheries
DEA	Department of Environmental Affairs
DMR	Department of Mineral Resources
DMS	Dense Media Separation
DPWRT	Department of Public Works, Roads and Transport
DRDL	Department of Rural Development and Land Reform
DREAD	Department of Rural, Environment and Agricultural Development (previously known as Department of Economic Development, Conservation, Environment and Tourism)
DWS	Department of Water and Sanitation (previously known as Department of Water Affairs (DWA))
EIA	Environmental Impact Assessment
EMP	Environmental Management Programme
FSE	Federation for a Sustainable Environment
ha	Hectare
HCl	Hydrochloric acid
HPC	Heritage Park Corridor
H ₂ SO ₄	Sulphuric acid
IAP	Interested and affected party
IBMR	Itereleng Bakgatla Mineral Resources
IUCN	International Union for Conservation of Nature
IWWMP	Integrated Waste and Water Management Plan
km	Kilometre
kV	Kilovolt
Mbgl	Metres below ground level
MKLM	Moses Kotane Local Municipality
MPDRA	Mineral and Petroleum Resources Development Act, 28 of 2002
MTS	Managing Transformation Solutions
NEMA	National Environmental Management Act, 107 of 1998.
NEM:AQA	National Environmental Management: Air Quality Act, 39 of 2004
NEM:PAA	National Environmental Management: Protected Areas Act, 57 of 2003
NEM:WA	National Environmental Management: Waste Act, 59 of 2008
NGO	Non-governmental organisation
NLA	Newtown Landscape Architects

ACRONYMS / ABBREVIATIONS	DEFINITION
NWA	National Water Act, 36 of 1998
NWPTB	North West Parks and Tourism Board
NSS	Natural Scientific Services
O ₂	Oxygen
PGM	Platinum group metals
PPM	Pilanesberg Platinum Mines (Pty) Ltd
PSA	Platmin South Africa (Pty) Limited
SAHRA	South African Heritages Resources Association
SANS	South African National Standards
SLR	SLR Consulting (Africa) (Pty) Ltd
SPM	Sedibelo Platinum Mines
TSF	Tailings storage facility
WUL(A)	Water Use Licence (Application)

INTRODUCTION

Introduction to the proposed project

Pilanesberg Platinum Mines (Pty) Ltd (PPM) is a wholly-owned subsidiary of Platmin South Africa (Pty) Limited (PSA) (previously known as Boynton Investments (Pty) Ltd). PSA's ultimate holding company is Sedibelo Platinum Mines Limited (previously known as Platmin Limited). Active participation in the control of PSA takes place through representation of PSA's black economic empowerment (BEE) shareholder, the Bakgatla-Ba-Kgafela Tribal Authority, on the Board of Directors of the aforesaid ultimate holding company of PSA, viz Sedibelo Platinum Mines Limited (SPM).

The mine, which is located to the west and north-west of the Pilanesberg National Park in the North West Province (refer to Figure 1), has an approved Environmental Impact Assessment (EIA) and Environmental Management Programme (EMP) (Metago, 2007) ('the approved EMP') (Department of Mineral Resources [DMR] Ref No: NW30/5/1/2/2/320MR and Department of Rural, Environment and Agricultural Development [DREAD] Ref No: EIA 410/2005NW). The mine has been operational at the main Tuschenkomst open pit since the beginning of 2009. PPM has also submitted further EIA and EMP reports to cater for changes to the PPM mining operations.

In broad terms the approved PPM mining operation comprises the following:

- open pit mine;
- temporary and permanent waste rock stockpiles;
- temporary topsoil dumps;
- haul roads;
- river diversion;
- processing facility;
- tailings storage facility (TSF);
- sewage treatment facility;
- mining contractors' site complexes;
- offices;
- workshops; and
- other support infrastructure.

Figure 2 illustrates the main infrastructure components at the mine.

PPM has approached SLR Consulting (Africa) (Pty) Ltd (SLR) to undertake an EIA for the expansion of the existing PPM processing facility which will incorporate the following:

- a second UG2 milling and flotation circuit to re-process the existing TSF;
- two tailings re-treatment plants for the extraction of PGMs from the existing TSF;
- a chrome recovery facility to extract chrome resources from the existing TSF;

- a hydrometallurgical processing facility for the treatment of flotation concentrate;
- additional support and services infrastructure, including:
 - the upgrade of the existing sewage treatment facility,
 - a new waste storage area
 - a new training centre,

Furthermore, a number of community based initiatives will be established at the mine, such as:

- a DMS aggregate crusher and brick project;
- waste composting area;
- nursery;
- vegetable garden;
- waste handling facility; and
- car wash bay.

All of the abovementioned facilities will be located on the farms Tuschenkomst 135 JP and Witkleifontein 136 JP, either within or immediately adjacent to existing PPM infrastructure. It should be noted that the following community based infrastructure has already been constructed, and has been included in this report at the request of the DMR: aggregate crusher and brick making project, vegetable garden and nursery.

At the time that the BID was compiled, the project scope only included the second UG2 milling and flotation circuit, hydrometallurgical plant as well as tailings and chrome recovery facilities. Subsequently the project scope has changed to include an upgrade to the existing sewage treatment plant, additional waste storage facility, training centre, as well as a number of community based initiatives listed above. IAPs have been notified of the change in project scope in this Scoping Report as well as the Scoping Report summary document (see Appendix B).

It is assumed that PPM will be responsible for amending the Mine Works Programme in line with the requirements of the Mineral and Petroleum Resources Development Act (MPRDA), 28 of 2002, if required.

The EIA process comprises two phases: the scoping phase and environmental impact assessment and environmental management programme (EIA and EMP) phase. This report describes the scoping phase for the proposed project.

Brief project motivation (need and desirability)

The expansion of the PPM mineral processing facilities will optimise the processing of the mineral resources at PPM, thereby extending the life of the processing facility to approximately 50 years. This will increase the expected operational phase workforce from the current 320 employees by approximately

140 employees. Some of the additional support infrastructure, such as the nursery, composting facility, waste handling facility and car wash will furthermore be implemented as community based projects with direct employment benefits for the relevant communities. These changes to the mine will benefit society and the surrounding communities both directly and indirectly by generating additional employment (as well as job continuity) and extending PPM's processing capacity. Direct economic benefits will be derived from wages, taxes and profits. Indirect economic benefits will be derived from the procurement of goods and services and the spending power of employees.

Legal Framework

Prior to the commencement of the proposed project, environmental authorisation is required from:

- Department of Mineral Resources (DMR) in terms of the Mineral and Petroleum Resources Development Act (MPRDA), 28 of 2002; and
- North West Department of Rural, Environment and Agricultural Development (DREAD) (previously known as the Department of Economic Development, Environment, Conservation and Tourism) in terms of listed activities (indicated in Table 8) that are governed by the National Environmental Management Act, 107 of 1998 (NEMA).

In addition to the NEMA and MPRDA authorisations, the following environmental authorisations will also be required:

- an air emission licence (AEL) in terms of the National Environmental Management: Air Quality Act, 39 of 2004 (NEM:AQA). Specifically listed subcategory 4.17 for precious and base metal production and refining applies in this instance. It is not certain at this stage whether subcategory 5.2 for drying will be applicable to the project. The applicable categories will need to be verified once the project description is developed in further detail. This will require the submission of a detailed AEL application and a supporting air quality impact assessment to the relevant air quality officer at DREAD;
- water use licence in terms of the National Water Act (NWA), 36 of 1998, for any additional water uses or the amendment of existing water uses. This will require the submission of an application to the Department of Water and Sanitation (DWS) (previously the Department of Water Affairs) to register water uses and to update the integrated waste and water management plan (IWWMP). Depending on the storage or disposal options associated with the waste which will be generated, detailed designs of such facilities will be required.

This document has been prepared strictly in accordance with the DMR Scoping Report template format, and was informed by the guidelines posted on the official DMR website. This is in accordance with the requirements of the MPRDA. In addition, this report complies with the requirements of NEMA. The relevant criteria are indicated in Table 1.

TABLE 1: LEGAL FRAMEWORK

Reference in Scoping Report	Mining Regulation 49 of Regulation 527 of 23 April 2004	NEMA Regulation 28 of Regulation 543 of 18 June 2010
Introduction	-	Details of the environmental practitioner who prepared the report, including relevant expertise to carry out scoping procedures.
Introduction	-	Identify all legislation and guidelines that have been considered in preparing the Scoping Report.
Section 6	Describe the methodology applied to conduct scoping.	-
Section 1 and Appendix B	Describe the process of engagement of identified interested and affected parties (IAPs), including their views and concerns.	Details of the public participation process conducted in terms of Regulation 28(a), including: notification of IAPs, proof of notification, IAP register/database, summary of issues raised by IAPs.
Section 2	Describe the existing status of the environment prior to the mining operation.	Description of the environment that may be affected by the activities.
Section 3.1	Describe the most appropriate procedure to plan and develop the proposed operation.	A description of the proposed activities, a description of the property on which the activity is to be undertaken, and the location of the activity on the property.
Sections 4.1 to 4.4	Identify and describe reasonable land use or development alternatives to the proposed operation. Describe the consequences of not proceeding.	A description of any feasible and reasonable alternatives that have been identified.
Section 3	Identify and describe the anticipated environmental, social and cultural impacts, including cumulative effects where applicable.	A description of the manner in which the physical, biological, social, economic and cultural aspects of the environment may be affected by the proposed activities. A description of environmental issues and potential impacts, including cumulative impacts.
Section 6	Describe the nature and extent of further investigations required in the environmental impact assessment report.	Information on the methodology that will be adopted in assessing the potential impacts that have been identified. A plan of study for EIA, including: tasks to be undertaken, specialist reports and processes, consultation of authorities, method of assessing environmental issues and alternatives, the option of not proceeding, proposed public participation process, other information required by the authorities.

Scoping phase objectives

The objectives of the scoping phase are to understand the proposed project, identify and describe potential environmental and social impacts, and to set out any related terms of reference for further investigations that will enable the meaningful assessment of all relevant environmental and social issues. The terms of reference for further investigations are included in Section 6.1.

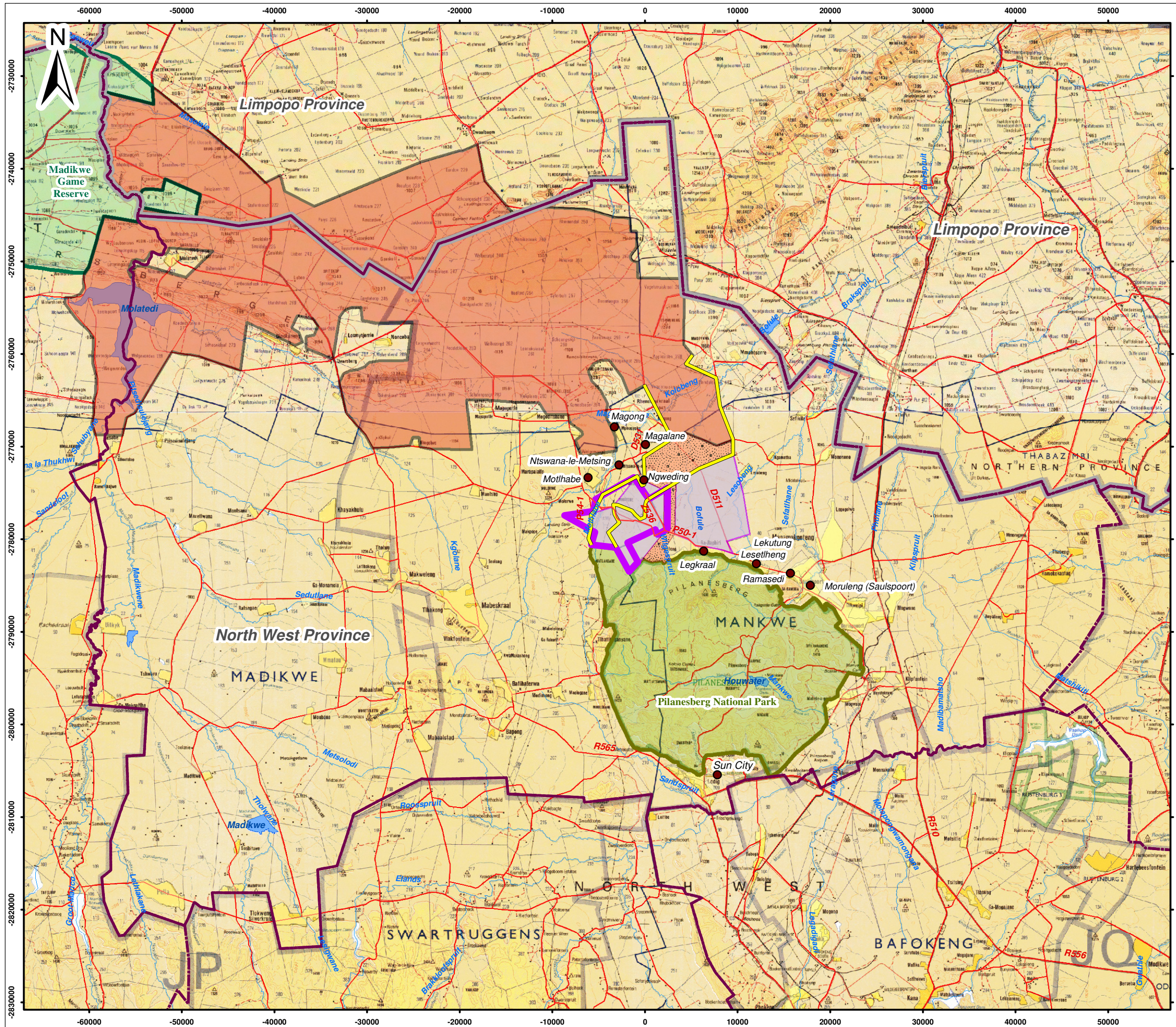
Scoping team

Caitlin Hird (project co-ordinator) has four years of relevant experience. Suan Mulder/Fiona Bolton (project managers) both have in excess of eight years relevant experience. Brandon Stobart (project reviewer) has 17 years of relevant experience.

Neither SLR nor any specialists which are being used as sub-consultants have any interest in the project other than fair payment for consulting services rendered as part of the environmental assessment process.

Contact details for responsible persons

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Legend

- Roads
- Villages
- Pilanesberg Platinum Mine Mining Right Area
- Municipal Boundaries
- Provincial Border

Conservation Areas

Existing

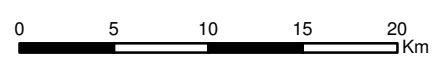
- Pilanesberg National Park (Including Black Rhino Game Reserve)
- Madikwe Game Reserve

Proposed

- Heritage Park Corridor Concept

Conceptual Heritage Park Corridors and Conservation Areas in the PPM Vicinity

- Original Dangerous Game Corridor NWPTB Concept
- Alternative Dangerous Game Corridor Concept Proposed by PPM
- Non Dangerous Game Area Concept



Scale: 1:400 000 @ A3

Projection: Transverse Mercator
Datum: Hartbeeshoek, Lo27

PILANESBERG PLATINUM MINES (PTY) LTD

Figure 1

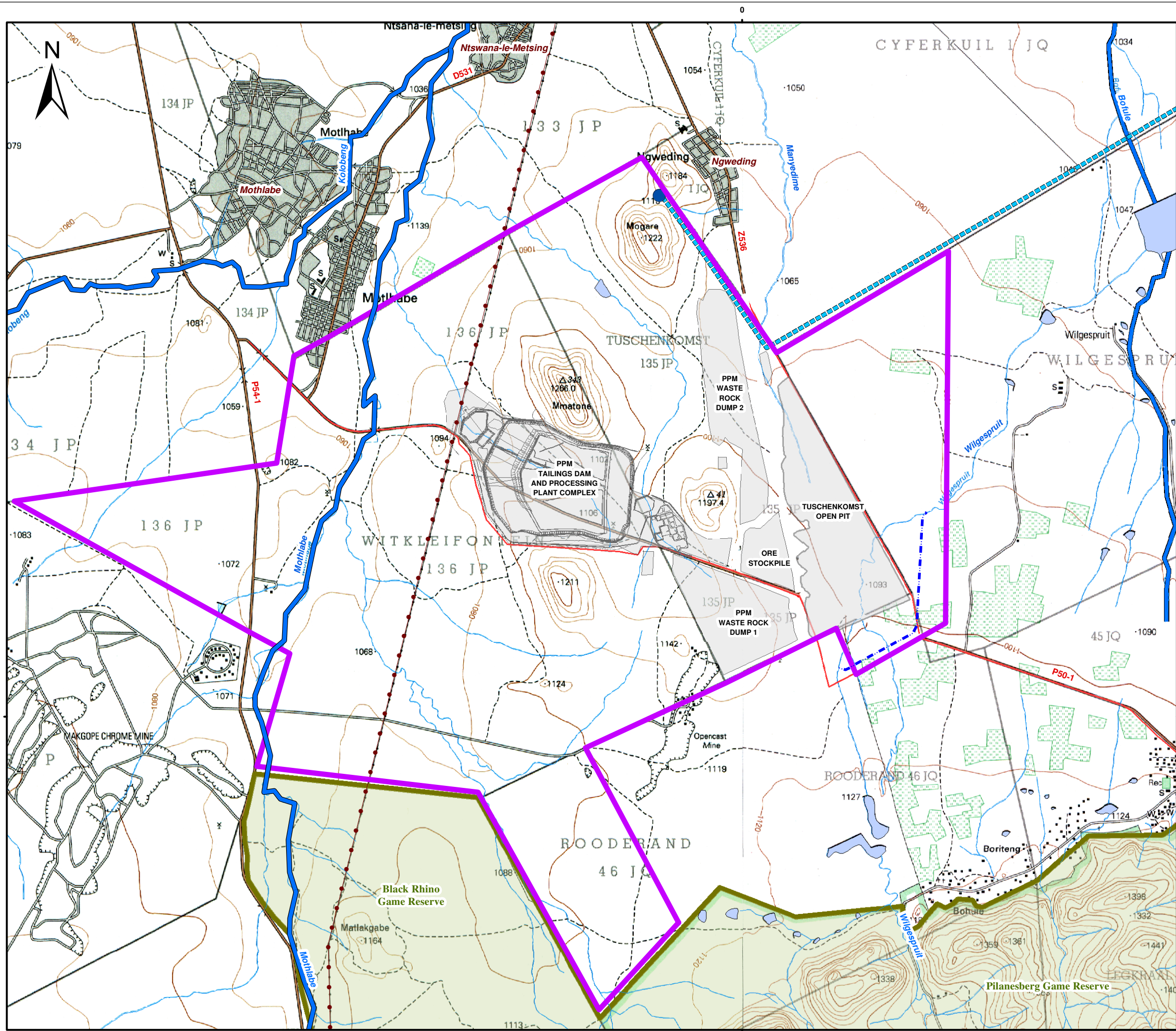
Regional Setting



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- Legend**
- Magalies Water Pipeline
 - Eskom Powerline
 - Dams
 - Rivers
 - Roads
- Pilanesberg Platinum Mine**
- Pilanesberg Platinum Mine Mining Right Area
 - Wilgespruit River Diversion
 - Approved Infrastructure
- NFEPA Rivers PES 19999**
- Class B: Largely Natural



Scale: 1:45 000 @ A3
 Projection: Transverse Mercator
 Datum: Hartebeeshoek, Lo27

PILANESBERG PLATINUM MINES (PTY) LTD

Figure 2
Local Setting Showing Approved Infrastructure



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1 THE METHODOLOGY APPLIED TO SCOPING

The scoping process was conducted in accordance with the requirements of the legal framework outlined in Table 1 of the Introduction to this report and involved the following steps:

- key team members conducted a site visit to Pilanesberg Platinum Mine;
- available studies and reports covering the Pilanesberg Platinum Mine were reviewed;
- a project description was drafted by the client and provided to SLR;
- potential positive and negative impacts were identified by considering the project description and site conditions;
- interested and affected parties (IAPs) were identified, notified of the proposed project and consulted (the consultation process is outlined in Section 5 of this report);
- relevant authorities were identified, notified of the proposed project and consulted (the consultation process is outlined in Section 5 of this report);
- the SLR environmental team identified the investigations required to assess the potential positive and negative impacts (the terms of reference are included in Section 6 of this report); and
- a Scoping Report was compiled.

1.1 HISTORICALLY DISADVANTAGED COMMUNITIES

There are several historically disadvantaged communities as defined in the DMR Guideline within close proximity to the proposed project area. Communities closest to the project area are illustrated in Figure 2 and include:

- Ngweding (approximately 3.6 km from the proposed project area);
- Motlhabe (approximately 4.5 km from the proposed project area);
- Legkraal (approximately 5.1 km from the proposed project area); and
- Ntswana-le-Metsing (approximately 5.6 km from the proposed project area).

PPM has identified nine “doorstep” communities, which are the communities closest to the mining operation (refer to Figure 1 and Figure 2). The doorstep communities include those mentioned above, as well as Mogong (approximately 7 km north of the mine), Magalane (approximately 8 km north of the mine), Ramasedi (approximately 15 km south east of the mine), Lesetlheng (approximately 7 km south east of the mine) and Lekutung (approximately 7.5 km south east of the mine).

The closest towns to the project area are:

- Saulspoort (\pm 16 km east of the mine);
- Northam (\pm 35 km north-east of the mine);
- Ledig (\pm 30 km south of the mine); and
- Mogwase (\pm 30 km south-east of the mine).

1.2 HISTORICALLY DISADVANTAGED COMMUNITY LAND OWNERSHIP

Surface rights on, immediately adjacent and surrounding the project area, are held either by private individuals or the State or held in trust for the Bakgatla Ba-Kgafela Tribe as shown in Table 2 and Table 3. These tables do not represent all interested and/or affected parties (IAPs) registered on the IAP database but does give an indication of land ownership in proximity to the site.

1.3 DEPARTMENT OF LAND AFFAIRS INTEREST

The Department of Rural Development and Land Reform and (DRDLR), formerly known as the Department of Land Affairs has been identified as an interested and affected party (IAP) and has been consulted. Proof of consultation is attached in Appendix B.

1.4 LAND CLAIMS

According to fax correspondence received from the Department of Rural Development and Land Reform (DRDLR) on 7 June 2012 the Regional Land Claims Commission acknowledged that claims had been lodged, in terms of the restitution of Land rights Act (Act No. 22 of 1994) on the farms, Legkraal 45 JQ, Koedoesfontein 42 JQ by the BBKTA community and these have been settled. DRDLR confirmed that there are no claims on their database for the farms Witkleifontein 136 JP, Tuschenkomst 135 JP, Wilgespruit 2 JQ, Magazynskraal 3 JQ and Rooderand 46 JQ. Proof of this correspondence is included in Appendix B.

1.5 RELEVANT TRADITIONAL AUTHORITY

The Bakgatla-Ba-Kgafela is the Traditional Authority.

1.6 LANDOWNERS

The title deed owners are listed in Table 2 below.

TABLE 2: SURFACE RIGHTS WITHIN THE PROJECT AREA

Farm Name	Portion number	Title deed number	Surface owner as per title deeds search (June 2014)
Tuschenkomst 135 JP	0	T594/1938BP	Republic of South Africa
Witkleifontein 136 JP	0	T9313/1937BP	Republic of South Africa
	1	T11640/1937BP	

1.7 LAWFUL OCCUPIERS

The mining operations, currently focussed around the Tuschenkomst open pit, occupy land on the following farms: Tuschenkomst 135 JP, Witkleifontein 136 JP and a part of Wilgespruit 2 JQ. See Table 2 above for details of landowners in the project area.

There are members of the local community that use the abovementioned farms for activities such as cattle grazing. It is understood that one of the farmers has a hut and cattle kraal on the farm Tuschenkomst 135 JP.

1.8 OTHER PARTIES THAT MAY BE DIRECTLY AFFECTED

This section briefly discusses whether or not other persons (including on adjacent and non-adjacent properties) socio-economic conditions will be directly affected by the proposed mining operation.

Other affected parties that may be directly affected include the landowners and land users on the adjacent properties surrounding project area. These have been included in Table 3.

TABLE 3: LANDOWNERS ADJACENT TO THE PROJECT AREA

Farm Name	Portion number	Title deed number	Surface owner as per title deeds search (June 2014)
Rooderand 46 JQ	0	T11232/194BP	Republic of South Africa
	1	T8993/1916BP	
	2	T16014/1971BP	
	3	T3648/1940BP	
	4	T18366/2008	Bakgatla Ba-Kgafela Tribe
Welgewaagd 133 JP	0	T10729/1926BP	Republic of Bophuthatswana
	1	Refer to registrar	Refer to registrar
	2	T25071/1944BP	Makulbire Thradrack
	3	T49657/2007	Tlale Morategi Israel
Wilgespruit 2 JQ	0	T1230/1919BP	Bakgatla Ba-Kgafela Tribe
Cyferkuil 1JQ	0	T6482/1937BP	Republic of South Africa
	1	T5284/1937BP	
Groenfontein 138 JP	0	T6770/1937BP	Republic of Bophuthatswana
	1	T12741/1937BP	
	2	T1274/1937BP	
	3	Refer to registrar	Refer to registrar
Bierkraal 134JP	0	T9309/1938BP	Republic of Bophuthatswana
Zandspruit 168 JP	0	T7072/2006	African Mining - Trust Co Ltd

Other parties that may be affected by the project that have been identified to date include:

- Pilanesberg National Park;
- Black Rhino Game Reserve;
- North West Parks and Tourism Board (NWPTB);
- downstream water users;

- surrounding mining operations; and
- surrounding communities on non-adjacent properties (including land owners and land users).

Details of the relevant parties that will be directly affected by the proposed project will be identified during the EIA process, and the information will be included in the EIA and EMP report.

1.9 RELEVANT LOCAL MUNICIPALITY

The Moses Kotane Local Municipality (MKLM) is the relevant local municipality.

1.10 OTHER STAKEHOLDERS

The relevant government departments, agencies and institutions responsible for the various aspects of the environment, land and infrastructure that may be affected by the proposed project are listed below:

- Regulatory authorities:
 - Department of Mineral Resources (DMR);
 - North West Department of Rural, Environment and Agricultural Development (DREAD) (previously the Department of Economic Development, Environment, Conservation and Tourism);
 - Department of Environmental Affairs (DEA);
 - Department of Water and Sanitation (DWS) (previously the Department of Water Affairs);
 - South African Heritage Resource Agency (SAHRA);
 - Department of Agriculture, Forestry and Fisheries (DAFF);
 - Department of Rural Development and Land Reform (DRDLR) (previously the Department of Land Affairs);
 - Department of Public Works, Roads and Transport (DPWRT);
 - North West Parks and Tourism Board (NWPTB);
 - Moses Kotane Local Municipality (MKLM);
 - Bojanala Platinum District Municipality (BPDM); and
 - Ward councillors;
- Non-governmental Organisations (NGOs):
 - Federation for a Sustainable Environment (FSE);
- Parastatals:
 - Eskom; and
 - Magalies Water.
- Other:
 - Pilanesberg National Park;
 - Black Rhino Game Reserve

A public involvement database has been developed for the project and is provided in Appendix C. The database has been developed through a deeds search of the relevant properties and immediately adjacent portions of land, social scans including site visits in the surrounding area, networking and direct consultation with IAPs. The database will be updated on an on-going basis throughout the environmental process.

1.11 NOTIFICATION OF LANDOWNERS, LAWFUL OCCUPIERS AND IAPs

Proof that the landowners, lawful occupiers and IAPs were notified of the project is provided in Appendix B.

2 DESCRIPTION OF THE EXISTING STATUS OF THE ENVIRONMENT

As part of the EIA and EMP reports which have been compiled since 2007, various specialist studies have been commissioned to cover the PPM operations. In addition to the PPM operations, specialist studies were also undertaken for the neighbouring developing Sedibelo and proposed Magazynskraal mines. This section has been compiled using information from the various EIA and EMP reports and the supporting specialist studies (refer to Section 9) as well as information from the recent site visits by SLR personnel.

This baseline information section is aimed at giving the reader perspective on the existing status of the cultural, socio-economic and biophysical environment. Detailed information will be provided in the EIA and EMP report.

2.1 AGREEMENT ON EXISTING STATUS OF ENVIRONMENT

Information on the existing status of the environment was provided to IAPs in the Background Information Document (BID) and also during the scoping meetings, as per the minutes attached in Appendix B. IAPs will also have the opportunity to review this Scoping Report which includes details of the existing status of the environment. Issues raised during the review of the Scoping Report will be provided to the relevant decision-making departments, as required.

It must be kept in mind that the descriptions below are of an environment that exists together with the mining infrastructure and activities at and adjacent to PPM.

2.2 EXISTING STATUS OF THE CULTURAL ENVIRONMENT

The existing status of the cultural environment that may be affected by the proposed project is described in the section below. The term 'cultural resource' is a broad, generic term covering any physical, natural and spiritual properties and features adapted, used and created by humans in the past and present. Cultural resources are the result of continuing human cultural activity and embody a range of community values and meanings. These resources are non-renewable and finite. Cultural resources include traditional systems of cultural practise, belief or social interaction. They can be, but are not necessarily identified with defined locations. Heritage resources are considered to be cultural resources, therefore these resources are dealt with together in the section below.

2.3 EXISTING STATUS OF THE HERITAGE ENVIRONMENT

This section describes the existing status of the heritage and cultural environment that may be affected by the proposed project. The various natural and cultural assets collectively form the heritage. These assets are known as cultural and natural resources. Heritage (and cultural) resources include all human-

made phenomena and intangible products that are the result of the human mind. Natural, technological or industrial features may also be part of heritage resources as places that have made an outstanding contribution to the cultures, traditions and lifestyles of the people or groups of people of South Africa.

The project area is located in the Central Bankeveld of the North West Province of South Africa. Numerous heritage resources were identified in and around the project area, the most important of which is a cultural landscape constituted by large numbers of isolated and clusters of late Iron Age stone wall sites at the koppies of Mogare, Mmatone, Patswane and Mukukunupu on the farms Tuschenkomst 135 JP and Witkleifontein 136 JP. Other resources that have been identified include mining heritage remains, historical dwellings, graveyards, settlements from the recent past, and isolated and randomly scattered stone tools and potsherds (Pistorius, 2006).

Palaeontological resources are fossils, the remains or traces of prehistoric life preserved in the geological (rock stratigraphic) record. They range from the well-known and well publicised (such as dinosaur and mammoth bones) to the more obscure but nevertheless scientifically important fossils (such as palaeobotanical remains, trace fossils, and microfossils). Palaeontological resources include the casts or impressions of ancient animals and plants, their trace remains (for example burrows and trackways), microfossils (for example fossil pollen, ostracodes, and diatoms), and unmineralised remains (for example bones of Ice Age mammals).

It is not considered likely that palaeontological resources exist within the project area due to the geology of the area (Rubidge, 2011). The project area is underlain by igneous rocks of the Rustenberg Layered Suite of the Bushveld Igneous Complex (BIC) that is exposed only in places. This Complex is an intrusive igneous body comprising a series of ultramafic-mafic layers and a suite of associated granitoid rocks. As these rocks are Precambrian in age and are of igneous origin it is highly unlikely that fossils will be affected by the proposed subsurface mining development. Overlying the rocks of the Rustenberg Layered Suite, the entire area is covered by unconsolidated Quaternary sand deposits. These are the only sedimentary deposits in the area to be affected by mining activities, and as the deposits are not consolidated it is very unlikely that any fossils will be present (Rubidge, 2011).

2.4 EXISTING STATUS OF CURRENT LAND USES AND THE SOCIO-ECONOMIC ENVIRONMENT

Projects of this nature have the potential to influence current land uses both on the site (through land development) and in the surrounding areas (through direct or secondary positive and/or negative impacts). In addition, mining projects have the potential to influence various aspects of the socio-economic profile of a community. As a baseline, this section provides a brief description of the existing land tenure, land uses on site, and the current socio-economic status of the region that may be affected by the proposed project. This section provides the context within which potential impacts on land uses and existing social and economic activity may be experienced.

2.4.1 CURRENT LAND USES

PPM is situated to the north and north-west of the Pilanesberg National Park in the North West Province (Figure 1). PPM lies approximately 60km north-east of the city of Rustenburg, which is a major centre for the platinum mining industry in the Bojanala Platinum District Municipality (BPDM). Land uses on-site are a mixture of mining activities, grazing and community related activities.

PPM is surrounded by a number of mining operations, as well as conservation and eco-tourism activities such as the Pilanesberg National Park, including Black Rhino Game Reserve, and the proposed Heritage Park Corridor.

The potential positive and negative impacts are described in Section 3.6.

2.4.2 MINERAL/PROSPECTING RIGHTS

The existing PPM mining rights are outlined in Table 4 below.

TABLE 4: MINERAL RIGHTS HELD BY PILANESBERG PLATINUM MINES (PTY) LTD

Property	Portions	Mining Right	Company Holding the Right
Ruighoek 169JP	1 (Originally comprising RE1, 10-14)	NW 30/5/1/2/2/320 MR (39/2008)	Pilanesberg Platinum Mines (Pty) Ltd,
	2		
	3		
	4		
	6		
	9		
	15		
Tuschenkomst 135JP	Farm		Pilanesberg Platinum Mines (Pty) Ltd, previously Taung Minerals (Pty) Ltd
Witkleifontein 136JP	1+ RE		Pilanesberg Platinum Mines (Pty) Ltd, previously Taung Minerals (Pty) Ltd
Rooderand 46JQ	3		Pilanesberg Platinum Mines (Pty) Ltd, previously Taung Minerals (Pty) Ltd
Wilgespruit 2JQ	Portion of the Farm	NW/30/3/1/2/3/2/1/333MR)	Pilanesberg Platinum Mines (Pty) Ltd*
Rooderand 46JQ	Portion of Portion 1		Pilanesberg Platinum Mines (Pty) Ltd*

* Refer to paragraph below

It should be noted that Itereleng Bakgatla Minerals Resources (Pty) Limited (IBMR) has an approved mining right (reference number NW/30/3/1/2/3/2/1/333MR) on the farms Wilgespruit 2 JQ, parts of portion 1 of Rooderand 46 JQ, a portion of portion 1 of Legkraal 45 JQ and a portion of Koedoesfontein 42 JQ and this was notoriously executed on 20 of June 2008. However, PPM and IBMR reached an agreement and as part of separate Section 102 application in terms of the MPRDA, whereby the IBMR has abandoned a section of Wilgespruit 2 JQ and part of Portion 1 of Rooderand 46 JQ (i.e. Mining Right

Abandonment Area). In terms of a Mining Right Abandonment Agreement dated 22 March 2011 concluded by IBMR, PPM and Platmin Limited (Platmin), the latter being PPM's JSE and TSX listed ultimate holding company, IBMR agreed to abandon this area. Under this right the IBMR was entitled to mine for platinum group metals, gold, nickel, copper, cobalt and chrome. The mining right for The Abandonment Area was transferred to PPM as part of this agreement.

2.4.3 PRE-PROJECT LAND USE

Prior to the development of PPM, the project area was used for community activities, such as livestock grazing and subsistence farming, however it should be noted that this pre-project land use has already been disturbed due to existing mining activities within and adjacent to the project area.

2.4.4 PROPOSED HERITAGE PARK CORRIDOR CONCEPT

Prior to 2002, the North West Parks and Tourism Board (NWPTB) promoted the concept of the heritage park corridor (HPC). The proposed HPC (shown on Figure 1) is an initiative being put forward by the NWPTB where it is proposed that over 167 000 ha of private, state and community land will be incorporated into the corridor over a 20 year period to allow the joining of the Madikwe Game reserve and the Pilanesberg National Park. This is a piece of land that stretches north of the Pilanesberg towards Dwaalboom and then follows the Dwarsberg Mountain range west before joining the Madikwe Reserve at Molatedi. This initiative forms part of a larger initiative to establish a significant conservation area in the province approaching 1 000 000 ha. The concept of the heritage park is being promoted based on the following principles:

- to act as a nature-based tourism anchor project for the region;
- to establish a corridor that will ultimately link two primary tourism destinations in the North West Province (i.e. the Pilanesberg national Park and the Madikwe Game Reserve);
- to promote socio-economic development; and
- to aid in conserving the natural and cultural heritage of this under-developed and rural area (NWPTB, 2002).

As part of the HPC, two different corridor concepts were proposed by the NWPTB. The phase 1 corridor is the wider corridor which would be fenced off to contain non-dangerous game on the farms that form part of the southern part of the proposed Heritage Park. It is planned that non-dangerous game, community activities and mining activities would co-exist within this corridor. The phase 2 corridor is likely to be a narrower "Big Five" corridor that will be used exclusively for animal movement between Pilanesberg National Park and Lebathlane Game Reserve (and ultimately the Madikwe Game Reserve), and it will exclude community and mining activities.

As a result of the current mining operations on the farms Tuschenkomst 135 JP and Witleifontein 136 JP, as well as the future mining on Wilgespruit 2 JQ, PPM approached the NWPTB in 2007 to

propose an alternative route for the “Big Five” corridor that would be available in the short term should the proposed HPC proceed in the near future. The alternative alignment redirects the “Big Five” corridor along the western boundary of the farm Witkleifontein 136 JQ, after which it joins up with the original alignment north of the mining area. The original alignment of the proposed HPC as well as the alternative alignment proposed by PPM is illustrated in Figure 1.

While the concept of the proposed Heritage Park Corridor is supported by a number of stakeholders, there are numerous practical challenges that currently face this initiative. These include, but are not limited to, a lack of investors, the need to reach agreement with numerous private and community landowners that are located within the corridor which is approximately 100 km long and varies in width from 5 to 30 km, existing linear infrastructure, as well as existing and proposed developments including mining operations.

2.4.5 SOCIO-ECONOMIC PROFILE

PPM is located within the North West Province in the Bojanala Platinum District Municipality and within the Moses Kotane Local Municipality (MKLM). A number of rural villages closest to the proposed development have been identified (see Section 1.1). All of these villages fall under the Moses Kotane Local Municipality and most of them fall under the traditional leadership of the Bakgatla Ba Kgafela Traditional Authority (BBKTA).

The North West Province has a population of approximately 3.1 million residents, of which approximately 230 000 reside in the MKLM area. Within the wider provincial context the socio-economic baseline of the project area reflects a population that is heavily dependent on the mining and tourism sectors in terms of GDP and employment. The challenges which the district and local municipality face relate to employment and infrastructure provision. The local villages and cattle farming community rely heavily on groundwater.

As is the case for the province, the local level of education in the people that comprise the workforce age (19 to 65 years) is poor. According to 2011 census statistics, 33.9 % of the population on average were recorded as having no or limited primary education. A mere 19 % of the residents across the MKLM were recorded as having completed Grade 12 while an average of only 3.5 % have a higher qualification. In 2007, 50.2 % of households in the MKLM received no income, with 35.4 % of households receiving an income of less than R1 600 per month. The most dominant employment sector contributing to the MKLM's economy was the mining industry, employing 25 % of the population.

The socio-economic conditions of the communities surrounding the project area range from poor to fair depending on a number of variables. The proposed project has the potential to contribute to the alleviation of unemployment in the affected communities in so far as job continuity and job creation are

concerned and in so doing could contribute to the development of the area socially as well as economically.

2.5 EXISTING STATUS OF RELEVANT INFRASTRUCTURE

This section describes the existing status of any infrastructure that may be affected by the proposed project.

2.5.1 COMMUNITIES AND COMMUNITY STRUCTURES IN THE VICINITY

With reference to Figure 1 and Figure 2 the communities closest to the proposed project area include:

- Ngweding (approximately 3.6 km from the proposed plant expansion site);
 - Motlhabe (approximately 4.5 km from the proposed plant expansion site);
 - Legkraal (approximately 5.1 km from the proposed plant expansion site); and
 - Ntswana-le-Metsing (approximately 5.6 km from the proposed plant expansion site).
-
- The closest towns to the project area are:
 - Moruleng (Saulspoort) (± 16 km east);
 - Northam (± 35 km north east); and
 - Mogwase (± 30 km south east).

2.5.2 MINING STRUCTURES

There are numerous existing and proposed mining-related activities located in the vicinity of the Pilanesberg Platinum Mine. These include:

- Sedibelo Platinum Mine, situated on Wilgespruit 2 JQ, portion 1 of Rooderand 46 JQ, Legkraal 45 JQ and Koedoesfontein 42 JQ;
- Chrometco Chrome Mine, situated on portion 2 and the remaining extent of Rooderand 46 JQ.
- Magazynskraal Platinum Mine (Richtrau), situated on Magazynskraal 3 JQ;
- Platinum Australia (Atla Mining), situated on portion 2 of Rooderand 46 JQ;
- Nkwe Platinum, situated on the remaining extent of Rooderand 46 JQ;
- Rustenburg Minerals, situated on Groenfontein 138 JP;
- Chrome Corporation, situated on Ruighoek 169 JP; and
- Merafe - Xstrata Horizon Mine, situated on Ruighoek 169 JP and Vogelstruisnek 17 JP.

Existing PPM infrastructure

The key existing mine infrastructure includes (See Figure 2):

- open pit workings;
- processing plant for the concentration of both UG2 and Merensky ore;
- mine residue facilities for waste rock, DMS and tailings; and

- a significant range of support infrastructure and services for transport, water supply, power supply, repairs, and management of non-mineralised waste.

2.5.3 TRANSPORT INFRASTRUCTURE

Existing transport infrastructure within the project area includes (refer to Figure 1):

- the regional tarred R510 (along the eastern boundary of the Pilanesberg National Park);
- the provincial tarred P54-1 (along the western boundary of the Pilanesberg National Park);
- the provincial P50-1 (east / west alignment and connects the R510 to the P54-1);
- the D511 gravel road (north-west / south-east alignment that connects the P50-1 to Magong);
- the D531 gravel road (between Motlhabe and Ntswana-le-Metsing); and
- the Z536 gravel road running south from Ngweding (a section of this road has been closed due to PPM's open pit mining operation. There is a temporary fire break road that follows the eastern boundary of PPM's pit. PPM has applied for and has been granted permission to close the Z536 and construct a new road along the northern boundary of the farm Wilgespruit 2JQ).

2.5.4 POWER LINES

There is a significant power line (and the associated ESKOM servitude) situated in close proximity to the project area, to the west of PPM's existing tailings storage facility. This power line is positioned in a north-south orientation (see Figure 2). There is a network of low voltage power lines and telephone lines which service the area. These lines usually follow roads before branching off to individual properties. In the vicinity of the project site, there is a low voltage line which follows the route of the P50-1.

2.5.5 WATER PIPELINE

There is a Magalies Water pipeline to the north-east of the project area (see Figure 2).

2.6 EXISTING STATUS OF THE BIOPHYSICAL ENVIRONMENT

This section describes the existing status of the biophysical environment that may be affected by the proposed project.

2.6.1 GEOLOGY

The geology of a particular area will determine the following factors:

- the type of soils present since the soils will be derived from the parent rock material;
- the presence and quality of groundwater and the movement of the groundwater in the rock strata;
- the presence of palaeontological resources in the rock strata; and
- the potential for acid generation.

All of these aspects will be considered in the EIA. However, a basic description of the following aspects is provided below:

- regional; and
- local geology.

Soil types are discussed in Section 2.6.4, groundwater in Section 2.6.7 and paleontological resources in Section 2.3.

Regional Geology

PPM is situated in the Bushveld Igneous Complex (BIC). Centred on the Limpopo Province and extending into the Provinces of Mpumalanga, North West and Gauteng in South Africa, the BIC is the largest layered mafic igneous complex on earth, with an exposed surface area of some 67 000 km². The BIC is an intrusive igneous body, extending about 400 km from east to west and about 350 km from north to south.

The BIC consists of crystalline material such as norites and pyroxenites and comprises an unweathered and intact rock matrix with negligible matrix porosity and permeability, and planes of discontinuity in the rock matrix, including both faults and joint plant (collectively referred to as fractures). It is one of three layered igneous complexes in the world where platinum group elements (PGE) are currently mined as a primary product, the others being the Great Dyke in Zimbabwe and the Stillwater Complex in Montana, USA.

The BIC is primarily subdivided into the more or less coeval (2055 Ma) Rustenburg Layered Suite (RLS) and Lebowa Granite Suite (LGS), which consist of ultramafic to mafic layered rocks and granitoids, respectively. The RLS is exposed in a series of lobes, namely the Western, Far Western, Eastern, Northern and Southern (Bethal) lobes.

The RLS reaches a maximum thickness of the order of 9 km in the north-eastern part of the Complex, and is stratigraphically subdivided from the base upwards into the following zones:

- Marginal Zone - consists of norites, and is up to tens of metres thick, where developed;
- Lower Zone – consists of ultramafic lithologies and has a maximum thickness of approximately 1.7 km;
- Lower Critical Zone - consists of ultramafic lithologies and is chromitite-bearing; the Lower Critical Zone hosts large chromium reserves in the LG and MG series of chromitite layers;
- Upper Critical Zone - consists of alternating norite, pyroxenite, anorthosite and chromitite layers, and has a thickness of up to 600 m. This zone is host to the two principal PGE-bearing layers, namely the UG2 chromitite and the Merensky Reef. The Merensky Reef lies near the top of the Critical Zone, close to the contact with the overlying Main Zone. The UG2 is situated in the

footwall of the Merensky Reef, the vertical separation of the two reefs varying from 20 to 400 m from one part of the BIC to another. In the north-western part of the Complex, the PGE-bearing Pseudo Reef package occurs between the UG2 and Merensky Reefs;

- Main Zone – consists of noritic to gabbronoritic lithologies up to 2800 m thick; and
- Upper Zone - consists of ferrogabbronoritic to ferrodioritic lithologies and is up to 2000 m thick. It contains of the order of 21 magnetite layers, the lowermost of which host the world's largest vanadium reserves.

Local Geology

PPM is located in the Western Limb of the BIC, where the layers dip at approximately 10 - 20° into the basin.

In broad terms, the project area is underlain from west to east by progressively younger rocks of the RLS. The lowermost exposed unit is the Upper Critical Zone, near the top of which are the two important platiniferous layers, the UG2 chromitite layer and the Merensky Reef. The Upper Critical Zone is overlain by the Main Zone, which sub-outcrops over most of the project area.

2.6.2 TOPOGRAPHY

The topography of a particular area will determine the following factors:

- the flow of surface water, and in many cases, also groundwater;
- the depth of soils and the potential for soil erosion, for example, in the case of steep slopes;
- the type of land use, for example flat plains are more conducive to crop farming;
- the presence of features that can present a safety risk, for example steep cliffs or deep gulleys;
- the aesthetic appearance of the area; and
- topography can also influence climatic factors such as wind speeds and direction, for example, wind will be channelled in between mountains along the valley.

Changes in the topography caused by the mining activities could therefore alter all of the above-mentioned aspects of the environment. Project-related activities have the potential to alter the topography of the site through the establishment of infrastructure.

The topographic relief of the project area can be described as relatively gently sloping towards the north-west of the study area. Topographic elevation varies between 1040 to 1080 metres above mean sea level (mamsl). The project area is relatively flat, at an average elevation of 1060 mamsl, with various non-perennial drainage lines crossing the site (see Figure 2). There are several isolated koppies in the northern areas and these vary between 1197 and 1266 mamsl. To the south and east of the proposed project area is the Pilanesberg National Park and the associated hills that vary between 1330 and 1534 mamsl.

It should be noted that the topography in the area has already been altered due to historical and current mining activities and related infrastructure.

2.6.3 CLIMATE

Climate can influence the potential for environmental impacts and related mine design. Specific issues are listed below:

- rainfall could influence erosion, evaporation, vegetation growth, rehabilitation planning, dust suppression, and surface water management planning;
- temperature could influence air dispersion through impacts on atmospheric stability and mixing layers, vegetation growth, and evaporation which could influence rehabilitation planning; and
- wind could influence erosion, the dispersion of potential atmospheric pollutants, and rehabilitation planning.

To understand the basis of these potential impacts, a brief baseline situational analysis is described below. More detailed and updated information will be provided in the EIA.

2.6.3.1 Regional climate

The project area falls within the Highveld Climatic Zone, as defined by Schulze (1974). The average annual precipitation ranges from 500 mm to 700 mm (WRC, 1994). Rainfall is generally in the form of thunderstorms. These can be of high intensity with lightening and strong gusty south-westerly winds. Hail frequency is high, tending to occur 4-7 times per season. Temperatures in this climatic zone are generally mild, but low minima can be experienced in winter due to clear night skies. Frost characteristically occurs in the winter months. Generally winds are light, but south-westerly winds associated with thunderstorms are typically strong and gusty.

2.6.3.2 Weather stations

Rainfall and evaporation for the site was considered from various sources including weather stations managed by both the South African Weather Services (SAWS) and the Department of Water Affairs (DWA). The rainfall station selected to be representative of the area is DWA station A2E021, located approximately 28 km north east of PPM with a rainfall record length of 15 years.

2.6.3.3 Rainfall and evaporation

The majority of the rainfall is during the summer months of October to March at which time approximately 85 % of the annual rainfall occurs. The mean annual precipitation (MAP) distribution ranges from 550 mm at the lower altitudes to 700 mm in the upper altitudes (i.e. Pilanesberg). Evaporation figures recorded for the area are high, with an average annual evaporation of 1 329 mm. Potential evaporation figures, therefore, exceed the MAP, indicating that the area is a water deficit area.

2.6.3.4 Temperature

Temperatures range between 0.4 °C and 34.1 °C. The highest temperatures occur in December and the lowest in July. During the day, temperatures increase to reach maximum at around 14:00 in the afternoon. Ambient air temperatures decrease to a minimum at around 06:00, i.e. just before sunrise.

2.6.3.5 Wind

For the period 2008 to 2010, the wind field was dominated by winds from the north, north-east, east and south east. Calm conditions occurred 12.6% of the time. Stable conditions are mostly associated with winds from the east and south-east. Unstable conditions occur most frequently when the wind blows from the west. Neutral conditions are mostly associated with winds from the south-south east and south.

2.6.4 SOIL AND LAND CAPABILITY

Soil is an important natural resource and provides ecosystem services that are critical for life, such as:

- water filtering;
- providing growth medium for plants, which in turn provide food for plant-eating animals; and
- providing habitat for a wide variety of life forms.

Soil forms rather slowly by the breaking down of rock material and is therefore viewed as a non-renewable resource. Soil determines the type of land use the area is suitable for, for example, soil with low nutrients may not be able to support unassisted crop farming.

Soil resources are vulnerable to pollution, erosion and compaction, which could be caused by project-related activities.

The baseline soil information will be used to identify sensitive soil types, to guide the project planning in order to avoid sensitive soil types where possible, to determine how best to conserve the soil resources in the area and allow for proper rehabilitation of the site once mining ceases. The land capability of an area is based on the soil properties and related potential to support various land use activities. Mining operations have the potential to significantly transform the land capability.

A brief description of the soil types and land capability in the project area is provided below. More detailed information will be provided in the EIA.

The distribution of soils on the site is predominantly associated with the surrounding parent host material (geology) from which they are derived and less by the surface topography. The soils in the project footprint area comprise mainly dark, clay soils ("turf" soils) with a shrink-swell morphology, belonging to

the Arcadia form. The agricultural potential of the black turf soils present at the site is limited by their high clay content.

2.6.5 BIODIVERSITY

Biodiversity refers to the flora (plants) and fauna (animals) on earth. According to the International Union for Conservation of Nature (IUCN) (2011), biodiversity is crucial for the functioning of ecosystems which provide us with products and services which sustain human life. Healthy ecosystems provide us with oxygen, food, fresh water, fertile soil, medicines, shelter, protection from storms and floods, stable climate and recreation. Biodiversity therefore has a direct impact on human health when considering (IUCN, 2011):

- biodiversity is essential to global food security and nutrition and also serves as a safety-net to poor households during times of crisis;
- increased diversity of genes within species e.g. as represented by livestock breeds or strains of plants, reduces risk from diseases and increases potential to adapt to changing climates;
- more than 70,000 plant species are used in traditional and modern medicine; and
- the value of global ecosystem services is estimated at \$16-\$64 trillion.

The project area is located within the proposed Heritage Park Corridor, which could in future link the Pilanesberg National Park to Madikwe Game Reserve. Refer to Section 2.4.4 for further detail on the proposed Heritage Park Corridor.

The establishment of project infrastructure as well as project-related activities have the potential to result in a loss of habitat through the destruction/disturbance of vegetation and/or contamination of soil and/or water resources, thereby reducing the occurrence of fauna and flora on site and in the surrounding areas.

The baseline information on biodiversity in the project area will be used to identify sensitive areas, to guide the project planning in order to avoid sensitive areas where possible, to determine how best to conserve the fauna and flora in the area and allow for proper rehabilitation of the site once mining ceases.

A brief description of fauna and flora and fauna in the project area is provided below. More detailed information will be provided in the EIA.

2.6.5.1 Mining and biodiversity guideline

The DEA, DMR, Chamber of Mines (CoM), South African Mining and Biodiversity Forum (SAMBF), and South African National Botanical Institute (SANBI) published the Mining and Biodiversity Guideline in 2013 (DEA et al). This guideline provides explicit direction in terms of where mining-related impacts are legally prohibited, where biodiversity priority areas may present high risks for mining projects and where

biodiversity may limit the potential for mining. There are four categories listed in the Guideline, namely legally protected areas, highest biodiversity importance, high biodiversity importance and moderate biodiversity importance. PPM and the proposed project area falls within the “high biodiversity importance” category. In addition, Level 1 Freshwater Ecosystem Priority Areas (FEPAs) have been identified in close proximity to the project area. Further detail on the FEPAs is provided in Section 2.6.6.1 below.

The proposed project related activities are located within or immediately adjacent to existing PPM infrastructure (refer to Figure 3). As such, this area has already been disturbed by existing mining activities and biodiversity in the proposed project area is expected to be low. However, given the largely rural setting of the surrounding area and the proximity of the mine to the Pilanesberg National Park, biodiversity levels in the wider area are expected to be high.

2.6.5.2 Flora (Natural plant life)

The project area falls within the Savannah Biome. This biome is the largest in southern Africa, covering approximately one-third of the area of South Africa. According to Mucina & Rutherford (2006), the vegetation is classified as Dwaalboom Thornveld, a widespread open savannah vegetation unit with a predominance of Acacia species. The Ecosystem status of this system is listed as Least Threatened.

2.6.5.3 Fauna (Natural animal life)

It is expected that a large number of faunal species could potentially occur in the wider area, mainly due to the close proximity to Pilanesberg National Park. A detailed species list will be included in the EIA and EMP report. It should be noted that the Giant Bullfrog has been observed to occur on the farm Witkleifontein 136 JP. In recognition of the conservation significance and its prevalence in the area, this will be explored in greater detail in the EIA and EMP report.

Red Data species identified as occurring or likely to occur in the area surrounding the proposed project are included in Table 5 below.

TABLE 5: RED DATA SPECIES LIKELY TO OCCUR IN THE SURROUNDING AREA

Data deficient	Near Threatened	Vulnerable	Endangered	Critically endangered
Mammals				
Short-snouted Elephant-shrew	Honey Badger	Ground Pangolin	White-tailed Mouse	Short-eared trident bat
Rock Dormouse	Serval			
Single-striped Grass Mouse	Brown Hyena			
Bushveld Gerbil	Geoffroy's Horseshoe Bat			
Reddish-grey Musk Shrew	South African Hedgehog			
Tiny Musk Shrew	Rusty Pipistrelle			
Lesser Red Musk Shrew	Darling's Horseshoe Bat			

Data deficient	Near Threatened	Vulnerable	Endangered	Critically endangered
Swamp Musk Shrew	Schreiber's Long-fingered Bat			
Lesser Grey-brown Musk Shrew				
Forest Shrew				
Greater Dwarf Shrew				
Sundevall's roundleaf bat				
Birds				
	Lanner Falcon	Lappet-faced Vulture	Saddle-billed stork	
	Black stork	Kori Bustard		
	Yellow billed stork	African Marsh-Harrier		
	Secretary bird	Cape Vulture		
	Red-billed Oxpecker	White-backed Vulture		
	Black-winged Pratincole	Tawny Eagle		
	Marabou Stork	Martial Eagle		
	Yellow-throated Sandgrouse	Blue Crane		
	Great White Pelican	Denham's Bustard		
		African Finfoot		
		Bateleur		
		African Grass Owl		
Snakes and Amphibians				
	Striped Harlequin Snake			

There are a number of conservation important reptile species which could potentially occur in the wider area. These are included in Table 6 below.

TABLE 6: CONSERVATION IMPORTANT REPTILE SPECIES

Shield-nose Snake	Drueden's/Beaked Burrowing Asp	Sundevall's Garter Snake	Rinkhals
Common Brown Water Snake	Two-striped Shovel-snout	Delalande's Beaked Blind Snake	Bribon's Blind Snake
Eastern Green Snake	Olive House Snake	Striped Harlequin Snake	Spotted Sandveld Lizard
Spotted Sand Lizard	Waterberg Girdled Lizard	Waterberg Flat Lizard	Northern Crag Lizard
Southern Rock Agama	Wahlberg's Velvet Gecko	Transvaal Thick-toed Gecko	Cape Thick-toed Gecko

2.6.6 HYDROLOGY (SURFACE WATER)

Surface water resources include drainage lines and paths of preferential flow of stormwater runoff. Project-related activities have the potential to alter the drainage of surface water through the establishment of both temporary (such as shaft infrastructure and support facilities) and permanent infrastructure (such as residue facilities) and/or result in the contamination of the surface water resources through seepage and/or spillage of potentially polluting materials, non-mineralised waste (general and hazardous) and mineralised wastes.

Key to understanding the hydrology of the site is the climatic conditions of the site (climate is discussed in Section 2.6.3). As a baseline, this section provides a brief description of surface water resources in the project area in order to facilitate an understanding of the hydrological catchments that could be affected

by the project and the status of surface water resources in the project area. More detailed information will be provided in the EIA.

2.6.6.1 Drainage and water resources

The current mining operation and proposed project area fall at the headwaters of Quaternary Catchment A24D. With reference to Figure 1 and Figure 2, the following non-perennial rivers drain the current mining area: Motlhabe and associated tributaries, Wilgespruit and Manyedime. All three non-perennial rivers have a gentle gradient as they flow mainly in a northerly direction through the mining area. Both the Motlhabe and Wilgespruit originate south of the mine, in the north western sector of the Pilanesberg mountain range. The Manyedime originates on the farm Tuschenkomst 135 JQ, where the existing Tuschenkomst pit is located. The Motlhabe and the Manyedime feed into the perennial Kolobeng located approximately 2 km north of the mine. The Kolobeng in turn flows into the perennial Bierspruit which then flows into the Lower Crocodile River to the west of Thabazimbi. The Wilgespruit flows through the eastern corner of the mining operations where it is currently diverted around the Tuschenkomst open pit to ensure the safe continuation of mining. The Wilgespruit joins the Bofule River approximately 5 km downstream of the mine. The Bofule River also flows into the Kolobeng.

In terms of the Mining and Biodiversity Guideline (DEA et al, 2013) a section of the Motlhabe River as well as a section of the Bofule River are considered largely natural (Class B) and are ranked as a Level 1 National Freshwater Ecosystem Priority Area (NFEPA) (refer to Figure 2). FEPAs should be regarded as ecologically important and as generally sensitive to changes in water quality and quantity owing to their role in protecting freshwater ecosystems and supporting sustainable use of water resources.

2.6.6.2 Surface water quality

The water quality generally reflects fluoride, manganese, aluminium and iron concentrations elevated above the recommended DWAF domestic use guidelines (DWAF Water Quality Guidelines, 1996).

2.6.6.3 Surface water users

Surface water in the area is used for limited domestic and agricultural use and ecosystem functioning due to the ephemeral nature of the watercourses. Downstream, surface water use may increase due to the perennial nature of watercourses such as the Bierspruit.

2.6.6.4 Wetlands

There are limited areas where wetlands could occur on the site. These include the non-perennial river system that is present on the site. It should be noted that although a river system is non-perennial and ephemeral, the potential for wetlands still exist, especially after heavy rainfall events.

2.6.7 GROUNDWATER

Groundwater is a valuable resource and is defined as water which is located beneath the surface in rock pore spaces and in the fractures of lithologic formations. Understanding the geology of the area (see Section 2.6.1) provides a basis from which to understand the occurrence of groundwater resources. Project-related activities have the potential to impact on groundwater resources, both to the environment and third party users, through pollution. As a baseline, this section provides a brief description of the groundwater conditions to facilitate an understanding of the potential for pollution plumes to occur as a result of project-related activities. More detailed information will be provided in the EIA.

2.6.7.1 Presence of groundwater

The region consists of a shallow and weathered bedrock aquifer which is also laterally connected to aquifers along the weathered zones associated with drainage lines as well as a deeper, intact fractured bedrock aquifer. The weathered aquifer is between 12 m and 50 m deep. It is this shallow aquifer that supports most of the rural borehole abstraction for domestic and small scale agricultural purposes. Based on the surface/groundwater interaction study undertaken by AGES (2014), the shallow perched aquifer is fed by surface water runoff. The deeper aquifer has a low matrix hydraulic conductivity and the groundwater regime in this aquifer is essentially connected fractures.

The aquifer classification scheme (WRC Parsons, 1995) was created for strategic purposes as it allows the grouping of aquifer areas into types (Table 7) according to their associated supply potential, water quality and local importance as a resource. The DWS aquifer classification is also included in this table.

TABLE 7: AQUIFER CLASSIFICATION SCHEME

AQUIFER SYSTEM	DEFINED BY PARSONS (1995)	DEFINED BY DWA MINIMUM REQUIREMENTS (1998)
SOLE SOURCE AQUIFER	An aquifer which is used to supply 50 % or more of domestic water for a given area, and for which there are no reasonably available alternative sources should the aquifer be impacted upon or depleted. Aquifer yields and natural water quality are immaterial.	An aquifer, which is used to supply 50% or more of urban domestic water for a given area for which there are no reasonably available alternative sources should this aquifer be impacted upon or depleted.
MAJOR AQUIFER	High permeable formations usually with a known or probable presence of significant fracturing. They may be highly productive and able to support large abstractions for public supply and other purposes. Water quality is generally very good.	High yielding aquifer (5-20 l/s) of acceptable water quality.
MINOR AQUIFER	These can be fractured or potentially fractured rocks, which do not have a high primary permeability or other formations of variable permeability. Aquifer extent may be limited and water quality variable. Although these aquifers seldom produce large quantities of water, they are important both for local supplies and in supplying base flow for rivers.	Moderately yielding aquifer (1-5 l/s) of acceptable quality or high yielding aquifer (5-20 l/s) of poor quality water.
NON-AQUIFER	These are formations with negligible permeability that are generally regarded as not containing groundwater in exploitable quantities. Water quality may also be such that it renders the aquifer as unusable. However, groundwater flow through such rocks, although imperceptible, does take place, and need to be considered when assessing the risk associated with	Insignificantly yielding aquifer (< 1 l/s) of good quality water or moderately yielding aquifer (1-5 l/s) of poor quality or aquifer which will never be utilised for water supply and which will not contaminate other aquifers.

AQUIFER SYSTEM	DEFINED BY PARSONS (1995)	DEFINED BY DWA MINIMUM REQUIREMENTS (1998)
	persistent pollutants.	
SPECIAL AQUIFER	An aquifer designated as such by the Minister of Water Affairs, after due process.	An aquifer designated as such by the Minister of Water Affairs, after due process.

Higher permeability zones are associated with local structures such as faults and contact zones of the dykes. The project area is characterised by numerous geological lineaments i.e. faults and dykes. The in-situ stress fields are such that the east –west trending lineaments are all closed. Thus, the only possible open lineaments are the north south trending faults/dykes. These aquifers are classified as minor aquifers according to Parsons.

High yielding water bearing structures are present to the west of the project area and not within the mine area. Due to high recorded yields, these aquifers associated with the Frank Fault can be classified as a major aquifer zone; however, poor water quality influences the classification to minor aquifers.

The project area, including farms surrounding the project area, and associated aquifers, limited to the geological faults and contact zones of dykes, was historically classified as a Sole Source Aquifer. This was due to the communities relying on groundwater alone for their basic water requirements. The classification of a sole source was recently reviewed (by AGES) due to the supply from Magalies Water, although this supply is erratic. Although the villages located on the northern rim of the Pilanesberg National Park are connected to Magalies Water infrastructure it is understood that they are often without potable water. Villages located further to the north and north west of the project area rely solely on groundwater. The aquifer classification for the project area is therefore not conclusive.

2.6.7.2 Groundwater quality

The historic data for the area indicates that the general water quality around the project site varied between good (Class I) (acceptable) and poor (Class III) (poor) when compared to drinking water standards (South African National Standard (SANS 241:2006).

Groundwater samples are taken on a monthly basis as part of an on-going groundwater monitoring programme that is carried out by Exigo3 (previously AGES). Groundwater quality is generally close to or slightly above domestic use quality (DWAF Water Quality Guidelines, 1996) and is dominated by bicarbonate ions. Initial indications are that magnesium and fluoride concentrations in particular are elevated above the domestic use guidelines and that the water has an overall carbonate-magnesium character.

The recent general water quality results can be summarised as follows:

- the groundwater is slightly alkaline with an average pH value of 8;

- electrical conductivity (EC) value of Class 1 (recommended operational limit according to SANS, 2006). The average EC of groundwater samples was 88 mS/m with a maximum of 184 mS/m;
- most of the groundwater samples have a distinct sulphate and chloride character and this is accompanied by elevated magnesium and fluoride; and
- the nitrate concentrations of groundwater samples from some boreholes exceed the Class II limit (SANS, 2006).

2.6.7.3 Groundwater use

Communities rely on groundwater for basic water requirements and livestock watering. This statement should be contextualised as water supply from Magalies Water to the local communities is in progress, however supply is erratic.

2.6.8 AIR QUALITY

The project area falls within the Waterberg-Bojanala priority area. Under the National Environmental Management: Air Quality Act, (Act No. 39 of 2004) an airshed priority area may be declared where there is concern of elevated atmospheric pollutant concentrations within the area. The DEA identified the potential of an airshed priority area in the vicinity of the Waterberg District Municipality, which was later expanded to include the Bojanala Platinum District Municipality (Government Gazette, Number 34631; 30 September 2011).

Identification of existing sources of emissions in the region and the characterisation of existing ambient pollution concentrations is fundamental to the assessment of cumulative air impacts. A change in ambient air quality can result in a range of impacts, which in turn, may cause a disturbance to nearby receptors. Existing sources of air pollution within the region include:

- industrial operations such as platinum and chrome smelter operations;
- tailings storage facilities;
- vehicle tailpipe emissions;
- household fuel combustion;
- biomass burning; and
- various miscellaneous fugitive dust sources including agricultural activities, wind erosion of open areas, vehicle entrainment of dust along unsurfaced roads.

Potential sensitive receptors include the surrounding communities discussed in Section 1.1, as well as the Pilanesberg National Park.

2.6.9 NOISE

Some of the noise generating activities associated with the project may cause an increase in ambient noise levels in and around the site. This may cause a disturbance to nearby receptors. As a baseline, this section provides a brief description of current noise conditions in the area from which to measure changes as a result of project-related noise. More detailed information will be provided in the EIA.

The ambient noise environment has been influenced by current mining activities on site and in the surrounding area. The levels of noise generated by specific sources, such as mines and roads, vary by a considerable margin with changes in wind direction and temperature profiles in the lower atmosphere.

The noise sensitive receptors around the proposed project area are the communities closest to the current processing operations; these include Ngweding, Motlhabe, Legkraal and Ntswana-le-Metsing. In addition, the Pilanesberg National Park and particularly the Black Rhino Game Reserve are considered to be noise sensitive receptors.

2.6.10 VISUAL ASPECTS

Project-related activities have the potential to alter the landscape character of the site and surrounding area through the establishment of both temporary and permanent infrastructure. As a baseline, this section provides an understanding of the pre-project visual character of the area against which to measure potential change as a result of project infrastructure and activities.

The two main land use types within the study area are mining and tourism. In terms of the aesthetics of the landscape or the landscape character, these two entities have quite a substantial difference in interest.

The proposed project area (the actual footprint of the project site) is considered to have a moderate value with respect to scenic quality. However when the wider study area is taken into account, it is considered to have a moderate to high value with a relative strong sense of place. The general beauty of the area has been compromised by the existing mining activities which can be seen protruding above the horizon line when viewed from residential and tourist areas located to the south and west. Their impact is particularly evident at night when the bright lights are very noticeable against the otherwise dark night sky.

Potentially sensitive receptors have been identified as tourists travelling in close proximity the project area and visiting the tourist attractions including the Pilanesberg National Park and Black Rhino Nature Reserve. Other potentially sensitive receptors include residents of the communities as well as their visitors.

2.7 RELEVANT ADDITIONAL INFORMATION

None.

3 IDENTIFICATION OF THE ANTICIPATED IMPACTS

Potential environmental, social or cultural impacts, including the cumulative impacts that have been identified during the scoping phase are discussed in this section. In order to identify these potential impacts an understanding of the proposed activities that will take place is required and as such the project description is provided first in this chapter to provide a reference when discussing the potential impacts. These discussions should be read with the corresponding descriptions of the baseline environment in Section 2.

The potential impacts associated with all the phases (construction, operations, decommissioning and closure) have been conceptually identified and described. In addition to this, reference is made to studies that may be required to further investigate the identified potential impacts to provide the necessary additional information.

3.1 PROJECT DESCRIPTION

The current PPM operations incorporate the following approved infrastructure, as indicated in Figure 2:

- open pit;
- mineral processing facility;
- tailings storage facility (TSF);
- sewage treatment facility;
- river diversion;
- temporary and permanent waste rock stockpiles;
- temporary topsoil dumps;
- haul roads;
- mining contractors' site complexes;
- offices;
- workshops; and
- other support infrastructure.

With reference to Figure 3, PPM proposes to expand the existing mineral processing facilities located on the farms Witkleifontein 136 JP and Tuschenkomst 135 JP. The expanded mineral processing facility will include the following:

- a second UG2 milling and flotation circuit to re-process the existing TSF;
- two tailings re-treatment plants for the extraction of PGMs from the existing TSF;
- a chrome recovery facility to extract chrome resources from the existing TSF;
- a hydrometallurgical processing facility for the treatment of flotation concentrate;
- additional support and services infrastructure, including:
 - the upgrade of the existing sewage treatment facility,

- a new waste storage area
- a new training centre,

Furthermore, a number of community based initiatives will be established at the mine, such as:

- an aggregate crusher and brick making project;
- composting area;
- nursery;
- vegetable garden;
- waste handling facility; and
- car wash.

It should be noted that the following community based infrastructure has already been constructed, and has been included in this report at the request of the DMR: aggregate crusher and brick making project, vegetable garden and nursery.

It is expected that the proposed project will extend the life of PPM's processing facility to an excess of 50 years.

3.1.1 CONSTRUCTION PHASE

Construction phase facilities

The facilities listed below will be established within an already disturbed area during the construction phase:

- surface footprints for the additional processing and supporting infrastructure components;
- contractors yard;
- temporary storage areas;
- access roads and
- supporting piping, instrumentation and electrical components.

Construction phase activities

The following significant activities will take place during construction:

- selective clearing of vegetation in areas designated for surface infrastructure;
- stripping and stockpiling topsoil and sub-soil;
- digging of foundations and trenches;
- delivery of materials; and
- general building/construction activities.

3.1.2 OTHER SUPPORT SERVICES

Construction workforce and housing

The construction phase workforce is expected to be approximately 70 skilled and 300 unskilled people. Construction workers will be accommodated in the nearby housing facilities, communities and towns.

Construction phase timing

It is envisaged that the construction phase will be 18-24 months in order to cater for the establishment of additional infrastructure which is proposed.

As previously mentioned, a number of the community based initiatives have already been established and are included in this report at the request of the DMR.

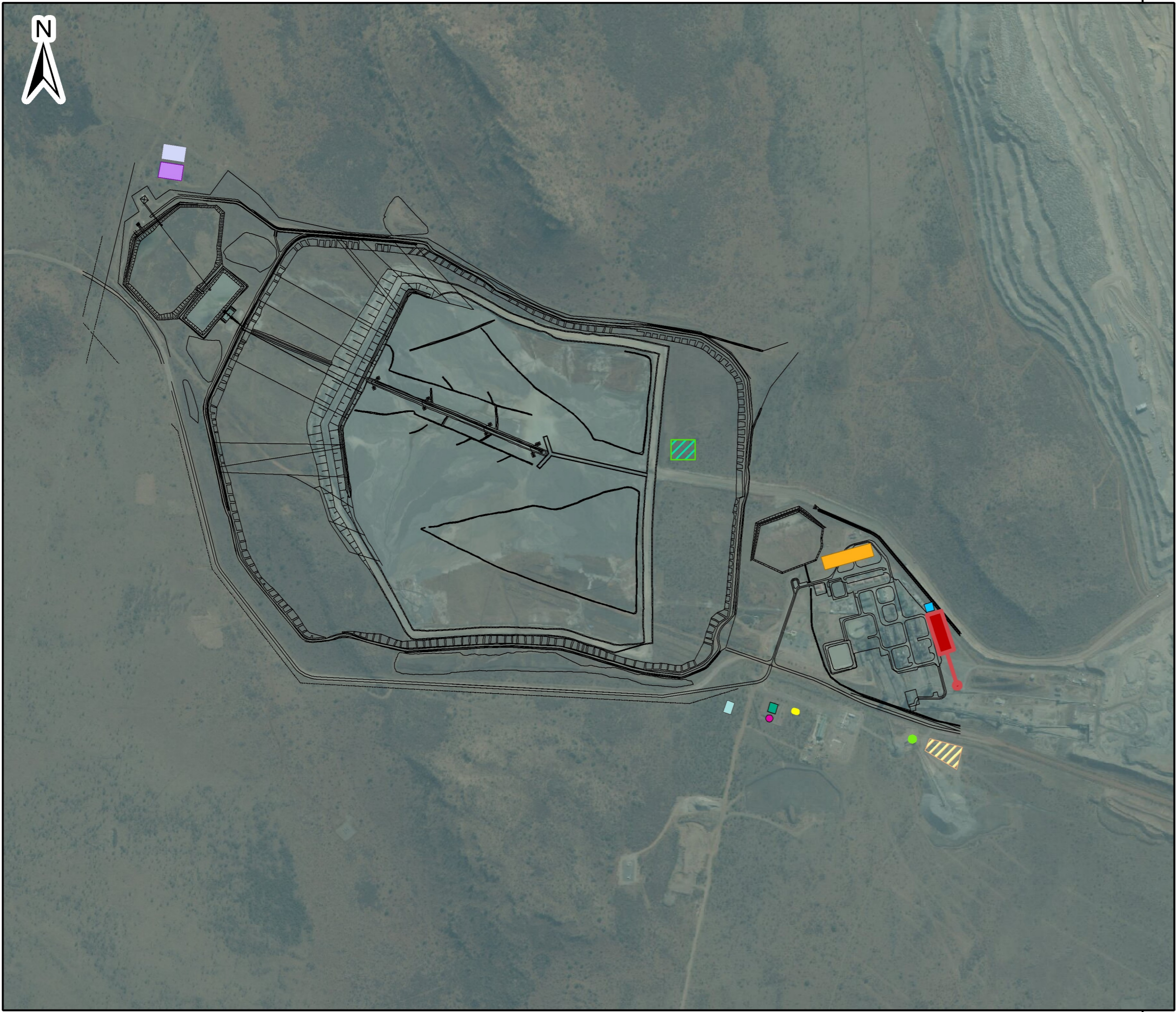
3.1.3 OPERATIONAL PHASE

Should the proposed project be approved, the following facilities, as outlined in Figure 3 will be built and operated:

- hydrometallurgical plant for the extraction of PGMs and base metals;
- UG2 milling and flotation circuit to re-process the existing TSF;
- a mobile tailings retreatment plant for the extraction of PGMs, which will require the re-processing of the existing TSF. Note that the background information document (BID) stated two units would be constructed, i.e. a fixed and a mobile unit. The fixed unit has been removed from the project scope; and
- a chrome recovery facility to extract chrome resources from the existing TSF.

In addition to the expansion of the PPM processing facilities and the re-processing of the TSF, the following infrastructure will be established or upgraded:

- the existing sewage treatment plant will be upgraded;
- establishment of a waste storage facility at the mine and plant area;
- construction of a new training centre;
- establishment of a number of community based initiatives such as:
 - aggregate crusher and brick making project;
 - organic composting project;
 - nursery;
 - vegetable garden;
 - car wash bay; and
 - waste handling facility.



- Legend**
- Approved Infrastructure
 - Proposed Infrastructure Changes**
 - Tailings PGM Retreatment Plant - Modular Unit
 - Chrome Recovery Plant
 - Hydrometallurgical Plant
 - UG2 Milling and Flotation Section
 - Proposed Training Centre
 - Upgrade of Existing Sewage Treatment Plant
 - Aggregate Crusher
 - Car Wash Bay
 - Brick yard
 - Composting Site
 - Vegetable Garden and Nursery
 - Waste Facility and Sorting Area

0 100 200 300 400 Meters

Scale: 1 : 12 500 @ A3
 Projection: Transverse Mercator
 Datum: Hartbeeshoek, Lo27

**PILANESBERG PLATINUM
 MINES (PTY) LTD**

Figure 3
Project Related Infrastructure



SLR Consulting (Africa) (Pty) Ltd
 P O Box 1596, Cramerview, 2060, South Africa
 Tel: +27 (11) 467-0945 Fax: +27 (11) 467-0978

3.1.4 MINING METHOD

The current mining operation involves accessing the two commonly exploited 'PGE-bearing' reef horizons, the Merensky and UG2, in a single open-cast mining operation. Such a mining method is possible because of the close proximity of these reefs to one another. PPM will continue to mine in this manner as the plant expansion project proposes changes only to the metallurgical processes and not the mining method.

3.1.5 MINERAL PROCESSING

This proposed project will involve changes to the mineral processing facility which will allow for the existing TSF to be re-processed. The existing processing facility incorporates the following main components.

- run of mine (ROM) crushing;
- ore silos and stockpiles;
- conveyor systems;
- milling and flotation circuits (one UG2 ore circuit and one Merensky ore circuit);
- TSF;
- process water and stormwater control facilities;
- chemical storage, mixing and dosing systems;
- general storage and workshop areas;
- final concentrate storage and loading facilities; and
- security, access roads and offices.

Currently the flotation concentrate is vacuum filtered on site. The filter cake is then transported off-site to a third party smelting facility. The approved infrastructure and the infrastructure which is proposed as part of the project (listed below) are shown in Figure 2 and Figure 3 respectively.

The proposed project will incorporate the following additional infrastructure within the existing mineral processing facility footprint areas:

- UG2 milling and flotation sections with a production throughput of approximately 65 000 tonnes per annum;
- hydrometallurgical plant for the sulphate leach extraction of PGMs and base metals from the flotation concentrate utilising oxygen (O₂) and sulphuric acid (H₂SO₄) and the chloride leach extraction of platinum group metals (PGMs) and gold utilising chlorine gas (Cl₂) and hydrochloric acid (HCl). The estimated production rate is 110 000 tonnes of concentrate per annum;
- a modular tailings re-treatment plant for the extraction of PGMs; and
- a chrome recovery facility with capacity of 75 000 tonnes per month.

The modular tailings re-treatment facility is proposed within the boundary of the existing PPM tailings storage facility. This facility will be designed in such a way to allow for its disassembling and reconstruction at another site in the future.

The UG2 milling and flotation circuit will be a duplication of the existing UG2 circuit on site and will be constructed within the existing processing plant footprint. The addition of this circuit will not require the expansion of the TSF and other supporting processing infrastructure. With the proposed changes, the flotation concentrate will no longer be transported to an off-site third party smelting facility as the concentrate will be further processed on site in the proposed hydrometallurgical plant.

The hydrometallurgical plant will treat the concentrate generated from the flotation circuits. The hydrometallurgical plant will follow the KELL Process which is illustrated in Figure 4 below and will in essence replace the conventional platinum smelting and base metal refining processes. From this diagram it is indicated that three waste products will be generated for co-disposal onto the existing TSF, namely:

- neutralised solids from the sulphate based leach process;
- tailings from the chloride extraction process; and
- an iron based tailings from the precious metal recovery circuit.

The hydrometallurgical process will generate the following products:

- nickel cathode;
- copper cathode;
- cobalt carbonate; and
- PGM and gold concentrate.

The nickel cathode, copper cathode and cobalt carbonate will be sold to third parties. The PGM and gold concentrate will be transported to an off-site precious metals refinery for the extraction of the various precious metals.

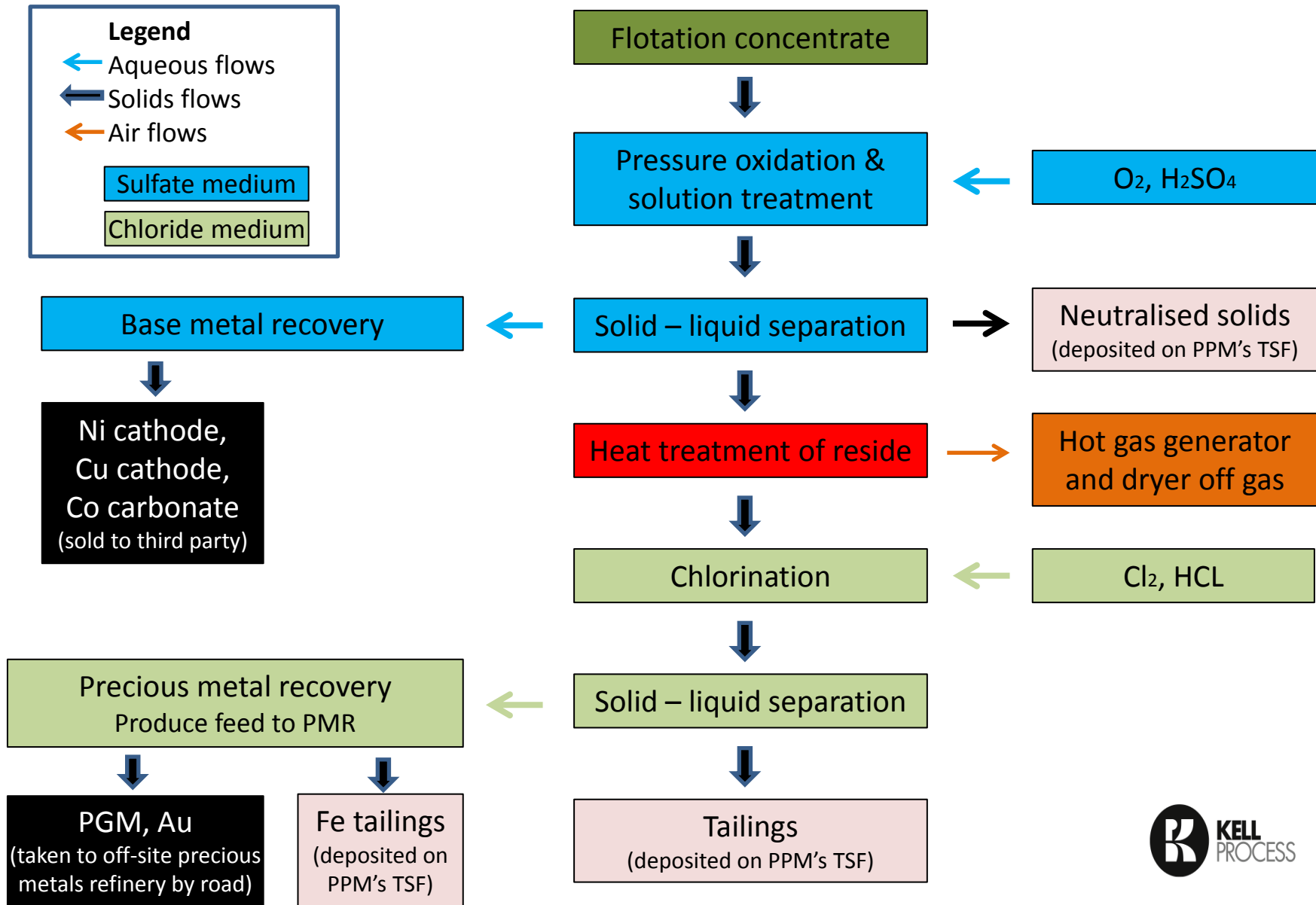


Figure 4: KELL Process Diagram (Lidell, 2012)

3.1.6 OTHER SUPPORT SERVICES

3.1.6.1 Operational phase workforce and housing

The operational phase workforce associated with the proposed project is expected to be approximately 70 skilled and 70 unskilled people. Workers will be accommodated in the nearby housing facilities, communities and towns.

3.1.6.2 Training centre

The existing training centre is located in the area earmarked for the construction of the hydrometallurgical plant. This training centre will therefore be demolished. A new training centre will be established within the existing disturbed footprint of the processing facility.

3.1.7 LIFE OF MINE

The proposed expansion to the processing facilities will have the potential to extend the life of the PPM processing plant from the current 12 years to an additional 40 years. This will also offer an opportunity for future treatment capacity of ore from neighbouring mining operations.

3.1.8 TRANSPORT SYSTEMS

External road network

The existing network of roads in the immediate vicinity of the processing facility include; the P54-1 (running adjacent to the western boundary of the Pilanesberg National Park [PNP]); the existing Z536 Road (a section of which has been re-routed running adjacent to the eastern perimeter of the Tuschenkomst pit) and the P50-1 (running in an east/west alignment, south of PPM).

Internal road network

The existing internal road network will be utilised.

Conveyor system

The ore conveyor systems will be expanded to link the additional milling circuit.

3.1.9 WATER SUPPLY AND MANAGEMENT

No increase in water demand beyond the current water allocation for Sedibelo Platinum Mines Limited is expected as a result of the proposed changes to the processing facility. The current allocation of water from the Magalies Water Board is sufficient for the operation of all the processing facilities.

3.1.10 POWER SUPPLY

No increase in power demand beyond the current Sedibelo Platinum Mines Limited power allocation is expected as a result of the proposed changes to the processing facility. Power will be brought to the mine via the existing 132 kV line.

3.1.11 WASTE MANAGEMENT

Sewage

It is proposed that the existing sewage treatment plant, located on the farm Tuschenkomst 135 JP, will be upgraded. The existing plant capacity will be increased with less than 15 000 m³ per day and does not trigger any listed activities under NEMA.

It is proposed that the dried sewage sludge, from the drying beds, will be transported from the drying beds by road to a composting area which will be constructed adjacent to the vegetable garden area where it will be utilised in the making of compost. It is proposed that the compost will be used on the side walls of the existing TSF, nursery and vegetable garden.

Non-mineralised wastes

All non-mineralised wastes (domestic, building rubble and scrap) generated by these operations will be collected and managed within the current waste management system at the PPM operations. It should however be noted that the following additional infrastructure will be constructed in order to improve the current waste management system (refer to Figure 3):

- a waste storage facility at the mine and plant area. The waste quantities will be below any trigger limits requiring a waste management licence as defined in the relevant National Environmental Management: Waste Act (NEM:WA), 59 of 2008 regulations; and
- an area for the storage of recyclable waste material for a community-based project. The waste quantities will be below any trigger limits requiring a waste management licence as defined in the relevant NEM:WA regulations.

Tailings storage facility

Tailings material which is currently deposited on the TSF originates solely from the Tuschenkomst open pit although the existing TSF was designed to also accept tailings material originating from the approved Ruighoek, Rooderand and Witkleifontein open pits (as yet undeveloped due to economic constraints). As a result the existing TSF will have additional capacity and can therefore be used to accept the waste material originating from the second UG2 flotation circuit and the hydrometallurgical plant.

With the construction of the tailings retreatment plant, PPM will be in a position to re-treat the tailings which have already been deposited onto the existing TSF. This will require the re-mining of portions of the TSF while other portions of the dam will remain operational.

3.1.12 COMMUNITY BASED PROJECTS

With reference to Figure 3, the following additional projects, located within the PPM operational areas, have been identified for the purpose of benefiting the local community:

- aggregate crusher and brick making project located (6800 m² or 0.68 ha) next to the dense media separation (DMS) stockpile area located on the farm Tuschenkomst 135 JP. DMS material is sorted into sizeable aggregates to produce approximately 8000 bricks per annum. This is an existing facility, located in an area allocated for the approved for the DMS stockpile. It has been included in the project scope at the request of the DMR;
- vegetable garden and nursery (4000 m² or 0.4 ha) located near the stormwater control dam at the tailings storage facility on the farm Witkleifontein 136 JP. The vegetable garden is an existing facility and has been included in the project scope at the request of the DMR;
- organic composting project (4000 m² or 0.4 ha) located on the farm Witkleifontein 136 JP, adjacent to the vegetable garden, will be a community based project where sewage sludge, wood chips and other organic wastes will be used to manufacture compost. The compost will be used as fertilizer. Less than 100 tonnes of compost will be manufactured per day in line with the Norms and Standards in terms of NEM:WA and a waste management license will therefore not be required;
- waste handling facility located on the farm Witkleifontein 136 JP, for the purpose of waste salvaging, recovery and/or sorting, where general waste generated by the mining operation will be temporarily stored for sorting, bailing and screening before being taken to an offsite third party recycling facility. The operational area of the waste handling facility will be less than 1000 m² and therefore a waste management license will not be required; and
- a car wash bay will be established adjacent to the current sewage treatment plant.

3.1.13 CLOSURE

In previous EIA and EMP reports for PPM the following objectives have been set:

- create a post mining environment that could be used for wilderness or grazing land use purposes;
- permanent visible features such as the mineralised waste facilities will be left in a form that blends with the surrounds;
- contamination beyond the project area by wind, surface runoff or groundwater movement will be prevented through appropriate erosion resistant covers, containment bunds and drainage to the subsided area;
- linear infrastructure comprising roads, pipelines, power lines, conveyors and related components will be removed and the disturbed land rehabilitated to blend with the surrounding environment unless directed otherwise; and

- socio-economic impacts (including the loss of employment) will be minimised through careful planning and preparation for closure beginning three to five years before closure takes place.

The above principles and concepts will be refined as part of on-going detailed closure planning and costing during the life of mine. The target closure outcomes for the mine and its associated infrastructure are assumed to be as follows, to:

- achieve chemical and physical stability for all disturbed landscapes and residual mining infrastructure;
- protect surrounding surface, groundwater, soils and other natural resources from loss of utility value or environmental functioning;
- limit the rate of emissions to the atmosphere of particulate matter and salts to the extent that degradation of the surrounding properties' land value and land capability does not occur; and
- create a final land use that has economic, environmental and social benefits for future generations that outweigh the long term aftercare costs associated with the facility.

3.2 RELEVANT NEMA LISTED ACTIVITIES

The relevant listed activities (in terms of the NEMA EIA Regulations) which are currently being applied for and are relevant to the proposed project are listed in Table 8 below.

TABLE 8: RELEVANT NEMA ACTIVITIES CURRENTLY BEING APPLIED FOR

Activity Number	Listed Activity	Relevance of activity to project
Notice 544, 18 June 2010		
13	The construction of facilities or infrastructure for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 but not exceeding 500 cubic metres.	Cl ₂ , O ₂ , HCl, H ₂ SO ₄ will be stored on site for use in the hydro-metallurgical process. The exact volumetric storage capacities still need to be determined. Depending on the storage capacity required, Activity 3 in listing notice 2 may be applicable.
28	The expansion of or changes to existing facilities for any process or activity where such expansion or changes to will result in the need for a permit or license in terms of national or provincial legislation governing the release of emissions or pollution, excluding where the facility, process or activity is included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case that Act will apply.	Changes to the WULA may be required, especially around the TSF circuit with the re-mining of tailings material and co-disposal of additional mining waste.
Notice 545, 18 June 2010		
3	The construction of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of more than 500 cubic metres.	Cl ₂ , O ₂ , HCl, H ₂ SO ₄ will be stored on site for use in the hydro-metallurgical process. The exact volumetric storage capacities still need to be determined. Depending on the storage capacity required; Activity 13 in Listing Notice 1 may be applicable.
5	The construction of facilities or infrastructure for any process or activity which requires a permit or license in terms of national or provincial legislation governing the generation or release of emissions, pollution or effluent and which is not identified in Notice No. 544 of 2010 or included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case the Act will apply.	The release of air emissions will require an Air Emission Licence in terms of the National Environmental management Air Quality Act. This process requires an Air Quality Impact Study and the submission of an air emission application form. Changes to the WULA may be required, especially around the TSF circuit with the re-mining of tailings material and co-disposal of additional mining waste. Depending on disposal options for the waste being generated from the hydrometallurgical plant, a WULA in terms of the National Water Act may be required.
26	Commencing an activity, which requires an atmospheric emission license in terms of section 21 of the National Environmental Management: Air Quality Act. 2004 (Act No. 39 of 2004), except where such commencement requires basic assessment in terms of Notice No. R. 544 of 2010.	The release of air emissions will require an Air Emission Licence in terms of the National Environmental management Air Quality Act. This process requires an Air Quality Impact Study and the submission of an air emission application form.

Activity Number	Listed Activity	Relevance of activity to project
Notice 546, 18 June 2010		
10	<p>The construction of facilities or infrastructure for the storage , or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic metres.</p> <p>c) In North West:</p> <p>(i) outside urban areas, in (gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve;</p>	<p>Cl₂, O₂, HCl, H₂SO₄ will be stored on site for use in the hydro-metallurgical process. The exact volumetric storage capacities still need to be determined.</p>

3.3 CONFIRMATION OF IAP CONSULTATION AND AGREEMENT ON POTENTIAL IMPACTS

IAPs were provided information on the potential impacts during the public scoping meetings. All of the IAP issues, concerns and objections raised during the scoping meetings have been provided in Appendix B. IAPs will also have the opportunity to review this Scoping Report.

3.4 POTENTIAL CULTURAL ENVIRONMENT IMPACTS

A list and description of potential impacts identified within the cultural environment is provided below as part of archaeological and heritage impacts.

3.5 POTENTIAL HERITAGE ENVIRONMENT IMPACTS

A list and description of potential impacts identified on the archaeological, heritage and cultural environment is provided below.

3.5.1 ARCHAEOLOGICAL, HERITAGE AND CULTURAL RESOURCES

3.5.1.1 Issue: Loss of or damage to heritage resources

Project phase/s in which impact could occur

Construction	Operational	Decommissioning	Closure

Discussion

The project related infrastructure will be located within and/or adjacent to the footprint of the existing infrastructure and therefore no impacts are expected. This will however be confirmed on the basis of the final proposed layout.

The additional work that was undertaken as part of the heritage impact assessment is described in Section 6.1.11.

3.5.2 PALAEOLOGICAL RESOURCES

3.5.2.1 Issue: Loss of or damage to paleontological resources

Project phase/s in which impact could occur

Construction	Operational	Decommissioning	Closure

Discussion

With regard to palaeontological resources, the entire area is underlain by igneous rocks of the Rustenburg Layered Suite of the BIC as discussed in Section 2.6.1. This complex is an intrusive igneous

body comprising a series of ultramafic-mafic layers and a suite of associated granitoid rocks. As these rocks are Precambrian in age and are of igneous origin it is highly unlikely that fossils will be affected by the proposed plant expansion project. Moreover, the proposed expansion will take place within the existing footprint of the existing plant area, thereby further negating the likelihood of a loss or damage to palaeontological resources. Given that the re-processing of the TSF will essentially imply that existing tailings material is being removed from the TSF and re-processed, it is not expected that any fossils will be impacted on. Therefore no additional studies are proposed in this regard as outlined in Section 6.1.12.

3.6 POTENTIAL SOCIO-ECONOMIC ENVIRONMENT IMPACTS

A list and description of potential impacts identified on the socio-economic conditions of any person on the property, and on any adjacent or non-adjacent property who may be affected by the proposed mining operation, is provided below.

3.6.1 LAND USE

3.6.1.1 Issue: Impact on land uses

Project phase/s in which impact could occur

Construction	Operational	Decommissioning	Closure
			N/A

Discussion

The current land use of the project area will not be changed during the construction, operation and decommissioning phases of the proposed project due to the fact that all the proposed infrastructure will be established within the existing footprint of the processing plant.

The proposed project area is in or immediately adjacent to the existing infrastructure area, and in this regard is not used for grazing purposes. After decommissioning and closure the project area will be rehabilitated. The increase in the project lifespan from 12 years to approximately 50 years may however have an impact on the some of the current neighbouring land uses as well as currently planned post closure land uses such as the proposed HPC.

The additional work required to address this issue is anticipated to be a qualitative assessment by SLR as described in Section 6.1.4.

3.6.1.2 Issue: Impacts associated with blasting activities

Project phase/s in which impact could occur

Construction	Operational	Decommissioning	Closure
	N/A	N/A	N/A

Discussion

Limited blasting may be required during the construction period for the establishment of foundations.

As described in Section 6.1.4.2, no additional work will be undertaken to address this issue.

3.6.1.3 Issue: Impact on road capacity and safetyProject phase/s in which impact could occur

Construction	Operational	Decommissioning	Closure
	N/A	Insignificant	N/A

Discussion

The proposed project will allow for the flotation concentrate (which is currently transported to an off-site third party smelting facility as the concentrate) to be further processed on site in the proposed hydrometallurgical plant. In this regard it is expected that operational phase traffic volumes may be reduced, although additional traffic associated with the chrome recovery will be leaving site. It is expected that there will be a marginal increase in expected traffic volumes during the construction period. Road traffic will mostly include delivery vehicles (staff and materials). Moreover, the transport of tailings material from the TSF to the processing plant will be done via a pipeline and in this regard no associated increased in traffic volumes is expected.

The additional work required to address this issue is anticipated to be a qualitative assessment by SLR as described in Section 6.1.4.3.

3.7 POTENTIAL IMPACTS ON EMPLOYMENT OPPORTUNITIES, COMMUNITY HEALTH, COMMUNITY PROXIMITY AND LINKS TO THE SOCIAL AND LABOUR PLAN

A list of potential impacts (positive and negative) on: employment opportunities, community health, community proximity and links to the Social and Labour Plan, is provided below.

3.7.1 POSITIVE AND NEGATIVE SOCIO-ECONOMIC IMPACTSProject phase/s in which impact could occur

Construction	Operational	Decommissioning	Closure

Discussion

The proposed project will result in positive economic benefits through wages (both in terms of new employment and employment continuity), taxes, procurement and foreign exchange income. With regards to wage related employment, the impact of creating an additional 370 temporary jobs during the construction phase and 140 jobs during the operational phase will be magnified through the multiplier effect of increased spending power in local and regional economies. In addition to this, the extension of

the life of mine from 12 years to approximately 50 years will allow for further job continuity than what was initially planned.

Upon closure, there may still be some positive impacts through maintenance and aftercare activities and the fact that the mine would have contributed to a greater economic critical mass, skills, and wealth that can be used in other economic opportunities.

There is also the potential for negative economic impacts to occur during the construction and operational phases as a result of the proposed project. These include an influx of people into the area in search of work leading to informal settlements and associated problems of crime, disease, and social disruption; increased pressure on housing and related services (water, power, sanitation, refuse removal, schooling) as well as a reduced quality of life for surrounding landowners due to the increased duration of environmental impacts.

The most significant impact at and after closure will be the loss of income with respect to the local, regional and national economies. The expected closure date has been extended from 12 years to approximately 50 years and in this regard, this potential loss of income will be delayed.

The additional work required to address these issues is described in Section 6.1.14.

3.8 POTENTIAL BIOPHYSICAL ENVIRONMENT IMPACTS

A list and description of potential impacts identified with the biophysical environment including but not limited to impacts on: flora, fauna, water resources, air and noise etc. is provided below.

3.8.1 GEOLOGY

3.8.1.1 Issue: Loss and sterilisation of mineral resources

Project phase/s in which impact could occur

Construction	Operational	Decommissioning	Closure
			N/A

Discussion

Given that the proposed project site is located within and immediately adjacent to the existing infrastructure it can be assumed that the existing plant is not located above the ore body, no mineral sterilisation is expected as a result of the proposed expansion. With the proposed construction of the chrome recovery plant and the tailings retreatment plant, additional minerals will be recovered, thereby limiting unrecovered material being deposited onto the TSF.

The additional work required to address this issue is anticipated to be a qualitative assessment by SLR as described in Section 6.1.1.

3.8.2 TOPOGRAPHY

3.8.2.1 Issue: Hazardous excavations and infrastructure

Project phase/s in which impact could occur

Construction	Operational	Decommissioning	Closure
			N/A

Discussion

The construction of the proposed infrastructure will alter the site topography during the construction and operational phases. It should however be noted that the proposed project will be developed within or immediately adjacent to the existing disturbance footprint. Related issues include hazardous excavations and infrastructure which pose a danger to humans and animals, alteration of drainage patterns (discussed under Section 6.1.6) as well as visual impacts (discussed under Section 6.1.10). During the construction phase this could include foundations and trenching, as well as the establishment of scaffolding and cranes.

The actual process of infrastructure removal during decommissioning could also require temporary hazardous structures such as scaffolding, and some excavations.

The additional work required to address this issue is anticipated to be a qualitative assessment by SLR as described in Section 6.1.2.

3.8.3 SOIL AND LAND CAPABILITY

3.8.3.1 Issue: Loss of soil and change in land capability through sterilisation, erosion and contamination

Project phase/s in which impact could occur

Construction	Operational	Decommissioning	Closure
			N/A

Discussion

The proposed infrastructure will be developed within the existing operational footprint area, most of which has already been cleared of vegetation and the soils already disturbed. However, improper management of temporary soil stockpiles (during the construction phase) as well as accidental spills (during all phases) could also result in a loss of topsoil through contamination, erosion and compaction. The fact that the life of mineral processing facilities has been extended from 12 years to approximately 50 years implicitly delays the rehabilitation of soil resources and in this regard the impact would be felt over a longer period.

The additional work required to address this issue is anticipated to be a qualitative assessment by SLR as described in Section 6.1.3.

3.8.4 FAUNA AND FLORA (NATURAL PLANT AND ANIMAL LIFE)

3.8.4.1 Issue: Loss of natural vegetation and animal life

Project phase/s in which impact could occur

Construction	Operational	Decommissioning	Closure
			N/A

Discussion

The proposed infrastructure will be developed within and immediately adjacent to the existing operational footprint area, most of which has already been cleared of vegetation and little sign of naturally occurring flora and fauna remains. It should however be noted that the construction, operation and decommissioning of the infrastructure may pose an additional disturbance to natural vegetation and animal life within and surrounding the project area and in this regard should not be discounted entirely. Moreover, the extension of the life of mine from 12 years to approximately 50 years will imply that the impacts will take place for longer than initially expected.

The additional work required to address this issue is described in Section 6.1.5.

3.8.5 HYDROLOGY (SURFACE WATER)

3.8.5.1 Issue: Alteration of surface drainage patterns

Project phase/s in which impact could occur

Construction	Operational	Decommissioning	Closure

Discussion

By the nature of the proposed project, no infrastructure will be placed within the 1:100 year floodline or within 100 m of any rivers, however potential impacts on the surface water resources should not be discounted.

It should be noted that although the proposed infrastructure will be developed within or immediately adjacent to the existing infrastructure (for which stormwater control measures are already in place), additional stormwater control measures may be required and in this regard the proposed additional surface infrastructure may result in further alteration of drainage patterns during construction, operation and decommissioning. Moreover, the extension of the life of mine from 12 years to approximately 50 years extends the period over which the impact could be experienced.

It is already expected that the existing TSF will remain in perpetuity (rehabilitated post closure) and in this regard the impact of re-processing the TSF is not expected to alter the surface drainage patterns further than it currently does.

The additional work required to address this issue is described in Section 6.1.6.

3.8.5.2 Issue: Contamination of surface water

Project phase/s in which impact could occur

Construction	Operational	Decommissioning	Closure
			N/A

Discussion

Projects of this nature will generally present a number of pollution sources that can have a negative impact on surface water quality during the construction and operational phases if unmanaged. Examples include runoff from the plant area, runoff from the tailings area and particles from exposed soils in the form of suspended solids. Potential leaks and spills from pipelines carrying tailings material to the processing plant could present a threat of surface water contamination. In addition to this, the extension of the life of mine implies that the period over which the impact might potentially be experienced, will also be extended.

Although only minimal site clearing activities are expected for the construction of the plant expansion, the water management facilities which will cater for the expanded section of the plant could cause sedimentation of downstream watercourses during the construction phase.

For the purposes of the re-processing of the TSF, existing stormwater control measures are in place and it is expected that these will not need to be altered for the re-processing of the facility. In this regard, the risk of surface water contamination relating to the re-processing of the TSF will not be higher than the risk of the facility standing as is.

The additional work required to address this issue is described in Section 6.1.6.

3.8.6 GROUNDWATER

3.8.6.1 Issue: Reducing groundwater levels and availability

Project phase/s in which impact could occur

Construction	Operational	Decommissioning	Closure

Discussion

It is not expected that any dewatering will be required for the purposes of the proposed project, and in this regard the likelihood of groundwater levels and availability being reduced are low.

The additional work required to address this issue is included in Section 6.1.7.

3.8.6.2 Issue: Contamination of groundwater

Project phase/s in which impact could occur

Construction	Operational	Decommissioning	Closure

Discussion

Projects of this nature generally present a number of pollution sources that can have a negative impact on groundwater quality throughout the duration of the project. The potential pollution sources associated with the project include: ad-hoc spills, fuel, lubricants, non-mineralised waste (hazardous and general) and run-off/seepage from the plant area and TSF. It is possible that the nature/composition of the tailings material will be altered as a result of the waste from the hydrometallurgical plant and retreatment facility. In addition, this potential impact might be experienced for longer than initially anticipated due to the extension of the life of mine.

The additional work required to address this issue is included in Section 6.1.7.

3.8.7 AIR QUALITY

3.8.7.1 Issue: Pollution from emissions to air

Project phase/s in which impact could occur

Construction	Operational	Decommissioning	Closure

Discussion

It is expected that minimal vegetation and topsoil stripping will be required for the construction phase of the plant expansion and support infrastructure and in this regard the dust emissions associated therewith are expected to be negligible. Additional emissions to the atmosphere may be released during the re-mining of the TSF as well as during the operation of the hydrometallurgical plant. Moreover, the extension of the life of mine from 12 years to approximately 50 years extends the period over which the impact could be experienced.

Rehabilitation activities will generate dust through vehicle movement and the replacement of topsoil over disturbed areas.

The additional work required to address this issue is included in Section 6.1.8.

3.8.8 NOISE

3.8.8.1 Issue: Increase in disturbing noise levels

Project phase/s in which impact could occur

Construction	Operational	Decommissioning	Closure
			N/A

Discussion

It is expected that the proposed project will generate additional noise during all phases, except the closure phase. During construction, additional noise will be generated by the movement of vehicle and handling of materials. During the operational phase, additional infrastructure (in particular the UG2 milling and flotation section), will result in an increase in current noise levels. Additional noise will also be generated during the re-processing of the TSF. Given the extension of the life of mine from 12 years to approximately 50 years, it should be noted that the life of the noise impacts are also likely to extended. Such impacts are expected to be felt by land users such as Black Rhino Game Reserve and other land users in the tourism industry.

The additional work required to address this issue is described in Section 6.1.9.

3.8.9 VISUAL ASPECTS

3.8.9.1 Issue: Negative visual impacts

Project phase/s in which impact could occur

Construction	Operational	Decommissioning	Closure

Discussion

The extension of the life of PPM's mineral processing facilities will prolong the visual impacts that are already experienced by IAPs, particularly sensitive receptors such as the eco-tourism industry. Furthermore, the existing impacts could be exacerbated as additional lighting may be required for the proposed project.

The additional work required to address this issue is described in Section 6.1.10.

3.9 POTENTIAL CUMULATIVE IMPACTS

The studies to be undertaken to characterise the existing environment during the EIA Phase will assess the current status of the environment and will therefore take in account existing impacts of activities in the project area and surrounds.

4 PROJECT ALTERNATIVES

This section describes land use or development alternatives, alternative means of carrying out the operation, and the consequences of not proceeding with the proposed operation.

The main project alternatives to be considered include:

- alternative land use;
- project alternatives; and
- the “no-go” alternative.

4.1 LAND USE ALTERNATIVES

A list and description of alternative land uses that exist on the property or on adjacent or non-adjacent properties that may be affected by the proposed project is provided below.

The PPM mine and associated infrastructure has been approved for mining in terms of NEMA and the MPRDA. The proposed project will be located within this approved area of operation, within or immediately adjacent to existing infrastructure, and therefore no alternative land uses have been considered. Upon closure of the processing facilities, the site will be rehabilitated.

Adjacent, non-adjacent and future land uses, such as subsistence farming, cattle grazing, tourism and the proposed Heritage Park, could be affected by the mining activities. Other land uses that could be affected by the proposed project will be identified during the EIA process, and the information will be included in the EIA and EMP report.

4.2 LAND DEVELOPMENTS WHICH MAY BE AFFECTED BY THE PROPOSED PROJECT

This section provides a description of land developments identified by the community or IAPs that are in progress and which may be affected by the proposed mining operation.

With reference to Section 2.4.4, PPM and the proposed project area, fall with the proposed Heritage Park Corridor that aims to link the Pilanesberg National Park to the Lebatlhane Nature Reserve and ultimately the Madikwe Game Reserve. This will be taken into account during the EIA and relevant specialist studies.

All objections, issues and concerns raised throughout the Scoping Phase have been captured into the issues and concerns report provided in Appendix D.

4.3 PROJECT ALTERNATIVES AND IAP PROPOSALS TO ADJUST PROJECT PLAN

4.3.1 TECHNOLOGY AND INFRASTRUCTURE LAYOUT ALTERNATIVES

No infrastructure layout alternatives were considered as the infrastructure will need to be placed within and adjacent to the footprint of the existing infrastructure to allow for the sharing of support services (offices, security etc.) and support infrastructure (workshops, stores, water reticulation and electricity etc.). In addition to this, the hydrometallurgical plant will generate a product of high commercial value and has to be located within a highly secure area. The identified site for the hydrometallurgical plant is therefore located in an area which is highly visible and is within close proximity to the existing security control points and main office block.

No alternative technologies were considered. The hydrometallurgical plant will be based on a new processing technology, the KELL process, which is the preferred technology for PPM. The KELL process offers an alternative to the conventional platinum smelting and base metal refinery technologies currently being utilised in the South African platinum mining industry. The KELL process offers various benefits in comparison to the conventional smelting and refinery option. Some of these benefits, which will be explored into more detail during the EIA process, include the following:

- lower electricity consumption;
- lower emissions to atmosphere;
- less capital and operational costs intensive; and
- smaller footprint.

Alternatives which will be considered include the following:

- the option of disposing tailings material onto the neighbouring Sedibelo Platinum Mine's TSF during the re-processing of the PPM TSF.

4.3.2 IAP PROPOSALS TO ADJUST THE PROJECT PLAN

This section provides a description of proposals made in the consultation process to adjust the operational plans of the mine to accommodate the needs of the community, landowners and IAPs.

To date, no specific proposals have been raised in the consultation process to adjust the operational plans of the mine to accommodate the needs of the community, landowners and IAPs.

All objections, issues and concerns raised throughout the Scoping Phase have been captured into the issues and concerns report provided in Appendix D.

4.4 THE “NO-GO” OPTION

This section provides information in relation to the consequence of not proceeding with the proposed project.

The assessment of this option requires a comparison between the options of proceeding with the project with that of not proceeding with the project. The assessment of this option requires input from the investigations described in Section 6 so that the full extent of environmental, social and economic considerations can be taken into account.

The method to be used for assessing this option is outlined in Section 6.3 of the Scoping Report.

4.5 PROJECT PLAN

A description of the most appropriate procedure to plan and develop the proposed project is provided in Section 3.1.

4.5.1 AVOIDANCE OF POTENTIAL IMPACTS

This section provides information on the applicant’s response to the findings of the application process and the possible options to adjust the mine project proposal to avoid potential impacts identified in the consultation process.

The overall project team, which consists of PPM, various environmental specialists and SLR, will aim to adjust the project plan to accommodate the additional infrastructure and activities proposed in a manner which will prevent impacts to the socio-economic, cultural and biophysical environment. Should any impacts related to the amendment arise; the emphasis will be on impact minimisation and mitigation. The input provided by the relevant EIA specialists will be used to inform any required changes to the project plan during the EIA phase of the project.

4.5.2 PROJECT PLAN TO AVOID POTENTIAL IMPACTS

This section describes the most appropriate procedure to plan and develop the proposed project with due consideration of the issues raised in the consultation process.

As indicated above, the overall project team, which consists of PPM, various environmental specialists and SLR, aims to develop the project plan in a manner which will prevent impacts to the socio-economic, cultural and biophysical environment. Should impacts relating to the plant expansion be unavoidable, the emphasis will be on impact minimisation and mitigation. The input provided by the relevant EIA

specialists will be used to inform any required changes to the project plan during the EIA phase of the project.

5 DESCRIPTION OF THE PROCESS OF ENGAGEMENT OF IAPS, INCLUDING THEIR VIEWS AND CONCERNS

5.1 INFORMATION SHARING

This section describes the information provided to the community, landowners and IAPs to inform them in sufficient detail of what the proposed changes to the mining operation will entail in order for them to assess what impact the operation will have on them or the use of the land.

5.1.1 DATABASE

The project's public involvement database was developed by sourcing IAPs details relating to landowners, land users and other interested and affected parties on and adjacent to the project area. A copy of the project's public involvement database is included in Appendix C.

5.1.2 BACKGROUND INFORMATION DOCUMENT (BID)

A BID was compiled and distributed by email and hand-delivery to IAPs and authorities on the project's public involvement database. The purpose of the BID was to inform IAPs and authorities about the proposed project, the environmental assessment process, possible environmental impacts, and was means of providing input into the environmental assessment process. Attached to the BID was a registration and response form, which provided IAPs with an opportunity to submit their names, contact details and comments on the project. A copy of the BID is provided in Appendix B.

At the time that the BID was compiled, the project scope only included the second UG2 milling and flotation circuit, hydrometallurgical plant as well as tailings and chrome recovery facilities. Subsequently the project scope has changed to include an upgrade to the existing sewage treatment plant, additional waste storage facility, training centre, as well as a number of community based initiatives, namely the aggregate crusher and brick making project, composting area, nursery, vegetable garden, waste handling area and car wash. IAPs have been notified of the change in project scope in this Scoping Report as well as the Scoping Report summary document (see Appendix B).

5.1.3 NOTIFICATION

The landowners (represented by the DRDLR) were informed in writing of the proposed project. Proof of this notification is provided in Appendix B.

Site notices in English and Setswana were placed at key conspicuous positions in and around the project site and block advertisements were placed in the Rustenburg Herald on the 21st March 2014 and in the Daily Sun and the Sowetan on the 24th March 2014. Photographs of the site notices and copies of the newspaper advertisements are provided in Appendix B.

IAPs were notified of the proposed project and the public meetings in the following manner:

- distribution to background information documents to IAPs;
- advertisements placed in the Daily Sun, the Sowetan and the Rustenburg Herald;
- site notices placed in and around the project site;
- notification letters sent to landowners and adjacent landowners;
- sms notification; and
- loud-hailer announcements of the meetings, made in the various communities.

Authorities, including the tribal authority, were notified of the proposed project and the regulatory authorities meeting in the following manner:

- distribution of background information documents;
- telephonic discussions to notify regulatory authorities of the proposed date for the authorities meeting;
- formal invitations to the regulatory authorities scoping meeting.

5.1.4 SCOPING MEETINGS

The following public scoping and regulatory authority scoping meetings were held for the proposed project:

- a meeting with the Bakgatla-Ba-Kgafela Tribal authority on the 19th of March 2014;
- one authorities scoping meeting was held on the 21st May 2014 at the mine. This was attended by DMR, DWS and DAFF;
- nine public scoping meetings were held in doorstep communities between the 7th and 11th April 2014. These doorstep communities are Lesetlheng; Lekutung; Lekgraal/Bofule; Ramasedi; Ntswana-le-Metsing; Motlhabe; Ngweding; Magalane and Magong;
- one scoping meeting was held with Black Rhino Game Reserve (7th April 2014); and
- one scoping meeting was held with the Federation for a Sustainable Environment (FSE) (8th May 2014).

The public scoping meetings provided background information on the potential impacts of the proposed project and the environmental process being followed. The meetings were therefore focussed on:

- informing IAPs about the proposed project;
- informing IAPs about the stakeholder engagement process and how IAPs can have input into the process;
- providing information about the existing status of the environment and obtaining input thereon;
- providing information about the potential impacts of the project and obtaining input thereon; and

- providing an opportunity for IAPs to raise issues and concerns. These issues and concerns have been documented in the Issues and Concerns Report (Appendix D) and used to inform the Plan of Study for the EIA Phase.

Meeting attendance registers, minutes and copies of the presentations are provided in Appendix B.

5.1.5 REVIEW OF THE DRAFT SCOPING REPORT

The draft Scoping Report will be made available for public review from **18 May to 2 July 2015**. Full copies of the Scoping Report will be available for public review at the following venues:

- villages immediately surrounding the project area, including Lesetlheng; Lekgraal/Bofule; Ramasedi; Ntswana-le-Metsing; Motlhabe; Ngweding; Magalane, Magong, Lekutung and Lesobeng;
- Bakgatla-Ba-Kgafela Tribal Authority offices in Moruleng (Saulspoort);
- Moses Kotane Local Municipality in Moruleng (Saulspoort);
- Rustenburg public library;
- Black Rhino Game Reserve;
- Pilanesberg Platinum Mine;
- SLR's offices in Johannesburg; and
- Electronically on a CD, made available on request.

Summaries of the draft Scoping Report (Appendix B) will be hand delivered (to community representatives) or e-mailed to all IAPs and authorities that are registered on the public involvement database. In addition, IAPs will be notified when the draft Scoping Report was available for review via SMS.

5.2 IAPs CONSULTED DURING SCOPING PHASE

IAPs including the identified landowners, land users or lawful occupiers and other IAPs that are registered on the project database (Appendix C) have been consulted during the scoping phase. The proof of consultation is in the form of attendance registers and proof of landowner notification (Appendix B).

5.3 IAP VIEWS ON EXISTING ENVIRONMENT

All views, issues and concerns raised throughout the Scoping Phase with regard to the existing cultural, socio-economic or biophysical environment have been captured into the Issues and Concerns report provided in Appendix D.

5.4 IAP VIEWS ON POTENTIAL IMPACTS

All views, issues and concerns raised throughout the Scoping Phase on how the existing cultural, socio-economic or biophysical environment could potentially be impacted upon by the proposed mining operation have been captured into the Issues and Concerns Report provided in Appendix D.

5.5 OTHER IAP CONCERNS

All views, issues and concerns raised throughout the Scoping Phase have been captured into the Issues and Concerns report provided in Appendix D. Issues pertained to both the current operations and the proposed project. These have been listed below.

Proposed project:

- the stakeholder engagement process, including potential stakeholder fatigue;
- a lack of communication between communities and the BBK, as well as between communities and the mine;
- land ownership issues;
- increase in life of mine (i.e. the processing facilities) and resultant increase in duration of impacts;
- land use issues pertaining to the potential loss of grazing land and the need for community relocation;
- issues relating to rehabilitation and end land use;
- air quality concerns regarding whether the plant expansion will result in increased emissions and the potential for health impacts;
- waste related issues pertaining to the waste resultant from the amendments to the processing plant;
- surface water quality and quantity issues;
- groundwater quantity and quality issues;
- increase in disturbing noise levels;
- additional visual impacts resulting from lighting in particular, as well as the changes to the TSF;
- impacts on graves and preservation of cultural and heritage resources;
- traffic issues relating to potential increased traffic volumes and road safety; and
- negative socio-economic issues relating to the influx of people and associated access to basic needs (sanitation etc), and the lack of employment opportunities and benefits to local communities. Requests were also made for local community members to be upskilled in order to be employed on the mine.

Current operations:

- dust emissions and issues pertaining to dust suppression;
- clarification on the pit extension and resultant increase in life of mine;
- disturbing noise levels as a result of the mining operation;
- relocation of farmers on Wilgespruit 2 JQ and Magazynskraal 3 JQ, as well as the process that will be followed;
- disturbance of grazing land and compensation;

- rehabilitation of open pits once mining has ceased;
- blasting damage to third party infrastructure;
- traffic issues and road safety;
- mistrust and/or lack of communication between communities and PPM, as well as between communities and the BBK; and
- socio-economic issues such as employment of local people, benefits to local communities etc.

5.6 MEETING MINUTES AND RECORDS OF CONSULTATIONS

Copies of the scoping meeting attendance registers and minutes are included in Appendix B, and the Issues and Concerns report is provided in Appendix D.

5.7 IAP OBJECTIONS

All views, issues, concerns and objections raised throughout the scoping phase have been captured into the Issues and Concerns report provided in Appendix D.

To date objections relating to the proposed project have been received from the eco-tourism ventures south of PPM, namely Black Rhino Game Reserve.

6 FURTHER INVESTIGATIONS AND EIA PLAN OF STUDY

This section describes the nature and extent of further investigations required in the Environmental Impact Assessment, including any specialist studies that may be required, and sets out the proposed approach to the EIA and EMP phase.

6.1 FURTHER INVESTIGATIONS

The proposed terms of reference for further investigations required for the completion of the EIA study are discussed below. The results of these studies will be collated into a combined EIA and EMP report.

6.1.1 GEOLOGY

It is proposed that no further specialist investigations are required. The assessment and detailed management measures will be provided in the EIA and EMP report by SLR.

6.1.2 TOPOGRAPHY

It is proposed that no further specialist investigations are required. The assessment and detailed management measures will be provided in the EIA and EMP report by SLR.

6.1.3 SOIL AND LAND CAPABILITY

It is proposed that no further specialist investigations are required. The assessment and detailed management measures will be provided in the EIA and EMP report by SLR.

6.1.4 LAND USE

6.1.4.1 Existing land uses

It is proposed that existing specialist studies compiled for previous EIA and EMP reports will be used (see reference list).

Mercury Financial Consultants will conduct an economic and sustainability assessment to meet the requirements of the DMR EIA and EMP report template. The investigation will include the following tasks:

- comparative land use assessment; and
- sustainability analysis.

The assessment and detailed management measures will be provided in the EIA and EMP report by SLR. A copy of the specialist report will be provided in the EIA and EMP report.

6.1.4.2 Blasting activities

It is proposed that no further investigations are required.

This impact will be assessed qualitatively and detailed management measures will be provided in the EIA and EMP report by SLR.

6.1.4.3 Disturbance of roads by project related traffic

It is proposed that a traffic impact investigation be undertaken by Siyazi Gauteng (Pty) Ltd. The study will have the following objectives:

- conduct manual traffic count at the mine;
- gather required information on proposed expansion;
- review of existing information and conduct trip generation calculations;
- liaise with relevant parties (meetings if required); and
- prepare a report containing findings and recommendations on potential additional traffic (Traffic Impact Statement).

The assessment and detailed management measures will be provided in the EIA and EMP report by SLR. A copy of the specialist report will be provided in the EIA and EMP report.

6.1.5 NATURAL VEGETATION AND ANIMAL LIFE (FLORA AND FAUNA)

It is proposed that existing biodiversity specialist studies compiled for previous EIA and EMPs will be used (see reference list). Maps will be updated in order to contextualise the proposed project expansion site with reference to existing biodiversity studies and maps.

The assessment and detailed management measures will be provided in the EIA and EMP report by SLR.

6.1.6 HYDROLOGY (SURFACE WATER)

It is proposed that a specialist hydrology assessment will be undertaken by SLR. The study will have the following objectives:

- baseline hydrology study;
- water quality assessment;
- stormwater management measures;
- daily timestep water balance; and
- surface water study report.

The basic site wide water balance will be undertaken by Exigo3.

The assessment and detailed management measures will be provided in the EIA and EMP report by SLR. A copy of the specialist report will be provided in the EIA and EMP report.

6.1.7 GROUNDWATER

It is proposed that a detailed investigation will be conducted by Exigo3 (previously known as AGES). The study will have the following objectives:

- review of existing information and update of hydrocensus;
- site characterization (drilling and testing) for the new planned operations;
- groundwater flow and contaminant transport modelling;
- geochemical modelling; and
- update of the mine water balance.

The assessment and detailed management measures will be provided in the EIA and EMP report by SLR. A copy of the specialist report will be provided in the EIA and EMP.

It is proposed that the geochemical analysis be undertaken by Simulus Engineers. The following test work is to be undertaken on each of the individual waste stream samples:

- XRD mineralogical analysis;
- Aqua Regia leach and ICP-MS analysis of the leachate (where possible);
- leach test (where possible);
- Acid Base Accounting analysis; and
- Net Acid Generation analysis.

The information will be utilised in the groundwater flow and contaminant transport modelling discussed above. The evaluation of the requirements as outlined in the National Norms and Standards for disposal of waste to landfill (Regulation 636 published in terms of the NEM:WA, August 2013) will be included and detailed management measures will be provided in the EIA and EMP report by SLR. A copy of the specialist report will be provided in the EIA and EMP report.

6.1.8 AIR QUALITY

It is proposed that a specialist air quality impact assessment will be undertaken by Airshed Planning Professionals. The study will have the following objectives:

- review of existing information;
- review of the legislative and regulatory context, including atmospheric emission limits and ambient air quality guidelines;
- compilation of an emissions inventory for the project, comprising the identification and quantification of all potential routine sources of emission;
- atmospheric dispersion modelling;

- the evaluation of the potential for human health and environmental air quality impacts; and
- an air quality impact assessment specialist report.

The assessment and detailed management measures will be provided in the EIA and EMP report by SLR. A copy of the specialist report will be provided in the EIA and EMP report.

6.1.9 NOISE

It is proposed that a specialist noise impact assessment will be undertaken by Airshed Planning Professionals. The study will have the following objectives:

- ambient noise survey;
- review of local and international legislation and/or guidelines pertaining to environmental noise impacts;
- the identification and quantification of potential sources of environmental noise associated with the proposed project;
- the preparation of meteorological data and site specific acoustic parameters for use in the calculation of noise propagation;
- the calculation of noise propagation through the application of a suitable noise propagation model;
- a qualitative discussion on the potential for cumulative noise impacts and the evaluation of estimated noise impacts based on legislation and/or guidelines; and
- a review of mitigation measures pertaining to environmental noise management.

The assessment and detailed management measures will be provided in the EIA and EMP report by SLR. A copy of the specialist report will be provided in the EIA and EMP report.

6.1.10 VISUAL ASPECTS

It is proposed that a specialist visual impact assessment will be undertaken by Newtown Landscape Architects. The study will have the following objectives:

- existing visual assessment;
- evaluation (visual simulation and graphics); and
- impact assessment report and conceptual closure figure.

The assessment and detailed management measures will be provided in the EIA and EMP report by SLR. A copy of the specialist report will be provided in the EIA and EMP report.

6.1.11 ARCHAEOLOGICAL, CULTURAL AND HERITAGE RESOURCES

It is proposed that existing specialist studies compiled for previous EIA and EMP reports will be used (see reference list) to determine whether the proposed infrastructure could impact on the identified resources.

The assessment and detailed management measures will be provided in the EIA and EMP report by SLR.

6.1.12 PALEONTOLOGICAL RESOURCES

It is proposed that existing specialist studies compiled for previous EIA and EMP reports will be used (see reference list).

The assessment and detailed management measures will be provided in the EIA and EMP report by SLR.

6.1.13 TRANSPORT SYSTEMS

It is proposed that a traffic impact investigation be undertaken by Siyazi Gauteng (Pty) Ltd. See Section 6.1.4.3 above.

The assessment and detailed management measures will be provided in the EIA and EMP report by SLR. A copy of the specialist report will be provided in the EIA and EMP report.

6.1.14 SOCIO-ECONOMIC ISSUES

It is proposed that existing specialist studies compiled for previous EIA and EMP reports will be used (see reference list). Mercury Financial Consultants will conduct an economic and sustainability assessment as outlined in Section 6.1.4.1 to meet the requirements of the DMR EIA and EMP report template.

The assessment and detailed management measures will be provided in the EIA and EMP report by SLR.

6.2 METHODOLOGY FOR THE ASSESSMENT OF ENVIRONMENTAL ISSUES

The proposed method for the assessment of environmental issues is set out in the table below. This assessment methodology enables the assessment of environmental issues including: cumulative impacts, the severity of impacts (including the nature of impacts and the degree to which impacts may cause irreplaceable loss of resources), the extent of the impacts, the duration and reversibility of impacts, the probability of the impact occurring, and the degree to which the impacts can be mitigated.

TABLE 9: CRITERIA FOR ASSESSING IMPACTS

Note: Part A provides the definition for determining impact consequence (combining severity, spatial scale and duration) and impact significance (the overall rating of the impact). Impact consequence and significance are determined from Part B and C. The interpretation of the impact significance is given in Part D.

PART A: DEFINITION AND CRITERIA*					
Definition of SIGNIFICANCE		Significance = consequence x probability			
Definition of CONSEQUENCE		Consequence is a function of severity, spatial extent and duration			
Criteria for ranking of the SEVERITY of environmental impacts	H	Substantial deterioration (death, illness or injury). Recommended level will often be violated. Vigorous community action.			
	M	Moderate/ measurable deterioration (discomfort). Recommended level will occasionally be violated. Widespread complaints.			
	L	Minor deterioration (nuisance or minor deterioration). Change not measurable/ will remain in the current range. Recommended level will never be violated. Sporadic complaints.			
	L+	Minor improvement. Change not measurable/ will remain in the current range. Recommended level will never be violated. Sporadic complaints.			
	M+	Moderate improvement. Will be within or better than the recommended level. No observed reaction.			
	H+	Substantial improvement. Will be within or better than the recommended level. Favourable publicity.			
Criteria for ranking the DURATION of impacts	L	Quickly reversible. Less than the project life. Short term			
	M	Reversible over time. Life of the project. Medium term			
	H	Permanent. Beyond closure. Long term.			
Criteria for ranking the SPATIAL SCALE of impacts	L	Localised - Within the site boundary.			
	M	Fairly widespread – Beyond the site boundary. Local			
	H	Widespread – Far beyond site boundary. Regional/ national			
PART B: DETERMINING CONSEQUENCE					
SEVERITY = L					
DURATION	Long term	H	Medium	Medium	Medium
	Medium term	M	Low	Low	Medium
	Short term	L	Low	Low	Medium
SEVERITY = M					
DURATION	Long term	H	Medium	High	High
	Medium term	M	Medium	Medium	High
	Short term	L	Low	Medium	Medium
SEVERITY = H					
DURATION	Long term	H	High	High	High
	Medium term	M	Medium	Medium	High
	Short term	L	Medium	Medium	High
			L	M	H
			Localised Within site boundary Site	Fairly widespread Beyond site boundary Local	Widespread Far beyond site boundary Regional/ national
SPATIAL SCALE					

PART C: DETERMINING SIGNIFICANCE					
PROBABILITY (of exposure to impacts)	Definite/ Continuous	H	Medium	Medium	High
	Possible/ frequent	M	Medium	Medium	High
	Unlikely/ seldom	L	Low	Low	Medium
			L	M	H
CONSEQUENCE					

PART D: INTERPRETATION OF SIGNIFICANCE	
Significance	Decision guideline
High	It would influence the decision regardless of any possible mitigation.
Medium	It should have an influence on the decision unless it is mitigated.
Low	It will not have an influence on the decision.

*H = high, M= medium and L= low and + denotes a positive impact.

6.3 METHODOLOGY FOR THE ASSESSMENT OF PROJECT ALTERNATIVES

6.3.1 ASSESSMENT OF THE “NO-GO OPTION”

The assessment of the implications of the “No-Go option” will require a high level comparison between the existing situation without the project and the possible future situation with the project, as assessed in the EIA and EMP report. This comparison will take existing and future impacts into account, including both positive and negative impacts.

6.3.2 ASSESSMENT OF PROJECT ALTERNATIVES

The realistic alternatives and associated assessment criteria for choosing between these alternatives have been discussed in Section 4 of the Scoping Report. The proposed methodology for the assessment of these alternatives is a relative comparison that also applies the assessment method described above to each of the listed assessment criteria, where possible.

6.4 ENGINEERING DESIGN

The existing TSF will be re-processed in accordance with the requirements of Regulation 73 of the Mineral and Petroleum Resources Development Act, 28 of 2002, and Regulation 704 of the National Water Act, 108 of 1998.

6.5 CLOSURE COST ESTIMATE

The PPM closure cost estimate will be updated and revised by SLR using the current DMR model.

6.6 PLAN OF STUDY FOR THE EIA PHASE

6.6.1 EIA PHASE OBJECTIVES

The main objectives of the EIA phase are to:

- assess project alternatives;
- assess the potential cultural, heritage, socio-economic and biophysical impacts of the project;
- identify and describe procedures and measures that will mitigate potential negative impacts and enhance potential positive impacts;
- liaise with IAPs including relevant government departments on issues relating to the proposed development to ensure compliance with existing guidelines and regulations;
- undertake consultations with IAPs and provide them with an opportunity to review and comment on the outcomes of the environmental assessment process and acceptability of mitigation measures;
- update the environmental management plan and a conceptual closure/decommissioning plan; and
- provide measures for on-going monitoring (including environmental audits) to ensure that the project plan and proposed mitigation measures are implemented as outlined in the detailed EIA and EMP report.

6.6.2 EIA PROJECT TEAM

The proposed EIA project team is outlined in the table below and is similar to the team used for the scoping phase with the inclusion of additional specialists.

TABLE 10: PROPOSED EIA TEAM

Team	Name	Designation	Tasks and roles	Company
Project management	Fiona Bolton	Project manager	Management of the assessment process and report compilation.	SLR
	Caitlin Hird	Project coordinator		
	Brandon Stobart	Project reviewer	Report and process review	
Specialist investigations	Paul Klimczak	Engineer and hydrologist	Hydrological specialist report	SLR
	Stephan Meyer	Groundwater specialist	Groundwater specialist study	AGES
	Brett Meyer	Geochemistry	Geochemical Analysis	Simulus Engineers to commission a laboratory in Australia
	Werner Neethling	Economic Land Use and Sustainability specialist	Economic Land Use and Sustainability report	Mercury Financial Consultants
	Renee Gruenewaldt	Air Quality specialist	Air Quality Impact Assessment	Airshed
		Noise specialist	Noise Impact Assessment	
	Graham Young	Visual specialist	Visual Impact Assessment	NLA
Paul van der Westhuizen	Traffic specialist	Traffic Impact Assessment	Siyazi	

Team	Name	Designation	Tasks and roles	Company
	Steve Van Niekerk	Closure engineer	Closure liability report	SLR
	Guy Wiid	Engineer	TSF design report	Epoch

6.6.3 EIA AND EMP PHASE ACTIVITIES AND TIMING

An overview of the EIA and EMP phase and corresponding activities are outlined in the table below.

TABLE 11: EIA AND EMP ACTIVITIES AND TIMING

Objectives	Corresponding activities and estimated dates
<i>Further investigations (October 2014– October 2015)</i>	
<ul style="list-style-type: none"> Describe the affected environment Define potential impacts Give management and monitoring recommendations 	<ul style="list-style-type: none"> Investigations by technical project team and SLR of issues identified during the scoping stage including investigations into alternatives.
<i>EIA and EMP phase (June 2015 – May 2016)</i>	
<ul style="list-style-type: none"> Assessment of potential environmental impacts Design requirements and management and mitigation measures Receive feedback on application 	<ul style="list-style-type: none"> Compilation of draft EIA and EMP report (August – December 2015). Distribute draft EIA and EMP report to IAPs, DMR and other regulatory authorities for review (January 2016) Feedback meetings (if required) (March 2016). Record comments (March 2016) Forward IAP comments to DMR and submit final report to DREAD (April 2016) Notify IAPs of the availability of the final EIA and EMP report Circulate record of decisions to all registered IAPs (last quarter of 2016).

6.6.4 STAGES OF CONSULTATION WITH THE COMPETENT AUTHORITY IN EIA PHASE

Proposed consultation meetings for the EIA phase include:

- a site visit with DREAD, DWS, DMR, DAFF, DEA and DRDLR (if requested); and
- a general authorities meeting at the end of the EIA phase to present the main findings of the EIA prior to submission of the EIA and EMP report if requested.

6.6.5 PUBLIC INVOLVEMENT PROCESS IN EIA PHASE

The proposed public involvement process can be separated into focussed and general involvement. Each of these is described below:

Focussed involvement

As part of the various investigations that form part of the EIA tasks, focussed meetings with certain IAPs will be held if required. These meetings will be arranged and facilitated by SLR.

General involvement

As with the Scoping Report, full copies of the EIA and EMP report will be distributed to the agreed venues and summaries will be distributed to registered IAPs. Full copies of the report will also be provided electronically (on a CD) on request.


At the end of the review period, public feedback sessions can be arranged if required.

All comments received from IAPs in the review period will be forwarded to the DMR and DREAD.

Once the DMR and DREAD have issued their respective decisions, the IAPs will be notified by e-mail, and post in accordance with the instructions from the relevant departments.

7 IDENTIFICATION OF THE REPORT

Herewith I, the person whose name and identity number is stated below, confirm that I am the person authorised to act as representative of the applicant in terms of the resolution submitted with the application, and confirm that the above report comprises the results of consultation as contemplated in Section 16 (4) (b) or 27 (5) (b) of the Act as the case may be

Full names and surname	Dean Patrick O'Raine Riley
Identity number	6203175139082
Signature	

8 SUMMARY AND CONCLUSIONS

The scoping phase of the EIA catering for the proposed project at PPM is almost complete. The way forward for the remainder of the scoping phase is as follows:

- distribute the Scoping Report and a summary thereof for review by the IAPs, the DMR and other regulatory authorities;
- submit a copy of the Scoping Report that went out for public review to DREAD for their records;
- receive comments from IAPs and other regulatory authorities;
- following the IAP review process, five copies of the final Scoping Report (with comments) will be forwarded by SLR to DREAD. It is then expected that the Scoping Report will be distributed internally by DREAD for review and comment; and
- Receive comments from DREAD and DMR and address in EIA phase.


The potential impacts identified in this Scoping Report will be investigated by SLR and various studies to be conducted in the next phase of the EIA.



Caitlin Hird
Project coordinator



Fiona Bolton
Project Manager



Brandon Stobart
Reviewer

9 REFERENCES

AGES, January 2011: *PPM Tuschenkomst Open Pit Operational Study*

AGES, November 2011: *PPM Amendment-Extended Tuschenkomst Pit Post Operational*

AGES, March 2013: *Magazynskraal/Sedibelo Hydrological Study*

Airshed Planning Professionals, March 2013: *Air Quality Impact Assessment for the proposed Tuschenkomst pit extension and surface infrastructure project*

DHI (for AGES), November 2010: *Surface Water Hydrological analysis determining the surface water contributions to the mine pit in the Bierspruit River catchment*

ESS, November 2011: *PPM Tuschenkomst Pit Extension Specialist Soils and Land Capability Assessment*

ESS, January 2013: *Magazynskraal PGM Project Specialist Soils and Land Capability Baseline Study, Environment Impact Assessment and Environmental Management Plan*

MTS, December 2012: *PPM, IBMR and Richtrau No 123 Socio-economic impact assessment.*

NLA, November 2013: *PPM proposed Tuschenkomst Pit Extension and Surface Infrastructure, PPM Mine, Bojanala District Municipality, North West Province*

NSS, April 2014: *Tuschenkomst Pit Extension and Road Diversion (Ecological Scan)*

Pistorius Julius, June 2006: *A Phase 1 Heritage Impact Assessment for the PPM new proposed mining areas near the Pilanesberg in the North West Province*

Pistorius Julius, October 2011: *A phase 1 Heritage Impact Assessment for a combined platinum mining operation near the Pilanesberg in the North West Province: The PPM Tuschenkomst Pit Extension*

Rubidge, July 2011: *BPI for the Pilanesberg amendment of the closure objectives and community water supply infrastructure adjacent to the Tuschenkomst open pit development*

**APPENDIX A: PROOF OF NEMA APPLICATION AND PROOF OF DREAD (PREVIOUSLY DEDECT)
ACCEPTANCE OF APPLICATION**

APPENDIX B: DOCUMENTATION AND PROOF OF THE CONSULTATION PROCESS

- Proof of landowner notification
- Advertisements
- Site notice in English and Setswana, and photographs showing the placement of site notices
- Background Information Document
- Minutes of meeting with the BBKTA –held on 19 March 2014
- Minutes of public scoping meetings held with communities between the 7 and 11 April 2014
- Minutes of authorities scoping meeting held on 21 May 2014
- Minutes of meeting held with Black Rhino Game Reserve on 7 April 2014
- Minutes of meeting held with Federation for Sustainable Environment (FSE)
- Signed public and authorities scoping meeting attendance registers (available on request)
- Correspondence with relevant authorities
- Scoping Report summary

APPENDIX C: IAP DATABASE

APPENDIX D: ISSUES AND CONCERNS REPORT

RECORD OF REPORT DISTRIBUTION

Project Number:	710.16002.00026
Title:	PPM plant expansion and re-processing of the existing tailings storage facility
Report Number:	1
Proponent:	Pilanesberg Platinum Mines

Name	Entity	Copy No.	Date issued	Issuer
Phumudzo Nethwadzi	Department of Mineral Resources	1-7	May 2015	F Bolton
Jacqueline Nkosi	Department of Agriculture, Land Reform and Rural Development	8	May 2015	F Bolton
Caroline Shai	Department of Water and Sanitation	9	May 2015	F Bolton
Piet Theron	Department of Agriculture, Forestry and Fisheries	10	May 2015	F Bolton
Hennie Niehaus	Department of Public Works, Roads and Transport	11	May 2015	F Bolton
Andrew Saloman	South African Heritage Resources Agency	12	May 2015	F Bolton
KP Pilane	Bakgatla-ba-Kgafela offices in Saulspoort	13	May 2015	F Bolton
Sharon Rasepae	Moses Kotane Local Municipality in Saulspoort	14-15	May 2015	F Bolton
Thami Matshego	Bojanala Platinum District Municipality	16	May 2015	F Bolton
Johnson Maoka	North West Parks and Tourism Board	17	May 2015	F Bolton
Moremi Lesejane	Heritage Park	18	May 2015	F Bolton
Chris Basson	Black Rhino Game Reserve	19	May 2015	F Bolton
Mariette Lieferink	Federation for Sustainable Environment	20	May 2015	F Bolton
Librarian	Rustenburg Public Library	21	May 2015	F Bolton
Librarian	SLR's offices in Johannesburg	22	May 2015	F Bolton
Peter Lentsoane	Pilanesberg Platinum Mines (Pty) Ltd	23	May 2015	F Bolton
Grace Maledu	Lesetheng Community	24	May 2015	F Bolton
Mac Deatswana	Lekgraal/Bofule Community	25	May 2015	F Bolton
Moses Mankgethi	Ramasedi Community	26	May 2015	F Bolton
Meme Moeng	Ntswana-le-Metsing Community	27	May 2015	F Bolton
Kgosana Tlhabane Pilane	Mothabe Community	28	May 2015	F Bolton
Marks Mweletsi	Ngweding Community	29	May 2015	F Bolton
Masuku Mathithibala	Magalane Community	30	May 2015	F Bolton
Councillor Leoto	Magong Community	31	May 2015	F Bolton
Dan Segale	Lesobeng Community	32	May 2015	F Bolton
Thabo Eric Pilane	Lekutung Community	33	May 2015	F Bolton
Livhuwani Kutame	North West Department of Rural, Environment and Agricultural Development	34	May 2015	F Bolton
	Department of Environmental Affairs: Air Quality Directorate	35	May 2015	F Bolton

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